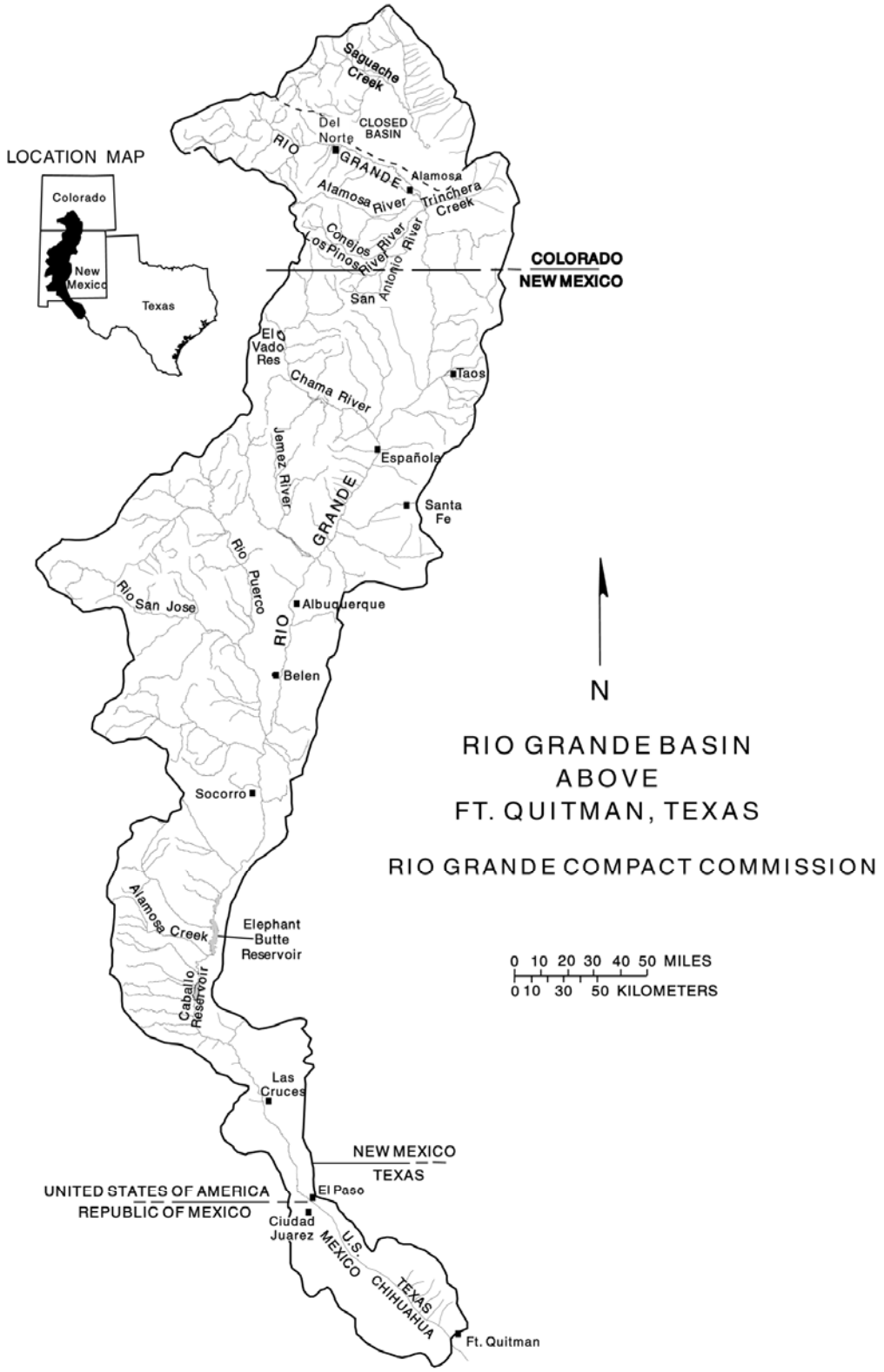
REPORT

of the

RIO GRANDE COMPACT COMMISSION

2010

TO THE GOVERNORS OF
Colorado, New Mexico and Texas


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

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RIO GRANDE COMPACT COMMISSION
COLORADO TEXAS NEW MEXICO

March 30, 2011

The Honorable Susana Martinez
Governor of the State of New Mexico
Santa Fe, New Mexico

The Honorable Rick Perry
Governor of the State of Texas
Austin, Texas

The Honorable John W. Hickenlooper
Governor of the State of Colorado
Denver, Colorado

Honorable Governors:

The 72nd Annual Meeting of the Rio Grande Compact Commission was held in Albuquerque, New Mexico on March 30, 2011.

The Commission reviewed its prior reports and the current reports of the Secretary and the Engineer Advisers relative to streamflow at Compact gaging stations and storage in reservoirs in 2010. The Commission found that:

(a) Deliveries of water at the Colorado-New Mexico state line by Colorado amounted to 229,500 acre-feet plus a credit of 10,000 acre-feet as specified by the Compact for a total calculated delivery of 239,500 acre-feet in 2010. The scheduled delivery for the year was 237,500 acre-feet.
(b) Deliveries of water into Elephant Butte Reservoir by New Mexico, as measured by the Elephant Butte Effective Supply, amounted to 620,400 acre-feet in 2010 and the scheduled delivery for the year was 535,400 acre-feet.
(c) The actual release of usable water from Project Storage was 661,200 acre-feet.[1]

The Commission agreed to the accounting of accrued credits for 2010, as follows:

(1) The Commissioners found that the accrued credit for deliveries by Colorado at the Colorado-New Mexico State Line was 2,700 acre-feet on January 1, 2011.

The Honorable Susana Martinez
The Honorable Rick Perry
The Honorable John W. Hickenlooper
March 30, 2011
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(2) The Commissioners found that the accrued credit for deliveries by New Mexico at Elephant Butte Dam was 164,700 acre-feet on January 1, 2011.

(3) The Commissioners found that the accrued departure from normal release from Project Storage as of January 1, 2011 was a credit of 1,115,800 acre-feet.

The Commission reviewed the cost of operation and found that the expenses of the administration of the Rio Grande Compact were $186,462 in the fiscal year ending June 30, 2010. The United States bore $54,334 of this total; the balance of $132,129 was borne equally by the three States party to the Compact.

Respectfully,

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

Patrick R. Gordon, Commissioner for Texas

Dick Wolfe, Commissioner for Colorado

[1] This is a preliminary value. Due to concerns about the accuracy of the data, a final value for the release of usable water from project storage has not yet been approved by all compact states.

RECORDS OF DELIVERIES AND RELEASES

At the annual meeting of the Compact Commission on March 30, 2011 the records of deliveries and releases and computations of debits and credits for calendar year 2010 were reported. The records and computations as approved by the Commission are reproduced on the next three pages.

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

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

The actual release from Project Storage during the year was measured at gaging stations below Caballo Dam. During 2010 the Commissioners found that the actual release of usable water was 661,200 acre-feet[1]. This resulted in an accrued credit of 1,115,800 acre-feet as of January 1, 2011.

[1] This is a preliminary value. Due to concerns about the accuracy of the data, a final value for the release of usable water from project storage has not yet been approved by all compact states.

RIO GRANDE COMPACT - DELIVERIES BY COLORADO AT STATE LINE
YEAR 2010

Quantities in thousands of acre feet to nearest hundred

MONTH	CONEJOS INDEX SUPPLY										RIO GRANDE INDEX SUPPLY								DELIVERIES			
	MEASURED FLOW				ADJUSTMENTS				SUPPLY			ADJUSTMENTS					SUPPLY					
	CONEJOS AT MOGOTE	LOS PINOS NEAR ORTIZ	SAN ANTONIO AT ORTIZ	TOTAL	STORAGE AT END OF MONTH	CHANGE IN STORAGE [c]	OTHER ADJUSTMENTS	NET ADJUSTMENTS	SUPPLY IN MONTH	ACCUMULATED TOTAL	RECORDED FLOW NEAR DEL NORTE	STORAGE AT END OF MONTH	CHANGE IN STORAGE	TRANSMOUNTIAN DIVERSIONS [b]	OTHER ADJUSTMENTS [a]	NET ADJUSTMENTS	SUPPLY IN MONTH	ACCUMULATED TOTAL	CONEJOS RIVER AT MOUTH NEAR LASAUCES	RIO GRANDE LESS CONEJOS RIVER	RIO GRANDE AT LOBATOS	ACCUMULATED TOTAL AT LOBATOS
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	---	---	---	---	26.5	---	---	---	---	0.0	---	0.2	---	---	---	---	---	0.0	---	---	---	0.0
JAN	2.6	---	---	2.6	26.8	0.3		0.3	2.9	2.9	8.9	0.2	0.0			0.0	8.9	8.9	3.6	11.4	15.0	15.0
FEB	2.8	---	---	2.8	27.0	0.2		0.2	3.0	5.9	8.4	0.2	0.0			0.0	8.4	17.3	4.0	11.8	15.8	30.8
MAR	4.1	---	---	4.1	27.1	0.1		0.1	4.2	10.1	17.1	0.2	0.0			0.0	17.1	34.4	6.6	22.2	28.8	59.6
APR	22.7	16.8	11.6	51.1	27.1	0.0		0.0	51.1	61.2	74.0	0.2	0.0			0.0	74.0	108.4	31.8	16.7	48.5	108.1
MAY	63.1	38.4	6.8	108.3	34.5	7.4	0.1	7.5	115.8	177.0	172.9	0.2	0.0			0.0	172.9	281.3	25.6	16.2	41.8	149.9
JUN	50.2	12.5	0.4	63.1	43.5	9.0	0.2	9.2	72.3	249.3	122.3	0.2	0.0			0.0	122.3	403.6	11.6	21.1	32.7	182.6
JUL	18.4	1.9	0.0	20.3	33.3	-10.2	0.1	-10.1	10.2	259.5	27	0.2	0.0	-1.2	0.3	-0.9	26.1	429.7	0.4	4.5	4.9	187.5
AUG	12.4	1.2	0.0	13.6	26.2	-7.1	0.1	-7.0	6.6	266.1	32.2	0.2	0.0			0.0	32.2	461.9	0.0	2.5	2.5	190.0
SEPT	12.3	1.0	0.0	13.3	18.0	-8.2	0.1	-8.1	5.2	271.3	24.7	0.2	0.0			0.0	24.7	486.6	0.0	2.1	2.1	192.1
OCT	4.4	1.0	0.1	5.5	17.8	-0.2	0.1	-0.1	5.4	276.7	24.2	0.2	0.0			0.0	24.2	510.8	0.0	3.1	3.1	195.2
NOV	2.6		---	2.6	18.2	0.4	0.1	0.5	3.1	279.8	15.1	0.2	0.0			0.0	15.1	525.9	0.6	15.2	15.8	211.0
DEC	2.8	---	---	2.8	18.5	0.3		0.3	3.1	282.9	12.6	0.2	0.0			0.0	12.6	538.5	2.8	15.7	18.5	229.5
YEAR	198.4	72.8	18.9	290.1	---	-8.0	0.8	-7.2	282.9	---	539.4	---	0.0	-1.2	0.3	-0.9	538.5	---	87.0	142.5	229.5	---

Remarks: Cols. 6 and 13 do not include transmountain water.
[a] Evaporation loss post-compact reservoirs; report of the Engineer Adviser for Colorado.
[b] 1471 ac-ft minus 243 ac-ft pre-compact; report of the Engineer Adviser for Colorado.
[c] See Engineer Adviser report in regards to change of storage.

SUMMARY OF DEBITS AND CREDITS

	ITEM	DEBIT	CREDIT	BALANCE
C1	Balance at Beginning of Year	---	---	Cr. 1.5
C2	Scheduled Delivery from Conejos River	97.4	---	Dr. 95.9
C3	Scheduled Delivery from Rio Grande	140.1	---	Dr. 236.0
C4	Actual Delivery at Lobatos plus 10,000 Acre Feet	---	239.5	Cr. 3.5
C5	Reduction of Debits o/c Evaporation	---		
C6	Reduction of Credits o/c Evaporation	0.1	---	Cr. 3.4
C7	Accrued credit relinquished to project storage on Feb. 28, 2010.	0.7		
C8	Balance at End of Year	---	---	Cr. 2.7

APPROVED:
Engineer Adviser for Colorado CWC Date: 3/8/11 Engineer Adviser for New Mexico RSP Date: 3/8/11 Engineer Adviser for Texas HRS 3/8/11 Date: _____

RIO GRANDE COMPACT - DELIVERIES BY NEW MEXICO AT ELEPHANT BUTTE
YEAR 2010

Quantities in thousands of acre feet to nearest hundred

MONTH	OTOWI INDEX SUPPLY									Total Water Stored in New Mexico Above San Marcial at End of Month [a, b]	ELEPHANT BUTTE EFFECTIVE SUPPLY				
		ADJUSTMENTS						INDEX SUPPLY			STORAGE IN ELEPHANT BUTTE RESERVOIR			Effective Supply	
		RESERVOIRS: LOBATOS TO OTOWI													
	Recorded Flow at Otowi Bridge	Storage End of Month [a, b]	Change in Storage	Reservoir Evaporation	Other Adjustments	Trans-mountain Diversions	Net Adjustments	During Month	Accumulated Total		End of Month [a]	Change Gain (+) Loss (-)	Recorded Flow Below Elephant Butte Dam	During Month	Accumulated Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	---------	55.9	---------	---------	---------	---------	---------	---------	---------	56.2	474.7	---------	---------	---------	---------
JAN	43.0	55.9	0.3	0.0		-4.6	-4.3	38.7	38.7	55.8	515.9	41.2	0.8	42.0	42.0
FEB	38.1	56.2	2.5	0.0		-1.6	0.9	39.0	77.7	56.2	521.4	5.5	39.3	44.8	86.8
MAR	63.9	58.7	25.5	0.0		-1.7	23.8	87.7	165.4	59.0	495.2	-26.2	75.7	49.5	136.3
APR	187.2	84.2	47.7	0.5		-1.6	46.6	233.8	399.2	107.8	497.5	2.3	116.4	118.7	255.0
MAY	218.3	131.9	2.4	0.9		-15.1	-11.8	206.5	605.7	132.3	549.8	52.3	92.9	145.2	400.2
JUN	121.6	134.3	-29.6	1.1		-17.7	-46.2	75.4	681.1	135.8	469.6	-80.2	134.9	54.7	454.9
JUL	72.1	104.7	-23.3	0.5		-9.2	-32.0	40.1	721.2	106.1	384.0	-85.6	122.8	37.2	492.1
AUG	60.0	81.4	-32.9	0.3		-4.3	-36.9	23.1	744.3	81.4	323.4	-60.6	104.6	44.0	536.1
SEPT	54.2	48.5	-6.1	0.3		-6.2	-12.0	42.2	786.5	48.4	306.9	-16.5	32.4	15.9	552.0
OCT	36.7	42.4	-1.0	0.2		-10.2	-11.0	25.7	812.2	42.7	313.9	7.0	1.0	8.0	560.0
NOV	37.4	41.4	-1.0	0.1		-1.6	-2.5	34.9	847.1	41.2	334.8	20.9	0.7	21.6	581.6
DEC	51.6	44.5	3.1	0.2		-11.3	-8.0	43.6	890.7	44.7	372.9	38.1	0.7	38.8	620.4
YEAR	984.1	---------	-12.4	4.1		-85.1	-93.4	890.7	---------	---------	---------	-101.8	722.2	620.4	---------

Remarks:

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

[b] Note: Storage in Abiquiu, El Vado, McClure and Nichols Reservoirs under the April 23, 2003, the February 1, 2008 and May 15, 2010 agreements for relinquishment of accrued credits totaled 33 acre-feet in 2010. Storage of relinquished credit to date totals 154,257 acre-feet; balance remaining is 226,243 acre-feet.

SUMMARY OF DEBITS AND CREDITS

	ITEM	DEBIT	CREDIT	BALANCE
NM1	Balance at Beginning of Year	---------	---------	Cr. 180.5
NM2	Scheduled Delivery at Elephant Butte	535.4	---------	Dr.354.9
NM3	Actual Elephant Butte Effective Supply	---------	620.4	Cr.265.5
NM4	Reduction of Debits o/c Evaporation	---------		
NM5	Reduction of Credits o/c Evaporation and Spill	20.8	---------	Cr.244.7
NM6	NM Accrued Credit relinquished to project storage May 15, 2010	80.0	---------	
NM7				
NM8	Balance at End of Year	---------	---------	Cr. 164.7

APPROVED:
Engineer Adviser for Colorado CwC Date: 3/8/11 Engineer Adviser for New Mexico RSP Date: 3/8/11 Engineer Adviser for Texas HRS Date: 3/8/11

RIO GRANDE COMPACT - RELEASE AND SPILL FROM PROJECT STORAGE
YEAR 2010

Quantities in thousands of acre feet to nearest hundred

MONTH	[a]Total Project Storage Capacity Available at End of Month	USABLE WATER IN STORAGE			Unfilled Capacity of Project Storage at End of Month	CREDIT WATER IN STORAGE			Flood Water in Storage in Caballo Reservoir at End of Month	Total Water in Project Storage at End of Month	RIO GRANDE BELOW CABALLO DAM							
		Elephant Butte Reservoir	Caballo Reservoir	Total at End of Month		[c]Colorado Credit Water	[c]New Mexico Credit Water	Total at End of Month			Measured Flow at Caballo Gaging Station	Intervening Diversions to Canals	Total Release and Spill	SPILL FROM STORAGE			USABLE RELEASE	
														Caballo Flood Water	Credit Water	Usable Water	Net During Month	Accumulated Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	2,225.0	[b]292.7	29.5	[b]322.2	1,902.8	[b]1.5	[b]180.5	[b]182.0		504.2	--------	--------	--------	--------	--------	--------	--------	
JAN	2,225.0	333.9	31.6	365.5	1,859.5	1.5	180.5	182.0		547.5	0	0.0	-				0.0	-
FEB	2,225.0	339.4	61.8	401.2	1,823.8	1.5	180.5	182.0		583.2	0.0	0.1	0.1				0.1	0.1
MAR	2,225.0	313.2	57.4	370.6	1,854.4	0.8	180.5	181.3		552.6	68.2	0.1	68.3				68.3	68.4
APR	2,200.0	315.5	71.6	387.1	1,812.9	0.8	180.5	181.3		569.1	91.7	0.0	91.7				91.7	160.1
MAY	2,200.0	367.8	58.3	426.1	1,773.9	0.8	100.5	101.3		608.1	89.7	0.1	89.8				89.8	249.9
JUN	2,200.0	287.6	52.9	340.5	1,859.5	0.8	100.5	101.3		522.5	128.1	0.2	128.3				128.3	378.2
JUL	2,200.0	202.0	60.8	262.8	1,937.2	0.8	100.5	101.3		444.8	110.1	0.1	110.2				110.2	488.4
AUG	2,200.0	141.4	39.4	180.8	2,019.2	0.8	100.5	101.3		362.8	117.8	0.1	117.9				117.9	606.3
SEPT	2,200.0	124.9	21.4	146.3	2,053.7	0.8	100.5	101.3		328.3	48.8	0.1	48.9				48.9	655.2
OCT	2,225.0	131.9	18.4	150.3	2,074.7	0.8	100.5	101.3		332.3	5.8	0.0	5.8				5.8	661.0
NOV	2,225.0	152.8	20.0	172.8	2,052.2	0.8	100.5	101.3		354.8	0.1	0.0	0.1				0.1	661.1
DEC	2,225.0	190.9	22.0	212.9	2,012.1	0.8	100.5	101.3		394.9	0.1	0.0	0.1				0.1	661.2
YEAR	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	660.4	0.8	661.2	0.0	0.0	0.0	661.2	--------

Remarks: Cols. 2, 6 and 11 reflect implementation of revised area-capacity tables from Elephant Butte and Caballo Reservoirs, effective Jan 1, 2009

[a] Project Storage Capacity is 2,200,030 acre-feet (April to September) and 2,225,030 acre-feet (October to March) as recognized by the September 9, 1998 Resolution of the Rio Grande Compact Commission with flood control storage reservation at Elephant Butte Reservoir of 50,000 acre-feet from April through September and 25,000 acre-feet from October through March.

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

[c] Credit water held constant per direction of Compact Commission in March 2006. Evaporation for credit water is accounted at end of calendar year.

ACCRUED DEPARTURE FROM NORMAL RELEASE

	ITEM	DEBIT	CREDIT	BALANCE
P1	Accrued Departure at Beginning of Year	---------	---------	Cr 987.0
P2	Actual Release during Year	661.2	---------	Cr. 325.8
P3	Normal Release for Year	---------	790.0	Cr. 1115.8
P4	Under Release in Excess of 150.0	NA	---------	
P5		---------		
P6				
P7	Accrued Departure at End of Year	---------	---------	Cr. 1115.8

TIME OF HYPOTHETICAL SPILL Did not occur

APPROVED:
Engineer Adviser for Colorado_____ Date: _____ Engineer Adviser for New Mexico _____ Date: _____ Engineer Adviser for Texas _____ Date: 3/8/11

REPORT OF THE ENGINEER ADVISERS TO THE RIO GRANDE COMPACT COMMISSION

February 25, 2011

The Engineer Advisers to the Rio Grande Compact Commission met in Albuquerque on November 3 and 4, 2010, in Santa Fe and Albuquerque, New Mexico from February 21 through 25, 2011, and then again in Albuquerque on March 8, 2011, to prepare the 2010 Rio Grande Compact (Compact) water accounting, discuss continuing and new issues in preparation for the 2011, annual meeting of the Rio Grande Compact Commission (Commission) and prepare this report. The Engineer Advisers requested and received the participation of the U.S. Geological Survey (USGS), the U.S. Bureau of Reclamation (Reclamation), the U.S. Army Corps of Engineers (Corps), the U.S. Bureau of Indian Affairs (BIA), the International Boundary and Water Commission (IBWC), and the U.S. Fish and Wildlife Service (Service) to discuss in detail their specific water-related activities in the basin. In addition, the Engineer Advisers heard a presentation from the Center for Snow and Avalanche Studies, Colorado Dust on Snow Program.

COMPACT ACCOUNTING

The Engineer Advisers have reviewed the streamflow and reservoir storage records and other pertinent data for calendar year 2010. As determined by the Engineer Advisers, scheduled and actual deliveries, release of Usable Water for the year 2010, and balances as of January 1, 2011, are as follows:

(a) Deliveries by Colorado at the State line:

Balance as of January 1, 2010	1,500 acre-feet
Scheduled delivery	237,500 acre-feet
Actual delivery at Lobatos plus 10,000 acre-feet	239,500 acre-feet
Reduction of credit on account of evaporation	100 acre-feet
Accrued credit relinquishment to project storage on February 28, 2010	700 acre-feet
Accrued credit January 1, 2011	2,700 acre-feet

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

Balance as of January 1, 2010	180,500 acre-feet
Scheduled delivery	535,400 acre-feet
Actual delivery	620,400 acre-feet
Reduction of credit on account of evaporation	20,800 acre-feet
Accrued credit relinquishment to project storage on May 15, 2010	80,000 acre-feet
Accrued credit January 1, 2011	164,700 acre-feet

(c) Project Storage and Releases:

Accrued departure (credit) as of January 1, 2010	987,000 acre-feet
Actual release of Usable Water[1]	661,200 acre-feet
Normal release for year	790,000 acre-feet
Accrued departure (credit) as of January 1, 2011	1,115,800 acre-feet

[1]Value reported by U.S. Bureau of Reclamation. The data provided is under review and the accounting for the release has not been finalized. See Gaging Station Review section of this report.

Snowmelt runoff levels in 2010 were slightly below average in most of the basin in Colorado and New Mexico. Summer monsoon activity was average to below average throughout most of the basin. Usable Water in Project Storage was below the Article VII trigger of 400,000 acre-feet on January 1, 2010 and stayed below that level until February 28, 2010. Usable water remained above 400,000 acre-feet between February 28, 2010 and March 15, 2010. Usable Water in Project Storage was below 400,000 acre-feet between March 16, 2010 and May 8, 2010, then remained above 400,000 acre-feet between May 9, 2010 and July 7, 2010. Beginning on July 8, 2010, Article VII was in effect for the duration of 2010. Platoro Reservoir reached 92 percent of capacity in mid-June 2010. El Vado Reservoir was filled to capacity in early June. Flood control storage in Abiquiu Reservoir began in early April, peaking on May 1, 2010 at 19,712 acre-feet. Flood control storage was evacuated from Abiquiu by the end of May 2010. Cochiti Reservoir also stored 29,100 acre-feet during May for a managed deviation for downstream habitat and endangered species benefit. The San Juan-Chama Project (SJCP) delivered about 89,000 acre-feet through the Azotea Tunnel into the Rio Grande basin in 2010.

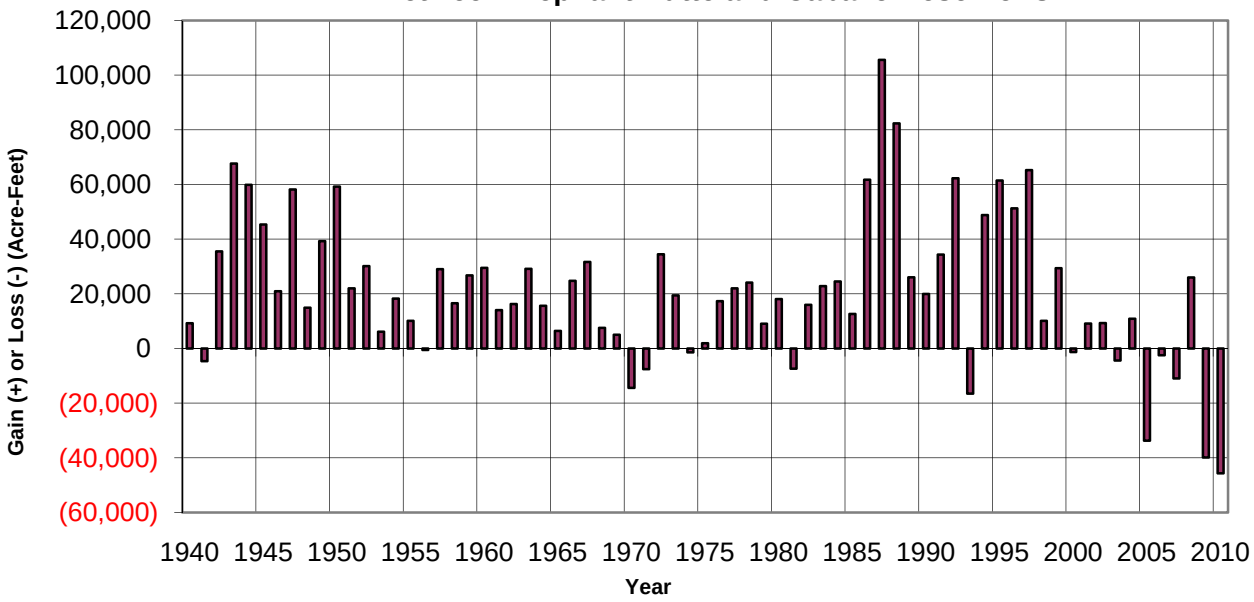
CONTINUING ISSUES

This section of the report summarizes issues previously addressed by the Engineer Advisers or the Commission. It reflects information obtained by the Engineer Advisers subsequent to the 2010 Commission meeting, including information obtained in the reports of the federal agencies at meetings with the Engineer Advisers.

Gaging Station Review

The Engineer Advisers continued to monitor the water balance and gage records between Elephant Butte and Caballo reservoirs. The apparent discrepancy in the mass balance continued during 2010 and showed a calculated loss between the reservoirs of approximately 45,000 acre-feet. The mass balance relationship between Elephant Butte and Caballo dams appears to have changed significantly since about 2005 suggesting the reach is now losing water when in the past it regularly gained water (See Figure 1). Analysis of the historical data from 1940 through 2004 shows that, in general, the reach gained water during most of those 65 years. Only nine (9) of the years showed a calculated loss: six of the nine were less than 10,000 acre-feet and in no year did the loss exceed 20,000 acre-feet. Five of the six years since 2005 have shown calculated losses and three of those years exceeded 35,000 acre-feet.

Figure 1. Annual Gain (+) and Loss (-) Between Elephant Butte and Caballo Reservoirs



Under Article II of the Rio Grande Compact, gaging stations listed in the Article (including the Rio Grande below Elephant Butte and Rio Grande below Caballo gages) "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." Accurate measurements and calculations are required for several reasons:

1) to make determinations of Usable Water ,
2) to initiate Rio Grande Compact Articles VII and VIII provisions,
3) to allocate Usable Water to Rio Grande Project users.
4) to determine Colorado and New Mexico's compact compliance, and
5) to determine the release of Usable Water from Project Storage, which has potential future hypothetical spill implications.

To date, based upon information received through requests and direction from the Rio Grande Compact Commission to the Secretary, the USGS, and Reclamation, the Engineer Advisers believe they have excluded all of the mass balance components except the Caballo gage record from being a primary source of the discrepancy. The USGS gage record for the Rio Grande below Elephant Butte has been reviewed and appears to provide an accurate annual volume within the bounds of the standard USGS measurement methodology. The measurement methodology has been generally consistent through time and the record is field checked and undergoes rigorous quality assurance and quality control.

During the past three years, the USGS conducted three seepage runs along the river reach between Elephant Butte Dam and the headwaters of Caballo Reservoir. Results of these seepage runs indicated that there was no significant loss between the gage below Elephant Butte Reservoir and the headwaters of Caballo Reservoir. Additionally, the NMISC has surveyed water level elevations at Caballo Reservoir for the past few years and compared the results with Reclamation's data. While the surveyed elevation at the end of 2010 was higher than the recorded elevation by 0.13 ft (i.e., recorded elevation under estimated the storage by about 300 acre-feet), the discrepancy in the measurement is negligible.

Prior to the 2010 Engineer Adviser meeting, the Engineer Advisers requested the raw and manual measurement data for both the Rio Grande below Elephant Butte and Rio Grande below Caballo gages. The USGS record for the gage below Elephant Butte was available for review by the Engineer Advisers prior to the Engineer Adviser meeting. The USGS gave a presentation on the process they used to finalize the data, and the Engineer Advisers concluded that the annual volume calculated based on the Rio Grande below Elephant Butte gage appeared acceptable, and that the USGS adequately addressed complicating issues such as the growth of algae during irrigation season. To provide additional confidence in the gage record, the Engineer Advisers recommended and the USGS and Reclamation agreed to conduct simultaneous flow measurements for several fixed releases from Elephant Butte Reservoir during the spring and fall of 2011 to cover the range of normal gage stages.

At the Engineer Adviser meeting, Reclamation provided much, but not all, of the data needed to evaluate the Rio Grande below Caballo gage. The Engineer Advisers held a separate meeting on March 8, 2011 to address the Caballo gage record but they were unable to complete evaluation of the record due to a discrepancy between the chart recorder record and shaft encoder record for 2010. Reclamation and the USGS indicated they would work collaboratively to address the discrepancy.

Although the 2010 record for Rio Grande below Caballo gage may be determined to be acceptable once the gage record review is complete, there are several reasons the record needs further evaluation to provide assurances to the Engineer Advisers that it is reliable:

1) the lack of documentation by Reclamation of the gaging methodology, including changes to the methodology over the past five years,
2) the lack of documented quality assurance and quality control, including the lack of review by an independent internal reviewer or outside agency or office, as normally occurs with the other compact gaging station records,
3) the lack of transparency and availability of data and analysis,
4) the apparent non-use of the ADVM purchased, in large part, by the Rio Grande Compact Commission parties and

5) the inability, during the January to March 2011 time frame, to resolve the chart recorder/shaft encoder issue.

For the above reasons, and given the limited response by Reclamation to the Rio Grande Compact Commission requests in 2007 and 2009 related to the Rio Grande below Caballo gage record; the Colorado and New Mexico Engineer Advisers did not sign the Rio Grande Compact – Release and Spill from Rio Grande Project Storage Year 2010 accounting sheet. The Colorado and New Mexico Engineer Advisers maintain that the record for the Rio Grande below Caballo gage cannot be considered reliable until the problems identified by the Engineer Advisers have been resolved. The Texas Engineer Adviser is also concerned about the methods and documentation used to develop the records. The Texas Engineer Adviser signed the accounting sheet because he was not provided sufficient information to indicate the data was incorrect.

In a continuing effort to resolve the discrepancy and in accordance with Article II of the Rio Grande Compact and the Rules and Regulations for Administration of the Rio Grande Compact, the Engineer Advisers recommend that the Commission direct and/or request the following:

1) That the USGS and Reclamation cooperate to conduct discharge measurements at the Rio Grande below Elephant Butte gage this spring and fall for the normal range of stages experienced at the gage;
2) That the State of New Mexico and Reclamation continue to cooperate to verify reservoir stage at Caballo Reservoir during 2011 and 2012;
3) That Reclamation thoroughly document the procedures used to develop the gage record at the Rio Grande below Caballo gage including quality assurance, quality control, and data accessibility and provide a report to the Engineer Advisers for review by September 30, 2011;
4) That Reclamation replace the F type chart recorder at the Rio Grande below Caballo gage with an A type chart recorder or a second digital device such as a digital data recorder, and use the F type recorder only as a second back-up if needed;
5) That Reclamation use the measurement data being collected during the current (March 2011) stable release from Caballo Reservoir and evaluate the measured data with the Caballo gage data. The comparison should be reported to the Engineer Advisers by May 1, 2011; and
6) That the USGS take regular discharge measurements at both the Rio Grande below Elephant Butte gage and Rio Grande below Caballo gage during the 2011 irrigation

season (approximately once every two weeks and for a range of stages) and throughout the 2012 irrigation season, report the results to and coordinate with the Engineer Advisers, develop a shift relationship, and report gaged release volumes.

Zebra Mussels/Quagga Mussels

The Engineer Advisers continue to be concerned about the recent infestation of Zebra and Quagga mussels in several locations of Colorado and other neighboring states, and the possibility that waters of the Upper Rio Grande basin may soon be infested. Currently, neither species has been found in the Rio Grande Basin in either Colorado or New Mexico. Due to the concern that the mussels will spread and cause widespread impacts to infrastructure and water facilities within the Basin, Reclamation has been involved in public education and outreach, as well as monitoring at Elephant Butte and other reservoirs. Reclamation has purchased and operates decontamination units to help control the spread of the mussels. Federal and state agencies are currently working to prevent the spread of the mussels.

Federal Agencies' Efforts towards a New Middle Rio Grande Biological Opinion

The federal agencies' plans for development and completion of a new middle Rio Grande biological opinion have changed in the past year. The Corps plans to submit a biological assessment for its discretionary activities in March 2011 and Reclamation in October 2011. Both the Corps and Reclamation indicated they do not plan to continue to provide broad coverage for New Mexico middle Rio Grande water users. Reclamation indicated they will consult with the Service over San Juan Chama Project operations in New Mexico, Middle Rio Grande Project operations, and their River Maintenance program. The Corps indicated they also plan to consult over their discretionary flood control activities. Additionally, Reclamation will include some non-federal water management activities that are inter-related and inter-dependant with Reclamation activities, such as MRGCD river diversions, as well as other proposed non-federal actions. The Corps has indicated they will not include non-federal actions in their proposed action. The Corps would like a biological opinion as soon as possible. Reclamation still plans to complete its process by early 2013. The Service indicated it still plans to review the draft biological assessments and prepare a single draft biological opinion. Reclamation has proposed that the role of the non-federal participants to the Collaborative Program change from

maintaining endangered species coverage for all New Mexico middle valley water users to maintaining the environmental baseline upon which both the Corps and Reclamation's biological assessments will be based. The non-federal participants have not commented on the proposal.

Compliance by Federal and State Agencies with State Water Law

The Commission has previously adopted resolutions that requested the Corps, Reclamation, and the Service comply with state law by obtaining permits from the appropriate state agencies for any water related actions, including habitat restoration, that result in new or additional river depletions. Federal agency representatives have acknowledged the need to comply with applicable state laws regarding these projects.

The NMISC continued to coordinate with New Mexico Office of the State Engineer (NMOSE) regarding habitat restoration projects that require offset of depletions, including projects conducted by the Corps, Reclamation and NMISC. New Mexico reported these offsets are being made.

Rio Grande Salinity Management Coalition

The Engineer Advisers continued to work with the Rio Grande Salinity Management Coalition (Coalition) evaluating the feasibility of salinity capture and treatment in the Rio Grande from San Acacia, New Mexico to Fort Quitman, Texas, with emphasis on the Rio Grande Project region. The primary objective of the Coalition is to identify and implement salinity reduction strategies that will reduce impacts, improve Rio Grande water quality, and extend existing water supplies in the fast-growing Rio Grande Project area.

The Coalition seeks to meet these goals through four phases of work:

- Phase 1 – Rio Grande Project Salinity Assessment;
- Phase 2 - Develop Salinity Management Alternatives and Feasibility;
- Phase 3 - Implement Pilot-Scale Salinity Control Project Testing;
- Phase 4 - Full Scale Control Project Implementation, Monitoring and Evaluation

In 2008, the NMISC committed $250,000 for the initial portion of the project. Those funds were used to match $750,000 from the Corps' Section 729 authority in the Water Resources Development Act of 2007. The first phase of work, completed in early 2010, resulted

in three deliverables: a geospatial salinity database; a USGS Rio Grande Salinity Assessment and Plan of Study; and a Rio Grande Economic Impact Assessment study.

Phase 2 of the project commenced in 2010. Texas has indicated they will have $250,000 to match for Phase 2 and/or beyond work. Currently, work is being conducted to identify the most feasible pilot project sites and alternative control strategies. The Engineer Advisers anticipate that the most feasible project sites will be identified in summer of 2011. Texas will begin funding a portion of Phase 2 in 2011 to match additional Corps funds.

URGWOM Accounting Model

During 2010, representatives of Reclamation, Corps, and NMISC met on a monthly basis and conducted quality assurance on model input data and reviewed San Juan Chama contractor releases and water exchanges. The process worked as planned and assisted in resolving accounting issues. However, during the year, the USGS changed their approved data several times which made it difficult to finalize the accounting on a monthly basis. The Engineer Advisers discussed this issue with the USGS, and the USGS indicated they would look into it and report back.

During 2010, the URGWOM technical team conducted a technical review meeting to evaluate the URGWOM updates for the last four years. The technical team also conducted a field trip to the Upper Rio Grande in Colorado to assist in the conceptual design of the Colorado portion of the model.

The Corps reported on model updates and developments which include: updating rules to account for the latest reservoir operations and Middle Rio Grande Conservancy District (MRGCD) diversions; updating software to the Riverware program that allows URGWOM to run 50-year scenarios; developing watershed models to compute ungaged tributary inflow; and developing the Lower Rio Grande portion of the URGWOM model. In addition, the planning model is being updated to assist in evaluating water management scenarios for the development of new biological assessments by the Corps and Reclamation. Reclamation is now using Crystal Reports to generate the water accounting report.

Following a 2009 review of the Compact accounting, Reclamation and the NMISC reported that current URGWOM accounting procedures allocate a portion of precipitation falling

on the reservoirs to stored SJCP and relinquishment water. The Engineer Advisers requested that the URGWOM accounting model be revised to account for precipitation falling on reservoirs as native Rio Grande water. The Engineer Advisers and Reclamation discussed this issue several times since the last Compact meeting in March 2010. The Engineer Advisers also have reviewed the legislation, historical record and accounting procedures concerning this issue. The Engineer Advisers requested Reclamation to evaluate the historical gain of San Juan-Chama water in El Vado and Abiquiu reservoirs for the period from 2002 through 2010. After review of this analysis, the Engineer Advisers will evaluate the need to request a change in accounting practices.

Elephant Butte Pilot Channel Project

The pilot channel was successful in conveying the 2010 snowmelt runoff into the active reservoir pool at Elephant Butte Reservoir. In early 2010, NMISC's contractor performed maintenance on spoil bank levees and removed accumulated sediment from the channel in preparation of the 2010 snow melt runoff. Work occurred primarily between Indian Springs and the top of the Narrows. Portions of the spoil bank levees suffered erosion damage during the snow melt runoff; however, the lower flows of the summer months were effectively conveyed to the active reservoir pool. During the winter of 2010, NMISC, working cooperatively with Reclamation, repaired the spoil bank levees. In early 2011, both Reclamation and NMISC's contractor performed ongoing maintenance of the pilot channel in preparation for the spring 2011 snow melt runoff. To date, New Mexico has spent approximately $11 million to construct and maintain the pilot channel.

In partial fulfillment of the Service's biological opinion for the pilot channel, NMISC is working with New Mexico State Parks and other stakeholders on a habitat restoration project benefiting the Southwestern willow flycatcher below the reservoir to ensure compliance with the biological opinion.

2010 Relinquishment Agreements

Effective February 28, 2010, Colorado proposed and Texas accepted a relinquishment of 700 acre-feet of accrued credit in Elephant Butte Reservoir in exchange for 700 acre-feet of

native water inadvertently stored in Platoro Reservoir.

Effective May 15, 2010, New Mexico proposed and Texas accepted a relinquishment of 80,000 acre-feet of accrued Rio Grande credit water in Elephant Butte. The total amount of accrued credit relinquished by New Mexico since 2003 is 380,500 acre-feet.

In 2010, the City of Santa Fe stored 33 acre-feet of its relinquishment allocation, bringing the total relinquishment water stored to date to 154,257 acre-feet. At the end of 2010, a total of 9,200 acre-feet of relinquished water remained in storage, all in El Vado Reservoir. Of the total 380,500 acre-feet relinquished, 226,243 acre-feet remains available to be stored.

YEAR 2010 OPERATIONS

Closed Basin Project

The total production of the Closed Basin Project in 2010 was 17,098 acre-feet, with 12,849 acre-feet of that amount delivered to the Rio Grande. All of the water delivered to the Rio Grande in 2010 was of sufficient quality to qualify for credit under the Compact. Reclamation continues to address problems of biofouling in the production wells of the Closed Basin Project. Reclamation replaced seven wells in 2010 that were most affected by iron bacteria, and rehabilitated numerous other wells. To date, 59 of the 150 original wells have been replaced. The new wells and change in operation of all project wells are helping to restore the production of the project. Wells will continue to be replaced as budgetary constraints allow. The Closed Basin Operating Committee continues to monitor groundwater levels and groundwater production and adjust project operations pursuant to the enabling legislation.

Platoro Reservoir Operations for 2010

Platoro Reservoir is a post-Compact Reservoir on the Conejos River. For dam safety reasons, the main gate valves in the dam have normally been closed during the winter. In October 2010, two new valves were installed in the outlet structure of the dam. It appears that these new valves will allow water to be passed through the outlet works in the winter without the danger of catastrophic ice buildup in the valves. During installation and testing of the new valves, 1,100 acre-feet of native water was inadvertently stored in Platoro Reservoir while the storage prohibitions of Article VII were in effect.

Colorado Groundwater Regulations

The State Engineer of Colorado is in the process of developing rules and regulations concerning the use of groundwater in the Upper Rio Grande Basin in Colorado. These rules will require the owners of most large capacity wells in the Rio Grande Basin in Colorado to develop a plan to augment any injurious depletions which their wells may cause to other water rights. In the alternative, the owners may enter into an agreement with a subdistrict to replace those depletions through a groundwater management plan. The area's first groundwater subdistrict plan was approved by the district judge in the fall of 2010. However, opponents to the plan protested the ruling to the Colorado Supreme Court. A ruling by that court is not expected until fall of 2011.

Dust-On-Snow

Chris Landry with the Center for Snow and Avalanche Studies gave a presentation to the Engineer Advisers regarding the dust on snow phenomena. Mr. Landry reported that his organization has been studying dust on snow issues in Colorado since 2003, and has found that dust on snow episodes have become more common in the last ten years. Dust deposited on the snowpack lowers the albedo, leading to faster melting of the snow and a more pronounced drop in flows after the runoff period. This can have a negative effect on the management of the Rio Grande Basin streamflow.

Reclamation's Supplemental Water Program

Reclamation's supplemental water program is intended to provide additional water, primarily obtained through the voluntary leasing of SJCP water, for endangered species needs and compliance with the 2003 Biological Opinion. In 2010, Reclamation released a total of 19,837 acre-feet of leased SJCP water to assure compliance with the dry year flow targets of the 2003 Biological Opinion. Supplemental water releases were made from mid-June through October.

SJCP water leased for the program is released for diversion and use by the MRGCD, which, in turn, allows an equivalent amount of native Rio Grande water (less conveyance losses) to remain in the river.

Reclamation continued to maintain portable pumping stations at four locations in the San Acacia reach. The pumps were operated from mid-June through October 31 to pump 6,956 acre-feet from the Low Flow Conveyance Channel (LFCC) to the Rio Grande under a permit issued by the New Mexico Office of the State Engineer.

2010 Rio Grande Project Operations and Storage

Reclamation reported a final 2010 release from Caballo Reservoir of 661,200 acre-feet for all three Rio Grande Project water users: El Paso County Water Improvement District No. 1 (EP No. 1), Elephant Butte Irrigation District (EBID), and Mexico. During 2010, Reclamation allocated 870,655 acre-feet for diversion, which includes a 2009 carryover of 232,915 acre-feet of allocation for EP No. 1 and 40,343 acre-feet of allocation for EBID. Reclamation reported that EBID requested and was charged for diversion of 282,082 acre-feet, and EP No. 1 requested and was charged for diversion of 304,937 acre-feet, including 54,804 acre-feet for the City of El Paso.

These values reflect the operations using the new operating manual, as revised during 2009, and resulted in an accrued carryover of 224,348 acre-feet by EP No. 1 and 20,015 acre-feet for EBID. Reclamation reported that Mexico requested and diverted 56,883 acre-feet.

Storage at Elephant Butte Reservoir peaked at about 604,100 acre-feet on June 4, 2010, and storage at Caballo Reservoir peaked at about 63,000 acre-feet on July 13, 2010. End-of-year storage at Elephant Butte Reservoir was about 437,200 acre-feet, which includes 64,250 acre-feet of SJCP water. The end of year storage at Caballo Reservoir was 22,000 acre-feet.

San Juan-Chama Project Water Conveyance Losses

During 2010, the Rio Grande Compact Commissioners approved the proposal that any SJCP water routed to storage in Elephant Butte Reservoir in 2010 be evaluated by Reclamation on a case-by-case basis using URGWOM, and that the resulting loss rates must be approved by the Engineer Advisers. During 2010, the Albuquerque Bernalillo County Water Utility

Authority (ABCWUA) routed 17,627 acre-feet from Abiquiu Reservoir to Elephant Butte Reservoir from late May to early June. The standard loss rate between Abiquiu and Cochiti reservoirs was used, and between Cochiti and Elephant Butte reservoirs, the losses were calculated using the middle valley portion of URGWOM. A total of 15,170 acre-feet was delivered to Elephant Butte Reservoir. During the same year, the City of Santa Fe routed 16,136 acre-feet from Heron and Abiquiu to Elephant Butte Reservoir. The above methodology was used to determine the actual delivery of 13,024 acre-feet.

During the latter portion of 2010, the Engineer Advisers and Reclamation investigated different approaches to developing fixed monthly loss rates for routing water between Cochiti and Elephant Butte reservoirs. Reclamation and the Engineer Advisers continue to investigate options. To date, an acceptable option has not been identified. The Engineer Advisers recommend that until an acceptable approach is approved, the Commission approve the continued use of the 2010 procedures using URGWOM. Further, the Engineer Advisers recommend that any water routed be made as a block release, and all deliveries to Elephant Butte for that year be completed by December 31.

REPORTS OF THE FEDERAL AGENCIES

Representatives of Reclamation, the Corps, the Service, the IBWC, the USGS, and the BIA presented reports to the Engineer Advisers from February 22 through 25, 2011.

Rio Grande Project Operations Agreement and Manual

Reclamation reported that they, the two Rio Grande Project irrigation districts (EBID and EP No.1), and the IBWC conducted operations in 2010 as outlined in the March 2008 Rio Grande Project Operating Agreement (Operating Agreement) and Operating Agreement Manual (Manual). Reclamation also indicated that the Operating Manual has been reviewed by Reclamation, EBID, and EP No.1, that a number of changes were made, and that copies of the revised Manual will be sent to the Engineer Advisers. The New Mexico Engineer Adviser reported that New Mexico has been involved in confidential mediation with Reclamation, the two districts, and other parties to the New Mexico Lower Rio Grande adjudication, and that a part of the mediation involves negotiations concerning the Operating Agreement and Manual.

The New Mexico Engineer Adviser also reported that the State continues to have significant concerns regarding operations that have occurred over the past three years, as well as the operations proposed by Reclamation for 2011, which are based on the February 1, 2011 snowmelt runoff forecast.

The Colorado Engineer Adviser asked that Reclamation inform the Engineer Advisers of future meetings on the Operating Agreement. At the 2011 Engineer Adviser meeting, Reclamation indicated that the Engineer Advisers are welcome to attend the meetings but only if they attend in person.

Reclamation's Rio Grande Project Operations Plan for 2011

Under the February 1, 2011 most probable forecast, Reclamation estimates that Elephant Butte Reservoir storage would peak at 502,000 acre-feet in February, and Caballo Reservoir would peak at 55,000 acre-feet during April. Reclamation reported that on February 14 there was an estimated 271,600 acre-feet of usable water in Project Storage. The initial Project allocation is 225,018 acre-feet for EP No. 1, 20,894 acre-feet to EBID, and 14,177 acre-feet for Mexico. Reclamation will begin releases from Caballo Reservoir for EP No. 1 and Mexico on March 11, 2011, and for EBID in April or later. Reclamation also reported that they anticipate remaining in Article VII restrictions for the entire year.

Vegetation Management at Elephant Butte and Caballo Reservoirs

Reclamation continued vegetation management efforts at Elephant Butte and Caballo Reservoirs in 2010 through a cooperative agreement funded by the NMISC. Reclamation reported that during the 2010 fiscal year, a total of 2,939 acres were treated at Elephant Butte and Caballo reservoirs under the program: 1,441 acres by mowing and/or grubbing, and 1,498 acres by herbicidal application. Approximately 7,000 acres (of mostly salt cedar) have been treated by herbicides over the last seven years at both reservoirs with varying degrees of success.

Middle Rio Grande Project Channel Maintenance

Reclamation provided a presentation regarding the status of its Middle Rio Grande Project river maintenance program. Since 2004, Reclamation has implemented long-term fixes

at thirteen priority sites, implemented interim fixes at five sites, and also performed annual recurring work at six sites due to sediment accumulation. In 2010, Reclamation conducted work at two priority sites with expected completion in spring of 2011. Following completion of these two sites, there will remain 21 priority sites. Reclamation plans to conduct work at three other sites in 2011.

Cochiti Reservoir Deviation

At its 70th Annual meeting, the Commission passed a motion approving, with certain conditions, the Corps proposal to implement a five-year water operations strategy at Cochiti Lake and Jemez Canyon Reservoir. The strategy includes deviations from normal operations at Cochiti Lake and/or Jemez Canyon Reservoir to provide downstream recruitment and overbank flows for the benefit of the Rio Grande silvery minnow and the Southwestern willow flycatcher. For the Corps to implement a deviation under the strategy:

- New Mexico must be in an accrued credit status at the beginning of the year,
- The Corps must coordinate with Reclamation, the Service, NMISC, Pueblo de Cochiti, Santa Ana Pueblo, and the Engineer Advisers on the implementation of a deviation, including determining if a deviation is possible and whether a recruitment or overbanking flow is determined beneficial,
- The Corps must secure water or water rights and assure their availability for offset of additional depletions projected to result from a deviation before those operations are conducted in a given year, and
- The Corps must secure the specific advice and consent of the Commission at its annual meeting during each year of the term of the proposed deviation to determine if the conditions of the Resolution are met before a deviation may occur.

The Corps did conduct a deviation from normal operations in 2010 after securing the advice and consent of the Commission at its March 26, 2010 meeting. The Corps reported that the deviation from normal operations began on April 19, 2010 when the Corps began storing native inflow for later release. The maximum volume of storage reached approximately 29,100 acre-feet. Releases began on May 19, and the maximum release was 6,045 cfs on May 21. The

stored water was fully released by May 26, 2010. The Corps and NMISC calculated the increased depletions that resulted from the deviation to be 538 acre-feet. Reclamation had previously agreed to supply the water for offset purposes. The 538 acre-feet was released from December 9 through December 11, 2010.

Cochiti Reservoir Baseline Study

The Corps reported on an ongoing baseline study designed to evaluate all aspects of operations at Cochiti Reservoir and the impact of those operations on the tribal resources of the Pueblo de Cochiti. The study will include surface and subsurface hydrologic analyses; water and sediment quality analyses; and biological, cultural and economic impact analyses. The study was initiated in 2004 and is currently scheduled for completion in 2011.

2010 Six Middle Rio Grande Pueblos Prior and Paramount Operations

The BIA provided a report on 2010 Prior and Paramount storage and release activities, projected 2011 storage and release activities, and discussed additional details on the general methodology for Prior and Paramount storage operations and releases with the Engineer Advisers.

Reclamation and BIA individually reported that 16,500 acre-feet was stored in El Vado Reservoir for delivery of irrigation water (including estimated evaporation losses) to the Prior and Paramount lands of the six Middle Rio Grande Pueblos in 2010 in the event that natural flows were insufficient. The 16,500 acre-feet was stored in May when the Article VII storage restriction was not in effect. None of the water was released for Prior and Paramount uses during 2010. It was held in storage until November when it was reallocated as normal Rio Grande storage available in El Vado Reservoir for release to satisfy future irrigation demand within the MRGCD. Based on the February 1, 2011 most probable snowmelt runoff forecast, the BIA reported that Reclamation will likely store between 16,000 and 23,000 acre-feet in 2011.

The Engineer Advisers remain concerned about the procedures for quantifying storage, release and delivery of water for the Prior and Paramount lands of the six Middle Rio Grande Pueblos. The Texas Engineer Adviser remains concerned about the storage of native Rio Grande

water in El Vado Reservoir by Reclamation when the storage restrictions of Article VII are in effect.

Levee Certification

In 2009, the Corps notified the Engineer Advisers that levees in the Upper Rio Grande Basin had been decertified, including some in Colorado and most of the levees in the middle valley of New Mexico. Some of the levees that were decertified are levees that were designed and constructed by the Corps within the last 15 years.

Some of these levees were decertified due to new inspection criteria, which require that vegetation within 15 feet of the toe of the levee be removed. However, removal of trees to comply with the Corps standards may have Endangered Species Act (ESA) and other implications.

On November 29, 2010, the Levee Task Force, comprised of middle valley stakeholders, created by Senate Memorial 18 during the 2009 New Mexico legislative session, issued their second report. The report discusses the FEMA's transition to a risk-based standard for issuing flood insurance, new vegetation standards for levees, and economic impact and cost/benefit studies of levees.

San Acacia Levee Project

In November 2009, the Corps completed a Review Plan Limited Re-evaluation Report (Review Plan) for the San Acacia Levee Project, a project originally intended to replace the existing 46 mile-long spoil bank levee from San Acacia to San Marcial with an engineered levee. The Review Plan reaffirmed the economic justification, engineering design and alternative formulation for the project, as described in the 2009 Engineer Adviser report.

The Corps indicated the estimated total project cost is approximately $110 million. They are preparing a Reevaluation Report and Supplemental Environmental Impact Statement on the revised project and the draft report is scheduled for completion in federal fiscal year (FY) 2012. The Corps indicated that the President's FY12 budget included $10 million for this project, and they anticipate awarding the construction contract in 2012. The New Mexico Engineer Adviser

reported that the New Mexico Interstate Stream Commission is coordinating with the MRGCD on cost share for the project.

Southwestern Willow Flycatcher

Reclamation continues to conduct Southwestern willow flycatcher surveys and nest monitoring along the Rio Grande. In 2010, 629 resident flycatchers, including 272 breeding pairs, were recorded in 357 territories from Velarde to the headwaters of Elephant Butte Reservoir. Riparian vegetation within the uppermost levels of the conservation pool of Elephant Butte Reservoir holds the largest breeding population of flycatchers in New Mexico. There were 298 territories in the San Marcial Reach. This was slightly down from 2009 survey results. The Service indicated a drop in nest success is likely due to predation. An area that showed an increase in flycatcher territories in 2010 is the Bosque del Apache Wildlife Refuge, which had 33 territories documented.

As a result of litigation, the Service has entered into a settlement agreement whereby they will review and likely revise the critical habitat designation for the flycatcher by July 2011. The review will look at exceptions from the original critical habitat designation relating to certain pueblo lands, the Bosque del Apache Refuge, Elephant Butte Reservoir, and certain areas within the Rio Grande Basin in Colorado. Comments on the proposed designation will be accepted after the report is issued.

Reclamation submitted a biological assessment to the Service on Rio Grande Project operations in February 2009. Reclamation indicated at the 2011 Engineer Adviser meeting that they plan to withdraw the current biological assessment and submit a revised assessment.

Middle Rio Grande Endangered Species Act Collaborative Program

The Middle Rio Grande Endangered Species Collaborative Program (CP) continues to work to protect endangered species within the middle Rio Grande and aid federal agencies to comply with the 2003 Biological Opinion.

Total expenditures since 2001 are approximately $140 million and have been used for water acquisition, Low Flow Conveyance Channel (LFCC) pumping, CP management actions, habitat restoration, silvery minnow augmentation, and numerous other projects. Cost share from

non-federal signatories has been accounted, and the 25 percent match is close to being met.

Reclamation reported they have completed 1,100 acres of habitat restoration toward compliance with the 2003 Biological Opinion target.

An external peer review panel was convened to review the scientific basis for constructing fish passage for Rio Grande silvery minnow at the San Acacia diversion dam. The peer review indicated that additional scientific information is needed to justify this effort.

The CP has recently begun efforts to evaluate the possibility of augmenting the silvery minnow population in the Cochiti Reach. The Service is leading this effort.

2003 Middle Rio Grande Programmatic Biological Opinion

The Service reported that Reclamation and the Corps remained in compliance with the 2003 Biological Opinion during 2010, which was a year in which dry year flow targets were in effect. As a result, a continuous flow was required in the middle valley through June 15, 2010, with 100 cfs at the Central Albuquerque gage for the remainder of the irrigation season. River drying occurred in a maximum of 9 miles of the Isleta reach during periods of August through October. A maximum of 21 miles of river drying occurred in the San Acacia reach during periods of July through October.

Rio Grande Silvery Minnow

The Service reported that they conducted silvery minnow rescue operations along 28.2 miles of the main channel of the Rio Grande in the Isleta and San Acacia reaches between June 28, 2010 and the end of the irrigation season. Those operations involved salvaging, transporting and releasing 9,668 silvery minnow. Incidental take was reported as 95 silvery minnow, which was well within the allowable incidental take limit.

The Service reported that 135,000 marked silvery minnow were released in the Isleta and San Acacia reaches during the fall of 2010. Additionally, the Service reported they are in the third year of monitoring the Albuquerque reach without augmentation to get a better understanding of the success of natural reproduction in that reach.

The Service reported that during the October 2010 sampling effort, Rio Grande silvery minnow were present at 15 of the 20 sites monitored. They indicated there was good spawn of silvery minnow during the snowmelt runoff but that fish numbers dropped off as the summer progressed. The end result was that the fall 2010 catch per unit effort (CPUE) numbers were lower than in 2009 and approximately equivalent to those of 2006. The Service held a meeting in January 2011 for entities to present and discuss the lower CPUE numbers and reported that a single reason was not evident.

The number of wild-caught eggs collected during the runoff was low due, in part, to the relatively high river flows which resulted in a low capture efficiency.

Silvery Minnow Reintroduction in Big Bend-Texas

The Service initiated reintroduction of silvery minnow in 2008. Approximately 445,000 silvery minnow were released into the Big Bend reach of the Rio Grande in Texas in December 2008, another 509,000 silvery minnow were released in October 2009, and 448,400 were released in October 2010. The Service plans to release approximately 200,000 silvery minnow per year for the next two years. Silvery minnow reintroduced in this reach are designated as experimental nonessential under Section 10(j) of the Endangered Species Act. The Service's most recent monitoring occurred in February, 2011 when silvery minnow were found at 3 of the 6 sites monitored. Monitoring during 2010 resulted in a collection of silvery minnow eggs and larvae, as well as one juvenile. The Service plans a large monitoring effort for the summer of 2011 to document dispersal and density of the silvery minnow.

Rio Grande Silvery Minnow Recovery Plan

The first revision of the Rio Grande Silvery Minnow Recovery Plan was signed by the Regional Director in January 2010 and was issued on February 22, 2010. The Service reported that the recovery plan serves as a guiding document on the recovery process, provides the framework for restoring the fish and its habitat, clarifies biological needs and constraints and provides criteria and action needed in order to consider downlisting and delisting of the species. In March of 2010, the Service issued a request for new information in their 5-year review of the status of the Rio Grande silvery minnow and received three sets of comments.

International Boundary and Water Commission Activities

The IBWC provided a report of its activities along the Rio Grande in New Mexico and Texas during 2010. IBWC discussed the Rio Grande Flood Control projects for improvements to meet FEMA accreditation standards. These projects include projects in the Mesilla, Hatch, Fabens, Canutillo, Sunland Park and Riverside areas. They discussed Rio Grande flood control projects associated with American Canal Refurbishment, Courchesne Levee improvements, Paisano levee improvements, Vado levee improvements, and Canutillo levee improvements. The IBWC received $210 million from stimulus funding for design and construction to improve infrastructure needs along the Rio Grande. With these funds, the IBWC reported they were able to accomplish in two years what was originally planned for twenty.

IBWC also discussed the Convention of 1906 and water deliveries to Mexico. In 2010, Mexico was provided 56,882 acre-feet of water at their heading. For 2011 the initial allotment to Mexico is 14,115 acre-feet. Bi-national monthly meetings are held to discuss the allotments.

IBWC also discussed issues with the border fence construction in the El Paso area, difficulties with obtaining water measurements due to violence in Mexico, the ASARCO settlement activities, the Texas Clean Rivers Program activities, and the Hurricane Alex flood control activities in the lower Rio Grande area.

BUDGET

The Engineer Advisers reviewed the cost of operation for the year ending June 30, 2010 and the budget for the fiscal year ending June 30, 2012. The Engineer Advisers found that the expenses for gaging stations and administration of the Compact for the year ending June 30, 2010 were $186,462. The United States federal government bore $54,334 of this total, with the balance of $132,128 borne equally by the three states.

The proposed budget for the fiscal year ending June 30, 2012 indicates a total of $193,137 will be spent for gaging and administration, with a proposed contribution by the United States federal government of $56,241.

Craig Cotten
Engineer Adviser for Colorado

Rolf Schmidt-Petersen
Engineer Adviser for New Mexico

Herman R. Settemeyer
Engineer Adviser for Texas

BUDGET FOR FISCAL YEAR ENDING JUNE 30, 2010

Item	Total Cost	Borne by United States	Borne by Colorado	Borne by New Mexico	Borne by Texas
GAGING STATIONS					
In Colorado[1]	$65,325		$65,325		
In New Mexico, above Caballo Reservoir	$68,004	$35,816		$32,188	
In New Mexico, Caballo Reservoir and below	$33,004	$11,502 [2]		$2,862	$18,640
Subtotal	$166,333	$47,318	$65,325	$35,050	$18,640
ADMINISTRATION					
U.S.G.S. Technical Services	$16,388	$7,016	$3,124	$3,124	$3,124
Other expenses	$3,741		$1,247	$1,247	$1,247
Subtotal	$20,129	$7,016	$4,371	$4,371	$4,371
GRAND TOTAL	$186,462	$54,334	$69,696	$39,421	$23,011
EQUAL SHARES			$44,043	$44,043	$44,043

[1]Includes $4,305 to Colorado USGS for review and publication of Colorado Rio Grande Compact gage records.

[2]Includes $4,500 for acoustical doppler velocity meter software and development of rating curve per Rio Grande Compact Commission recommendation dated March 22, 2007.

BUDGET FOR FISCAL YEAR ENDING JUNE 30, 2012

Item	Total Cost	Borne by United States	Borne by Colorado	Borne by New Mexico	Borne by Texas
GAGING STATIONS					
In Colorado	$65,442		$65,442		
In New Mexico, above Caballo Reservoir	$75,060	$41,141		$33,919	
In New Mexico, Caballo Reservoir and below[1]	$32,345	$7,950		$3,256	$21,139
Subtotal	$172,847	$49,091	$65,442	$37,175	$21,139
ADMINISTRATION					
U.S.G.S. Technical Services	$17,290	$7,150	$3,380	$3,380	$3,380
Other expenses2	$3,000		$1,000	$1,000	$1,000
Subtotal	$20,290	$7,150	$4,380	$4,380	$4,380
GRAND TOTAL	$193,137	$56,241	$69,822	$41,555	$25,519
EQUAL SHARES			$45,632	$45,632	$45,632

[1]BOR contribution includes $3,327 of development of Acoustic Doppler Velocity Meter data gathering and monitoring per RGCC recommendation dated March 22, 2007.

[2]Includes cost of court reporter and publication of Annual Report.

Agreement No: 11CRNM000000012
Customer No: NM007
Project No: 86379L7
Tax ID: 84-0644739 (CO)
85-6000565 (NM)
74-1694284 (TX)
Fixed-price agreement

COOPERATIVE AGREEMENT
FOR
INVESTIGATION OF WATER RESOURCES

THIS AGREEMENT, entered into this 1st day of July, 2011 by and between the United States Geological Survey, party of the first part, and each of the Commissioners representing the three signatory states and the Representative of the United States, constituting the Rio Grande Compact Commission, party of the second part.

In consideration of the mutual promises and agreements herein contained, it is agreed by and between the parties hereto as follows:

1. The parties agree that, subject to the availability of appropriations and in accordance with their respective authorities, there shall be maintained a cooperative program for duties as stated in the attached Statement of Work, for the Rio Grande Compact Commission within and among the three states in accordance with the terms of the Rio Grande Compact, incorporated herein by reference.

The parties further agree that this agreement shall in no manner affect any other agreement between the United States Geological Survey and any of the three states of the basin concerning the collection of hydrologic data, but in each case where there is or may be another agreement covering the collection of such data, the duty of the United States Geological Survey as provided here, shall be to compile, correlate, and present hydrographic data that has been collected under such agreements.

2. The parties agree to contribute to this program in the amounts specified or as are from time to time agreed upon in writing, funds needed and available to cover all the cost of the necessary field and office work directly related to the program, excluding any general administrative or accounting work in the office of any of the parties, and excluding the costs of publication by any of the parties of the results of the program.

3. The United States Geological Survey and state members of the Rio Grande Compact agree to contribute to the program during the period from July 1, 2011 to June 30, 2012, the following amounts:

(a)	U.S. Geological Survey	$7,150
(b)	State of Colorado	$3,380
(c)	State of New Mexico	$3,380
(d)	State of Texas	$3,380

4. So far as may be mutually agreed, all expenses shall be paid in the first instance by the United States Geological Survey with appropriate reimbursement thereafter by the other parties hereto. Each of the parties shall furnish to each of the other parties such statements or reports of expenditures as may be needed to satisfy fiscal requirements.

5. Unless previously terminated by the parties hereto, this agreement shall terminate on June 30, 2012, provided it may be renewed by the mutual agreement of the United States Geological Survey and each of the Commissioners representing the three signatory states to the Rio Grande Compact, as the voting members of the Rio Grande Compact Commission, on or before June 30, 2012, for a period of 1 year, and may be renewed in a like manner on or before June 30th of any year thereafter for a similar period. Any party may terminate this agreement by providing 60 day's written notice to the other party. When an accepted agreement is terminated by the State members of the Rio Grande Compact Commission, the USGS is authorized to collect costs incurred prior to the effective date of termination of the agreement plus any termination cost.

6. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other parties.

7. In the event this Agreement is renewed as herein provided, the amounts to be contributed by the parties for each renewal period may be determined by mutual agreement and set forth by exchange of letters between the parties at or near the beginning of each such period.

8. Billing for this agreement will be rendered semi-annually in January 2012 and July 2012. Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30-day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717, Comptroller General File-B212222, August 23, 1983.)

9. The Legal authorities for the U.S. Geological Survey to enter into this Agreement are 43 USC 36C; 43 USC 50; and 43 USC50b.

UNITED STATES GEOLOGICAL SURVEY

Linda S. Weiss 3/28/11

Linda S. Weiss Date
Director, New Mexico Water Science Center

RIO GRANDE COMPACT COMMISSION

Dick Wolfe 3/30/11

Commissioner for Colorado Date

John D'Antonio 3/30/11

Commissioner for New Mexico Date

Pat Gordon

Commissioner for Texas Date

Representative of the United States Date

Statement of Work for 11C4NM000000012

The duties of the United States Geological Survey are as follows:

1. Obtain data for yearly accounting from U.S. Geological Survey in New Mexico and Colorado as well as U.S Bureau of Reclamation, Albuquerque and El Paso Offices, and Colorado Division of Water Resources.

2. Prepare and submit provisional water accounting reports on the deliveries of the Rio Grande water.

3. Compile Rio Grande Compact Commission water accounting from the data supplied by various agencies. Present annual accounting at the Engineer Advisor's Meeting. Obtain signature of Engineer Advisors on approved accounting sheets.

RESOLUTION

OF THE

RIO GRANDE COMPACT COMMISSION

WHEREAS, *Kevin G. Flanigan was for over 12 years the Assistant to the New Mexico Engineer Adviser to the Rio Grande Compact Commission;*

WHEREAS, *during that time Mr. Flanigan performed faithfully and exceptionally in that role representing the New Mexico Interstate Stream Commission;*

AND WHEREAS, *during his tenure, the commissioners of the states of Texas and of Colorado did develop great admiration and respect for Mr. Flanigan;*

NOW THEREFORE, BE IT RESOLVED *that the Rio Grande Compact Commission assembled in its 72nd annual meeting held in Albuquerque, New Mexico acknowledges the devoted service of Kevin G. Flanigan to the people of the Rio Grande basin, and the Rio Grande Compact Commission, and this commission extends to Mr. Flanigan its best wishes for a prosperous and enjoyable future;*

BE IT FURTHER RESOLVED, *that the Secretary of the Rio Grande Compact Commission is hereby directed to furnish copies of this unanimously adopted resolution to Kevin G. Flanigan, and to cause said resolution to be included in the Minutes of the 72nd annual meeting of the Rio Grande Compact Commission.*

In witness whereof, we do hereby cause our signatures and the seal of the Rio Grande Compact Commission to be affixed hereon this 30th day of March 2011, A.D. Albuquerque, New Mexico.

JOHN R. D'ANTONIO Jr.

Commissioner for New Mexico

PATRICK R. GORDON

Commissioner for Texas

DICK WOLFE

Commissioner for Colorado

WATER RESOURCES DATA

ACKNOWLEDGMENTS

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

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

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

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

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

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

Azotea Tunnel at Outlet, near Chama, N. Mex.
Willow Creek above Heron Res., near Los Ojos, N. Mex.
Horse Lake Creek above Heron Res., near Los Ojos, N. Mex.
Storage in Heron Reservoir near Los Ojos, N. Mex
Willow Creek below Heron Dam, N. Mex.
Storage in El Vado Reservoir near Tierra Amarilla, N. Mex.

The U.S. Geological Survey, in cooperation with the U.S. Bureau of Reclamation, Albuquerque, N. Mex, provided the following records:

Storage in Nambe Falls Reservoir near Nambe, N. Mex.
Rio Nambe below Nambe Falls Dam, near Nambe, N. Mex

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

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

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

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

The Corps of Engineers, Albuquerque, N. Mex., provided the following records of storage:

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

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

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

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

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

ACCURACY OF RECORDS

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

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

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

STREAMFLOW

Rio Grande near Del Norte, Colo

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

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

Average discharge. -- 121 years (1890-2010), 893 ft^3/s (647,100 acre-ft per year).

Extremes. -- 1889-2010: Maximum discharge, 18,000 ft^3/s Oct. 5, 1911 (gage height, 6.80 ft), from rating curve extended above 12,900 ft^3/s; minimum daily, 69 ft^3/s Aug. 21, 1902.

Remarks. -- Records good except those for winter months, which are fair. Flow regulated by four reservoirs, total capacity 126,100 acre-ft, and by several smaller ones. Six transmountain diversions import water into basin above station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	4,460	144	160	120	8,850
February	4,235	151	170	130	8,400
March	8,640	279	613	150	17,140
April	37,307	1,244	2,670	320	74,000
May	87,150	2,811	5,000	1,030	172,900
June	61,667	2,056	3,940	640	122,300
July	13,613	439	637	306	27,000
August	16,245	524	766	368	32,220
September	12,434	414	638	297	24,660
October	12,206	394	695	305	24,210
November	7,609	254	412	170	15,090
December	6,360	205	220	165	12,620
Calendar year 2010	271,926	745	5,000	120	53,940

Conejos River below Platoro Reservoir, Colo.

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

Drainage area. -- 40 sq mi, approximately.

Average discharge. -- 58 years (1890-2010), 91.9 ft^3/s (66,610 acre-ft per year).

Extremes. -- 1952-2010: Maximum discharge, 1,160 ft^3/s Nov. 1, 1957; maximum gage height, 4.29 ft June 15, 1958; no flow Oct. 16-20, 1955.

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

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	220	7.1	7.1	7.1	437
February	199	7.1	7.1	7.1	394
March	224	7.3	7.2	7.2	444
April	1,571	128	7.3	52	3,120
May	5,844	422	41	189	11,590
June	7,194	349	145	240	14,270
July	6,309	317	129	204	12,510
August	4,409	179	103	142	8,750
September	4,880	219	121	163	9,680
October	538	189	5.3	17	1,070
November	226	10	6.5	7.5	447
December	229	7.4	7.4	7.4	455
Calendar year 2010	31,842	422	5.3	87	63,160

STREAMFLOW

Conejos River near Mogote, Colo

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

Drainage area. -- 282 sq mi.

Average discharge. -- 100 years (1904, 1912-2010), 322 ft3/s (233,200 acre-ft per year).

Extremes. -- 1903-05, 1911-2010: Maximum discharge, 9,000 ft3/s Oct. 5, 1911 (gage height, 8.50 ft), from rating curve extended above 3,100 ft^3/s; minimum daily determined, 10 ft^3/s July 18, 1904.

Remarks. -- Records good except those for winter months, which are fair. Diversions above station for irrigation of about 500 acres. Since 1951 flow partly regulated by Platoro Reservoir.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	1,290	48	36	42	2,560
February	1,394	58	44	50	2,760
March	2,071	116	49	67	4,110
April	11,449	783	87	382	22,710
May	31,806	2,090	389	1,026	63,090
June	25,292	1,680	452	843	50,170
July	9,303	471	192	300	18,450
August	6,257	258	154	202	12,410
September	6,191	252	164	206	12,280
October	2,202	255	47	71	4,370
November	1,337	53	23	45	2,650
December	1,444	54	32	47	2,860
Calendar year 2010	116,858	1,830	30	320	231,800

San Antonio River at Ortiz, Colo

Location. -- Water-stage recorder, lat 36°59'35", long 106°02'17", in New Mexico in NE1/4SE1/4, sec. 24, T. 32 N., R. 8 E., on left bank 800 ft south of New Mexico-Colorado State line, 0.4 mi southeast of Ortiz, and 0.4 mi upstream from Los Pinos River. Altitude of gage is 7,970 ft.

Drainage area. -- 110 sq mi.

Average discharge. -- 70 years (1941-2010), 25 ft3/s (18,100 acre-ft per year).

Extremes. -- 1920, 1925-2010: Maximum discharge, 1,750 ft3/s Apr. 15, 1937 (gage height, 5.38 ft), from rating curve extended above 1,100 ft^3/s; no flow at times.

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

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	64	2.6	1.4	2.1	127
February	93	3.8	2.6	3.3	185
March	158	11	3.6	5.1	313
April	5,827	629	13	194	11,560
May	3,413	269	26	110	6,770
June	206	23	1.1	6.9	409
July	29	3.4	0.0	0.9	57
August	21	5.8	0.0	0.7	41
September	0.1	0.1	0.0	0.0	0.3
October	50	4.3	0.3	1.6	100
November	57	3.1	1.3	1.9	112
December	70	2.8	1.1	2.3	138
Calendar year 2010	9,987	629	0.0	27	810

STREAMFLOW

Los Pinos River near Ortiz, Colo

Location. -- Water-stage recorder, lat 36°58'56", long 106°04'23", in New Mexico on line between secs. 26 and 27, T. 32 N., R. 8 E., on left bank 0.9 mi south of New Mexico-Colorado State line, 2.1 mi southwest of Ortiz, and 2.9 mi upstream from mouth. Altitude of gage is 8,040 ft.
Drainage area. -- 167 sq mi.
Average discharge. -- 92 years (1915-20, 1925-2010), 118 ft3/s (85,250 acre-ft per year).
Extremes. -- 1915-20, 1925-2010: Maximum discharge, 3,160 ft3/s May 12, 1941 (gage height, 5.77 ft, site and datum then in use), from rating curve extended above 1,600 ft^3/s; minimum observed, 4.0 ft^3/s Dec. 17, 1945.
Remarks. -- Records good except those for winter months, which are fair. Diversions above station for irrigation.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	442	17	10	14	877
February	415	17	13	15	823
March	705	42	14	23	1,400
April	8,464	660	38	282	16,790
May	19,374	914	265	625	38,430
June	6,316	529	45	211	12,530
July	947	56	20	31	1,880
August	628	44	10	20	1,250
September	495	37	6.7	17	981
October	488	20	14	16	968
November	490	20	10	16	972
December	503	19	10	16	998
Calendar year 2010	39,267	914	6.7	108	77,890

Conejos River near Lasauses, Colo

Location. -- Water-stage recorder, lat 37°18'01", long 105°44'47", in secs. 2 and 11(two channels), T. 35 N., R. 11 E., on left bank of main channel 125 ft downstream from bridge on State Highway 158 and on left bank of secondary channel 230 ft upstream from bridge, 1.0 mi upstream from mouth, and 2.1 mi north of Lasauses. Datum of gage on main channel is 7,495.02 ft and on secondary (south) channel is 7,496.89 ft above main sea level (levels by Bureau of Reclamation).
Drainage area. -- 887 sq mi.
Average discharge. -- 89 years (1922-2010), 176 ft3/s (127,200 acre-ft per year).
Extremes. -- 1921-2010: Maximum discharge, 3,890 ft3/s May 15, 1941; no flow at times in some years.
Remarks. -- Records good except those for winter months, which are fair. Diversions above station for irrigation of about 75,000 acres above station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	1,826	66	53	59	3,620
February	2,032	79	62	73	4,030
March	3,335	130	81	108	6,610
April	16,005	1,210	133	534	31,750
May	12,901	1,120	203	416	25,590
June	5,837	824	3.3	195	11,580
July	189	34	0.0	6.1	375
August	6.4	4.0	0.0	0.2	13
September	0.0	0.0	0.0	0.0	0.0
October	2.1	2.1	0.0	0.1	4.2
November	326	14	1.0	11	646
December	1,405	71	15	45	2,790
Calendar year 2010	43,864	1,210	0.0	120	87,000

STREAMFLOW

Rio Grande near Lobatos, Colo

Location. -- Water-stage recorder, lat 37°04'42", long 105°45'22", in sec. 22, T. 33 N., R. 11 E., on right bank at highway bridge, 6 mi north of Colorado-New Mexico State line, 10 mi east of Lobatos, and 14 mi east of Antonito. Datum of gage is 7,427.63 ft above mean sea level, datum of 1929.

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

Average discharge. -- 31 years (1900-30), 846 ft3/s (612,900 acre-ft per year); 80 years (1931-2010) 437 ft3/s (316,400 acre-ft per year).

Extremes. -- 1899-2010: Maximum discharge observed, 13,200 ft3/s June 8, 1905 (gage height, 9.1 ft); from rating curve extended above 8,000 ft^3/s; no flow at times in 1950-51, 1956.

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

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	7,540	265	225	243	14,960
February	7,990	310	260	285	15,850
March	14,531	654	315	469	28,820
April	24,448	1,340	403	815	48,490
May	21,106	1,560	450	681	41,860
June	16,483	1,290	165	549	32,690
July	2,455	152	39	79	4,870
August	1,256	67	28	41	2,490
September	1,039	57	22	35	2,060
October	1,561	87	26	50	3,100
November	7,993	391	64	266	15,850
December	9,317	376	180	301	18,480
Calendar year 2010	115,719	1,560	22	317	229,500

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

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

Drainage area. -- 112 sq mi.

Average discharge. -- 7 years (1963-69), 11.5 ft^3/s (8,330 acre-ft per year) prior to completion of Azotea tunnel; 41 years (1970-2010) 136 ft3/s (98,520 acre-ft per year) subsequent to completion of Azotea tunnel.

Extremes. -- 1962-2010: Maximum discharge, 1,610 ft3/s Mar. 12, 1985 (gage height, 6.65 ft); no flow at times.

Remarks. -- Records good except those for winter months, which are fair. Subsequent to Nov. 16, 1970, flow affected by transmountain diversions through Azotea tunnel. Flow in Rutheron Drain included prior to Apr. 1, 1971.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	0.0	0.0	0.0	0.0	0.0
February	0.0	0.0	0.0	0.0	0.0
March	837	228	0.0	27	1,660
April	13,796	956	105	460	27,363
May	17,735	1,000	194	572	35,176
June	14,112	999	78	470	27,991
July	1,144	116	3.0	37	2,270
August	949	193	0.0	31	1,882
September	376	132	0.0	13	746
October	104	51	0.0	3.0	207
November	29	8.6	0.0	1.0	57
December	0.0	0.0	0.0	0.0	0.0
Calendar year 2010	49,082	1,000	0.0	134	97,359

STREAMFLOW

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

Location. -- Water-stage recorder, lat 36°42'24", long 106°44'42", in Tierra Amarilla Grant, on right bank 3.7 mi northwest of Heron Dam, 7.8 mi downstream from Horse Lake, and 9.9 mi west of Los Ojos. Datum of gage is 7,188.85 ft above National Geodetic Vertical Datum of 1929. Prior to July 1, 1971, at site 1,100 ft upstream.
Drainage area. -- 45 sq mi, approximately.
Average discharge. -- 12 years (1963-73,1986), 1.17 ft^3/s (848 acre-ft per year).
Extremes. -- 1963-2010: Maximum discharge, 3,960 ft3/s July 30, 1968 (gage height, 4.9 ft); no flow most of time.
Remarks. -- Records good. Diversions above station for irrigation of meadows and for off-channel stock tanks.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	---	---	---	---	---
February	---	---	---	---	---
March	---	---	---	---	---
April	---	---	---	---	---
May	0.0	0.0	0.0	0.0	0.0
June	0.0	0.0	0.0	0.0	0.0
July	0.0	0.0	0.0	0.0	0.0
August	0.0	0.0	0.0	0.0	0.0
September	0.0	0.0	0.0	0.0	0.0
October	---	---	---	---	---
November	---	---	---	---	---
December	---	---	---	---	---
Calendar year 2010	0.0	0.0	0.0	0.0	0.0

Willow Creek below Heron Dam, N. Mex.

Location. -- Totalizing flowmeters, lat 36°39'56", long 106°42'12", in Tierra Amarilla Grant, in outlet conduits at Heron Dam, 0.2 mi upstream from Rio Chama, 5.1 mi northeast of El Vado Dam, and 8.7 mi southwest of Los Ojos.
Drainage area. -- 193 sq mi.
Average discharge. -- 40 years (1971-2010), 129 ft3/s (93,190 acre-ft per year).
Extremes. -- 1971-2010: Maximum daily discharge, 2,780 ft3/s Dec. 18, 19, 1982; no flow at times each year.
Remarks. -- Records excellent. Flow completely regulated by Heron Dam.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	0.0	0.0	0.0	0.0	0.0
February	0.0	0.0	0.0	0.0	0.0
March	1,361	81	0.0	44	2,700
April	4,686	200	20	156	9,295
May	231	50	0.0	7.5	458
June	120	50	0.0	4.0	238
July	0.0	0.0	0.0	0.0	0.0
August	17,166	716	0.0	554	34,048
September	22,692	800	0.0	756	45,009
October	0.0	0.0	0.0	0.0	0.0
November	4,703	300	0.0	157	9,328
December	10,024	375	0.0	323	19,882
Calendar year 2010	60,983	800	0.0	167	120,958

STREAMFLOW

Rio Chama below El Vado Dam, N. Mex

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

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

Average discharge. -- 4 years (1914, 1921-23), 444 ft3/s (321,700 acre-ft per year), prior to completion of El Vado Dam; 35 years (1936-70), 372 ft3/s (269,500 acre-feet per year), prior to release of transmountain water; 40 years (1971-2010) 465 ft3/s (337,000 acre-feet per year).

Extremes. -- 1914-16, 1920-24, 1936-2010; Maximum discharge observed, 9,000 ft3/s May 22, 1920 (gage height, 12 ft); no flow Mar. 25, 26, 31, 1955.

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

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	4,010	178	95	129	7,950
February	2,136	96	56	76	4,240
March	3,751	259	78	121	7,440
April	32,548	1,690	309	1,085	64,560
May	21,652	1,680	103	698	42,950
June	12,807	665	126	427	25,400
July	22,343	941	516	721	44,320
August	24,453	895	574	789	48,500
September	24,169	885	558	806	47,940
October	9,361	558	153	302	18,570
November	3,535	158	76	118	7,010
December	6,992	434	53	226	13,870
Calendar year 2010	167,757	1,690	53	460	332,700

Rio Chama below Abiquiu Dam, N. Mex.

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

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

Average discharge. -- 9 years (1962-70), 376 ft^3/s (272,400 acre-ft per year), prior to release of transmountain water; 40 years (1971-2010), 513 ft3/s (371,800 acre-feet per year).

Extremes. -- 1961-2010; Maximum discharge, 2,990 ft3/s July 1, 1965 (gage height, 6.69 ft); minimum, about 0.5 ft3/s Mar. 17, 1966, Jan. 28, 1972.

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

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	4,678	167	90	151	9,280
February	3,159	144	93	113	6,270
March	5,909	341	135	191	11,720
April	31,135	1,630	382	1,038	61,760
May	41,065	1,660	704	1,325	81,450
June	19,592	1,240	303	653	38,860
July	22,803	1,180	146	736	45,230
August	17,773	813	147	573	35,250
September	20,060	949	182	669	39,790
October	9,512	483	68	307	18,870
November	1,985	80	54	66	3,940
December	6,310	521	37	204	12,520
Calendar year 2010	183,981	1,660	37	504	364,900

STREAMFLOW

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

Location. -- Water-stage recorder with satellite telemetry, lat 35°50'46", long 105°54'17", in NE1/4SW1/4 sec. 29, T. 19 N., R. 10 E., in Nambe Indian Reservation, in outlet conduits at Nambe Falls Dam, 300 ft upstream from Nambe Falls, 2.6 mi upstream from confluence of Rio Nambe and Rio En Medio, 4.4 mi southeast of Nambe Pueblo, and 5.4 mi southeast of Nambe. Datum of gage is 6,840 ft above National Geodetic Vertical Datum of 1929, from topographic map.
Drainage area. -- 34.1 sq mi.
Average discharge. -- -- 32 years (1979-2010), 13 ft3/s (9,650 acre-feet per year).
Extremes. -- 1979-2010; Maximum discharge, 312 ft3/s June 9, 1979 (gage height, 1.96 ft), at site 1,100 ft downstream; no flow December 31, 1994.
Remarks. -- Records good. Flow completely regulated by Nambe Falls Reservoir.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	27	0.9	0.7	0.9	53
February	40	1.6	0.9	1.4	79
March	272	20	1.3	8.8	540
April	894	45	15	30	1,770
May	1,200	61	22	39	2,380
June	1,057	55	21	35	2,100
July	534	28	4.2	17	1,060
August	408	22	5.1	13	809
September	531	25	4.6	18	1,050
October	162	11	0.6	5.2	321
November	16	0.7	0.3	0.5	31
December	14	0.5	0.3	0.4	27
Calendar year 2010	5,154	61	0.3	14	10,220

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

Location. -- Water-stage recorder with satellite telemetry, lat 35°52'29", long 106°08'30", in SW1/4SW1/4 sec. 18, T. 19 N., R. 8 E., in San Ildefonso Pueblo Grant, 400 ft downstream from bridge on State Highway 502, 1.8 mi southwest of San Ildefonso Pueblo, 2.5 mi downstream from Pojoaque River, and 6.8 mi west of Pojoaque. Datum of gage is 5,488.48 ft above National Geodetic Vertical Datum of 1929. Prior to May 19, 1904, and July 25 to Oct 1, 1904, staff gage at site 180 ft upstream at datum 2.02 ft lower.
Drainage area. -- 14,300 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).
Average discharge. -- 111 years (1896-1905, 1910-2010), 1,505 ft3/s (1,090,000 acre-feet per year).
Extremes. -- 1895-1905, 1910-2010; Maximum discharge, 24,400 ft3/s May 23, 1920 (gage height, 14.1 ft); minimum daily, 60 ft^3/s July 4, 5, 1902.
Remarks. -- Records good. Flow partly regulated by Heron, El Vado, and Abiquiu Reservoirs. Diversions above station for irrigation of about 620,000 acres in Colorado and 75,000 acres in New Mexico. Subsequent to May 1971 flow affected by releases of transmountain water from Heron Reservoir.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	21,691	782	626	700	43,020
February	19,230	748	641	687	38,140
March	32,216	1,570	745	1,039	63,900
April	94,390	4,580	1,710	3,146	187,200
May	110,060	4,080	2,660	3,550	218,300
June	61,300	3,840	1,080	2,043	121,600
July	36,322	1,540	796	1,172	72,040
August	30,230	1,330	574	975	59,960
September	27,299	1,460	482	910	54,150
October	18,501	738	478	597	36,700
November	18,859	745	407	629	37,410
December	26,040	1,280	558	840	51,650
Calendar year 2010	496,138	4,580	407	1,359	984,100

STREAMFLOW

Santa Fe River near Santa Fe, N. Mex.

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

Drainage area. -- 18.2 sq mi.

Average discharge. -- 98 years (1913-2010), 8.0 ft3/s (5,800 acre-feet per year).

Extremes. -- 1913-2010; Maximum discharge, 1,500 ft3/s Aug. 14, 1921 (gage height, 5.17 ft); from rating curve extended above 150 ft^3/s; minimum, no flow Aug. 2-10, 2000.

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

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	52	1.8	1.5	1.7	103
February	50	1.8	1.7	1.8	100
March	168	22	1.8	5.4	332
April	395	37	2.1	13	784
May	948	63	17	31	1,880
June	424	23	13	14	841
July	396	13	12	13	785
August	401	14	12	13	795
September	341	13	2.4	11	676
October	84	2.9	1.7	2.7	166
November	49	1.7	1.5	1.6	97
December	48	1.8	1.4	1.6	96
Calendar year 2010	3,356	63	1.4	9.2	6,660

Rio Grande below Cochiti Dam, N. Mex.

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

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

Average discharge. -- 40 years (1971-2010), 1,333 ft3/s (965,000 acre-feet per year).

Extremes. -- 1971-2010; Maximum discharge, 10,300 ft3/s July 26, 1971 (gage height, 7.90 ft) at site 2.4 mi downstream prior to closure of Cochiti Dam; from rating curve extended above 2,600 ft^3/s; minimum discharge 0.51 ft^3/s Aug. 3-5, 1977, Aug. 27-28, 1978.

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

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	22,258	796	651	718	44,150
February	19,680	737	528	703	39,040
March	29,266	1,450	653	944	58,050
April	72,990	3,490	1,420	2,433	144,800
May	103,980	6,090	2,310	3,354	206,200
June	49,843	3,200	843	1,661	98,860
July	28,811	1,070	701	929	57,150
August	27,277	1,350	639	880	54,100
September	22,078	869	364	736	43,790
October	12,994	497	296	419	25,770
November	16,436	676	313	548	32,600
December	25,490	1,270	502	822	50,560
Calendar year 2010	431,103	6,090	296	1,181	855,100

STREAMFLOW

Galisteo Creek below Galisteo Dam, N. Mex.

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

Drainage area. -- 597 sq mi.

Average discharge. -- --40 years (1971-2010), 5.0 ft3/s (3,753 acre-feet per year).

Extremes. -- 1970-2010; Maximum discharge, 3,460 ft3/s Aug. 24, 1997 (gage height, 5.57 ft); no flow many days each year.

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

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	0.0	0.0	0.0	0.0	0.0
February	0.0	0.0	0.0	0.0	0.0
March	17	3.9	0.0	0.5	33
April	9.1	5.1	0.0	0.3	18
May	0.0	0.0	0.0	0.0	0.0
June	77	41	0.0	2.6	153
July	314	162	0.0	10	623
August	555	444	0.0	18	1,100
September	2.3	2.2	0.0	0.1	4.5
October	0.0	0.0	0.0	0.0	0.0
November	0.0	0.0	0.0	0.0	0.0
December	0.0	0.0	0.0	0.0	0.0
Calendar year 2010	974	444	0.0	2.7	1,930

Jemez River Outlet below Jemez Canyon Dam, N. Mex.

Location. -- Water-stage recorder with satellite telemetry, lat 35°23'41", long 106°32'41", in NE1/4 sec. 32, T. 14 N., R. 4 E., gage located at outlet pipe for Jemez Canyon Dam, 0.7 mi upstream from prior gage location. Datum of gage is 5,162.60 ft above National Geodetic Vertical Datum of 1929, from topographic map. Gage replaces Jemez River below Jemez Canyon Dam. Discharge records for two gages are comparable except the period 2002-2009, when original gage was affected by siltation.

Drainage area. -- 1,034 sq mi.

Average discharge. -- 1 year (2010), 56 ft3/s (40,220 acre-feet per year).

Extremes. -- 2010; Maximum discharge, 2,790 cfs Jan. 8, 2010, gage height 1.90; no flow many days each year.

Remarks. -- Records good. Flow regulated by Jemez Canyon Dam since October 1953. Diversions for irrigation of about 3,000 acres above station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	593	32	10	19	1,180
February	610	33	17	22	1,210
March	802	37	19	26	1,590
April	11,047	1,080	41	368	21,910
May	4,969	477	4.6	160	9,860
June	191	43	0.0	6.4	379
July	79	36	0.0	2.6	157
August	663	234	0.0	21	1,310
September	314	273	0.0	11	623
October	182	81	0.0	5.9	360
November	275	16	1.0	9.2	546
December	554	36	5.5	18	1,100
Calendar year 2010	20,278	1,080	0.0	56	40,220

STREAMFLOW

Rio Grande below Elephant Butte Dam, N. Mex.

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

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

Average discharge. -- 96 years (1915-2010), 1,001 ft3/s (724,900 acre-feet per year).

Extremes. -- 1915-2010; Maximum daily discharge, 8,220 ft3/s May 22, 1942; no flow at times prior to 1929 and March 2-4, 1979.

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

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	380	15	10	12	754
February	19,812	845	11	708	39,300
March	38,176	2,070	844	1,231	75,720
April	58,690	2,470	877	1,956	116,400
May	46,840	1,920	1,340	1,511	92,910
June	68,020	2,710	1,760	2,267	134,900
July	61,930	2,420	1,020	1,998	122,800
August	52,734	1,820	814	1,701	104,600
September	16,333	819	23	544	32,400
October	513	22	13	17	1,020
November	360	19	10	12	714
December	319	11	10	10	632
Calendar year 2010	364,107	2,710	10	998	722,200

Rio Grande below Caballo Dam, N. Mex.

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

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

Average discharge. -- 73 years (1938-2010), 926 ft3/s (670,700 acre-feet per year).

Extremes. -- 1938-2010; Maximum daily discharge, 7,650 ft3/s May 20, 1942; minimum daily, 0.1 ft3/s Oct. 31 to Nov. 14, 1954, Nov. 7 to Dec. 31, 1955, Feb. 15-29, 1972.

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

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	31	1.0	1.0	1.0	61
February	28	1.0	1.0	1.0	56
March	34,361	2,060	1.0	1,108	68,160
April	46,221	2,200	954	1,541	91,680
May	45,250	1,700	1,170	1,460	89,750
June	64,560	2,510	1,570	2,152	128,100
July	55,490	2,230	1,200	1,790	110,100
August	59,370	2,280	1,330	1,915	117,800
September	24,603	1,740	300	820	48,800
October	2,926	505	2.0	94	5,800
November	60	2.0	2.0	2.0	119
December	62	2.0	2.0	2.0	123
Calendar year 2010	332,962	2,510	1.0	912	66,400

STREAMFLOW

Bonito Ditch below Caballo Dam, N. Mex.

Records available. -- January 1938 to current year. Published as supplementary data with Rio Grande below Caballo Dam in U.S.G.S. Water-Supply Papers and Water-Data Reports beginning with October 1947.

Remarks. -- Ditch diverts directly from Caballo Reservoir for irrigation of lands on right bank of river. The total release from Project Storage, as used in computations of Compact Commission, is the combined flow of this ditch and Rio Grande below Caballo Dam.

	Diversion, in acre-ft
January	0.0
February	85.4
March	86.4
April	57.7
May	94.7
June	192.2
July	121.3
August	59.0
September	59.0
October	0.0
November	0.0
December	0.0
Calendar year 2010	755.6

STORAGE IN RESERVOIRS

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

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

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

Calendar Year 2010

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

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

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

Calendar Year 2010

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

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

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

Calendar Year 2010

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

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

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

Calendar Year 2010

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

STORAGE IN RESERVOIRS

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

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

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

Calendar Year 2010

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

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

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

Calendar Year 2010

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

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

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

Calendar Year 2010

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. Yr.
Gage height	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	-
Contents	598	598	598	598	598	598	598	598	598	598	598	598	-
Change	0	0	0	0	0	0	0	-204	0	0	0	0	0

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

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

Calendar Year 2010

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

STORAGE IN RESERVOIRS

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

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

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

Calendar Year 2010

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. Yr.
Gage height	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	-
Contents	41	41	41	41	41	41	41	41	41	41	41	41	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

Fuchs Reservoir. – Staff gage in sec. 2, T. 37 N., R. 4 E., on East Pinos Creek. Completed in 1939; capacity, 237 acre-ft with 2 ft of flash boards in spillway. Prior to calendar year 1999, contents reported as 238 acre-ft were actually 237 acre-ft. Pinos Creek enters Rio Grande below station near Del Norte.

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

Calendar Year 2010

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. Yr.
Gage height	12.3	12.6	13.2	14.2	17.2	15.0	13.0	12.8	12.3	12.1	12.1	12.1	-
Contents	128	134	140	152	172	237	189	147	143	134	131	131	-
Change	+6	+6	+12	+20	+65	-48	-42	-4	-9	-3	0	0	+3

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

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

Date	Elevation	Contents	Change in contents
December 31, 2009	9,977.94	29,518	-
January 31, 2010	9,998.35	29,810	+292
February 28	9,998.58	29,975	+165
March 31	9,998.79	30,113	+138
April 30	9,998.81	30,130	+17
May 31	10,008.70	37,480	+73,050
June 30	10,019.70	46,490	+9,010
July 31	10,007.30	36,349	-10,141
August 31	9,997.47	29,196	-7,153
September 30	9,984.74	21,047	-8,149
October 31	9,984.44	20,870	-177
November 30	9,985.05	21,228	+358
December 31, 2010	9,985.62	21,565	+337
Calendar year 2010	-	-	-7,953

Trujillo Meadows Reservoir. – In sec. 5, T. 32 N., R. 5 E., on Los Pinos River. Completed in 1957; capacity, 869 acre-ft, effective Jan. 1, 1999. Water is used for fish culture. Storage is transmountain water, by exchange, in 1959.

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

Calendar Year 2010

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. Yr.
Gage height	22.6	22.6	22.6	22.6	23.6	23.3	22.8	22.7	22.7	22.7	22.6	22.6	-
Contents	738	738	738	738	803	783	751	744	744	744	738	738	-
Change	0	0	0	0	+45	-13	-26	0	0	0	-6	0	0

STORAGE IN RESERVOIRS

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

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

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

Date	Elevation	Contents	Change in contents
December 31, 2009	7,157.45	252,110	-
January 31, 2010	7,157.55	252,562	+452
February 28	7,157.64	252,974	+412
March 31	7,157.87	254,021	+1,047
April 30	7,162.27	274,527	+20,506
May 31	7,169.21	308,648	+34,121
June 30	7,174.04	333,712	+25,064
July 31	7,174.21	334,614	+902
August 31	7,168.16	303,349	-31,265
September 30	7,158.76	258,093	-45,256
October 31	7,158.59	257,312	-781
November 30	7,156.33	247,058	-10,254
December 31, 2010	7,151.67	226,680	-20,378
Calendar year 2010	-	-	-25,430

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

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

Date	Gage Height	Contents	Change in contents	Transmountain water
December 31, 2009	6,876.05	116,717	-	60,801
January 31, 2010	6,874.06	111,992	-4,725	56,078
February 28	6,873.84	111,480	-512	55,473
March 31	6,874.95	114,083	2,603	55,473
April 30	6,877.38	119,969	5,886	55,304
May 31	6,897.57	176,879	56,910	44,964
June 30	6,896.04	172,165	-4,714	37,890
July 31	6,881.27	129,847	-42,318	25,543
August 31	6,875.71	115,896	-13,951	34,468
September 30	6,873.95	111,736	-4,160	63,271
October 31	6,866.03	94,541	-17,195	52,182
November 30	6,867.97	98,544	4,003	56,215
December 31, 2010	6,872.59	108,611	10,067	65,487
Calendar year 2010	-	-	-8,106	-

STORAGE IN RESERVOIRS

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

Abiquiu Reservoir. -- Water-stage recorder, lat 36°14'24", long l06°25'44", on Rio Chama. Completed in February 1963; capacity, 1,192,800 acre-ft at elevation 6,350 feet (crest of spillway) by 1998 survey. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Reservoir is operated by Corps of Engineers for flood control and sediment storage. A resolution granting permission to store transmountain waters was approved by Rio Grande Compact Commission on May 3, 1974. Storage includes both Rio Grande and transmountain water.

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

Date	Elevation	Contents	Change in contents	Transmountain water
December 31, 2009	6,219.94	183,640	-	180,509
January 31, 2010	6,219.87	183,359	-281	180,191
February 28	6,219.60	182,275	-1,084	178,952
March 31	6,219.00	179,883	-2,392	176,650
April 30	6,223.04	196,419	16,563	173,567
May 31	6,216.45	169,903	-26,516	166,513
June 30	6,212.93	156,639	-13,264	153,233
July 31	6,213.19	157,601	+962	153,778
August 31	6,217.50	173,978	+16377	170,489
September 30	6,219.50	181,875	+7,897	178,342
October 31	6,219.36	181,314	-561	177,775
November 30	6,219.79	183,037	+1,723	180,423
December 31, 2010	6,220.02	183,962	+925	179,012
Calendar year 2010	-	-	+322	-

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

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

Date	Elevation	Contents	Change in contents
December 31, 2009	6,819.20	1,525	-
January 31, 2010	6,822.71	1,704	+179
February 28	6,825.31	1,846	+142
March 31	6,826.72	1,927	+81
April 30	6,826.76	1,929	+29
May 31	6,826.88	1,936	+2
June 30	6,823.30	1,736	+7
July 31	6,821.86	1,660	-200
August 31	6,822.31	1,683	-76
September 30	6,811.48	1,176	+23
October 31	6,812.41	1,215	-507
November 30	6,816.62	1,402	+39
December 31, 2010	6,820.67	1,599	+187
Calendar year 2010	-	-	+74

STORAGE IN RESERVOIRS

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

McClure (Granite Point) Reservoir. – Water-stage recorder, lat 35°41'18", long l05°50'06", in NE1/4SW1/4 sec. 24, T. 17 N., R. 10 E., on Santa Fe River. Original reservoir completed in 1926, capacity, 561 acre-ft; in 1935, permanent flash boards were installed in spillway increasing capacity to 650 acre-ft; in 1947 both dam and spillway were reconstructed increasing capacity to 2,615 acre-ft (gage height, 96.6 ft, crest of spillway). In 1953 spillway was equipped with radial gates that opened automatically, increasing capacity to over 3,000 acre-ft. In 1972, radial gates were removed decreasing capacity to 2,615 acre-ft. In 1989, modifications to the dam and spillway increased capacity to 2,813 acre-ft. In 1995, modification to the dam and spillway increased capacity to 3,257 acre-ft. No dead storage. Elevation of gage is 7,790 ft above National Geodetic Vertical Datum of 1929, from topographic map. Water is for municipal use in Santa Fe. Storage includes both Rio Grande water and transmountain water by exchange. Capacity includes 561 acre-ft for pre-Compact storage and additional capacity as may be available to accomodate up to a total of 1,061 acre-feet of pre-Compact storage in McClure and Nichols Reservoirs combined.

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

Date	Gage height	Contents	Change in contents	Pre-Compact water	Transmountain water
December 31, 2009	7,860.64	1,540	-	0	1,540
January 31, 2010	7,860.50	1,533	-7	0	1,533
February 28	7,861.05	1,564	+31	-1	1,564
March 31	7,866.91	1,764	+200	-124	1,764
April 30	7,883.06	2,549	+785	-404	2,549
May 31	7,881.77	2,549	0	-163	2,549
June 30	7,881.57	2,549	0	-69	2,549
July 31	7,875.58	2,494	-55	0	2,494
August 31	7,871.29	2,201	-293	-1	2,201
September 30	7,863.38	1,702	-499	0	1,702
October 31	7,862.22	1,632	-70	0	1,632
November 30	7,861.70	1,602	-30	0	1,602
December 31, 2010	7,861.68	1,601	-1	0	1,601
Calendar year 2010	-		+61		

Nichols Reservoir. – Water-stage recorder, lat 35°41'24", long l05°52'46", in SE1/4NE1/4 sec. 21, T. 17 N., R. 10 E., on Santa Fe River. Completed in 1942; capacity, 685 acre-ft at gage height 167.0 feet (crest of spillway), dead storage, 14 acre-ft at gage height 121.1 feet. Datum of gage is 7,313.2 feet above National Geodetic Vertical Datum of 1929. Water is for municipal use in Santa Fe. Storage includes both Rio Grande water and transmountain water by exchange. Capacity may include pre-Compact storage such that total pre-Compact storage in McClure and Nichols Reservoirs combined does not exceed 1,061 acre-ft.

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

Date	Gage height	Contents	Change in contents	Pre-Compact water	Transmountain water
December 31, 2009	152.78	332	-	0	332
January 31, 2010	154.10	362	+30	31	331
February 28	156.66	414	+52	111	299
March 31	165.02	626	+212	423	100
April 30	167.27	694	+68	520	100
May 31	167.19	691	-3	263	100
June 30	165.88	652	-39	109	100
July 31	166.21	662	+10	24	155
August 31	164.17	603	-59	1	448
September 30	163.72	591	-12	0	591
October 31	162.56	560	-31	14	545
November 30	160.6	507	-53	0	507
December 31, 2010	151.65	310	-197	0	310
Calendar year 2010	-		-22		

STORAGE IN RESERVOIRS

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

Cochiti Lake. – Water-stage recorder with satellite telemetry, lat 35°37'01", long l06°18'58", in NW1/4SW1/4 sec. 16, T. 16 N., R. 6 E., in Pueblo de Cochiti Grant, on Rio Grande. Completed in l975; capacity 491,259 acre-ft at elevation 5,450.0 ft (crest of service spillway); zero storage at elevation 5,255.0 from 1998 survey. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by the U.S. Army Corps of Engineers). A 50,000 acre-foot permanent pool was authorized by Public Law 88-293, 88th Congress, March 26, 1964. Reservoir is operated by Corps of Engineers for flood control, sediment storage, and recreation. Storage began Nov. 12, 1973.

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

Date	Elevation	Contents	Change in contents	Transmountain water
December 31, 2009	6,822.75	1,707	-	46,527
January 31, 2010	6,825.21	1,840	+134	46,457
February 28	6,826.12	1,892	+52	46,266
March 31	6,826.20	1,897	+5	45,959
April 30	6,826.70	1,925	+29	45,480
May 31	6,826.76	1,929	+3	44,888
June 30	6,826.70	1,925	-3	46,043
July 31	6,818.98	1,515	-411	47,965
August 31	6,810.60	1,140	-375	47,313
September 30	6,808.24	1,047	-93	47,458
October 31	6,810.62	1,140	+93	48,124
November 30	6,815.41	1,346	+206	47,909
December 31, 2010	6,819.20	1,525	+179	47,861
Calendar year 2010	-	-	-181	-

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

Month-end contents, in acre-feet

Calendar Year 2010

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

STORAGE IN RESERVOIRS

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

Jemez Canyon Reservoir. – Water-stage recorder, lat 35°23'40", long l06°32'50", in SW1/4SW1/4 sec. 32, T. 14 N., R. 4 E., on Jemez River. Completed in 1953; capacity, 259,423 acre-ft at elevation 5,271.20 ft. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Maximum controlled capacity at elevation 5,232.0 ft (floor of spillway) is 97,425 acre-ft by 1998 survey. Reservoir is operated by Corps of Engineers for flood control and sediment storage. A sediment pool of about 2,000 acre-ft of transmountain water has been maintained since August l979.

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

Date	Elevation	Contents	Change in contents	Transmountain water
December 31, 2009	5,155.00	0	-	0
January 31, 2010	5,155.00	0	0	0
February 28	5,155.00	0	0	0
March 31	5,155.00	0	0	0
April 30	5,155.00	0	0	0
May 31	5,155.00	0	0	0
June 30	5,155.00	0	0	0
July 31	5,155.00	0	0	0
August 31	5,155.00	0	0	0
September 30	5,155.00	0	0	0
October 31	5,155.00	0	0	0
November 30	5,155.00	0	0	0
December 31, 2010	5,155.00	0	0	0
Calendar year 2010	-	-	0	-

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

Month-end contents, in acre-feet

Calendar Year 2010

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

Seama Reservoir. – In sec. 36, T. 10 N., R. 7 W., off channel from Rio San Jose. Completed in October 1980; capacity approximately 400 acre-ft. Water is used for irrigation on Laguna Indian Reservation.

No storage during 2010.

STORAGE IN RESERVOIRS

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

Elephant Butte Reservoir. – Water-stage recorder, lat 33°09'15", long l07°11'28", in NW1/4 sec. 30, T. 13 S., R. 3 W., on Rio Grande. Storage began Jan. 6, 1915; capacity, 2,023,400 acre-ft at gage height 4,407.0 ft (crest of spillway), by survey of 1999 with flood control storage reservation of 50,000 acre-ft from April through September and 25,000 acre-ft from October through March in accordance with Sept. 9, 1998 resolution of the Rio Grande Compact Commission. Datum of gage is 43.3 ft above National Geodetic Vertical Datum of 1929. Water is used for power development and irrigation in New Mexico and Texas. Records furnished by Bureau of Reclamation. Delivery of transmountain water for minimum recreation pool was initiated in December 1975. Beginning Jan. 1, 1977 gage readings are midnight readings.

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

Date	Gage Height	Contents	Change in contents	Transmountain water
December 31, 2009	4,342.15	519,705	-	45,011
January 31, 2010	4,345.20	561,481	+41,776	45,604
February 28	4,345.60	567,088	+5,607	45,652
March 31	4,343.69	540,575	-26,513	45,406
April 30	4,343.83	542,497	+1,922	45,009
May 31	4,347.91	600,081	+57,584	50,274
June 30	4,342.94	530,354	-69,727	60,756
July 31	4,336.27	444,331	-86,023	60,367
August 31	4,331.01	383,105	-61,226	59,666
September 30	4,329.43	365,864	-17,241	58,995
October 31	4,330.04	372,462	+6,598	58,544
November 30	4,331.89	392,941	+20,479	58,122
December 31, 2010	4,335.68	437,172	+44,231	64,257
Calendar year 2010	-	-	-82,533	-

Caballo Reservoir. – Water-stage recorder, lat 32°53'47", long l07°17'30", in SE1/4SW1/4 sec. 19, T. 16 S., R. 4 W., on Rio Grande. Storage began Feb. 8, 1938; capacity, 326,700 acre-ft (by 1999 resurvey), at gage height 4,182.0 ft (above which spillway gates open automatically). Datum of gage is 43.3 ft above National Geodetic Vertical Datum of 1929.

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

Date	Gage height	Contents	Change in contents
December 31, 2009	4,140.22	29,510	-
January 31, 2010	4,141.01	31,650	+2,140
February 28	4,149.20	61,820	+30,170
March 31	4,148.21	57,380	-4,440
April 30	4,151.21	71,550	+14,170
May 31	4,148.41	58,260	-13,290
June 30	4,147.16	52,920	-5,340
July 31	4,148.98	60,810	+7,890
August 31	4,143.51	39,380	-21,430
September 30	4,136.94	21,370	-18,010
October 31	4,135.55	18,380	-2,990
November 30	4,136.33	20,030	+1,650
December 31, 2010	4,137.24	22,050	+2,020
Calendar year 2010		-	-7,460

STORAGE IN RESERVOIRS

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

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

Month-end contents, in acre-feet

Date	Contents	Change in contents
December 31, 2009	549,215	-
January 31, 2010	593,131	+43,916
February 28	628,908	+35,777
March 31	597,955	-30,953
April 30	614,047	+16,092
May 31	658,341	+44,294
June 30	583,274	-75,067
July 31	505,141	-78,133
August 31	422,485	-82,656
September 30	387,234	-35,251
October 31	390,842	+3,608
November 30	412,971	+22,129
December 31, 2010	459,222	+46,251
Calendar year 2010		-89,993

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

TRANSMOUNTAIN DIVERSIONS

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

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

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

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

Don La Font No. 1 & 2 ditches (Piedra Pass ditch).-- Water-stage recorder and 2-ft Parshall flume in sec. 4, T. 38 N., R. 1 W., at Piedra Pass in Colorado. Diversion is from tributaries of Piedra River in San Juan River Basin to South River in Rio Grande Basin. Original ditch completed in l938, first enlargement completed in 1940. Water is imported by Colorado Game and Fish Department, beginning in 1959, to offset losses from fish culture reservoirs.

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

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

Imported quantities, in acre-feet, 2010

Month	Pine River-Weminuche Pass ditch	Weminuche Pass ditch	Williams Creek-Squaw Pass ditch	Tabor ditch	Don La Font ditches	Treasure Pass diversion ditch	Azotea tunnel
January	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0
March	0	0	0	0	0	0	546
April	0	0	0	0	0	0	21,908
May	9	0	49	229	0	2	35,368
June	256	653	160	144	14	179	27,249
July	0	0	26	45	8	2	1,815
August	9	0	42	38	0	0	1,501
September	0	0	26	29	0	0	712
October	0	0	0	13	0	0	251
November	0	0	0	0	0	0	53
December	0	0	0	0	0	0	0
Calendar year	274	653	303	498	22	183	89,404

EVAPORATION AND PRECIPITATION

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

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

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

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

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

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

Alamosa Airport.--Lat 37°27', long 105°52', in Alamosa County at airport near Alamosa, Colo. Standard class A pan, anemometer, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 7,536 ft.

Platoro Dam.--Lat 37°21', long 106°30', in Conejos County near Platoro, Colo. Standard class A pan, anemometer, maximum and minimum thermometers, fan type psychrometer, standard 8-inch and recording rain gages at elevation 9,826 ft.

Heron Dam.--Lat 36°40', long 106°42', in Rio Arriba County about 4 mi. northeast of Heron Dam near Tierra Amarilla, N. Mex Standard class A pan, maximum and minimum thermometers, and standard 8-inch rain gage at elevation 7,310 ft.

El Vado Dam.--Lat 36°36', long 106°44', in Rio Arriba County at El Vado Dam near Tierra Amarilla, N. Mex. Standard class A pan, anemometer, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 6,750 ft.

Abiquiu Dam.--Lat 36°14', long 106°26', in Rio Arriba County at Abiquiu Dam near Abiquiu, N. Mex. Standard class A pan, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 6,380 ft.

Nambe Falls Dam.--Lat 35°51', long 105°54', in Santa Fe County at Nambe Falls Dam, N. Mex. Standard class A pan, maximum and minimum thermometers, recording thermograph, standard 8-inch and recording rain gages at elevation 6,840 ft.

Cochiti Dam.--Lat 35°38', long 106°19', in Sandoval County at operations building, at Cochiti Dam, N. Mex. Standard class A pan, anemometer, maximum and minimum thermometers, standard 8-inch and recording rain gages at elevation 5,560 ft.

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

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

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

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

EVAPORATION AND PRECIPITATION

Evaporation and precipitation, in inches
2010

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.	Annual
Alamosa	Evap.	-	-	-	-	-	-	-	-	-	-	-	-	-
Airport	Precip.	.69	0.10	0.85	0.61	0.10	0.11	0.83	0.48	0.68	0.58	0.00	1.21	5.36
Platoro	Evap.	-	-	-	-	3.48	8.54	6.50	5.99	5.92	2.41	-	-	-
Dam	Precip.	-	-	-	-	0.14	0.26	2.47	2.49	2.59	0.56	-	-	-
Heron	Evap.	-	-	-	5.17	8.09	9.91	8.57	6.98	6.60	4.42	-	-	-
Dam	Precip.	1.81	1.27	0.83	1.95	0.10	0.17	2.30	2.61	1.45	1.46	0.41	2.70	17.06
El Vado	Evap.	-	-	-	5.62	8.87	10.35	8.7	7.33	6.63	4.22	-	-	-
Dam	Precip.	1.5	1.25	0.99	1.50	0.09	0.07	2.60	2.73	1.02	1.97	0.20	1.98	15.90
Abiquiu	Evap.	-	-	-	8.19	10.78	12.26	10.61	9.24	8.67	6.16	-	-	-
Dam	Precip.	0.37	0.73	1.06	0.73	0.21	0.15	1.50	1.97	0.81	0.60	0.03	0.48	8.64
Nambe	Evap.	-	-	-	6.44	10.15	12.17	10.16	9.09	7.87	5.58	-	-	-
Canyon Dam	Precip.	1.05	0.55	2.69	0.00	0.02	0.28	5.34	1.90	2.30	0.69	0.00	0.34	15.16
Cochiti	Evap.	-	-	-	8.65	12.51	14.98	11.76	11.54	10.26	6.95	-	-	-
Dam	Precip.	1.45	0.79	1.76	0.44	0.28	0.15	5.08	1.27	1.08	1.26	0.00	0.39	13.95
Jemez	Evap.	-	-	-	9.5299998	12.62	14.33	13.68	11.84	9.37	6.10	-	-	-
Canyon Dam	Precip.	1.03	0.53	0.73	0.64	0.54	0.14	1.59	2.02	0.72	0.59	0.00	0.91	9.44
Elephant	Evap.	3.29	4.47	8.93	12.69	17.28	15.16	12.23	12.65	11.66	9.33	7.88	5.86	121.43
Butte Dam	Precip.	0.64	1.08	0.11	1.77	0.03	0.33	3.88	0.93	0.96	0.47	0.00	0.00	10.20
Caballo	Evap.	-	4.35	7.53	10.88	14.54	15.75	12.73	11.46	10.15	7.91	6.01	4.36	-
Dam	Precip.	0.75	1.08	0.22	1.43	0.02	0.33	3.99	2.30	0.72	0.38	0.00	0.05	11.27
State	Evap.	-	4.54	7.01	9.46	12.97	13.42	11.00	10.01	8.59	6.89	5.24	4.70	-
University	Precip.	1.03	0.52	0.03	0.06	0.00	0.64	3.93	1.54	1.21	0.42	0.00	0.01	9.39

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.

RIO GRANDE COMPACT

(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.

RIO GRANDE COMPACT

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

ARTICLE III

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

DISCHARGE OF CONEJOS RIVER

Quantities in thousands of acre feet

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

Intermediate quantities shall be computed by proportional parts.

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

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

DISCHARGE OF RIO GRANDE EXCLUSIVE OF CONEJOS RIVER

Quantities in thousands of acre feet

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

RIO GRANDE COMPACT

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

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

Intermediate quantities shall be computed by proportional parts.

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

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

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

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

ARTICLE IV

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

RIO GRANDE COMPACT

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

Quantities in thousands of acre feet

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

Intermediate quantities shall be computed by proportional parts.

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

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

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

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

RIO GRANDE COMPACT

ARTICLE V

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

ARTICLE VI

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

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

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

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

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

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

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

RIO GRANDE COMPACT

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

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

ARTICLE VII

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

ARTICLE VIII

During the month of January of any year the Commissioner for Texas may demand of Colorado and New Mexico, and the Commissioner for New Mexico may demand of Colorado, the release of water from storage reservoirs constructed after 1929 to the amount of the accrued debits of Colorado and New Mexico, respectively, and such releases shall be made by each at the greatest rate practicable under the conditions then prevailing, and in proportion to the total debit of each, and in amounts, limited by their accrued debits, sufficient to bring the quantity of usable water in project storage to 600,000 acre feet by March first and to maintain this quantity in storage until April thirtieth, to the end that a normal release of 790,000 acre feet may be made from project storage in that year.

ARTICLE IX

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

ARTICLE X

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

ARTICLE XI

New Mexico and Texas agree that upon the effective date of this Compact all controversies between said States relative to the quantity or quality of the water of the Rio Grande are composed and settled; however, nothing herein shall be interpreted to prevent

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

ARTICLE XII

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

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

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

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

ARTICLE XIII

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

ARTICLE XIV

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

RIO GRANDE COMPACT

ARTICLE XV

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

ARTICLE XVI

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

ARTICLE XVII

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

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

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

(Sgd.) M. C. HINDERLIDER

(Sgd.) THOMAS M. McCLURE

(Sgd.) FRANK B. CLAYTON

APPROVED:

(Sgd.) S. O. HARPER

RATIFIED BY:

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

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

Approved by the President May 31, 1939

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

R E S O L U T I O N

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

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

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

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

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

Now, Therefore, Be it Resolved:

The Commission finds as follows:

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

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

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

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

Be it Further Resolved:

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

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

RIO GRANDE COMPACT COMMISSION REPORT

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

Quantities in thousands of acre-feet

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

Intermediate quantities shall be computed by proportional parts.

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

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

RIO GRANDE COMPACT

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

Be it Further Resolved:

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

Be it Further Resolved:

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

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

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

RULES AND REGULATIONS FOR ADMINISTRATION OF THE RIO GRANDE COMPACT

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

GAGING STATIONS /1

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

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

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

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

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

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

RULES AND REGULATIONS

RESERVOIR CAPACITIES /1

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

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

ACTUAL SPILL /2, /3, /4, /6

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

(b) Excess releases from Elephant Butte Reservoir, as defined in (a) above, shall be added to the quantity of water actually in storage in that reservoir, and Actual Spill shall be deemed to have commenced when this sum equals the total capacity of that reservoir to the level of the uncontrolled spillway less capacity reserved for flood purposes, i.e., 1,999,600 acre-feet in the months of October through March inclusive, and 1,974,600 acre-feet in the months of April through September, inclusive, as determined from the 2009 area-capacity table or successor area-capacity tables and flood control storage reservation of 50,000 acre-feet from April through September and 25,000 acre-feet from October through March.

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

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

DEPARTURES FROM NORMAL RELEASES /5

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

/1 Amended at Eleventh Annual Meeting, February 23, 1950.
/2 Adopted at Fourth Annual Meeting, February 24, 1943.
/3 Amended September 9, 1998.
/4 Amended March 22, 2001; made effective January 1, 2001.
/5 Adopted June 2, 1959; made effective January 1, 1952.
/6 Adopted March 31, 2009; made effective January 1, 2010.

RULES AND REGULATIONS

EVAPORATION LOSSES /6, /7, /8

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

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

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

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

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

ADJUSTMENT OF RECORDS

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

NEW OR INCREASED DEPLETIONS

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

TRANSMOUNTAIN DIVERSIONS

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

/6 Amended at Tenth Annual Meeting, February 15, 1949.
/7 Amended at Twelfth Annual Meeting, February 24, 1951.
/8 Amended June 2, 1959.

RULES AND REGULATIONS

QUALITY OF WATER

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

SECRETARY /8, /9

The Commission may, on a yearly basis, employ appropriate entities to render such engineering and clerical aid as may reasonably be necessary for administration of the Compact. The entities may be employed to:

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

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

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

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

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

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

COSTS /1, /2

At its annual meeting, the Commission shall adopt a budget for the ensuing fiscal year beginning July first.

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

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

/8 The substitution of this section for the section titled “Reports to Commissioners” was adopted at Ninth Annual Meeting, February 22, 1948.
/9 Amended March 31, 2009.

/1 Amended at Eleventh Annual Meeting, February 23, 1950.
/2 Amended March 31, 2009.

RULES AND REGULATIONS

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

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

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

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

MEETING OF COMMISSION /1, /10

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

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

(Signed) M. C. HINDERLIDER

M. C. Hinderlider

Commissioner for Colorado

(Signed) THOMAS M. McCLURE

Thomas M. McClure

Commissioner for New Mexico

(Signed) JULIAN P. HARRISON

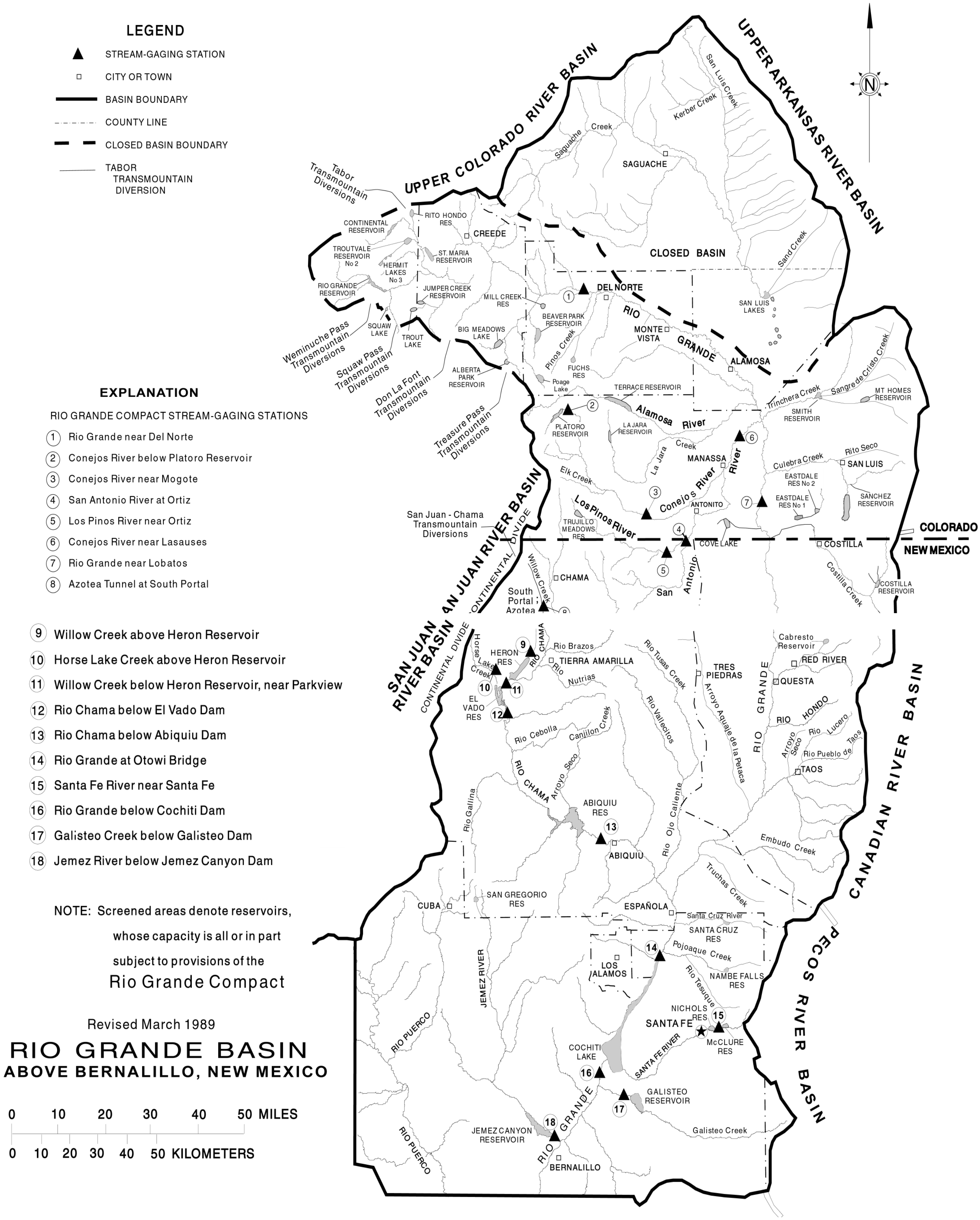
Julian P. Harrison

Commissioner for Texas

Adopted December 19, 1939.

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

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


LEGEND
STREAM-GAGING STATION
CITY OR TOWN
BASIN BOUNDARY
COUNTY LINE
CLOSED BASIN BOUNDARY
TABOR TRANSMOUNTAIN DIVERSION
EXPLANATION
RIO GRANDE COMPACT STREAM-GAGING STATIONS
1 Rio Grande near Del Norte
2 Conejos River below Platoro Reservoir
3 Conejos River near Mogote
4 San Antonio River at Ortiz
5 Los Pinos River near Ortiz
6 Conejos River near Lasauses
7 Rio Grande near Lobatos
8 Azotea Tunnel at South Portal
9 Willow Creek above Heron Reservoir
10 Horse Lake Creek above Heron Reservoir
11 Willow Creek below Heron Reservoir, near Parkview
12 Rio Chama below El Vado Dam
13 Rio Chama below Abiquiu Dam
14 Rio Grande at Otowi Bridge
15 Santa Fe River near Santa Fe
16 Rio Grande below Cochiti Dam
17 Galisteo Creek below Galisteo Dam
18 Jemez River below Jemez Canyon Dam
NOTE: Screened areas denote reservoirs, whose capacity is all or in part subject to provisions of the Rio Grande Compact
Revised March 1989
RIO GRANDE BASIN
ABOVE BERNALILLO, NEW MEXICO
0 10 20 30 40 50 MILES
0 10 20 30 40 50 KILOMETERS
UPPER COLORADO RIVER BASIN
UPPER ARKANSAS RIVER BASIN
SAN JUAN RIVER BASIN
CANADIAN RIVER BASIN
PECOS RIVER BASIN
CONTINENTAL DIVIDE
CLOSED BASIN
SAGUACHE
CREEDE
DEL NORTE
MONTE VISTA
ALAMOSA
MANASSA
ANTONITO
SAN LUIS
COSTILLA
COLORADO
NEW MEXICO
CHAMA
TIERRA AMARILLA
TRES PIEDRAS
RED RIVER
QUESTA
TAOS
ABIQUIU
CUBA
ESPAÑOLA
LOS ALAMOS
SANTA FE
BERNALILLO
Tabor Transmountain Diversions
Weminuche Pass Transmountain Diversions
Squaw Pass Transmountain Diversions
Don La Font Transmountain Diversions
Treasure Pass Transmountain Diversions
San Juan - Chama Transmountain Diversions
South Portal Azotea
CONTINENTAL RESERVOIR
RITO HONDO RES
TROUTVALE RESERVOIR No 2
HERMIT LAKES No 3
ST. MARIA RESERVOIR
RIO GRANDE RESERVOIR
JUMPER CREEK RESERVOIR
MILL CREEK RES
SQUAW LAKE
TROUT LAKE
BIG MEADOWS LAKE
BEAVER PARK RESERVOIR
ALBERTA PARK RESERVOIR
FUCHS RES
Poage Lake
TERRACE RESERVOIR
PLATORO RESERVOIR
LA JARA RESERVOIR
SAN LUIS LAKES
SMITH RESERVOIR
MT HOMES RESERVOIR
EASTDALE RES No 2
EASTDALE RES No 1
SANCHEZ RESERVOIR
TRUJILLO MEADOWS RES
COVE LAKE
COSTILLA RESERVOIR
Cabresto Reservoir
HERON RES
EL VADO RES
ABIQUIU RES
SAN GREGORIO RES
SANTA CRUZ RES
NAMBE FALLS RES
NICHOLS RES
McCLURE RES
COCHITI LAKE
GALISTEO RESERVOIR
JEMEZ CANYON RESERVOIR
RIO GRANDE
Saguache Creek
Kerber Creek
San Luis Creek
Sand Creek
Pinos Creek
Alamosa River
La Jara Creek
Conejos River
Elk Creek
Los Pinos River
San Antonio
Trinchera Creek
Sangre de Cristo Creek
Culebra Creek
Rito Seco
Costilla Creek
Willow Creek
Horse Lake Creek
RIO CHAMA
Rio Brazos
Rio Nutrias
Rio Tusas Creek
Rio Vallecitos
Arroyo Aguaje de la Petaca
Rio Cebolla
Canjilon Creek
Arroyo Seco
Rio Gallina
Rio Ojo Caliente
RIO HONDO
Rio Lucero
Rio Pueblo de Taos
Embudo Creek
Truchas Creek
Santa Cruz River
Pojoaque Creek
Rio Tesuque
SANTA FE RIVER
JEMEZ RIVER
RIO PUERCO
Galisteo Creek