REPORT

of the

RIO GRANDE COMPACT COMMISSION

2008

TO THE GOVERNORS OF
Colorado, New Mexico and Texas

Errata Sheet for the 2007 Report of the Rio Grande Compact Commission

On page 53 replace the table entitled: "Willow Creek below Heron Dam, N. Mex." with the following:

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. -- 37 years (1971-2007), 127 ft3/s (91,960 acre-ft per year).
Extremes. -- 1971-2007: 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	6,310	205	200	204	12,500
February	4,450	205	103	159	8,830
March	7,730	496	0.0	249	15,300
April	2,280	300	0.0	76	4,520
May	685	300	0.0	22	1,360
June	1,860	409	0.0	62	3,690
July	1,080	550	0.0	35	2,140
August	2,970	450	0.0	96	5,890
September	6,630	800	0.0	221	13,200
October	0.0	0.0	0.0	0.0	0.0
November	0.0	0.0	0.0	0.0	0.0
December	14,000	500	0.0	451	27,800
Calendar year 2007	47,995	4,215	303	1,575	95,230

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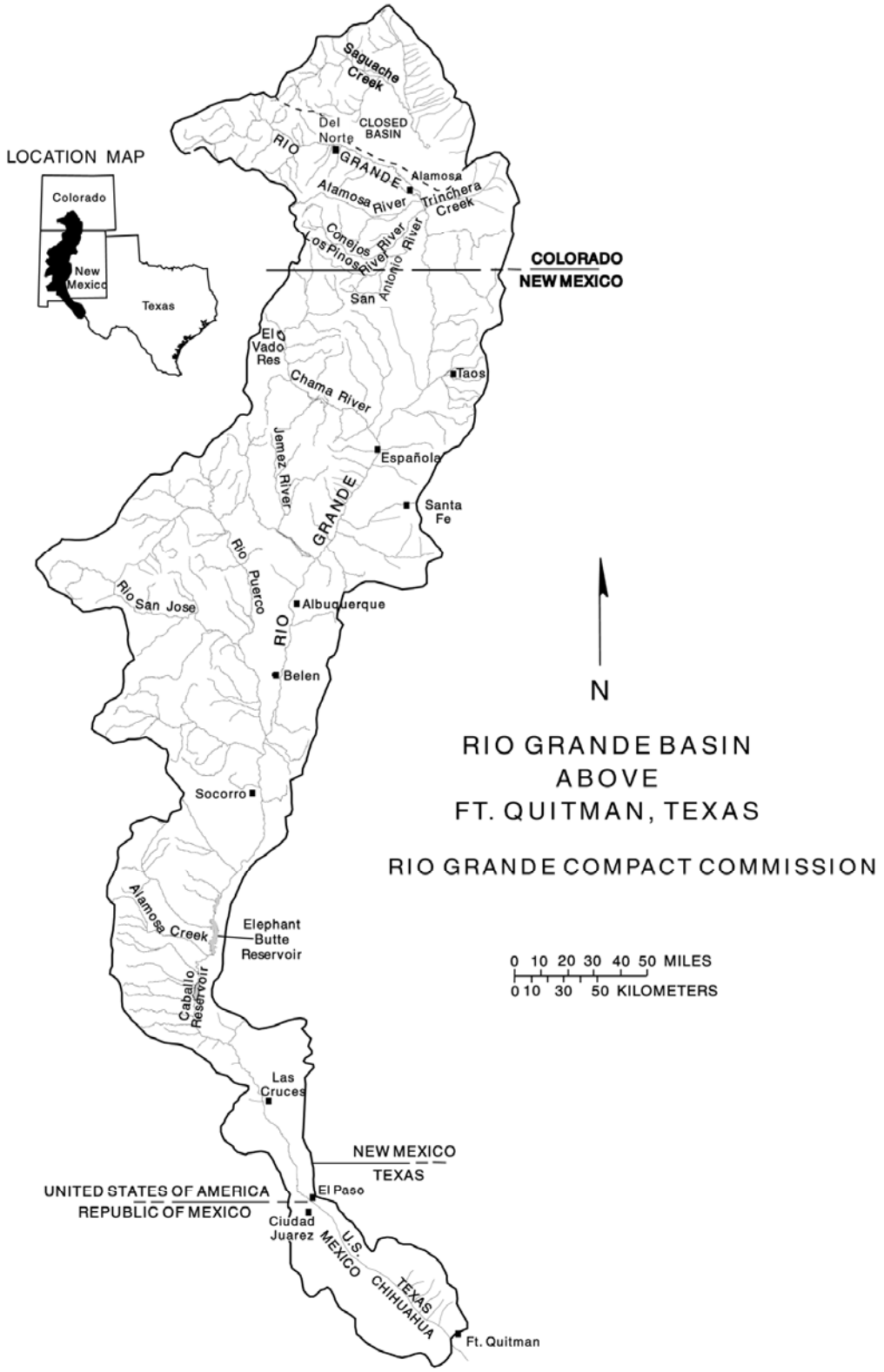
Colorado, New Mexico and Texas


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

CONTENTS

ILLUSTRATIONS

RIO GRANDE COMPACT COMMISSION
COLORADO TEXAS NEW MEXICO

June 26, 2009

The Honorable Bill Richardson
Governor of the State of New Mexico
Santa Fe, New Mexico

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

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

Honorable Governors:

The 70th Annual Meeting of the Rio Grande Compact Commission was held in El Paso, Texas on March 31, 2009. A Special Meeting of the Commission was held in Breckenridge, Colorado on June 26, 2009.

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 2008. The Commission found that:

(a) Deliveries of water at the Colorado-New Mexico state line by Colorado amounted to 403,900 acre-feet in 2008 and the scheduled delivery for the year was 398,400 acre-feet.
(b) Deliveries of water into Elephant Butte Reservoir by New Mexico, as measured by the Elephant Butte Effective Supply, amounted to 883,300 acre-feet in 2008 and the scheduled delivery for the year was 816,200 acre-feet.
(c) The actual release of usable water from Project Storage was 676,400 acre-feet.
(d) Colorado relinquished 1,200 acre-feet of credit water to Texas on February 29, 2008.
(e) New Mexico relinquished 125,000 acre-feet of credit water to Texas on February 1, 2008.

The Commission agreed to the accounting of accrued credits for 2008, as follows:

(1) The Commissioners found that the accrued credit for deliveries by Colorado at the Colorado-New Mexico State Line was 10,600 acre-feet on January 1, 2009.

The Honorable Bill Richardson
The Honorable Rick Perry
The Honorable Bill Ritter
June 26, 2009
Page 2

(2) The Commissioners found that the accrued credit for deliveries by New Mexico at Elephant Butte Dam was 116,000 acre-feet on January 1, 2009.

(3) The Commissioners found that the accrued departure from normal release from Project Storage as of January 1, 2009 was a credit of 892,000 acre-feet.

The Commission reviewed the cost of operation and found that the expenses of the administration of the Rio Grande Compact were $188,755 in the fiscal year ending June 30, 2008. The United States bore $62,564 of this total; the balance of $126,191 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

RECORDS OF DELIVERIES AND RELEASES

At the annual meeting of the Compact Commission on March 31, 2009, and a special meeting of the Compact Commission on June 26, 2009, the records of deliveries and releases and computations of debits and credits for calendar year 2008 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 2008 the Commissioners found that the actual release of usable water was 676,400 acre-feet. This resulted in an accrued credit of 892,000 acre-feet as of January 1, 2009.

RIO GRANDE COMPACT - DELIVERIES BY COLORADO AT STATE LINE
YEAR 2008

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	OTHER ADJUSTMENTS	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
	---	---	---	---	9.6	---	---	---	---	0.0	---	0.2	---	---	---	---	---	0.0	---	---	---	0.0
JAN	3.0	---	---	3.0	10.1	0.5		0.5	3.5	3.5	10.7	0.2	0.0			0.0	10.7	10.7	3.7	14.3	18.0	18.0
FEB	3.2	---	---	3.2	10.4	0.3		0.3	3.5	7.0	10.2	0.2	0.0			0.0	10.2	20.9	4.4	13.4	17.8	35.8
MAR	6.8	---	---	6.8	10.6	0.2		0.2	7.0	14.0	18.6	0.2	0.0			0.0	18.6	39.5	11.6	24.2	35.8	71.6
APR	18.8	14.1	8.8	41.7	13.3	2.7		2.7	44.4	58.4	60.0	0.2	0.0			0.0	60.0	99.5	27.8	32.0	59.8	131.4
MAY	65.7	51.1	15.2	132.0	15.0	1.7	0.1	1.8	133.8	192.2	191.4	0.2	0.0			0.0	191.4	290.9	58.7	44.2	102.9	234.3
JUN	86.3	31.9	2.0	120.2	30.3	15.3	0.2	15.5	135.7	327.9	227.7	0.2	0.0			0.0	227.7	518.6	44.9	48.2	93.1	327.4
JUL	37.0	6.3	0.2	43.5	27.0	-3.3	0.0	-3.3	40.2	368.1	84.5	0.2	0.0	-1.8[b]	0.2[a]	-1.6	82.9	601.5	16.3	16.3	32.6	360.0
AUG	16.0	1.9	0.1	18.0	21.5	-5.5	0.0	-5.5	12.5	380.6	36.5	0.2	0.0			0.0	36.5	638.0	2.8	4.9	7.7	367.7
SEPT	11.5	1.4	0.0	12.9	16.6	-4.9	0.1	-4.8	8.1	388.7	23.2	0.2	0.0			0.0	23.2	661.2	1.0	3.4	4.4	372.1
OCT	8.6	1.5	0.1	10.2	13.3	-3.3	0.1	-3.2	7.0	395.7	22.1	0.2	0.0			0.0	22.1	683.3	0.6	3.9	4.5	376.6
NOV	3.4	---	---	3.4	13.6	0.3	0.0	0.3	3.7	399.4	14.5	0.2	0.0			0.0	14.5	697.8	1.9	4.1	6.0	382.6
DEC	2.5	---	---	2.5	14.2	0.6		0.6	3.1	402.5	10.7	0.2	0.0			0.0	10.7	708.5	3.3	8.0	11.3	393.9
YEAR	262.8	108.2	26.4	397.4	---	4.6	0.5	5.1	402.5	---	710.1	---	0.0	-1.8	0.2	-1.6	708.5	---	177.0	216.9	393.9	---

Remarks: Cols. 6 and 13 do not include transmountain water.
[a] Evaporation loss post-compact reservoirs; report of the Engineer Adviser for Colorado.
[b] 2,056 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. 7.2
C2	Scheduled Delivery from Conejos River	190.2	---	Dr. 183.0
C3	Scheduled Delivery from Rio Grande	208.2	---	Dr. 391.2
C4	Actual Delivery at Lobatos plus 10,000 Acre Feet	---	403.9	Cr. 12.7
C5	Reduction of Debits o/c Evaporation	---		
C6	Reduction of Credits o/c Evaporation	0.9	---	Cr. 11.8
C7	Accrued credit relinquished to project storage on Feb. 29, 2008.	1.2		
C8	Balance at End of Year	---	---	Cr. 10.6

APPROVED:
Engineer Adviser for Colorado CWC Date: 6/25/09 Engineer Adviser for New Mexico RSP Date: 6/25/09 Engineer Adviser for Texas HRS Date: 6/25/09

RIO GRANDE COMPACT - DELIVERIES BY NEW MEXICO AT ELEPHANT BUTTE
YEAR 2008

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, c]	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
	--------	99.6	--------	--------	--------	--------	--------	--------	--------	100.0	404.7	--------	--------	--------	--------
JAN	42.2	99.6	0.0	0.0		-0.1	-0.1	42.1	42.1	99.5	450.6	45.9	0.9	46.8	46.8
FEB	54.8	100.7	1.1	0.0		-4.6	-3.5	51.3	93.4	101.4	477.9	27.3	25.4	52.7	99.5
MAR	142.2	88.0	-12.7	0.1		-17.9	-30.5	111.7	205.1	88.1	470.3	-7.6	94.5	86.9	186.4
APR	222.6	80.8	-7.2	0.5		0.0	-6.7	215.9	421.0	80.9	511.2	40.9	117.4	158.3	344.7
MAY	270.6	171.2	90.4	0.8		0.1	91.3	361.9	782.9	171.8	590.2	79.0	104.1	183.1	527.8
JUN	235.3	160.5	-10.7	1.4		-2.4	-11.7	223.6	1006.5	162.6	601.5	11.3	141.0	152.3	680.1
JUL	74.2	164.2	3.7	0.6		-6.2	-1.9	72.3	1078.8	165.2	598.1	-3.4	67.5	64.1	744.2
AUG	60.0	144.7	-19.5	0.7		-12.4	-31.2	28.8	1107.6	146.1	545.3	-52.8	87.0	34.2	778.4
SEPT	53.7	125.2	-19.5	0.6		-11.2	-30.1	23.6	1131.2	126.0	562.5	17.2	4.4	21.6	800.0
OCT	41.1	117.8	-7.4	0.3		-7.1	-14.2	26.9	1158.1	118.9	554.9	-7.6	28.7	21.1	821.1
NOV	27.8	118.0	0.2	0.2		-1.8	-1.4	26.4	1184.5	118.9	579.6	24.7	0.2	24.9	846.0
DEC	40.6	117.0	-1.0	0.0		-7.4	-8.4	32.2	1216.7	119.0	616.8	37.2	0.1	37.3	883.3
YEAR	1265.1	--------	17.4	5.2		-71.0	-48.4	1216.7	--------	--------	--------	212.1	671.2	883.3	--------

Remarks: Cols. 3 and 11 reflect implementation of revised area-capacity tables for Abiquiu, Cochiti, and Jemez Canyon Reservoirs, effective January 1, 1999.

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

[b] Note: Storage in Abiquiu, El Vado, McClure and Nichols Reservoirs under the April 23, 2003 and the February 1, 2008 agreements for relinquishment of accrued credits aggregated 0.0 acre-feet in 2008. Storage of relinquished credit to date aggregated 154,224 acre-feet; balance remaining is 146,276 acre-feet.

[c] Values for October, November, and December are estimated. See June 25, 2009 Supplemental Report of the Engineer Advisers.

SUMMARY OF DEBITS AND CREDITS

	ITEM	DEBIT	CREDIT	BALANCE
NM1	Balance at Beginning of Year	--------	--------	Cr. 184.5
NM2	Scheduled Delivery at Elephant Butte	816.2	--------	Dr. 631.7
NM3	Actual Elephant Butte Effective Supply	--------	883.3	Cr. 251.6
NM4	Reduction of Debits o/c Evaporation	--------		
NM5	Reduction of Credits o/c Evaporation and Spill	10.6	--------	Cr. 241.0
NM6	Accrued credit relinquished to project storage on Feb. 1, 2008.	125.0	--------	Cr. 116.0
NM7				
NM8	Balance at End of Year	--------	--------	Cr. 116.0

APPROVED:
Engineer Adviser for Colorado CWC Date: 6/25/09 Engineer Adviser for New Mexico RSP Date: 6/25/09 Engineer Adviser for Texas HDS Date: 6/25/09

RIO GRANDE COMPACT - RELEASE AND SPILL FROM PROJECT STORAGE
YEAR 2008

Quantities in thousands of acre feet to nearest hundred

MONTH	[a]Total Project Storage Capacity Available at End of Month	USABLE WATER IN STORAGE: Elephant Butte Reservoir	USABLE WATER IN STORAGE: Caballo Reservoir	USABLE WATER IN STORAGE: Total at End of Month	Unfilled Capacity of Project Storage at End of Month	CREDIT WATER IN STORAGE: [c]Colorado Credit Water	CREDIT WATER IN STORAGE: [c]New Mexico Credit Water	CREDIT WATER IN STORAGE: Total at End of Month	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: Measured Flow at Caballo Gaging Station	Intervening Diversions to Canals	Total Release and Spill	SPILL FROM STORAGE: Caballo Flood Water	SPILL FROM STORAGE: Credit Water	SPILL FROM STORAGE: Usable Water	USABLE RELEASE: Net During Month	USABLE RELEASE: Accumulated Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	2,225.0	[b]213.0	23.8	[b]236.8	1,988.2	[b]7.2	[b]184.5	[b]191.7		428.5	--------	--------	--------	--------	--------	--------	--------	
JAN	2,225.0	258.9	25.8	284.7	1,940.3	7.2	184.5	191.7		476.4	0.1	0.0	0.1				0.1	0.1
FEB	2,225.0	411.2	41.0	452.2	1,772.8	7.2	59.5	66.7		518.9	6.7	0.0	6.7				6.7	6.8
MAR	2,225.0	404.8	37.5	442.3	1,782.7	6.0	59.5	65.5		507.8	88.6	0.1	88.7				88.7	95.5
APR	2,200.0	445.7	50.9	496.6	1,703.4	6.0	59.5	65.5		562.1	94.7	0.1	94.8				94.8	190.3
MAY	2,200.0	524.7	46.1	570.8	1,629.2	6.0	59.5	65.5		636.3	102.6	0.2	102.8				102.8	293.1
JUN	2,200.0	536.0	56.3	592.3	1,607.7	6.0	59.5	65.5		657.8	124.5	0.3	124.8				124.8	417.9
JUL	2,200.0	532.6	63.4	596.0	1,604.0	6.0	59.5	65.5		661.5	74.7	0.2	74.9				74.9	492.8
AUG	2,200.0	479.8	57.9	537.7	1,662.3	6.0	59.5	65.5		603.2	89.0	0.1	89.1				89.1	581.9
SEPT	2,200.0	497.0	25.6	522.6	1,677.4	6.0	59.5	65.5		588.1	52.4	0.0	52.4				52.4	634.3
OCT	2,225.0	489.4	17.3	506.7	1,718.3	6.0	59.5	65.5		572.2	41.7	0.0	41.7				41.7	676.0
NOV	2,225.0	514.1	19.8	533.9	1,691.1	6.0	59.5	65.5		599.4	0.2	0.0	0.2				0.2	676.2
DEC	2,225.0	551.3	21.9	573.2	1,651.8	6.0	59.5	65.5		638.7	0.2	0.0	0.2				0.2	676.4
YEAR	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	675.4	1.0	676.4	0.0	0.0	0.0	676.4	--------

Remarks: Cols. 2, 6 and 11 reflect implementation of revised area-capacity tables from Elephant Butte and Caballo Reservoirs, effective Jan 1, 2001

[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 778.4
P2	Actual Release during Year	676.4	--------	Cr. 102.0
P3	Normal Release for Year	--------	790.0	Cr. 892.0
P4	Under Release in Excess of 150.0		--------	
P5		--------		
P6				
P7	Accrued Departure at End of Year	--------	--------	Cr. 892.0

TIME OF HYPOTHETICAL SPILL Did not occur

APPROVED:
Engineer Adviser for Colorado CWC Date: 6/25/09 Engineer Adviser for New Mexico RSP Date: 6/25/09 Engineer Adviser for Texas HKS Date: 6/25/09

REPORT OF THE ENGINEER ADVISERS TO THE RIO GRANDE COMPACT COMMISSIONERS

February 27, 2009

The Engineers Advisers met in Santa Fe, New Mexico from February 23 through 27, 2009 to prepare the 2008 Rio Grande Compact (Compact) water accounting and to discuss continuing and new issues in preparation for the 2009 annual meeting of the Rio Grande Compact Commission (Commission). The Engineer Advisers requested and received the participation of the U.S. Geological Survey (USGS), the U.S. Bureau of Reclamation (Reclamation), the U.S. Army Corps of Engineers (Corps), the 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.

COMPACT ACCOUNTING

The Engineer Advisers to the Rio Grande Compact Commissioners have reviewed the streamflow and reservoir storage records and other pertinent data and have determined the scheduled and actual deliveries, and the release of Usable Water during calendar year 2008. As determined by the Engineer Advisers, scheduled and actual deliveries, release of Usable Water for the year 2008, and balances as of January 1, 2009 are as follows:

(a) Deliveries by Colorado at the Stateline:

Balance as of January 1, 2008	7,200 acre-feet
Scheduled delivery	398,400 acre-feet
Actual delivery at Lobatos plus 10,000 acre-feet	403,900 acre-feet
Reduction of credit on account of evaporation	900 acre-feet
Accrued credits relinquishment to Project Storage on February 29, 2008	1,200 acre-feet
Accrued credit January 1, 2009	10,600 acre-feet

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

Balance as of January 1, 2008	184,500 acre-feet
Scheduled delivery	816,200 acre-feet
Actual delivery	864,800 acre-feet
Reduction of credit on account of evaporation	10,700 acre-feet

Accrued credits relinquishment to Project Storage on February 1, 2008	125,000 acre-feet
Accrued credit January 1, 2009	97,400 acre-feet

(c) Project Storage and Releases:

Accrued departure (credit) as of January 1, 2008	778,400 acre-feet
Actual release of Usable Water	676,400 acre-feet
Normal release for year	790,000 acre-feet
Accrued departure (credit) as of January 1, 2009	892,000 acre-feet

Snowmelt runoff levels in 2008 were average to above average in most of the basin in Colorado and New Mexico. Summer monsoon activity was average to below average throughout most of the basin, with the exception of the lower portion of the basin south of Socorro, New Mexico, which experienced well above average monsoon precipitation. Usable Water in Project Storage was below 400,000 acre-feet on January 1, 2008, rose above that level on February 1, 2008 and stayed above that level for the remainder of the year. As a result, the storage restrictions of Article VII of the Compact were not in effect during the snowmelt runoff. Diversions for the San Juan-Chama Project (SJCP) totaled about 140,000 acre-feet in 2008.

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 2008 Commission meeting, including information obtained in the reports of the federal agencies at the 2009 Engineer Advisers meeting.

Gaging Station Review

The Engineer Advisers continue to monitor the water balance and gage measurements between Elephant Butte and Caballo Reservoirs. During June 2008, a seepage run in the river reach from the Elephant Butte gage to the headwaters of Caballo Reservoir was conducted by the USGS pursuant to a Joint Funding Agreement between the USGS and the New Mexico Interstate Stream Commission (NMISC). The results of the seepage run indicated that this reach lost about 80 cubic feet per second (cfs) under the flow conditions at the time of measurement. The work will continue in 2009 with an additional seepage run at higher flow (5,000 cfs).

New measuring equipment was installed in an effort to improve the accuracy of the data. Reclamation and the USGS performed work on the gage below Caballo Reservoir including adding an extra support for the cableway, resurveying of the five-foot spacing on the cable and adding an acoustic doppler velocity meter (ADVM). Reclamation reported that they are currently using the USGS shift method, but will evaluate the ADVM data for future gage records. In addition, the USGS added a water quality station at the same site to measure temperature, PH and electrical conductance (EC) as part of the lower Rio Grande Project Salinity Study. These efforts will also assist in the administration of the new Rio Grande Project Operating Agreement.

Zebra Mussels/Quagga Mussels

The Engineer Advisers are concerned about the recent infestation of Zebra and Quagga mussels in several locations of Colorado, and the possibility that waters of the Upper Rio Grande basin may soon be infested. While no mussels have been found in the Rio Grande Basin in either Colorado or New Mexico, there is a concern that the mussels will spread and cause widespread impacts to infrastructure and water facilities within the Basin.

Preliminary tests have indicated the presence of mussels at Ute Reservoir on the Canadian River and Abiquiu Reservoir on the Rio Chama in New Mexico in 2008. Subsequent testing, however, showed the preliminary results to be false positives. To date, there have been no confirmed cases of either mussel in the Upper Rio Grande basin.

Federal and state agencies are currently working to contain, control, and prevent the spread of these mussels.

Federal Agency Efforts towards a New Middle Rio Grande Biological Opinion

In 2008, Reclamation, the Corps and the Service stepped up efforts to develop a new biological opinion for Middle Rio Grande water operations. The federal agencies had planned to submit a single biological assessment to the Service in July of 2009 with the goal of operating under a new Biological Opinion in 2010.

The technical approach remained unchanged from 2007, focusing largely on experiments related to river system operations, on population viability analyses (PVA) to investigate the

long-term viability of the silvery minnow, and URGWOM modeling to simulate reservoir and river system operations.

A significant change is that Reclamation and the Corps now will submit separate biological assessments to the Service concerning their respective Middle Rio Grande Project responsibilities. The Engineer Advisers heard reports from the Corps, Reclamation, and the Service on the new plan but details on how the separate processes will be performed and coordinated are not clear. New Mexico is concerned that separating the Corps and Reclamation roles and responsibilities could affect the functionality of the Project as authorized by the 1948 and 1950 flood control acts. At a minimum, the process leading to the new biological opinions needs to be fully coordinated between Reclamation and the Corps prior to submittal of the separate biological assessments. Additionally, it remains unclear how non-federal actions may be included in the individual biological assessments and biological opinions.

Compliance by Federal and State Agencies with State Water Law and Regulations

The Commission has previously adopted resolutions that requested the Corps, Reclamation and 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 New Mexico Engineer Adviser reported the NMISC continued to coordinate with the Corps and Reclamation on offset requirements for habitat restoration projects in the Middle Rio Grande and that such depletions are being offset for projects on non-Pueblo lands.

Rio Grande Salinity Management Coalition

The Engineer Advisers continued to work with the Rio Grande Project 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. Goals of the Coalition include defining implications of increasing salinity and exploring potential salinity management strategies to reduce impacts and extend existing water supplies in the fast-growing Rio Grande Project area.

The Coalition seeks to meet the goals through four phases of work, the first of which has begun:

- Phase 1 – Rio Grande Project Salinity Assessment;
- Phase 2 - Develop Salinity Management Alternatives;
- Phase 3 - Implement Pilot-Scale Testing; and
- Phase 4 - Evaluate Project Effectiveness

In 2008, the NMISC committed $250,000 for the first phase of work. Those funds were used to match $750,000 from the Corps under its Section 729 authority in the Water Resources Development Act of 2007. Phase 1 consists of developing a baseline salinity budget; conducting preliminary economic damage analysis for residential, agricultural, municipal and industrial uses; identifying critical data gaps; identifying key issues and questions that will direct future study needs; and documenting and integrating salinity data and information. Technical work began in late 2008 by researchers from USGS, Texas Agri-Life Research and Extension Service, New Mexico Water Resources Research Institute, New Mexico State University, New Mexico Institute of Mining and Technology, and SAHRA researchers outside of New Mexico.

URGWOM Accounting Model

Following a 2008 review of the accounting model, representatives of Reclamation, Corps and NMISC agreed to meet on a monthly basis to conduct the following tasks: QA/QC model input data; review contractor releases and exchanges; and review formulas that are used to develop tables for the Reclamation accounting report. In addition, operations at Caballo Reservoir will be added to the model.

The Corps reported on additional developments and updates to URGWOM, including improved simulation of groundwater/surface water interaction, additional improvements to the water accounting module, and expansion of the various modules.

Elephant Butte Pilot Channel Project

Reclamation completed ESA consultation, and the USFWS issued a Biologic Opinion for Elephant Butte Pilot Channel maintenance in February 2008. A NMISC contractor maintained the lower portion of the channel prior to the spring runoff. Following the spring runoff, a sediment plug, approximately one mile in length, developed downstream of the Red Rock Staging Area. During August and September 2008 Reclamation, using NMISC funds, excavated a pilot channel through the sediment plug. The New Mexico Engineer Adviser indicated New Mexico has spent approximately $10 million since 2000 to construct and maintain the channel.

New Mexico Lower Rio Grande Water Resource Management

The New Mexico Office of the State Engineer continued its Active Water Resource Management (AWRM) initiative from Elephant Butte Dam to the Texas State Line. AWRM is the term used for the New Mexico State Engineer's initiative to build the capability to administer water resources in accordance with state law. During 2008, the District Water Masters continued efforts to meter wells and ensure compliance with metering requirements. The focus in future years will be on priority administration and alternative administration as proposed by local water users; and establishing reasonable limits on groundwater pumping to protect the aquifer and its ability to function as a drought reserve.

2003 and 2008 New Mexico – Texas Relinquishment Agreements

In 2003, New Mexico offered and Texas accepted a phased relinquishment of a portion of New Mexico's accrued credits then held in Project Storage in Elephant Butte Reservoir. The relinquishment totaled 175,500 acre-feet. The relinquishment allowed the storage of a like amount of water in post-1929 reservoirs in New Mexico upstream of Elephant Butte Reservoir over as many years as necessary when the storage prohibition of Article VII of the Compact is in effect.

On February 5, 2008, New Mexico and Texas reached agreement for the relinquishment of 125,000 acre-feet of accrued Compact credit water in Elephant Butte Reservoir, effective February 1, 2008. The 2008 relinquishment allowed for New Mexico to meet the full allocations to the United States, the Middle Rio Grande Conservancy District (MRGCD), and the City of

Santa Fe, originally contemplated under the 2003 Emergency Drought Water Agreement. During 2008, no relinquished water was stored. Relinquishment storage has occurred only in 2003, 2004, and 2006, totaling 154,224 acre-feet. At the end of 2008, 10,116 acre-feet of relinquished water remained in storage, all in El Vado Reservoir.

YEAR 2008 OPERATIONS

Closed Basin Project

The total production of the Closed Basin Project in 2008 was 17,079 acre-feet with 13,044 acre-feet of that amount delivered to the Rio Grande. All of the water delivered to the Rio Grande in 2008 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 five wells in 2008 that were most affected by iron bacteria, and rehabilitated numerous other wells. To date, 48 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 2008

Platoro Reservoir is a post-Compact Reservoir. For dam safety reasons, the main gate valve in the dam is normally closed during the winter. Because the release from Platoro Reservoir was reduced for normal winter operations, native water was unavoidably stored despite the storage prohibition of Article VII of the Compact. This storage occurred in November of 2007 through January of 2008. The inflow to the reservoir exceeded the maximum release rate of approximately eight cfs. This resulted in a gain of approximately 1,200 acre-feet before Usable Water in Rio Grande Project Storage rose above the Compact Article VII trigger level on February 1, 2008. Colorado relinquished 1,200 acre-feet to Project Storage on February 29, 2008, making a like amount of water in Platoro Reservoir available to meet irrigation demand on the Conejos River.

Heron Release Issue

Reclamation reported on release errors at Heron Reservoir in 2008. The issue was that reported releases were less than actual releases. Reclamation reported that the errors were two fold; first the dam tender did not follow basic standard operation procedures (SOP) in reporting releases; secondly, the remote telemetry unit system was reporting the incorrect release values. Reclamation and the Engineer Advisers discussed the issue, potential Compact accounting issues have been resolved, and they believe the problem has been corrected.

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 2008, Reclamation released a total of 33,441 acre-feet of leased SJC Project water to assure compliance with the wet year flow targets of the 2003 Biological Opinion. Supplemental water releases were made between July 21 and October 29.

SJC Project 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 only on October 4 to pump ten 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.

2008 Rio Grande Project Operations and Storage

Reclamation reported a final 2008 diversion allocation of 896,982 acre-feet, or 96.3% of a full supply, for all three Rio Grande Project water users: Elephant Butte Irrigation District (EBID), El Paso County Water Improvement District No. 1 (EP No. 1), and Mexico. Reclamation reported that EBID requested and diverted 329,294 acre-feet and EP No. 1 requested and diverted 279,173 acre-feet. These values reflect the operations using the new

operating agreement and resulted in an accrued carryover of 232,882 acre-feet by EP No. 1. Mexico requested and diverted 56,048 acre-feet. City of El Paso diversions for 2008 were 58,359 acre-feet.

Storage at Elephant Butte Reservoir peaked at about 646,400 acre-feet on June 18, 2008 and storage at Caballo Reservoir peaked at about 65,700 acre-feet on July 15, 2008. End-of-year storage at Elephant Butte Reservoir was about 630,200 acre-feet, which includes 31,900 acre-feet of SJCP water, and about 21,900 acre-feet at Caballo Reservoir.

San Juan-Chama Project Water Conveyance Losses

The Commission adopted recommendations in 1985 for the accounting of conveyance losses on SJCP water routed to storage in Elephant Butte Reservoir. The adopted loss rates are based upon the first 1800 cfs of flow below San Acacia being conveyed by the LFCC, with higher flows conveyed by the floodway. If the floodway were to be used, the SJCP water was to absorb the additional initial loss required to prime the floodway channel. The Engineer Advisers reevaluated these loss rates in 1997 and recommended their continued use, even though the LFCC had been inoperable since the late 1980's. With the advent of the URGWOM model, the Engineer Advisers recommend that Reclamation evaluate use of URGWOM for accounting of SJCP conveyance losses between Otowi and Elephant Butte Reservoir and submit a report at the 2010 meeting of the Engineer Advisers. Until the Commission approves new loss rates, the Engineer Advisers recommend that the previously approved loss rates remain in effect. Reclamation must obtain the prior approval of the Engineer Advisers prior to any release of SJCP water to Elephant Butte during months for which there are no approved loss rates.

The Engineer Advisers discussed the quantification of conveyance losses for SJCP water routed to points of diversion for municipal and industrial use in the middle Rio Grande between Otowi and Elephant Butte Reservoir and determined that this is an issue internal to the administration of water in New Mexico by the New Mexico State Engineer.

REPORTS OF THE FEDERAL AGENCIES

Representatives of Reclamation, the Corps, the Service, and the BIA presented reports to the Engineer Advisers from February 23 through 25, 2009.

Rio Grande Project Operations Agreement

Reclamation reported that they, the two Rio Grande Project Irrigation Districts (EBID and EP No. 1), and the IBWC conducted operations in 2008 as outlined in the March 2008 Rio Grande Project Operating Agreement (Operating Agreement). The Operating Agreement and associated operations manual, which became available in the summer of 2008, were negotiated by Reclamation, EBID, and EP No.1 and resulted in the Districts dismissal of the existing lawsuits in New Mexico and Texas Federal District Courts. The Engineer Advisers continue the process of reviewing the new operating agreement procedures to ensure all Compact states are kept whole.

Reclamation reported the parties recently conducted a review of the Operating Agreement. The review led to revisions of portions of the Operating Agreement and operations manual to more clearly define various provisions. As the Districts and Reclamation operate under the new agreement, modifications continue to occur as the parties work cooperatively on implementation.

Reclamation's Rio Grande Project Operations Plan for 2009

Reclamation discussed its Rio Grande Project water allocations for 2009. At the time of the Engineer Advisers meeting, Reclamation indicated that the current allocation is 54.7 percent of a full allocation. Reclamation's most probable forecast for 2009 indicates a full allocation.

Under the February 1, 2009 most probable forecast, Reclamation estimates that Elephant Butte Reservoir storage will peak at 786,600 acre-feet during the spring runoff, stay above 400,000 acre-feet until October 12 and stayed below 400,000 acre-feet until October 21, 2009. Reclamation began release from Caballo Reservoir for the 2009 irrigation season on February 17 for EBID's orders, on February 18 for EP No.1's orders, and anticipates Mexico's releases will begin on March 10.

Elephant Butte and Caballo Reservoir Sediment Surveys

New sediment surveys were conducted for Elephant Butte and Caballo Reservoirs in 2007 and the results were finalized in 2008. The results showed that Elephant Butte Reservoir gained 1,228 acre-feet of storage capacity, due primarily to consolidation and drying of sediment deposits in the delta area of the upper reservoir. Caballo Reservoir lost 1,738 acre-feet. Total storage in Rio Grande Project reservoirs decreased by 510 acre-feet. Reclamation began utilizing the new area-capacity tables for both reservoirs on January 1, 2009. From October 1 to March 31 (winter months), the total Project storage is now 2,224,520 acre-feet (1,999,586 acre-feet for Elephant Butte and 224,934 acre-feet for Caballo). Total Project storage for the summer months (April 1 – September 30) is 2,199,520 acre-feet (1,974,586 acre-feet Elephant Butte and 224,934 acre-feet for Caballo).

Vegetation Management at Elephant Butte and Caballo Reservoirs

Reclamation continued vegetation management efforts at Elephant Butte and Caballo Reservoirs in 2008 through a cooperative agreement funded by the NMISC. Reclamation reported that a total of 2,941 acres were treated in 2008 at both reservoirs under the program - 2,197 acres by mowing and 744 acres by herbicidal application. A total of 4,594 acres (mostly saltcedar) have been treated by herbicides over the last five years at both reservoirs with varying degrees of success.

Middle Rio Grande River Maintenance Plan

Reclamation reported that it was developing a long-term river maintenance plan that will serve as a technical guide for future river maintenance activities, while meeting the original project authorization purposes and environmental compliance needs. Reclamation made the River Maintenance Plan report available on their web site in 2008. The report describes Reclamation's river maintenance program objectives in the context of Middle Rio Grande project congressional authorizations, as well as their responsibilities under the Endangered Species Act.

Cochiti Reservoir Deviation

The Corps has been working with the Engineer Advisers over the past year to develop a

five-year water operations strategy for potential deviations from normal operations at Cochiti Lake and/or Jemez Canyon Reservoir for recruitment and overbank flows for the benefit of the Rio Grande silvery minnow and the southwestern willow flycatcher. A resolution supporting these efforts has been drafted for the Commission's consideration. The resolution contains provisions to ensure that such operations only occur if depletions are offset and New Mexico is in an accrued credit status.

Cochiti Reservoir Baseline Study

The Corps reported that no work was conducted in 2008. Funds for the study are not anticipated for 2009.

2008 Six Middle Rio Grande Pueblos Prior and Paramount Operations

The BIA Designated Engineer provided a report on 2008 Prior and Paramount storage and release activities, projected 2009 storage and release activities, and additional details on the general methodologies for Prior and Paramount operations.

Reclamation and BIA reported that 16,500 acre-feet was stored in El Vado Reservoir for delivery of irrigation water to the Prior and Paramount lands of the six Middle Rio Grande Pueblos in 2008 in the event that natural flows were insufficient. No storage was captured while the storage restrictions of Article VII of the Compact were in effect. No releases of this stored water were needed to meet irrigation demand on Prior and Paramount lands. That water remained in storage and was reallocated in November as normal Rio Grande storage available for release to satisfy future irrigation demand within the MRGCD.

The Designated Engineer reported on the statutory history that led to determination that the Prior and Paramount lands totaled 8,847 acres. These lands were recognized by Congress as being senior to other lands of the MRGCD. He also indicated that additional irrigated acreage within the six Middle Rio Grande Pueblos is classified as "newly reclaimed lands". These lands are junior and are treated like other similar MRGCD lands.

Middle Rio Grande Project Channel Maintenance

Reclamation provided a presentation regarding the status of its Middle Rio Grande river channel maintenance program. Since 2004, Reclamation has implemented long-term fixes at eleven priority sites, implemented interim fixes at five other sites, and also performed recurring work at six sites due to sediment accumulation. Reclamation plans to complete work at four additional sites in 2009, reducing the number from 24 to 20.

Bosque Del Apache Sediment Plug

During the 2008 spring runoff, an approximately 1.5-mile long sediment plug formed in the Rio Grande at River Mile 81. The plug was first identified on May 17, 2008. Freeboard on the levee was reduced to approximately one-foot and the toe of the levee became saturated in places. Reclamation performed emergency stabilization, widening and raising along a half-mile section of the levee in June 2008. Reclamation, in coordination with the Bosque del Apache National Wildlife Refuge, was successful in expediting necessary permitting and environmental compliance. A pilot channel through the sediment plug was completed by November 2008.

Levee Certification

The Corps of Engineers notified the Engineer Advisers that levees in the Upper Rio Grande Basin have 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 of Engineers within the last 15 years.

Some of these levees were decertified due to new inspection criteria regarding the proximity of trees adjacent to the levees. However, removal of trees to comply with the Corps standards may have ESA and other implications.

The Corps also indicated that they had notified the Federal Emergency Management Agency (FEMA) of the decertifications. In most cases, FEMA is classifying areas behind these decertified levees as being in the 100-year floodplain.

San Acacia Levee Project

The Corps indicated that the timeline for the final report on the San Acacia levee project has been pushed back to June 2010; therefore a best-case scenario for a funding agreement with the NMISC would be the fall of 2010. The New Mexico Engineer Adviser indicated that the Corps has also approached the NMISC concerning local sponsorship and cost-share for an alternative San Marcial Railroad Bridge replacement project. The NMISC has requested a list of all Corps priority middle Rio Grande projects for which it may need cost sharing before making any specific additional commitments.

Southwestern Willow Flycatcher

Reclamation continues to conduct flycatcher surveys and nest monitoring along the Middle Rio Grande. Riparian vegetation within the uppermost levels of the conservation pool of Elephant Butte Reservoir holds the largest breeding population of flycatchers in New Mexico. Reclamation indicated that the number of flycatcher territories in the conservation pool at Elephant Butte Reservoir increased from 194 to 229 known territories between 2007 and 2008. The total number of flycatcher territories for the middle Rio Grande increased from 241 to 296 known territories between 2007 and 2008.

Reclamation submitted a biological assessment to the Service in February 2009 for up to five years of Rio Grande Project operations. Reclamation further reported the biological assessment includes an evaluation of reasonably foreseeable water level elevations at Elephant Butte Reservoir over the next five years under dry, average, or wet inflow conditions.

Middle Rio Grande Endangered Species Act Collaborative Program

In 2008, the Collaborative Program continued work on providing spawning and recruitment flows for the silvery minnow; propagation of captive silvery minnow for survival, augmentation, and reintroduction; habitat restoration; and funding sound scientific research to expand understanding of the species and its habitat.

New Mexico reported that the Program and its participants have made significant progress in addressing silvery minnow and Southwestern willow flycatcher issues since the 2003 Biological Opinion was developed. Examples include:

1) an approximate 40 percent reduction in MRGCD annual river diversions since 2002;
2) improvements in water operations;
3) the large amount of habitat restoration work that's been conducted;
4) the levee and LFCC setback work in the San Acacia reach;
5) the comprehensive silvery minnow augmentation program;
6) the Cochiti deviation to create a spawning and recruitment flow;
7) the Big Bend reintroduction of silvery minnow; and
8) the increase in RGSM since 2003 in the middle Rio Grande as a whole.

2003 Middle Rio Grande Programmatic Biological Opinion

The Service reported that Reclamation and the Corps remain in compliance with the 2003 biological opinion during 2008, which was a year in which wet year flow targets were in effect. As a result, continuous flow was required in the middle valley through June 15, 2008 with 150 cfs flowing over Isleta diversion dam and 100 cfs over San Acacia diversion dam for the remainder of the irrigation season. No river drying occurred.

Rio Grande Silvery Minnow

The Service reported that silvery minnow salvage operations were not required in 2008. Incidental take as a result of the water operations in the Middle Rio Grande numbered three, which was well within the allowable limit.

The Service continues to propagate silvery minnow at the Dexter National Fish Hatchery and the City of Albuquerque Biopark to augment the population. The Los Lunas Silvery Minnow refugium has received its ESA permit and will begin rearing fish this year. Additionally, construction of the Minnow Sanctuary is scheduled for completion this summer.

The Service reported that, given the significant numbers of silvery minnow in the river in the Middle Rio Grande, no augmentation was needed there in 2008, and no releases are planned until 2011, unless conditions change.

Both Reclamation and the Service indicated the silvery minnow is doing well in all three reaches of the Middle Rio Grande and recruitment was good in 2008. The Engineer Advisers

were surprised, given reports linking the success of the silvery minnow in 2008 to the lack of river drying, that more fish were not collected in October. The October fish capture numbers for other years, years in which significant river drying occurred, are higher than the 2008 numbers. The Service cautioned that the silvery minnow catch data provides an approximation of the silvery minnow population and that changes in catch of less than an order of magnitude may not be meaningful.

Silvery Minnow Reintroduction

The Service reported that approximately 500,000 silvery minnow were reintroduced into the Big Bend reach of the Rio Grande in Texas in December 2008. Silvery minnows reintroduced in this reach were designated as experimental nonessential under Section 10(j) of the Endangered Species Act pursuant to rules also promulgated in December. The Service plans to monitor the reach on a quarterly basis and stock an additional 200,000 minnows each year over the next three to four years.

Rio Grande Silvery Minnow Recovery Plan

The Service continues work on the revised silvery minnow Recovery Plan. The draft revised Recovery Plan provides criteria for downlisting and delisting, as well as recovery actions. The Service conducted a peer review process that resulted in recommendations that the technical basis for some of the criteria be revisited. The Service and the silvery minnow technical team developed proposed revised recovery criteria. The Service hopes to have a completed and approved plan within a year. The Engineer Advisers are concerned about the delay in formal adoption of the Recovery Plan.

International Boundary and Water Commission Activities

The IBWC provided a report on its activities along the Rio Grande in New Mexico and Texas during 2008. IBWC reported that canalization project maintenance was performed in the Mesilla Dam and Country Club (near the El Paso electric plant) areas. Rectification project maintenance included repair of the Ascarate, Fabens, and County Line Wasteways through the levee. The U.S. section of the IBWC has received stimulus funding to enhance levees in the

Rincon, Mesilla and El Paso Valleys, with construction scheduled for commencement in 2010.

Recommended Changes to the Rules and Regulations for Administration of the Rio Grande Compact

The Engineer Advisers recommend that the Commission adopt changes to the Rules and Regulations for Administration of the Rio Grande Compact in the section entitled "Actual Spill", to reflect the increase in storage capacity in Elephant Butte Reservoir and the decrease in storage capacity in Caballo Reservoir (see Attachment A).

The Commission was advised by letter from Linda S. Weiss (USGS New Mexico Water Science Center) dated February 11, 2009 that the USGS could no longer continue to perform the historical function of Secretary to the Commission. Thus, the Engineer Advisers have reviewed those functions and make the following recommendations:

1) The Commission continue to employ the USGS to compile, complete, and present the annual water accounting to the Engineer Advisers at their Engineer Adviser's meeting, and
2) The Engineer Advisers will coordinate with each other to complete the other tasks, including completing the annual report.

The Engineer Advisers recommend that the Commission adopt changes in the section of the Rules entitled “Secretary” to reflect the change in the USGS’s ability to provide clerical assistance to the Commission and allow the Commission to hire such entities as appropriate to supply such engineering and clerical aid as reasonably necessary for administration of the Compact (see Attachment B).

The Engineer Advisers recommend that the Commission adopt a change in the section of the Rules entitled "Costs" clarifying the procedures for budget adoption (see Attachment C).

BUDGET

The Engineer Advisers reviewed the Cost of Operation for the year ending June 30, 2008 and the Budget for Fiscal Year ending June 30, 2010. The Engineer Advisers found that the expenses for gaging stations and administration of the Compact for the year ending June 30, 2008 were $188,755. The United States bore $62,564 of this total, with the balance of $126,191 borne equally by the three states.

The proposed budget for the fiscal year ending June 30, 2010 indicates a total of $186,462 will be spent for gaging and administration, with a proposed contribution by the United States of $54,334.

Craig W. Cotte

for Michael J. Sullivan
Engineer Adviser for Colorado

Rolf Schmidt-Petersen
Engineer Adviser for New Mexico

Herman R. Settemeyer
Engineer Adviser for Texas

ATTACHMENT A

ACTUAL SPILL

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

(b) Excess releases from Elephant Butte Reservoir, as defined in (a) above, shall be added to the quantity of water actually in storage in that reservoir, and Actual Spill shall be deemed to have commenced when this sum equals the total 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.

ORIGINAL LANGUAGE:

(b) Excess releases from Elephant Butte Reservoir, as defined in (a) above, shall be added to the quantity of water actually in storage in that reservoir, and Actual Spill shall be deemed to have commenced when this sum equals the total capacity of that reservoir to the level of the uncontrolled spillway less capacity reserved for flood purposes, i.e., 1,998,400 acre-feet in the months of October through March inclusive, and 1,973,400 acre-feet in the months of April through September, inclusive, as determined from the 1999 area-capacity table or successor area-capacity tables and flood control storage reservation of 50,000 acre-feet from April through September and 25,000 acre-feet from October through March.

ATTACHMENT B

SECRETARY

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.

ORIGINAL LANGUAGE:

SECRETARY

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

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

ATTACHMENT C

COSTS

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. Amended at the 70th Annual Meeting, March 31, 2009

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

ORIGINAL LANGUAGE:

COSTS

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

SUPPLEMENTAL REPORT OF THE ENGINEER ADVISERS TO THE RIO GRANDE COMPACT COMMISSIONERS

June 25, 2009

The Rio Grande Compact Commission (Commission), at its annual meeting in El Paso, Texas in March 2009 approved the February 27, 2009 Report of the Engineer Advisers, with the exception of the compact accounting portion of the report. The compact accounting was not approved due to the discovery of an apparent mass balance discrepancy between gaged flows at San Marcial and Elephant Butte Reservoir storage for the months of November and December 2008. Analysis of the stream gage records for Otowi and San Marcial and storage records for Elephant Butte Reservoir indicated that either large unidentified losses had occurred in the reach between San Marcial and Elephant Butte or that certain data records were inaccurate for that time period.

Investigation and analyses by the Engineer Advisers and the U.S. Bureau of Reclamation (Reclamation) since March 2009 identified replacement of the water level stage measurement device at Elephant Butte Reservoir in early November 2008 as the source of the mass balance discrepancy. Consequently, the goals of the Engineer Advisers became to: 1) develop a single technically justified estimate of Elephant Butte Reservoir stage for the long-term record and 2), based upon that estimate, finalize the Compact accounting for 2008. The Engineer Advisers and Reclamation met once, performed a number of technical analyses, and conducted several conference calls during the investigation. In the end, a simulation model (RiverWare) was used to estimate the elevation and storage of Elephant Butte Reservoir for the period from October 15, 2008 through March 25, 2009. This report details the results of the investigation, the agreed upon water level and storage estimates, and recommended final corrected Compact accounting values for 2008.

ELEPHANT BUTTE RESERVOIR ELEVATIONS INVESTIGATION

Reclamation uses a stilling well located on the crest of Elephant Butte Dam to record and monitor the water surface elevation of Elephant Butte Reservoir. The stilling well contains a weighted float system in addition to a shaft encoder, which converts a mechanical lake level reading to electronic data. This data is then transmitted to a data collection platform (DCP)

located in the stilling well, where the data is stored and simultaneously transmitted to a satellite for re-transmission to various agency down-links and computer systems.

Investigation

Examination of the 15-minute stage recorder data for the months of November and December of 2008 reveals a period of missing data from November 7 to November 12, 2008 (Figure 1). Reclamation indicated this was due to upgrading (replacement of the float system/shaft recorder) of the equipment that records water surface elevation which required approximately one week to perform. Reclamation surveyed the water surface elevation immediately after installation of the new float recorder. The final survey was incorrect but the mistake was not recognized at that time. As a result, the encoder was reset to a new value, which was lower than the water surface elevation that had been recorded before installation of the new equipment.

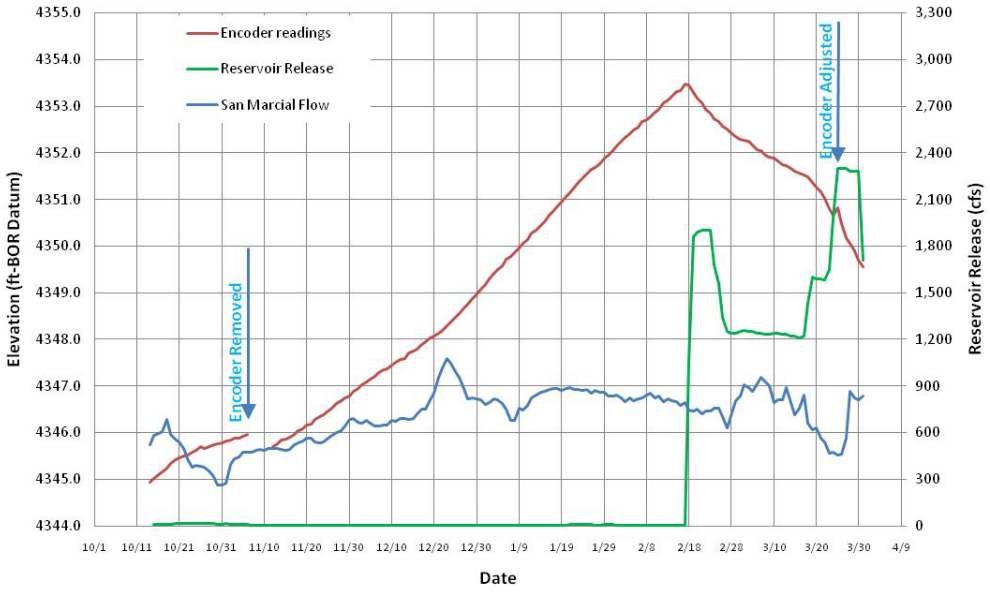


Figure – 1: Record of Flow at San Marcial, and Elephant Butte Reservoir Releases and Uncorrected Elevations

Due to the discrepancy identified by the Engineer Advisers between the flow into the reservoir, as measured at San Marcial, and the recorded water surface elevation (Figure 1),

Reclamation's water surface elevation data collection and recording process were reviewed and the water surface elevation and land level control points were resurveyed. On March 25 Reclamation's Elephant Butte Field Division surveyed the water surface elevation and determined that the encoder was underestimating the actual water surface elevation by 0.39 feet. At that time, they reset the encoder to the newly surveyed elevation. To confirm Reclamation's survey, the New Mexico Interstate Stream Commission (NMISC) had a contractor survey the water surface elevation. NMISC's contractor, in cooperation with Reclamation staff, surveyed the water surface elevation on April 2 and again on April 14 and confirmed that the encoder reading after the March 25 adjustment is within the measurement error. Thus, the encoder record is considered invalid from November 12, 2008 until March 25, 2009 but is valid from March 25, 2009 forward.

Proposed Solution

On April 22 a technical group met at the Reclamation's Elephant Butte offices to discuss and develop an approach to estimate the water surface elevation for the period from October 15, 2008 to March 25, 2009 and to develop a standard operating procedure to QA/QC future encoder readings. Staff from Reclamation's El Paso and Elephant Butte offices, the United States Geological Survey (USGS), and NMISC participated in the meeting.

Two methodologies were proposed to estimate water surface elevation.

(1) The addition of a constant value of 0.39 feet to each data point for the period from November 12, 2008 to March 25, 2009. This approach assumes that the water level elevation error was constant with time. Additional analysis of the mass balance of the reservoir indicated that this approach was not technically defensible.

(2) Calculation of the reservoir mass balance and computation of water surface elevations for the period of interest. Two approaches were evaluated, one using RiverWare to estimate the daily mass balance and the other using EXCEL to estimate the monthly mass balance.

Results of the various methodologies were presented and discussed in detail and the Engineer Advisers and Reclamation settled upon the RiverWare approach as the most technically justified. The RiverWare approach solves for reservoir storage and elevation on a daily basis given inflow and outflow. It assumes that, during the late fall and winter, the gaged flow at San Marcial gages reached the reservoir (after subtraction of evaporation losses) and that there was no local inflow to the reservoir below the San Marcial gages. As a check, the assumption that the total gaged flow at San Marcial reaches the reservoir was further investigated by comparing San Marcial gaged flows with estimated reservoir inflow for the previous three years for the months of October, November and December. Based on that analysis, it was determined that no firm conclusions could be reached regarding gains or losses in the reach between San Marcial and the reservoir.

Results

The Engineer Advisers and Reclamation used RiverWare to simulate Elephant Butte Reservoir operations during the period from October 15, 2008 to March 25, 2009. Inflow to the reservoir was assumed to be the combined flow of two gages: the Rio Grande at San Marcial and the Low Flow Conveyance Channel at San Marcial. This combined flow was reduced by open water evaporation between San Marcial and the reservoir by assuming a 200-foot wide channel over a distance of 30 miles between San Marcial and the active reservoir pool. Pan evaporation measured on a daily basis at the reservoir with a correction coefficient of 0.7 was used to estimate open water evaporation above the reservoir. The USGS assisted in this effort by finalizing the record for the San Marcial gages and the gage on the Rio Grande below Elephant Butte Reservoir for 2008 and 2009 as appropriate.

An additional complicating factor is that updated Elephant Butte area-capacity curves took effect on January 1, 2009. To account for the change of area/capacity curves, two model runs were made. The first run started October 15 and ended December 31, 2008, and the second started January 1 and ended on March 31, 2009. The model was calibrated to match the recorded water surface elevation from October 15 to November 6, 2008 and the measured elevation on March 25, 2009. Figure 2 shows the estimated water surface elevation for the period from October 15, 2008 through March 25, 2009.

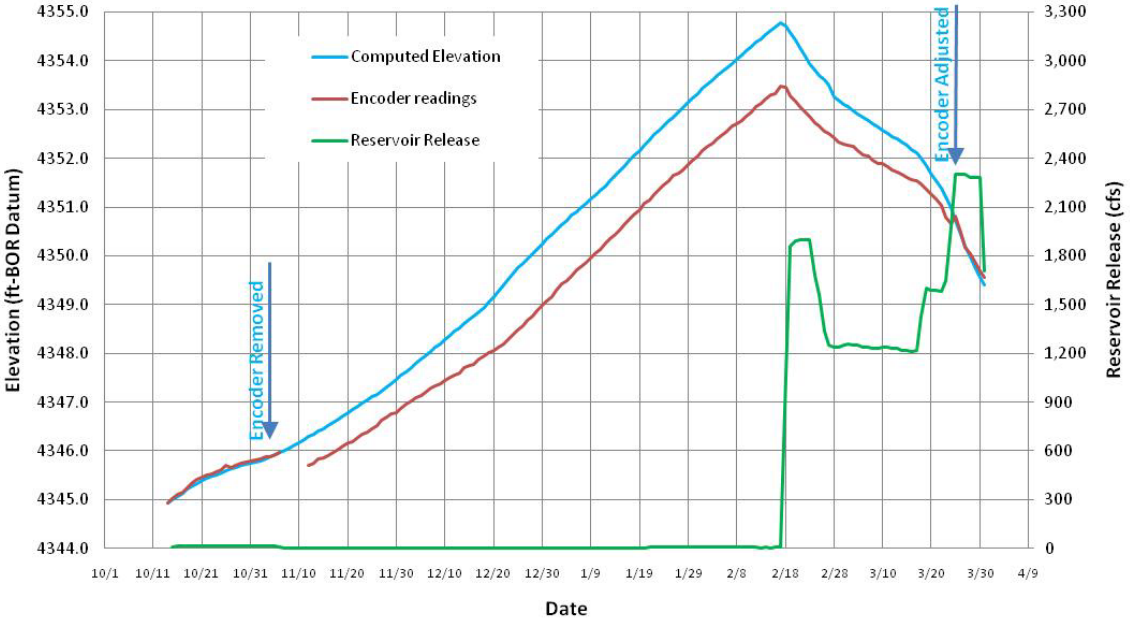


Figure – 2: Computed Elephant Butte Water surface elevation

The Engineer Advisers used the simulated water surface elevation data to finalize Rio Grande Compact accounting for 2008 as discussed below. Additionally, the Engineer Advisers and Reclamation recommend use of the simulated elevations as the official record of water level elevation at the Elephant Butte Reservoir for the time period in question with the stipulation that the record include a note that the elevation is a simulated elevation. Additionally, the Engineer Advisers believe the attached procedures (Attachment 1), developed by Reclamation, for verifying the water surface elevation data at Elephant Butte Reservoir, if implemented, should minimize the likelihood of a similar problem occurring in the future.

COMPACT ACCOUNTING

The Engineer Advisers to the Rio Grande Compact Commissioners have reviewed the streamflow and reservoir storage records and other pertinent data and have determined the scheduled and actual deliveries, and the release of Usable Water during calendar year 2008. As

determined by the Engineer Advisers, scheduled and actual deliveries, release of Usable Water for the year 2008, and balances as of January 1, 2009 are as follows:

(a) Deliveries by Colorado at the Stateline:	
Balance as of January 1, 2008	7,200 acre-feet
Scheduled delivery	398,400 acre-feet
Actual delivery at Lobatos plus 10,000 acre-feet	403,900 acre-feet
Reduction of credit on account of evaporation	900 acre-feet
Accrued credits relinquishment to Project Storage on February 29, 2008	1,200 acre-feet
Accrued credit January 1, 2009	10,600 acre-feet
(b) Deliveries by New Mexico at Elephant Butte Dam:	
Balance as of January 1, 2008	184,500 acre-feet
Scheduled delivery	816,200 acre-feet
Actual delivery	883,300 acre-feet
Reduction of credit on account of evaporation	10,600 acre-feet
Accrued credits relinquishment to Project Storage on February 1, 2008	125,000 acre-feet
Accrued credit January 1, 2009	116,000 acre-feet
(c) Project Storage and Releases:	
Accrued departure (credit) as of January 1, 2008	778,400 acre-feet
Actual release of Usable Water	676,400 acre-feet
Normal release for year	790,000 acre-feet
Accrued departure (credit) as of January 1, 2009	892,000 acre-feet

Craig W. Cotten
Engineer Adviser for Colorado

Rolf Schmidt-Petersen
Engineer Adviser for New Mexico

Herman R. Settemeyer
Engineer Adviser for Texas

Attachment 1
Reclamation Standard Operating Procedures for Verifying Elephant Butte Reservoir Water Surface Elevations

EP-431 May 13, 2009

TO: Rio Grande Compact Engineer Advisors

FROM: Wayne Treers, Hydraulic Engineer, El Paso Field Division, Bureau of Reclamation, El Paso, TX

SUBJECT: Discrepancy in Elephant Butte Reservoir Water Surface Elevations

For Oct. – Dec. 2008, Corrected Elevation and Storage Contents Tables, and Procedures for Verifying Reservoir Water Surface Elevations (Rio Grande Project)

On the crest of Elephant Butte Dam is a stilling well from which it is possible to record and monitor the water surface elevation of Elephant Butte Reservoir by the Bureau of Reclamation's (Reclamation's) Elephant Butte Field Division. The stilling well contains a weighted float system in addition to a shaft encoder, which converts a mechanical lake level reading to an electronic piece of data. This electronic data is then transmitted to a data collection platform (DCP) located in the stilling well, where the data is stored and simultaneously transmitted to a satellite for re-transmission to various agencies' down-links and computer systems.

From November 7, 2008 to November 12, 2008, Reclamation replaced the float system/shaft encoder with newer equipment. On November 12, 2008, Reclamation conducted a level/rod survey of the reservoir's water surface, and the resultant elevation was used to re-set the shaft encoder and DCP. On March 25, 2009, another survey of the reservoir's water surface was conducted by Reclamation, this time using a total station instrument. The resultant elevation was compared with the DCP reading at that time and it was discovered that the DCP was reading 0.39 ft. lower than the survey elevation. The DCP was re-set to read 0.39 ft. higher.

The Rio Grande Compact Commission engineer advisors, at their annual meeting in February, 2009, expressed concern that Reclamation's Elephant Butte Reservoir daily elevations record for October through December 2008 were not correct when you compare with the gains as observed at the San Marcial gauging stations flow for that period of time. The State of New Mexico was also concerned that an inaccurate elevation/storage content record at Elephant Butte Reservoir could affect New Mexico's Compact accrued credits for 2008, as well as evaporation on Compact credits for 2008.

Attachment 1
Reclamation Standard Operating Procedures for Verifying Elephant Butte Reservoir Water Surface Elevations

Independent surveys of Elephant Butte Reservoir's water surface were conducted in late March 2009 by both the State of New Mexico and Reclamation. Final results of both surveys verified proper techniques for surveying (using a total station instrument) and verified reservoir elevations were within standards.

Reclamation discovered that the float system/shaft encoder/DCP readings in the stilling well at Elephant Butte Dam were being affected by the operation of the dam's balanced valves, which draw quite a bit of air, even through the stilling well. This draw of air in the stilling well has an affect on the atmospheric pressure, and consequently affects the water level in the stilling well as well as the reservoir water surface elevation readings. In addition, when strong winds aim straight at the upstream face of Elephant Butte Dam, the water level in the stilling well is affected, which also produces erroneous reservoir water surface elevations at the float system/shaft encoder/DCP.

Reclamation met with the State of New Mexico and the U.S. Geological Survey on April 22, 2009 to discuss these discrepancies in the record of daily elevations at Elephant Butte Reservoir from Oct. 15, 2008 to March 24, 2009. Subsequent telephone conference calls on May 4 and May 5, 2009 resulted in a consensus with everyone that a set of daily elevations calculated using the RiverWater model based on San Marcial flows would be applied. Reclamation produced corrected tables of daily elevations and storage contents for 2008 for Elephant Butte Reservoir and transmitted them on May 7, 2009. This allows the Compact engineer advisors to recalculate the Compact accounting for 2008 with the adjusted data.

In order to ensure that the reported reservoir elevations are correct, Reclamation has established the following procedures:

1. As recommended by the U.S. Geological Survey, Reclamation will purchase and install a wire-weighted gauge instrument on the upstream side of Elephant Butte Dam that will be used to easily "ground-truth" or verify the reservoir's water surface elevation in the stilling well in the future.

2. A survey with a total station instrument will be conducted once a week to verify the water surface elevation; and a check of the DCP reading in the stilling well will be performed;

Attachment 1
Reclamation Standard Operating Procedures for Verifying Elephant Butte Reservoir Water Surface Elevations

In the event that the DCP reading is off by more than +/- 0.05 ft., then subsequent surveys will be conducted to detect if a "trend" is occurring; if there is a consistent error of more than +/- 0.05 ft., then the DCP will be re-set to the proper survey elevation.

3. All surveys and DCP readings, as well as any instrument re-sets at the stilling well, will be documented in the dam's logbook, and also recorded on a separate digitized spreadsheet. A copy of the spreadsheet will be sent once a month to Reclamation's El Paso Field Division office, Water Operations Group. Any adjustment (re-set) of the stilling well/DCP equipment will be reported the same day to the El Paso Field Division Water Operations Group, so that proper notation and adjustment of the daily record can be accomplished.

Reclamation will analyze whether any modifications to the stilling well need to accomplished to eliminate the atmospheric pressure change in the stilling well due to the operation of the balanced valves, or whether Bernoulli's equation should be applied to correct the daily elevation record when the balanced valves are in operation.

RESOLUTION OF THE RIO GRANDE COMPACT COMMISSION

WHEREAS, *the Rio Grande Compact Commission works closely with federal and state agencies, including the U.S. International Boundary and Water Commission (IBWC); and*

WHEREAS, *Commissioner Marin was appointed to his position as Commissioner by President George W. Bush in December of 2006 after 27 years of service to the IBWC; and*

WHEREAS, *the Rio Grande Compact Commission worked closely with IBWC Commissioner Carlos Marin on numerous sensitive water supply issues, both domestic and international; and*

WHEREAS, *during his tenure with the IBWC Commissioner Marin encountered a myriad of challenges, and in meeting those challenges surmounted many obstacles, always emerging with representation of the highest quality; and*

WHEREAS, *Commissioner Marin lost his life in service to the constituents along the Rio Grande and the United States and Mexico Border;*

NOW, THEREFORE, BE IT RESOLVED *that the Rio Grande Compact Commission assembled at its 70th Annual Meeting held in El Paso, Texas, on March 31, 2009 sincerely regrets his untimely passing and does hereby express its recognition and appreciation for Commissioner Marin's faithful and competent dedication to the Commission;*

BE IT FURTHER RESOLVED *that the Engineer Advisers to the Rio Grande Compact Commission are hereby directed to furnish copies of this resolution to the family of Commissioner Carlos Marin and cause said resolution to be included in the Minutes of the 70th Annual Meeting of the Rio Grande Compact Commission.*

Pat Gordon

Patrick R. Gordon
Commissioner for Texas

Dick Wolfe

Dick Wolfe
Commissioner for Colorado

John L. D'Antonio

John D'Antonio
Commissioner for New Mexico

RESOLUTION OF THE RIO GRANDE COMPACT COMMISSION

WHEREAS, *C. W. (Bill) Ruth served for six years as Federal Chairman for the Rio Grande Compact Commission; and*

WHEREAS, *during that time Mr. Ruth did faithfully and conscientiously carry out his assigned duties to the overall benefit not only of the Rio Grande Compact Commission but of the three states involved in the Rio Grande Compact; and*

WHEREAS, *during his tenure as Federal Chairman of the Rio Grande Compact Commission, the Rio Grande Compact Commissioners and Engineer Advisers of the three states of Colorado, New Mexico and Texas did develop great admiration, respect, and appreciation for Mr. Ruth, his assistance, and his work;*

NOW THEREFORE BE IT RESOLVED *that the Rio Grande Compact Commission assembled in its 70th annual meeting held in El Paso, Texas acknowledges the devoted service of C. W. (Bill) Ruth to the Rio Grande Compact Commission, and this Commission extends to Mr. Ruth its best wishes for a prosperous and enjoyable future; and*

BE IT FURTHER RESOLVED, *that the Rio Grande Compact Commission is hereby directing the Engineer Advisers to furnish a copy of this unanimously adopted resolution to C. W. (Bill) Ruth, and to cause said resolution to be included in the Minutes of the 70th annual meeting of the Rio Grande Compact Commission.*

In witness whereof, we do hereby cause our signatures to be affixed hereon this 31st day of March, 2009, A.D., El Paso, Texas.

John R. D'Antonio
Commissioner for New Mexico

Dick Wolfe
Commissioner for Colorado

Patrick R. Gordon
Commissioner for Texas

RESOLUTION
OF THE
RIO GRANDE COMPACT COMMISSION
REGARDING
THE TEMPORARY DEVIATION FROM NORMAL OPERATIONS AT COCHITI LAKE AND JEMEZ CANYON RESERVOIR FOR THE BENEFIT OF ENDANGERED SPECIES

WHEREAS, the states of Colorado, New Mexico, and Texas, in 1938, entered into the Rio Grande Compact apportioning the waters of the Rio Grande above Fort Quitman, Texas; and

WHEREAS, the Rio Grande Compact was passed as Public Act No. 96 by the 76th Congress of the United States and approved by the President on May 31, 1939; and

WHEREAS, the agencies of the United States operate numerous reservoirs and other water-related facilities in the Rio Grande basin; and

WHEREAS, the U.S. Army Corps of Engineers operates Cochiti Lake and Jemez Canyon Reservoir on the middle Rio Grande in New Mexico; and

WHEREAS, all such facilities are required to be operated in compliance with the Rio Grande Compact; and

WHEREAS, both the U.S. Bureau of Reclamation and the Corps of Engineers are action agencies under the U.S. Fish and Wildlife Service's 2003 Middle Rio Grande Water Operations Biological Opinion; and

WHEREAS, in accordance with the Reasonable and Prudent Alternatives contained in the 2003 Biological Opinion, both the Bureau of Reclamation and the Corps of Engineers, in coordination with the Fish and Wildlife Service shall provide a one-time increase in springtime flows in the Middle Rio Grande, if appropriate, to cue silvery minnow spawning; and

WHEREAS, in accordance with the Reasonable and Prudent Alternatives contained in the 2003 Biological Opinion, the Corps of Engineers, in coordination with the Fish and Wildlife Service, shall bypass or release floodwater, if appropriate, during the spring to provide for overbank flows; and

WHEREAS, such operations are not authorized as part of the normal operations of the Corps of Engineers, pursuant to the Flood Control Act of 1960, Public Law 86-645; and

WHEREAS, the Flood Control Act of 1960, Public Law 86-645, requires the advice and consent of the Rio Grande Compact Commission for deviation from normal operations of Cochiti Lake and Jemez Canyon Reservoir; and

WHEREAS, the Corps of Engineers proposes to temporarily deviate from normal operations of Cochiti Lake and Jemez Canyon Reservoir for a term of five years by storing inflowing water in April and May for release prior to June 13 of the same year to provide for recruitment flows and overbank flows for the benefit of the silvery minnow in the middle Rio Grande; and

WHEREAS, the New Mexico Interstate Stream Commission has approved execution of a Memorandum of Understanding with the Corps of Engineers requiring offset of all additional depletions resulting from the proposed temporary deviation from normal operations.

NOW, THEREFORE, BE IT RESOLVED that, in accordance with the Flood Control Act of 1960, Public Law 86-645, the Rio Grande Compact Commission hereby favorably advises and consents to the temporary deviation from normal operations at Cochiti Lake and Jemez Canyon Reservoir as described above for a term not to exceed five years; and,

BE IT FURTHER RESOLVED PROVIDED, HOWEVER that the deviation operations described above may not occur unless New Mexico is in an accrued credit status with respect to her Rio Grande Compact delivery obligations at the beginning of the year; and

BE IT FURTHER RESOLVED PROVIDED, HOWEVER that the Corps of Engineers must secure water or water rights and assure their availability for offset of additional depletions projected to result from deviation operations before those operations are conducted in any given year; and

BE IT FURTHER RESOLVED that the Corps of Engineers must secure specific advice and consent of the Rio Grande Compact Commission at its annual meeting during each year of the term of the proposed deviation to determine on a yearly basis if the conditions of this Resolution have been satisfactorily met such that deviation operations may occur for that year and whether recruitment or overbanking flow operations are needed; and

BE IT FURTHER RESOLVED that the Secretary of the Rio Grande Compact Commission transmit copies of this resolution to the Albuquerque Area Office Manager of Reclamation; the Regional Director and the New Mexico Ecological Services Field Office Supervisor of the U.S. Fish and Wildlife Service, and the Commander of the Albuquerque District of the U.S. Army Corps of Engineers.

Dick Wolfe
Commissioner for Colorado

John D'Antonio, Jr.
Commissioner for New Mexico

Patrick R. Gordon
Commissioner for Texas

Agreement No: 09C4NM000000010
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, 2009 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, 2009 to June 30, 2010, the following amounts:

(a)	U.S. Geological Survey	$7,016
(b)	State of Colorado	$3,124
(c)	State of New Mexico	$3,124
(d)	State of Texas	$3,124

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, 2010, 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, 2010, 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 2010 and July 2010. 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 6/9/09

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

RIO GRANDE COMPACT COMMISSION

Dick Wolfe 6/26/09

Commissioner for Colorado Date

John R. D'Antonio 7/8/09

Commissioner for New Mexico Date

Pat Gordon 6/26/09

Commissioner for Texas Date

Representative of the United States Date

Statement of Work
for
09C4NM000000010

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.

COST OF OPERATION AND BUDGET

BUDGET FOR FISCAL YEAR ENDING JUNE 30, 2008

Item	Total Cost	Borne by United States	Borne by Colorado	Borne by New Mexico	Borne by Texas
GAGING STATIONS					
In Colorado	$66,351	$8,652	$57,699		
In New Mexico, above Caballo Reservoir	$63,190	$40,415		$22,775	
In New Mexico, Caballo Reservoir and below	$21,760	$5,680		$2,480	$13,600
Subtotal	$151,301	$54,747	$57,699	$25,255	$13,600
ADMINISTRATION					
U.S.G.S. Contract	$34,062	$7,817	$8,748	$8,748	$8,748
Other expenses	$3,392		$1,131	$1,131	$1,131
Subtotal	$37,454	$7,817	$9,879	$9,879	$9,879
GRAND TOTAL	$188,755	$62,564	$67,578	$35,134	$23,479
EQUAL SHARES			$42,064	$42,064	$42,064

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.

WATER RESOURCES DATA

ACKNOWLEDGEMENTS

This report was prepared by the Engineer Advisers 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.
Galisteo Creek below Galisteo Dam, N. Mex
Rio Grande below Cochiti 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 EB, N. Mex.
Rio Grande below Caballo Dam, N. Mex.
Storage in Caballo Reservoir near Arrey, 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. -- 119 years (1890-2008), 895 ft^3/s (648,000 acre-ft per year).
Extremes. -- 1889-2008: 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	5,400	220	140	174	10,710
February	5,120	210	140	177	10,160
March	9,401	620	190	303	18,650
April	30,247	1,900	432	1,008	59,990
May	96,490	6,090	1,410	3,113	191,400
June	114,790	5,930	2,510	3,826	227,700
July	42,614	2,660	694	1,375	84,520
August	18,413	993	371	594	36,520
September	11,705	833	257	390	23,220
October	11,125	670	269	359	22,070
November	7,306	365	159	244	14,490
December	5,379	223	105	174	10,670
Calendar year 2008	358,000	6,090	105	978	710,000

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. -- 56 years (1890-2008), 92.2 ft^3/s (66,800 acre-ft per year).
Extremes. -- 1952-2008: 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	248	8	8	8	492
February	237.8	8.2	8.2	8.2	472
March	266.2	9	8.2	8.6	528
April	354.2	58	9	11.8	703
May	7,643	490	86	247	15,160
June	9,958	514	102	332	19,750
July	7,912	393	178	255	15,690
August	4,176	216	67	135	8,280
September	3,371	181	78	112	6,690
October	2,361	263	8	76.2	4,680
November	243	8.1	8.1	8.1	482
December	251.1	8.1	8.1	8.1	498
Calendar year 2008	37,000	514	8	101	73,400

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. -- 98 years (1904, 1912-2008), 322 ft^3/s (233,000 acre-ft per year).
Extremes. -- 1903-05, 1911-2008: 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	1,508	58	40	48.6	2,990
February	1,613	70	38	55.6	3,200
March	3,421	235	68	110	6,790
April	9,461	608	157	315	18,770
May	33,106	2,040	542	1,068	65,670
June	43,523	2,210	973	1,451	86,330
July	18,679	1,050	368	603	37,050
August	8,091	393	157	261	16,050
September	5,786	371	138	193	11,480
October	4,325	337	57	140	8,580
November	1,725	73	37	57.5	3,420
December	1,261	64	25	40.7	2,500
Calendar year 2008	132,000	2,210	25	362	263,000

San Antonio River at Ortiz, Colo

Location. -- Water-stage recorder, lat 36°59'35", long 106°02'17", in New Mexico in NE1/4SE1/4, sec. 24, T. 32 N., R. 8 E., on left bank 800 ft south of New Mexico-Colorado State line, 0.4 mi southeast of Ortiz, and 0.4 mi upstream from Los Pinos River. Altitude of gage is 7,970 ft.
Drainage area. -- 110 sq mi.
Average discharge. -- 68 years (1941-2008), 25.2 ft^3/s (18,300 acre-ft per year).
Extremes. -- 1920, 1925-2008: Maximum discharge, 1,750 ft^3/s Apr. 15, 1937 (gage height, 5.38 ft), from rating curve extended above 1,100 ft^3/s; no flow at times.
Remarks. -- Records good except those for winter months, which are fair. A few small diversions above station for irrigation.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	80.1	2.9	1.8	2.58	159
February	58.1	4.4	1.3	2	115
March	780.8	162	4.6	25.2	1,550
April	4,446	294	40	148	8,820
May	7,651	420	119	247	15,180
June	1,008.6	107	5.6	33.6	2,000
July	112.6	7.3	1.6	3.63	223
August	27.12	1.5	0.3	0.87	54
September	20.98	1.6	0.2	0.7	42
October	67.11	4	0.8	2.16	133
November	76.3	3.1	1.7	2.54	151
December	75.9	3.2	1.8	2.45	151
Calendar year 2008	14,400	420	0.2	39.4	28,600

STREAMFLOW

Los Pinos River near Ortiz, Colo

Location. -- Water-stage recorder, lat 36°58'56", long 106°04'23", in New Mexico on line between secs. 26 and 27, T. 32 N., R. 8 E., on left bank 0.9 mi south of New Mexico-Colorado State line, 2.1 mi southwest of Ortiz, and 2.9 mi upstream from mouth. Altitude of gage is 8,040 ft.
Drainage area. -- 167 sq mi.
Average discharge. -- 90 years (1915-20, 1925-2008), 117 ft^3/s (84,800 acre-ft per year).
Extremes. -- 1915-20, 1925-2008: Maximum discharge, 3,160 ft^3/s May 12, 1941 (gage height, 5.77 ft, site and datum then in use), from rating curve extended above 1,600 ft^3/s; minimum observed, 4.0 ft^3/s Dec. 17, 1945.
Remarks. -- Records good except those for winter months, which are fair. Diversions above station for irrigation.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	559	21	15	18	1,110
February	620	26	19	21.4	1,230
March	1,535	121	23	49.5	3,040
April	7,115	588	90	237	14,110
May	25,747	1,380	454	831	51,070
June	16,077	971	232	536	31,890
July	3,184	214	49	103	6,320
August	957	44	21	30.9	1,900
September	730	64	17	24.3	1,450
October	764	75	12	24.6	1,520
November	469.2	31	5.9	15.6	931
December	499	20	11	16.1	990
Calendar year 2008	58,300	1,380	5.9	159	116,000

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. -- 87 years (1922-2008), 176 ft^3/s (128,000 acre-ft per year).
Extremes. -- 1921-2008: Maximum discharge, 3,890 ft^3/s May 15, 1941; no flow at times in some years.
Remarks. -- Records good except those for winter months, which are fair. Diversions above station for irrigation of about 75,000 acres above station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	1,877	71	48	60.5	3,720
February	2,209	97	63	76.2	4,380
March	5,844	451	100	189	11,590
April	13,988	795	265	466	27,750
May	29,621	1,690	511	956	58,750
June	22,632	1,270	424	754	44,890
July	8,215	460	143	265	16,290
August	1,403	120	4.9	45.2	2,780
September	479	77	0.3	16	950
October	325	31	0.1	10.5	645
November	961	60	15	32	1,910
December	1,669	66	46	53.8	3,310
Calendar year 2008	89,200	1,690	0.1	244	177,000

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 ft^3/s (612,900 acre-ft per year); 78 years (1931-2008) 438 ft^3/s (317,000 acre-ft per year).
Extremes. -- 1899-2008: Maximum discharge observed, 13,200 ft^3/s June 8, 1905 (gage height, 9.1 ft); from rating curve extended above 8,000 ft^3/s; no flow at times in 1950-51-51, 1956.
Remarks. -- Records good except those for winter months, which are fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	9,070	340	270	293	17,990
February	8,960	400	280	309	17,770
March	18,076	1,150	310	583	35,850
April	30,162	1,300	586	1,005	59,830
May	51,860	2,870	1,190	1,673	102,900
June	46,949	2,770	959	1,565	93,120
July	16,433	1,060	302	530	32,590
August	3,855	248	59	124	7,650
September	2,210	156	49	74	4,380
October	2,256	130	40	73	4,470
November	3,023	135	73	101	6,000
December	5,719	260	100	184	11,340
Calendar year 2008	199,000	2,870	40	543	394,000

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; 39 years (1970-2008) 136 ft^3/s (98,500 acre-ft per year) subsequent to completion of Azotea tunnel.
Extremes. -- 1962-2008: Maximum discharge, 1,610 ft^3/s Mar. 12, 1985 (gage height, 6.65 ft); no flow at times.
Remarks. -- Records good except those for winter months, which are fair. Subsequent to Nov. 16, 1970, flow affected by transmountain diversions through Azotea tunnel. Flow in Rutheron Drain included prior to Apr. 1, 1971.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	0	0	0	0	0
February	0	0	0	0	0
March	6,784	747	0	219	13,460
April	14,758	827	220	492	29,270
May	21,652	991	469	698	42,950
June	22,684	1,010	459	756	44,990
July	6,462	458	71	208	12,820
August	1,065	107	5	34	2,110
September	613	261	0	20	1,220
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
Calendar year 2008	74,000	1,010	0	202	147,000

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. -- 1963-2008: Maximum discharge, 3,960 ft^3/s July 30, 1968 (gage height, 4.9 ft); no flow most of time.
Remarks. -- Records good. Diversions above station for irrigation of meadows and for off-channel stock tanks.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	---	---	---	---	---
February	---	---	---	---	---
March	---	---	---	---	---
April	---	---	---	---	---
May	7.5	0.6	0	0.3	14.8
June	0	0	0	0	0
July	0	0	0	0	0
August	0	0	0	0	0
September	0	0	0	0	0
October	---	---	---	---	---
November	---	---	---	---	---
December	---	---	---	---	---
Calendar year 2008	7.5	0.6	0	0.3	14.8

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. -- 38 years (1971-2008), 128 ft3/s (92,700 acre-ft per year).
Extremes. -- 1971-2008: 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	335	25	0	11	664
February	524	50	0	18	1,040
March	4,629	523	50	149	9,180
April	3,952	523	0	132	7,840
May	0	0	0	0	0
June	0	0	0	0	0
July	4,988	855	0	161	9,890
August	2,481	286	0	80	4,920
September	6,567	256	0	219	13,030
October	7,936	256	256	256	15,740
November	7,680	256	256	256	15,230
December	15,496	750	256	500	30,740
Calendar year 2008	54,600	855	0	149	108,000

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; 38 years (1971-2008) 463 ft3/s (335,000 acre-feet per year).

Extremes. -- 1914-16, 1920-24, 1936-2008; 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	3,256	158	60	105	6,460
February	5,967	590	118	206	11,840
March	30,594	1,410	585	987	60,680
April	37,704	1,400	994	1,257	74,790
May	36,199	2,430	330	1,168	71,800
June	30,044	2,340	396	1,001	59,590
July	10,513	958	81	339	20,850
August	16,615	988	185	536	32,960
September	16,970	986	218	566	33,660
October	9,884	632	59	319	19,600
November	1,669	72	31	56	3,310
December	9,598	429	30	310	19,040
Calendar year 2008	209,000	2,430	30	571	415,000

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; 38 years (1971-2008), 511 ft3/s (370,000 acre-feet per year).

Extremes. -- 1961-2008; 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	3,894	204	51	126	7,720
February	8,583	1,120	101	296	17,020
March	36,545	1,520	105	1,179	72,490
April	47,460	1,630	1,400	1,582	94,140
May	36,774	1,710	684	1,186	72,940
June	40,651	1,710	878	1,355	80,630
July	9,645	875	228	311	19,130
August	19,048	808	208	614	37,780
September	19,105	846	407	637	37,890
October	9,517	741	67	307	18,880
November	2,248	119	55	75	4,460
December	6,061	419	49	196	12,020
Calendar year 2008	240,000	1,710	49	654	475,000

STREAMFLOW

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

Location. -- Water-stage recorder with satellite telemetry, lat 35°50'46", long 105°54'17", in NE1/4SW1/4 sec. 29, T. 19 N., R. 10 E., in Nambe Indian Reservation, in outlet conduits at Nambe Falls Dam, 300 ft upstream from Nambe Falls, 2.6 mi upstream from confluence of Rio Nambe and Rio En Medio, 4.4 mi southeast of Nambe Pueblo, and 5.4 mi southeast of Nambe. Datum of gage is 6,840 ft above National Geodetic Vertical Datum of 1929, from topographic map.
Drainage area. -- 34.1 sq mi.
Average discharge. -- -- 30 years (1979-2008), 13.9 ft^3/s (10,100 acre-feet per year).
Extremes. -- 1979-2008; Maximum discharge, 312 ft^3/s June 9, 1979 (gage height, 1.96 ft), at site 1,100 ft downstream; no flow December 31, 1994.
Remarks. -- Records good. Flow completely regulated by Nambe Falls Reservoir

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	16	0.6	0.4	0.5	32
February	19	0.8	0.6	0.7	39
March	266	17	0.8	8.6	528
April	444	19	10	15	881
May	677	42	10	22	1,340
June	776	43	15	26	1,540
July	399	25	9	13	790
August	516	21	11	17	1,020
September	307	15	8	10	609
October	129	8.2	0.7	4.2	257
November	23	1.1	0.6	0.8	45
December	36	1.6	0.9	1.2	71
Calendar year 2008	3,610	43	0.4	9.9	7,150

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

Location. -- Water-stage recorder with satellite telemetry, lat 35°52'29", long 106°08'30", in SW1/4SW1/4 sec. 18, T. 19 N., R. 8 E., in San Ildefonso Pueblo Grant, 400 downstream from bridge on State Highway 502, 1.8 mi southwest of San Ildefonso Pueblo, 2.5 mi downstream from Pojoaque River, and 6.8 mi west of Pojoaque. Datum of gage is 5,488.48 ft above National Geodetic Vertical Datum of 1929. Prior to May 19, 1904, and July 25 to Oct 1, 1904, staff gage at site 180 ft upstream at datum 2.02 ft lower.
Drainage area. -- 14,300 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).
Average discharge. -- 109 years (1896-1905, 1910-2007), 1,512 ft^3/s (1,100,000 acre-feet per year).
Extremes. -- 1895-1905, 1910-2008; Maximum discharge, 24,400 ft^3/s May 23, 1920 (gage height, 14.1 ft); minimum daily, 60 ft^3/s July 4, 5, 1902.
Remarks. -- Records good. Flow partly regulated by Heron, El Vado, and Abiquiu Reservoirs. Diversions above station for irrigation of about 620,000 acres in Colorado and 75,000 acres in New Mexico. Subsequent to May 1971 flow affected by releases of transmountain water from Heron Reservoir.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	21,289	821	584	687	42,230
February	27,605	1,790	638	952	54,750
March	71,709	3,780	979	2,313	142,200
April	112,250	4,540	3,180	3,742	222,600
May	136,420	5,970	3,430	4,401	270,600
June	118,610	5,840	2,360	3,954	235,300
July	37,426	2,570	807	1,207	74,230
August	30,234	1,860	592	975	59,970
September	27,092	1,060	811	903	53,740
October	20,735	1,180	436	669	41,130
November	13,993	522	391	466	27,760
December	20,437	922	450	659	40,540
Calendar year 2008	638,000	5,970	391	1,740	1,270,000

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. -- 96 years (1913-2008), 8.0 ft^3/s (5,800 acre-feet per year).
Extremes. -- 1913-2008; Maximum discharge, 1,500 ft^3/s Aug. 14, 1921 (gage height, 5.17 ft); from rating curve extended above 150 ft^3/s; minimum, no flow Aug. 2-10, 2000.
Remarks. -- Records good. Flow regulated by McClure Reservoir, completed in 1926, raised in 1935 and again in 1947.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	189	7.8	2.4	6.1	375
February	155	8	3.4	5.4	308
March	128	4.4	3.9	4.1	254
April	201	13	4.2	6.7	399
May	427	14	13	13.8	847
June	416	14	13	13.9	825
July	207	13	0.5	6.7	410
August	318	11	6.7	10.3	631
September	302	11	9.4	10.1	599
October	223	10	3.3	7.2	442
November	58.3	3.4	0.9	1.9	116
December	34.3	1.4	1.0	1.1	68
Calendar year 2008	2,660	14	0.5	7.3	5,270

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. -- 38 years (1971-2008), 1,340 ft^3/s (971,000 acre-feet per year).
Extremes. -- 1971-2008; Maximum discharge, 10,300 ft^3/s July 26, 1971 (gage height, 7.90 ft) at site 2.4 mi downstream prior to closure of Cochiti Dam; from rating curve extended above 2,600 ft^3/s; minimum discharge 0.51 ft^3/s Aug. 3-5, 1977, Aug. 27-28, 1978.
Remarks. -- Records good. Since Nov. 12, 1973, flow completely regulated by Cochiti Dam. Cochiti Eastside Main Canal on left bank and Sili Main Canal on right bank bypass station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	22,842	931	540	737	45,310
February	28,773	1,870	645	992	57,070
March	68,197	3,650	957	2,200	135,300
April	109,390	4,640	2,890	3,646	217,000
May	138,190	6,210	3,510	4,458	274,100
June	120,070	5,960	2,440	4,002	238,200
July	37,304	2,920	692	1,203	73,990
August	26,486	950	712	854	52,530
September	23,173	987	717	772	45,960
October	16,356	730	393	528	32,440
November	12,985	568	378	433	25,760
December	20,029	906	459	646	39,730
Calendar year 2008	624,000	6,210	378	1,700	1,240,000

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. -- -- 38 years (1971-2008), 5.0 ft^3/s (3,620 acre-feet per year).
Extremes. -- 1970-2008; Maximum discharge, 3,460 ft^3/s Aug. 24, 1997 (gage height, 5.57 ft); no flow many days each year.
Remarks. -- Records poor. Flow partly regulated by uncontrolled outlet in Galisteo Dam. Capacity of outlet, 5,000 ft^3/s when reservoir is full. Diversions for irrigation of about 50 acres above reservoir.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	0	0	0	0	0
February	0	0	0	0	0
March	0	0	0	0	0
April	0	0	0	0	0
May	0	0	0	0	0
June	9.7	7.2	0	0.3	19
July	194	114	0	6.3	385
August	390	111	0	12.6	773
September	852	296	0	28.4	1,690
October	123	115	0	4.0	243
November	0	0	0	0	0
December	0	0	0	0	0
Calendar year 2008	1,570	296	0	4.3	3,110

Jemez River below Jemez Canyon Dam, N. Mex.

Location. -- Water-stage recorder with satellite telemetry, lat 35°23'24", long 106°32'03", in NE1/4 sec. 5, T. 13 N., R. 4 E., 0.8 mi downstream from Jemez Canyon Dam, 2.0 mi upstream from mouth, and 6 mi north of Bernalillo. Datum of gage is 5,095.60 ft above National Geodetic Vertical Datum of 1929. Prior to April 24, 1951, at site three-quarters mi upstream at datum 24.51 ft higher. April 24, 1951 to June 25, 1958, at site 37 ft upstream at datum 4.40 ft higher.
Drainage area. -- 1,038 sq mi.
Average discharge. -- 66 years (1937, 1944-2008), 61ft^3/s (44,200 acre-feet per year).
Extremes. -- 1937, 1944-2008; Maximum discharge, 16,300 ft^3/s Aug. 29, 1943 (gage height, 5.62 ft); no flow at times.
Remarks. -- Records good. Flow regulated by Jemez Canyon Dam since October 1953. Diversions for irrigation of about 3,000 acres above station.

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	393	18	8.2	12.7	780
February	727	38	11	25.1	1,440
March	2,285	241	31	73.7	4,530
April	4,498	179	126	150	8,920
May	4,354	185	105	140	8,640
June	1,015	92	13	33.8	2,010
July	261	18	0	8.4	518
August	150	42	0	4.9	298
September	101	46	0	3.4	200
October	204	52	0	6.6	405
November	172	10	3.3	5.7	340
December	173	8.9	1.4	5.6	344
Calendar year 2008	14,300	241	0	39.2	28,400

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. -- 94 years (1915-2008), 997 ft^3/s (722,000 acre-feet per year).

Extremes. -- 1915-2008; Maximum daily discharge, 8,220 ft^3/s May 22, 1942; no flow at times prior to 1929 and March 2-4, 1979.

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

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	440	33	2.1	14.2	873
February	12,787	1,450	14	441	25,360
March	47,640	2,270	1,400	1,537	94,490
April	59,200	2,920	1,610	1,973	117,400
May	52,470	2,060	1,590	1,693	104,100
June	71,100	2,810	1,800	2,370	141,000
July	34,037	2,400	366	1,098	67,510
August	43,828	2,240	595	1,414	86,930
September	2,227	861	13	74.2	4420
October	14,481	2,070	10	467	28,720
November	115	13	1.7	3.8	228
December	62.5	2.4	1.8	2.0	124
Calendar year 2008	338,000	2,920	1.7	925	671,000

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. -- 71 years (1938-2008), 925 ft^3/s (670,000 acre-feet per year).

Extremes. -- 1938-2008; Maximum daily discharge, 7,650 ft^3/s May 20, 1942; minimum daily, 0.1 ft^3/s Oct. 31 to Nov. 14, 1954, Nov. 7 to Dec. 31, 1955, Feb. 15-29, 1972.

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

Monthly and yearly discharge, in cubic feet per second

Month	Second-foot-days	Maximum daily	Minimum daily	Mean	Runoff in acre-feet
January	62	2	2	2	123
February	3,371	406	2	116	6,690
March	44,651	2,040	657	1,440	88,570
April	47,740	1,980	1,380	1,591	94,690
May	51,750	1,960	1,420	1,669	102,600
June	62,790	2,410	1,780	2,093	124,500
July	37,665	2,210	2	1,215	74,710
August	44,836	2,040	881	1,446	88,930
September	26,420	1,450	456	881	52,400
October	20,991	1,390	4	677	41,640
November	120	4	4	4	238
December	124	4	4	4	246
Calendar year 2008	341,000	2,410	2	928	675,000

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	33.5
March	113
April	81.6
May	160
June	319
July	169
August	66.8
September	53.0
October	13.3
November	0.0
December	0.0
Calendar year 2008	1,010

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 2008

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 2008

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 2008

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 2008

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 2008

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 2008

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 2008

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

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

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

Calendar Year 2008

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 2008

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 2008

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. Yr.
Gage height	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	-
Contents	237	237	237	237	237	237	237	237	237	237	237	237	-
Change	0	0	0	0	0	0	0	0	0	0	0	0	0

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, 2007	9,968.78	12,648	-
January 31, 2008	9,969.78	13,126	+478
February 29	9,970.37	13,404	+278
March 31	9,970.56	13,642	+238
April 30	9,976.25	16,340	+2,698
May 31	9,979.48	18,062	+1,722
June 30	10,003.30	33,337	+15,275
July 31	9,998.62	29,996	-3,341
August 31	9,990.36	24,484	-5,512
September 30	9,982.29	19,612	-4,872
October 31	9,976.20	16,313	-3,299
November 30	9,976.88	16,669	+356
December 31, 2008	9,977.94	17,228	+559
Calendar year 2008	-	-	+4,580

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 2008

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Cal. Yr.
Gage height	23.1	23.1	23.1	23.1	23.1	23.1	23.0	23.0	19.9	17.9	21.0	22.6	-
Contents	770	770	770	770	770	770	764	764	573	462	637	738	-
Change	0	0	0	0	0	0	-6	0	-191	-111	+175	+101	-32

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, 2007	7,144.33	196,689	-
January 31, 2008	7,144.36	196,804	+115
February 29	7,144.56	197,589	+785
March 31	7,146.43	205,008	+7,419
April 30	7,151.82	227,318	+22,310
May 31	7,161.37	270,262	+42,944
June 30	7,170.69	316,206	+45,944
July 31	7,171.60	320,907	+4,701
August 31	7,171.02	317,906	-3,001
September 30	7,168.57	305,410	-12,496
October 31	7,165.25	288,914	-16,496
November 30	7,162.05	273,478	-15,436
December 31, 2008	7,155.52	243,441	-30,037
Calendar year 2008	-	-	+46,752

El Vado Reservoir. – Water-stage recorder with satellite telemetry, 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, 2007	6,887.54	142,759	-	43,376
January 31, 2008	6,887.50	142,648	-111	43,150
February 29	6,885.35	136,819	-5,829	37,569
March 31	6,872.18	104,717	-32,102	19,824
April 30	6,870.25	100,555	-4,162	19,705
May 31	6,899.74	179,028	+78,473	19,593
June 30	6,899.39	177,921	-1,107	17,439
July 31	6,899.48	178,205	+284	14,371
August 31	6,890.81	151,981	-26,224	7,604
September 30	6,884.19	133,747	-18,234	8,924
October 31	6,883.39	131,655	-2,092	14,222
November 30	6,888.50	145,422	+13,767	27,414
December 31, 2008	6,893.42	159,619	+14,197	42,722
Calendar year 2008	-	-	+16,860	-

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, 2007	6,219.71	182,715	-	180,346
January 31, 2008	6,219.79	183,037	+322	180,906
February 29	6,220.31	185,135	+2,098	181,597
March 31	6,220.37	185,378	+243	180,094
April 30	6,219.16	180,520	-4,858	178,232
May 31	6,221.64	190,586	+10,066	176,400
June 30	6,218.04	176,093	-14,493	173,537
July 31	6,219.03	180,000	+3,907	177,075
August 31	6,218.29	177,076	-2,924	174,140
September 30	6,217.99	175,899	-1,177	172,942
October 31	6,218.48	177,825	+1,926	174,780
November 30	6,218.24	176,881	-944	174,245
December 31, 2008	6,220.16	184,529	+7,648	181,786
Calendar year 2008	-	-	+1,814	-

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, 2007	6,816.95	1,417	-
January 31, 2008	6,820.93	1,612	+195
February 29	6,825.04	1,831	+219
March 31	6,826.66	1,923	+92
April 30	6,826.69	1,925	+2
May 31	6,826.79	1,931	+6
June 30	6,826.69	1,925	-6
July 31	6,825.52	1,858	-67
August 31	6,814.47	1,304	-554
September 30	6,810.34	1,129	-175
October 31	6,814.20	1,292	+163
November 30	6,819.12	1,521	+229
December 31, 2008	6,822.75	1,707	+186
Calendar year 2008	-	-	+290

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, 2007	7,870.79	2,170	-	0	2,170
January 31, 2008	7,866.08	1,870	-300	0	1,870
February 29	7,864.74	1,780	-90	0	1,780
March 31	7,869.93	2,110	+330	228	1,882
April 30	7,874.64	2,430	+320	548	1,882
May 31	7,881.54	2,930	+500	779	1,882
June 30	7,882.60	3,010	+80	752	1,882
July 31	7,884.18	3,100	+90	680	1,882
August 31	7,880.16	2,850	-250	440	1,882
September 30	7,879.62	2,640	-210	286	1,882
October 31	7,874.85	2,450	-190	199	1,882
November 30	7,875.23	2,470	+20	141	1,882
December 31, 2008	7,875.93	2,520	+50	92	1,882
Calendar year 2008	-		+350		

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, 2007	142.34	168	-	0	168
January 31, 2008	140.90	217	+49	0	217
February 29	141.91	310	+93	108	202
March 31	155.04	376	+66	276	100
April 30	152.18	321	-55	221	100
May 31	159.50	479	+158	282	100
June 30	162.69	563	+84	309	100
July 31	158.46	455	-108	199	100
August 31	156.35	406	-49	140	100
September 30	158.58	458	+52	136	100
October 31	164.16	602	+144	177	100
November 30	157.17	425	-177	78	100
December 31, 2008	149.68	274	-151	26	100
Calendar year 2008	-		+106		

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, 2007	5,341.15	50,539	-	46,937
January 31, 2008	5,341.11	50,490	-49	47,283
February 29	5,341.71	51,243	+753	47,323
March 31	5,341.46	50,927	-316	47,442
April 30	5,341.23	50,639	-288	46,836
May 31	5,341.22	50,627	-12	46,210
June 30	5,341.66	51,180	+553	45,332
July 31	5,341.44	50,901	-279	46,366
August 31	5,341.42	50,876	-25	45,816
September 30	5,340.58	49,840	-1,036	45,356
October 31	5,340.79	50,096	+256	45,412
November 30	5,341.50	50,977	+881	46,381
December 31, 2008	5,341.72	51,256	+279	46,527
Calendar year 2008	-	-	+717	-

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 2008

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, 2007	5,155.00	0	-	0
January 31, 2008	5,155.00	0	0	0
February 29	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, 2008	5,155.00	0	0	0
Calendar year 2008	-	-	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 2008

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 2008.

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. Storage of transmountain water commenced 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, 2007	4,332.22	408,775	-	4,048
January 31, 2008	4,336.06	454,647	+45,872	4,032
February 29	4,338.24	481,923	+27,276	4,008
March 31	4,339.28	495,246	+13,323	24,949
April 30	4,342.36	535,862	+40,616	24,630
May 31	4,348.00	614,523	+78,661	24,326
June 30	4,348.76	625,542	+11,019	24,002
July 31	4,348.80	626,125	+583	28,028
August 31	4,345.08	573,110	-53,015	27,851
September 30	4,346.30	590,229	+17,119	27,720
October 31	4,345.74	582,340	-7,889	27,399
November 30	4,347.47	606,896	+24,556	27,279
December 31, 2008	4,350.34	648,788	+41,892	31,939
Calendar year 2008	-	-	+240,013	-

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, 2007	4,137.74	23,770	-
January 31, 2008	4,138.58	25,850	+2,080
February 29	4,143.68	40,950	+15,100
March 31	4,142.66	37,520	-3,430
April 30	4,146.34	50,900	+13,380
May 31	4,145.10	46,070	-4,830
June 30	4,147.64	56,340	+10,270
July 31	4,149.20	63,360	+7,020
August 31	4,148.00	57,910	-5,450
September 30	4,138.49	25,620	-32,290
October 31	4,134.80	17,270	-8,350
November 30	4,136.02	19,830	+2,560
December 31, 2008	4,136.94	21,890	+2,060
Calendar year 2008	-	-	-1,880

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, 2007	432,545	-
January 31, 2008	480,497	+47,952
February 28	522,873	+42,376
March 31	532,766	+9,893
April 30	586,762	+53,996
May 31	660,593	+73,831
June 30	681,882	+21,289
July 31	689,485	+7,603
August 31	631,020	-58,465
September 30	615,849	-15,171
October 31	599,610	-16,239
November 30	626,726	+27,116
December 31, 2007	670,678	+43,952
Calendar year 2008		+238,133

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, 2008

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	4,745
April	0	0	0	0	0	0	25,816
May	0	0	0	221	0	3	44,461
June	141	468	99	461	30	75	47,463
July	65	225	128	178	79	43	13,428
August	39	29	65	107	76	0	2,606
September	63	21	36	45	33	0	1,465
October	23	0	0	18	0	0	0
November	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0
Calendar year	331	743	328	1,030	218	121	139,984

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
2008

Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.	Annual
Alamosa	Evap.	-	-	-	-	-	-	-	-	-	-	-	-	-
Airport	Precip.	0.29	0.57	0.13	0.18	0.43	0.15	0.36	1.23	0.21	0.85	0.60	0.48	5.48
Platoro	Evap.	-	-	-	-	1.82	8.64	5.09	4.87	4.36	3.28	-	-	-
Dam	Precip.	-	-	-	-	0.27	0.57	2.95	2.84	2.35	1.74	-	-	-
Heron	Evap.	-	-	-	5.63	7.95	9.79	8.20	7.57	5.49	4.08	-	-	-
Dam	Precip.	2.30	2.27	0.02	0.29	0.72	0.38	3.56	1.76	0.44	0.96	0.85	3.39	16.94
El Vado	Evap.	-	-	-	7.01	8.65	10.45	8.01	7.77	6.35	3.93	-	-	-
Dam	Precip.	1.67	1.62	0.03	0.25	0.87	1.16	2.52	1.01	0.95	0.65	0.33	3.49	14.55
Abiquiu	Evap.	-	-	-	8.37	10.60	12.85	9.87	9.69	8.10	6.59	-	-	-
Dam	Precip.	0.36	0.86	0.02	0.01	1.48	0.38	2.02	0.65	0.87	1.08	0.23	0.40	8.36
Nambe	Evap.	-	-	-	7.61	9.47	11.29	8.80	8.39	6.89	4.30	-	-	-
Canyon Dam	Precip.	0.67	0.51	0.85	0.74	0.90	0.26	3.63	1.21	0.16	1.89	0.00	1.32	12.14
Cochiti	Evap.	-	-	-	10.37	12.04	15.87	11.59	11.62	9.74	7.16	-	-	-
Dam	Precip.	0.62	1.11	0.00	0.07	0.85	0.07	1.77	1.46	1.19	2.04	0.46	1.04	10.68
Jemez	Evap.	-	-	-	9.24	12.47	14.65	13.22	13.64	9.72	6.02	-	-	-
Canyon Dam	Precip.	0.67	0.34	0.00	0.06	0.72	0.40	2.02	1.64	0.12	2.90	0.25	0.28	9.40
Elephant	Evap.	4.29	6.85	10.63	15.73	17.14	19.07	10.32	12.89	9.38	9.24	6.03	6.57	128.14
Butte Dam	Precip.	0.09	0.00	0.00	0.00	0.15	0.03	6.38	2.83	2.04	0.66	0.00	0.00	12.18
Caballo	Evap.	4.34	6.71	9.27	12.62	17.24	16.03	11.12	11.19	8.57	7.26	5.16	4.99	114.50
Dam	Precip.	0.04	0.18	0.00	0.00	4.70	0.08	5.99	1.15	4.85	0.47	0.22	0.05	17.73
State	Evap.	-	-	-	12.14	13	14	9.49	9.76	8.28	6.51	-	-	-
University	Precip.	0.00	0.00	-	0.00	0.00	0.05	3.52	2.07	0.60	0.26	-	-	-

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

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

(b) Excess releases from Elephant Butte Reservoir, as defined in (a) above, shall be added to the quantity of water actually in storage in that reservoir, and Actual Spill shall be deemed to have commenced when this sum equals the total capacity of that reservoir to the level of the uncontrolled spillway less capacity reserved for flood purposes, i.e., 1,998,400 acre-feet in the months of October through March inclusive, and 1,973,400 acre- feet in the months of April through September, inclusive, as determined from the 1999 area- capacity table or successor area-capacity tables and flood control storage reservation of 50,000 acre-feet from April through September and 25,000 acre-feet from October through March.

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

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

DEPARTURES FROM NORMAL RELEASES /5

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

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

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

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

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

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

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

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

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

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

COSTS /1

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

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

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

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

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

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

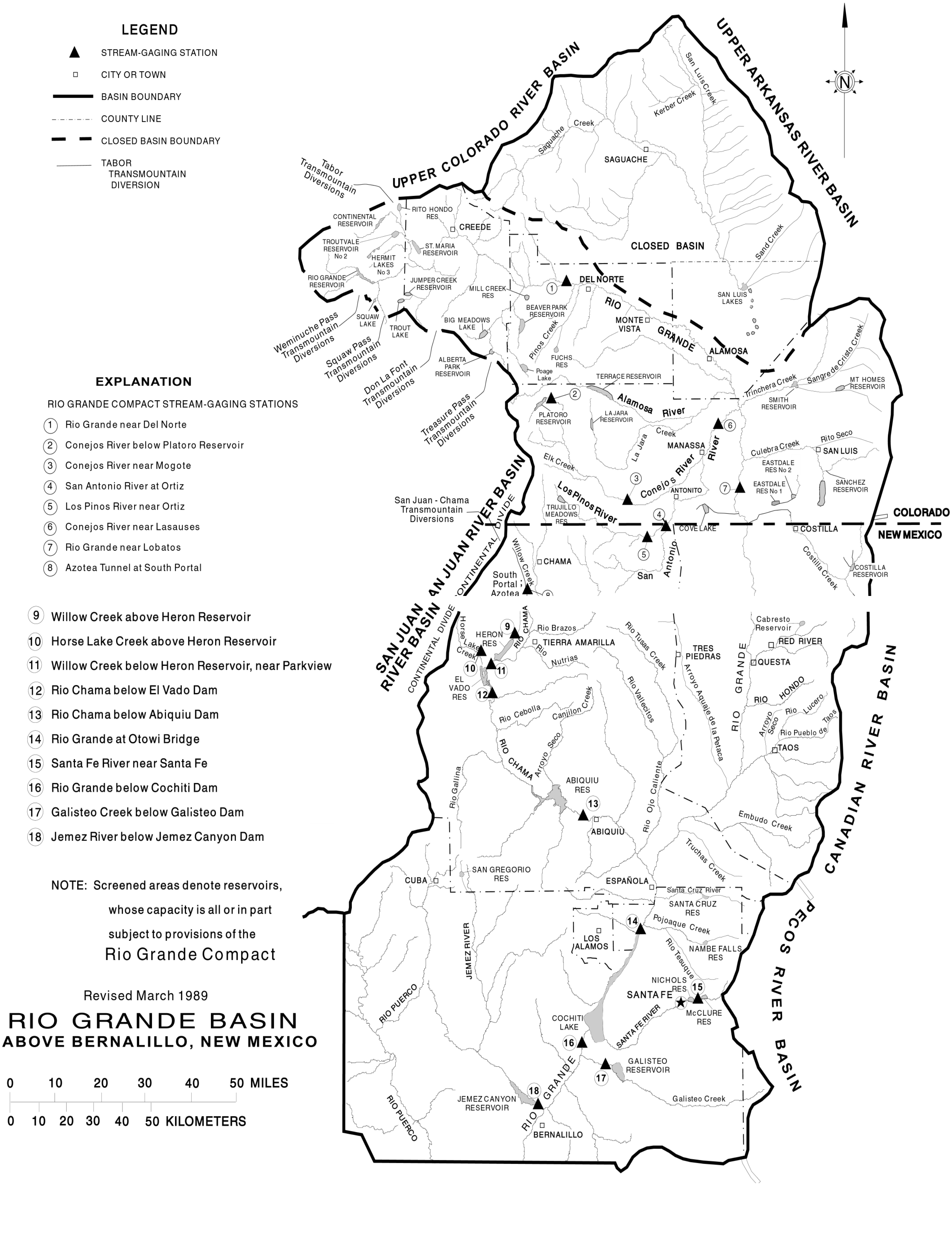
Julian P. Harrison

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
COLORADO
NEW MEXICO
SAGUACHE
CREEDE
DEL NORTE
MONTE VISTA
ALAMOSA
MANASSA
ANTONITO
SAN LUIS
COSTILLA
CHAMA
TIERRA AMARILLA
TRES PIEDRAS
QUESTA
RED RIVER
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
CONTINENTAL RESERVOIR
RITO HONDO RES
TROUTVALE RESERVOIR No 2
HERMIT LAKES No 3
ST. MARIA RESERVOIR
RIO GRANDE RESERVOIR
JUMPER CREEK RESERVOIR
SQUAW LAKE
TROUT LAKE
MILL CREEK RES
BEAVER PARK RESERVOIR
BIG MEADOWS LAKE
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
South Portal Azotea
RIO GRANDE
Alamosa River
Conejos River
Los Pinos River
San Antonio
RIO CHAMA
JEMEZ RIVER
RIO PUERCO
SANTA FE RIVER
Galisteo Creek
Embudo Creek
Truchas Creek
Santa Cruz River
Pojoaque Creek
Rio Tesuque
Rio Ojo Caliente
Rio Vallecitos
Rio Tusas Creek
Arroyo Aguaje de la Petaca
Rio Brazos
Rio Nutrias
Rio Cebolla
Canjilon Creek
Arroyo Seco
Rio Gallina
Willow Creek
Horse Lake Creek
Elk Creek
La Jara Creek
Pinos Creek
Saguache Creek
Kerber Creek
San Luis Creek
Sand Creek
Trinchera Creek
Sangre de Cristo Creek
Culebra Creek
Rito Seco
Costilla Creek
RIO HONDO
Rio Lucero
Rio Pueblo de Taos