PECOS RIVER COMPACT

Report of the River Master

Water Year 2003

Accounting Year 2004

Final Report

June 21, 2004

Neil S. Grigg
River Master of the Pecos River
749 S. Lemay, Ste. A3, PMB 330
Fort Collins, Colorado 80524

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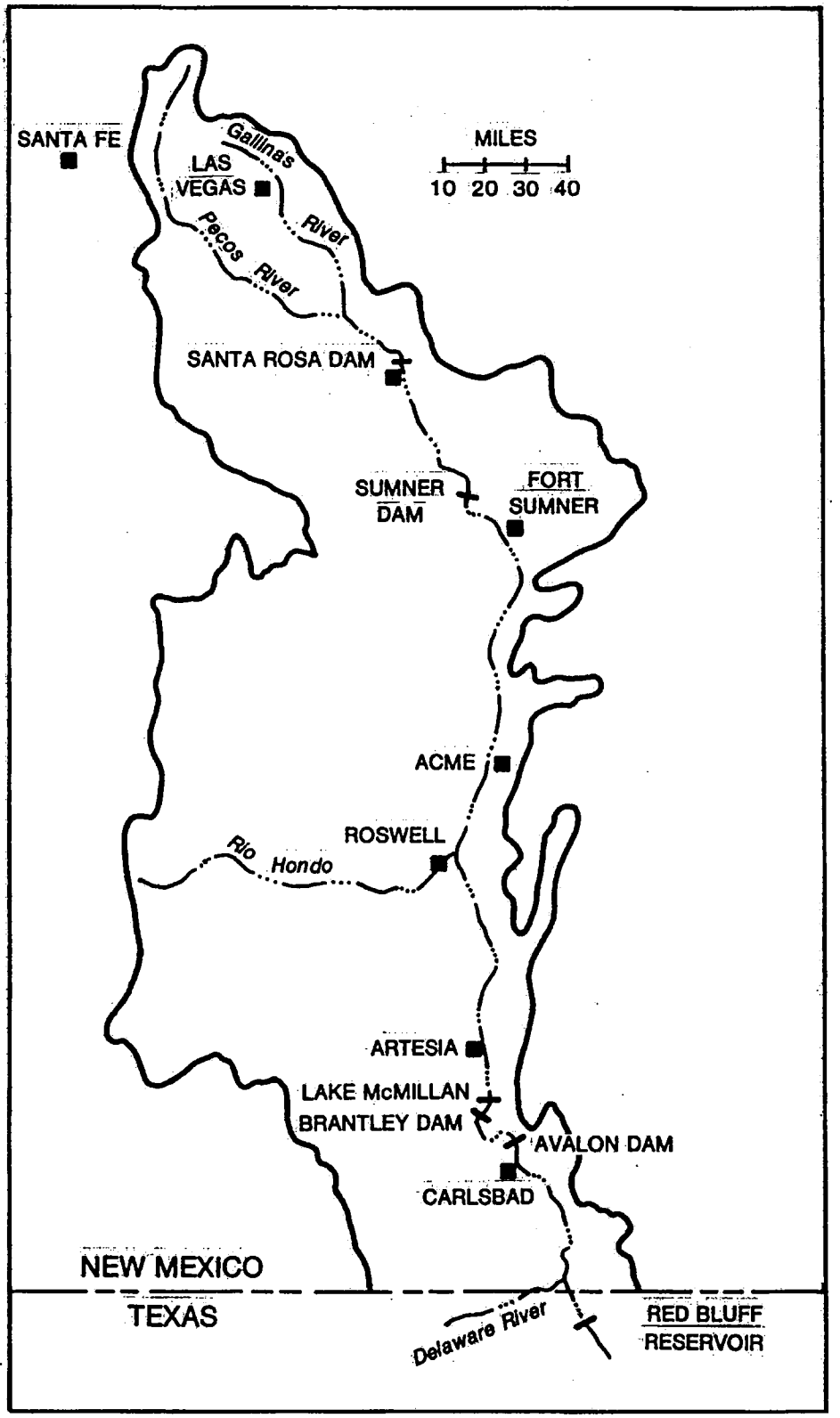
SANTA FE
LAS VEGAS
Gallinas
River
Pecos River
MILES
10 20 30 40
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SUMNER DAM
FORT SUMNER
ACME
ROSWELL
Rio Hondo
ARTESIA
LAKE McMILLAN
BRANTLEY DAM
AVALON DAM
CARLSBAD
NEW MEXICO
TEXAS
Delaware River
RED BLUFF RESERVOIR

PECOS RIVER COMPACT
Supreme Court of the United States
No. 65, Original
Amended Decree

Final Report of the River Master
Water Year 2003 - Accounting Year 2004
June 21, 2004

Purpose of the Report. In its Amended Decree issued March 28, 1988 the Supreme Court of the United States appointed a River Master of the Pecos River and directed him to "... Deliver to the parties a Preliminary Report setting forth the tentative results of the calculations required by Section III.B.1 of this Decree by May 15 of the accounting year..." and to consider "... any written objections to the Preliminary Report submitted by the parties prior to June 15 of the accounting year..." and to deliver "... to the parties a Final Report setting forth the final results of the calculations required by Section III.B.1 of this Decree by July 1 of the accounting year." This is the required Final Report with the determination of:

a. The Article III(a) obligation;

b. Any shortfall or overage, which calculation shall disregard deliveries of water pursuant to an Approved Plan;

c. The net shortfall, if any, after subtracting any overages accumulated in previous years, beginning with water year 1987.

Result of Calculations and Statement of Shortfall or Overage. The results of the calculations in this Final Report show that New Mexico's delivery in Water Year 2003 was an overage of 2,000 acre-feet. The accumulated overage since the beginning of Water Year 1987 is 8,900 acre-feet.

Neil S. Grigg
River Master of the Pecos River

Pecos River Compact		
Accumulated Shortfall or Overage		
	June 21, 2004	
Water Year	Annual Overage or Shortfall, AF	Accumulated Overage or Shortfall, AF
1987	15,400	15,400
1988	23,600	39,000
1989	2,700	41,700
1990	-14,100	27,600
1991	-16,500	11,100
1992	10,900	22,000
1993	6,600	28,600
1994	5,900	34,500
1995	-14,100	20,400
1996	-6,700	13,700
1997	6,100	19,800
1998	1,700	21,500
1999	1,400	22,900
2000	-12,300	10,600
2001	-700	9,900
2002	-3,000	6,900
2003	2,000	8,900

Table 1. General Calculation of Annual Departures, TAF, WY 2003			
6/19/2004			
	2001	2002	2003
B.1.a. Index Inflows			
(1) Annual flood inflow			
(a) Gaged flow Pecos R bel Alamogordo Dam	114.9	69.6	69.0
(b) Flood Inflow Alamogordo - Artesia (Table 2)	-13.5	15.8	-1.3
(c) Flood Inflow Artesia - Carlsbad (Table 3)	4.1	20.0	6.3
(d) Flood Inflow Carlsbad - State Line (Table 4)	1.2	6.9	2.2
Total (annual flood inflow)	106.7	112.3	76.2
(2) Index Inflow (3-year avg)			98.4
B.1.b. 1947 Condition Delivery Obligation			33.6
(Index Outflow)			
B.1.c. Average Historical (Gaged) Outflow			
(1) Annual historical outflow			
(a) Gaged Flow Pecos River at Red Bluff NM	43.7	39.7	22.4
(b) Gaged Flow Delaware River nr Red Bluff NM	0.3	2.5	1.3
(c) Annual diversions Permit 3254 into C-2713			0.5
(1) Total Annual Historical Outflow	44.0	42.2	24.2
(2) Average Historical Outflow (3-yr average)			36.8
B.1.d. Annual Departure			3.2
C. Adjustments to Computed Departure			
1. Adjustments for Depletions above Alam Dam			
a. Depletions Due to Irrigation (Table 5)	2.3	1.5	3.3
b. Depl fr Operation of Santa Rosa Reservoir (Table 6)	2.8	0.4	1.6
c. Transfer of Water Use to Upstream of AD	0	0	0
Recomputed Index Inflows			
(1) Annual flood inflow			
(a) Gaged flow Pecos R bel Alamogordo Dam	120.0	71.5	73.9
(b) Flood Inflow Alamogordo - Artesia	-13.5	15.8	-1.3
(c) Flood Inflow Artesia - Carlsbad	4.1	20.0	6.3
(d) Flood Inflow Carlsbad - State Line	1.2	6.9	2.2
Total (annual flood inflow)	111.8	114.2	81.1
Recomputed Index Inflow (3-year avg)			102.4
Recomputed 1947 Condition Del Outflow			35.6
(Index Outflow)			
Recomputed Annual Departures			1.3
Credits to New Mexico			
C.2 Depletions Due to McMillan Dike			0.7
C.3 Salvage Water Analysis			0
C.4 Unappropriated Flood Waters			0
C.5 Texas Water Stored in NM Reservoirs			0
C.6 Beneficial C.U. Delaware River Water			0
Final Calculated Departure, TAF			2.0

Table 2. Determination of Flood Inflows, Alamogordo Dam to Artesia (B.3), WY 2003

5/1/2004

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOT
Flow bel Sumner Dam	1.5	2.8	5.2	4.8	5.6	28.0	4.8	4.6	4.6	4.7	0.7	1.7	69.0
FtSumner Irrig Div	0.0	2.0	4.9	4.1	4.9	5.4	4.2	4.2	4.2	3.8	0.0	0.0	37.6
Ft Sumner ID Return	0.8	0.6	1.4	1.6	2.4	2.4	2.4	2.4	2.2	2.0	1.0	0.8	19.9
Flow past FS IDist	2.3	1.4	1.7	2.3	3.1	25.0	3.0	2.8	2.6	2.9	1.7	2.5	51.3
Channel loss	0.2	0.2	0.5	1.4	1.5	4.9	1.0	1.6	0.8	0.9	0.7	0.2	13.9
Residual Flow	2.1	1.3	1.1	0.9	1.6	20.2	2.0	1.2	1.7	2.1	1.0	2.3	37.5
Base Inflow	3.7	3.6	2.6	1.6	0.9	0.8	1.2	0.4	0.7	0.6	1.7	2.5	20.4
River Pump Divers	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.3
Residual, Artesia	5.8	4.8	3.7	2.5	2.5	20.9	3.1	1.6	2.4	2.7	2.8	4.8	57.6
Pecos Flow Artesia	5.9	5.5	3.9	2.5	1.6	14.5	5.5	0.6	1.0	8.5	2.8	4.0	56.2
Flood Inflow, AD-Art	0.1	0.6	0.2	0.0	-0.9	-6.5	2.4	-1.0	-1.4	5.8	0.1	-0.8	-1.3

Note: Whenever the computed flow past the District is less than the return flow, set the flow past the District equal to the return flow (Manual, B.3.d).

Table 3. Determination of Flood Inflows, Artesia to Carsbad, WY 2003 (B.4)

6/19/2004

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOT
Rio Penasco at Dayton	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2
Fourmile Draw nr Lakew	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Seven Rivers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rocky Arroyo at Hwy Br	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flood Inflow, Art-DS3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2
Pecos R at Dam Site 3	0.3	0.6	1.6	13.4	6.8	5.6	5.8	5.7	5.6	2.7	6.8	1.1	55.9
CB Sprgs New Water, T7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-8.6
Total Inflow, DS3 - CB	-0.4	-0.1	0.8	12.7	6.0	4.9	5.1	5.0	4.9	2.0	6.0	0.4	47.4
Evap Loss, Lake Avalon, T10	0.0	0.0	0.3	0.5	0.6	0.5	0.6	0.5	0.4	0.2	0.2	0.2	4.2
Storage Chg, Lake Aval, T11	0.0	0.3	0.9	0.1	0.3	-0.3	0.1	0.5	-0.7	0.3	-0.4	0.6	1.7
Carls ID diversions	0.1	0.0	0.2	12.1	5.4	4.8	4.3	3.8	5.2	1.9	0.0	0.0	37.7
93% CID diver	0.0	0.0	0.2	11.2	5.0	4.5	4.0	3.6	4.8	1.8	0.0	0.0	35.1
Other depletions	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	1.4
Dark Canyon at Csbad	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pecos b Dark Canyon	1.8	1.8	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.4	11.1
Pecos R at Carlsbad	1.8	1.8	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.4	11.0
Total Outflow	1.9	2.2	3.0	12.0	5.9	4.8	5.0	4.7	4.7	2.4	5.5	1.3	53.4
Flood Inflow, DS3-CB	2.3	2.3	2.1	-0.7	-0.1	-0.1	-0.1	-0.3	-0.2	0.4	-0.6	0.9	6.0
Flood Inflow, Art-CB	2.3	2.3	2.1	-0.7	-0.1	-0.1	-0.1	-0.2	-0.2	0.6	-0.6	0.9	6.3

Table 4. Summary Table for Computations, Carlsbad to State Line - WY 2003								
5/1/2004								
	BCB - RB	BCB - RB	Del R	DC				
	RM	USGS	USGS					
Jan	0	0	0	0				
Feb	186	56	0	0				
Mar	119	121	0	0				
Apr	0	0	0	0				
May	628	551	421	0				
Jun	25	736	155	0				
Jul	0	8	13	0				
Aug	0	0	3	0				
Sep	119	99	0	0				
Oct	67	67	367	49				
Nov	0	0	0	0				
Dec	0	16	0	0				
Total	1144	1654	959	49				
Summary of flood inflows, Carlsbad to State Line, TAF								
Red Bluff - Carlsbad + Dark C RM calcs)					1.2			
Delaware River (USGS Computation					1.0			
Total Flood Inflow, Carlsbad to State Line					2.2			

Table 5. Depletions Due to Irrigation Above Sumner Dam - WY 2003 (C.1.a)								
5/1/2004								
	APR	MAY	JUN	JUL	AUG	SEPT	OCT	TOTAL
Precip Las Vegas FAA AP	0.03	1.06	0.91	0.22	1.16	1.31	0.49	5.18
Eff prec Las Veg FAA AP	0.03	1.02	0.88	0.22	1.13	1.24	0.48	5.00
Precip Pecos Natl Monument	0.32	0.33	1.50	0.66	2.20	1.33	1.38	7.72
Eff Precip Pecos RS	0.31	0.32	1.41	0.64	1.99	1.26	1.30	7.23
Precip Santa Rosa	0.04	0.83	2.32	0.88	1.60	0.29	2.26	8.22
Eff Precip Santa Ro	0.04	0.81	2.08	0.85	1.49	0.28	2.03	7.58
Average eff precip, ft	0.01	0.06	0.12	0.05	0.13	0.08	0.11	0.55
Consumptive use, ft	0.19	0.36	0.36	0.30	0.27	0.18	0.11	1.77
Unit depletion rate (CU less eff precip), ft	0.18	0.30	0.24	0.25	0.14	0.10	0.00	1.22
Acres (most recent inventory)	11529							
Streamflow depletion (actual use), AF	14062							
1947 depletion, AF	10804							
Difference (actual use - 1947 depletion), TAF	3.3							
Adjustment to Gaged Flow, Pecos River below Sumner Dam, TAF =						3.3		

Table 6. Depletions Due to Santa Rosa Reservoir Operations - WY 2003 - (C.1.b)													
5/1/2004													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
LS 2001 table (USBR); SRL 1997 tables used (COE)													
Lk Sumner ga ht, avg	46.44	48.50	48.35	47.53	46.11	41.65	33.37	30.59	30.60	37.29	41.41	44.96	
LS content, AF, avg	11713	14206	14010	12978	11354	7519	3183	2200	2203	4949	7353	10195	
LS area, acres, avg	1103	1310	1297	1218	1068	700	394	313	314	510	685	947	
LS evap, inches	4.53	4.47	8.07	12.72	14.60	10.74	15.57	14.25	9.17	5.91	5.18	5.29	110.50
.77 LS Evap	3.49	3.44	6.21	9.79	11.24	8.27	11.99	10.97	7.06	4.55	3.99	4.07	85.09
LS Precip, inches	0.00	0.33	0.33	0.26	0.09	2.62	0.07	0.31	1.00	2.11	0.50	0.02	7.64
Net LS Evap, inches	3.49	3.11	5.88	9.53	11.15	5.65	11.92	10.66	6.06	2.44	3.49	4.05	77.45
LSum Evaploss, TAF	0.32	0.34	0.64	0.97	0.99	0.33	0.39	0.28	0.16	0.10	0.20	0.32	5.04
L S Rosa ga ht, avg	4.37	4.59	4.72	4.70	7.59	5.53	84.31	84.27	87.32	89.76	90.78	91.08	
LSR content, AF, avg	12793	12973	13080	13063	15600	13751	3033	3024	3811	4544	4892	5000	
LSR area, acres, avg	818	822	824	823	960	835	236	235	279	328	354	360	.
LSR evap, inches	3.72	4.98	7.28	9.26	11.88	10.69	14.22	10.72	8.92	6.38	4.88	3.76	96.69
.77 LSR Evap	2.86	3.83	5.61	7.13	9.15	8.23	10.95	8.25	6.87	4.91	3.76	2.90	74.45
LSR precip, inches	0.00	1.35	1.03	0.10	1.16	0.85	1.05	1.25	0.40	1.86	0.61	0.12	9.78
Net LSR Evap, inches	2.86	2.48	4.58	7.03	7.99	7.38	9.90	7.00	6.47	3.05	3.15	2.78	64.67
LSR Evaploss, TAF	0.20	0.17	0.31	0.48	0.64	0.51	0.19	0.14	0.15	0.08	0.09	0.08	3.06
Total evaploss, TAF	0.52	0.51	0.95	1.45	1.63	0.84	0.59	0.42	0.31	0.19	0.29	0.40	8.09
Sum contents, AF	24506	27179	27090	26041	26954	21270	6216	5224	6014	9493	12245	15195	
1947 area, acres	1310	1449	1446	1409	1441	1124	600	533	600	706	800	935	
1947 evaploss, TAF	0.38	0.38	0.71	1.12	1.34	0.53	0.60	0.47	0.30	0.14	0.23	0.32	6.52
current-1947evaploss	0.14	0.13	0.24	0.33	0.29	0.31	-0.01	-0.06	0.01	0.04	0.06	0.09	1.58
						Annual adjustment for excess evaporation =							1.6
ADJUSTMENT FOR EXCESSIVE STORAGE IN SANTA ROSA RESERVOIR													
			2002	2002	2003	2003							
			Gage	Storage	Gage	Storage							
EndYear Sumner Sto			4235.43	4054	4246.19	11440							
EndYear S R Sto			4704.23	12678	4691.27	5069							
Sum				16732		16509							
Sto Adjustment, AF						0							
Adjustm Ex Evap, TAF						1.6							
Total Adjustment,TAF						1.6							

Table 7. Carlsbad Springs New Water WY 2003 - (B.4.c)				
6/19/2004				
		TAF	cfs	Totals
Pecos R bel DC, cfs		11.1	15.3	15.33
Dark Canyon, cfs		0.0	0.0	0.00
Pecos R bel Lake Av,		5.8	8.0	8.01
Depletion, cfs				2.00
CID lag seep, cfs (Table 8)				3.72
Return flow, cfs				1.00
Lake Av lagged seep, cfs (Table 9)				13.43
PR seepage, cfs				3.00
Carls new water, cfs				-11.83
Carls new wat, TAF				-8.56
Carls new wat monthly, TAF				-0.71

Table 8. Carlsbad Main Canal Seepage Lagged - WY 2003 - [B.4.c.(1)(e)]													
5/1/2004													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
WY 2003													
CID, TAF	0.1	0.0	0.2	12.1	5.4	4.8	4.3	3.8	5.2	1.9	0.0	0.0	37.7
days/mo	31	28	31	30	31	30	31	31	30	31	30	31	365
cfs	0.8	0.3	2.7	202.8	87.0	81.2	70.4	62.1	87.6	30.9	0.0	0.0	52.2
cfs, qtr avg			1.3			123.3			73.2			10.4	
WY 2002		1Q	2Q	3Q	4Q								
FLOWS, cfs				86.3	13.8								
SEVEN %				6.0	1.0								
WY 2003		1Q	2Q	3Q	4Q								
FLOWS, cfs		1.3	123.3	73.2	10.4								
SEVEN %		0.1	8.6	5.1	0.7								
LAG		1.4	4.5	5.5	3.5	Avg =	3.7	cfs					

Table 9. Lake Avalon Leakage Lagged - WY 2003 - B.4.c.(1)(g)													
6/19/2004													
WY 2003	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOT
WS NM rept	69.50	70.35	72.01	73.00	73.21	73.36	73.22	73.66	73.65	73.35	73.72	73.43	
ga ht, avg*	12.50	13.35	15.01	16.00	16.21	16.36	16.22	16.66	16.65	16.35	16.72	16.43	
cfs	0.0	1.8	9.7	14.5	15.5	16.2	15.5	17.6	17.6	16.2	17.9	16.5	
days	31	28	31	30	31	30	31	31	30	31	30	31	365
cfs avg	3.9			15.4			16.9			16.9			13.3
2002		1Q	2Q	3Q	4Q								
cfs				18.9	17.3								
2003		1Q	2Q	3Q	4Q								
cfs		3.9	15.4	16.9	16.9								
lag cfs		10.9	11.9	14.2	16.6	Avg =	13.4	cfs					
* Computed as WS elev by NM Report minus Gage datum at 3257.0 (USBR datum)													

Table 10. Evaporation Loss at Lake Avalon - WY 2003 - (B.4.f)													
5/1/2004													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOT
Av WS NM Rept	69.50	70.35	72.01	73.00	73.21	73.36	73.22	73.66	73.65	73.35	73.72	73.43	
Avalon ga ht, avg, ft*	12.50	13.35	15.01	16.00	16.21	16.36	16.22	16.66	16.65	16.35	16.72	16.43	
Avg area Avalon, ac**	20	109	557	612	625	634	625	652	651	633	658	638	
Panevap Brantley, in.	4.65	5.60	8.94	13.14	15.03	14.56	16.74	14.54	10.54	8.10	4.80	4.34	120.98
Lakeevap Brantley, in.	3.58	4.31	6.88	10.12	11.57	11.21	12.89	11.20	8.12	6.24	3.70	3.34	93.15
Precip Brantley, in.	0.00	1.14	0.37	0.00	0.52	1.31	0.55	1.51	0.16	1.62	0.29	0.00	7.47
Netevap, inches	3.58	3.17	6.51	10.12	11.05	9.90	12.34	9.69	7.96	4.62	3.41	3.34	85.68
Evaploss Av, TAF	0.0	0.0	0.3	0.5	0.6	0.5	0.6	0.5	0.4	0.2	0.2	0.2	4.2
* Computed as WS elev by NM Report minus Gage datum at 3257.0 (USBR datum)													
** Based on USBR Area and Capacity Table in effect January 1, 1997													

Table 11. Change in Storage, Lake Avalon - 2003 - (B.4.g)														
(Gage heights are end of month)														
5/1/2004														
	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOT
	2002	2003												
WS NM Rept	69.90	69.70	71.50	73.10	73.30	73.70	73.20	73.40	74.10	73.00	73.50	72.90	73.90	
Gage EOM, ft*	12.90	12.70	14.50	16.10	16.30	16.70	16.20	16.40	17.10	16.00	16.50	15.90	16.90	
Storage, ACRE-	21	15	324	1209	1333	1590	1271	1397	1857	1147	1461	1086	1722	
Change sto, TAF		0.0	0.3	0.9	0.1	0.3	-0.3	0.1	0.5	-0.7	0.3	-0.4	0.6	1.7
* Computed as WS elev by NM Report minus Gage datum at 3257.0 (USBR datum)														
** Based on USBR Area and Capacity Table in effect January 1, 1997														

Table 12. Data Required for River Master Manual Calculations, Water Year 2003													
6/19/2004													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
STREAMFLOW GAGING RECORDS, TAF													
Pecos R b Sumner Dam	1.5	2.8	5.2	4.8	5.6	28.0	4.8	4.6	4.6	4.7	0.7	1.7	69.0
Fort Sumner Main C	0.0	2.0	4.9	4.1	4.9	5.4	4.2	4.2	4.2	3.8	0.0	0.0	37.6
Pecos R nr Artesia	5.9	5.5	3.9	2.5	1.6	14.5	5.5	0.6	1.0	8.5	2.8	4.0	56.2
Rio Penasco at Dayton	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2
Fourmile Draw nr Lakewood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
South Seven Rivers nr Lkwd	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rocky Arroyo at Hwy Br nr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pecos R at Dam Site 3	0.3	0.6	1.6	13.4	6.8	5.6	5.8	5.7	5.6	2.7	6.8	1.1	55.9
Pecos bel Avalon Dam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	0.0	5.8
Carlsbad Main Canal	0.1	0.0	0.2	12.1	5.4	4.8	4.3	3.8	5.2	1.9	0.0	0.0	37.7
Dark Canyon at Carlsbad	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pecos below Dark Canyon	1.8	1.8	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.4	11.1
Pecos R at Red Bluff	3.3	2.9	2.5	1.0	1.2	1.4	0.4	0.4	0.7	0.9	5.9	1.9	22.4
Delaware R nr Red Bluff	0.1	0.1	0.1	0.0	0.4	0.2	0.0	0.0	0.0	0.4	0.0	0.0	1.3
GAGE HEIGHTS													
Avalon gage ht, end mo	69.70	71.50	73.10	73.30	73.70	73.20	73.40	74.10	73.00	73.50	72.90	73.90	
Avalon gage ht, avg	69.50	70.35	72.01	73.00	73.21	73.36	73.22	73.66	73.65	73.35	73.72	73.43	
Sumner Lake ga ht, end mo	47.63	48.71	48.02	47.19	45.19	34.36	31.62	30.03	32.45	38.35	43.50	46.19	
Sumner Lake gage ht, avg	46.44	48.50	48.35	47.53	46.11	41.65	33.37	30.59	30.60	37.29	41.41	44.96	
Lake S Rosa ga ht, end mo	4.49	4.68	4.75	4.99	11.58	84.15	84.33	84.78	87.04	90.59	90.92	91.27	
Lake S Rosa ga ht, avg	4.37	4.59	4.72	4.70	7.59	5.53	84.31	84.27	87.32	89.76	90.78	91.08	
PRECIPITATION, INCHES													
Brantley Lake	0.00	1.14	0.37	0.00	0.52	1.31	0.55	1.51	0.16	1.62	0.29	0.00	7.47
Las Vegas FAA AP	0.00	0.66	0.41	0.03	1.06	0.91	0.22	1.16	1.31	0.49	0.80	0.01	7.06
Pecos National Monument	0.05	1.29	0.86	0.32	0.33	1.5	0.66	2.20	1.33	1.38	0.64	0.56	11.12
Santa Rosa	0.00	0.68	0.55	0.04	0.83	2.32	0.88	1.60	0.29	2.26	0.61	0.13	10.19
Lake Santa Rosa	0.00	1.35	1.03	0.10	1.16	0.85	1.05	1.25	0.40	1.86	0.61	0.12	9.78
Sumner Lake	0.00	0.33	0.33	0.26	0.09	2.62	0.07	0.31	1.00	2.11	0.50	0.02	7.64
PAN EVAPORATION, INCHES													
Lake Santa Rosa	3.72	4.98	7.28	9.26	11.88	10.69	14.22	10.72	8.92	6.38	4.88	3.76	96.69
Lake Sumner	4.53	4.47	8.07	12.72	14.60	10.74	15.57	14.25	9.17	5.91	5.18	5.29	110.50
Brantley Lake	4.65	5.60	8.94	13.14	15.03	14.56	16.74	14.54	10.54	8.10	4.80	4.34	120.98
OTHER REPORTS													
Base Acme-Art, TAF (USGS)	3.7	3.6	2.6	1.6	0.9	0.8	1.2	0.4	0.7	0.6	1.7	2.5	20.4
Pump depl Ac-Artesia, TAF	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.3
NM irrig inv, acres (3/9/2000)													11529
Permit 3254 into C-2713, AF	0.0	0.0	0.0	103.9	63	59.9	66.7	26.1	70.2	63.5	44.0	50.5	548.16
NM Transfer water use, TAF													0
NM salvaged water, TAF													0
Texas, water stored NM, TAF	5E-07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Texas, use Del water, TAF													

APPENDIX

RIVER MASTER'S RESPONSE TO STATES' OBJECTIONS

RESPONSE TO STATES' OBJECTIONS
Final Report, Accounting Year 2004

NEW MEXICO'S OBJECTIONS

1. Table 4. Flood Inflow, Carlsbad to Stateline
New Mexico explained the change in plotting results brought about from a change in USGS formatting. This did not lead to an objection to the Preliminary Report because the plotted graphs were used to identify periods of flood inflow but the actual USGS data had been used to compute magnitudes of flood inflow.

2. Table 9, Lake Avalon Leakage Lagged
The River Master accepts New Mexico's objections about the errors in Table 9 where values of leakage from the third and fourth quarters of Water Year 2002 were incorrectly entered. There was one additional error in the table, where the Preliminary Report incorrectly showed –2.3 cfs for the leakage in January of 2003, and this was corrected to zero, thus aligning the River Master's calculation with New Mexico's. The value of 13.4 cfs was entered into a revised Table 7, resulting in a revised Carlsbad Springs New Water of 0.71 cfs. The difference with New Mexico's calculated value of 0.72 cfs must be due to rounding and is insignificant. By inserting the revised value into Table 3, the value of Flood Inflow, Artesia to Carlsbad, becomes 6.3 TAF.

3. Table 12. Data Required For River Master Manual Calculations
New Mexico reported the diversions for Permit Number 3254 into C-2713 and this value has now been entered into Tables 1 and 12. The River Master's values now agree with New Mexico's with a Final Calculated Departure of 2.0 TAF.

TEXAS'S OBJECTIONS

1. Base Inflow, Table 2
Texas used a linear interpolation method and obtained a different value than USGS did for the Base Inflow, Acme to Artesia. Texas furnished the spreadsheets but did not present a graphical display so that the River Master and New Mexico could study the reasons for Texas' revision. USGS' computations are shown on a sheet labeled "Annual Work Hydrographs and base-flow separations..." The River Master examined the USGS presentation to see if apparent errors could be corrected with a linear interpolation method. USGS' estimates seem valid and Texas' objection is rejected.

2. Permit 3254 into C-2713
Texas' objection is the same as New Mexico's and is accepted. See New Mexico's objection above for discussion.

3. Table 4, Flood Inflow, Carlsbad to State Line
Texas used a linear interpolation method to arrive at a different result than the Preliminary Report for flood inflow scalping in the Carlsbad to State Line reach. This

objection is rejected for the same reason as in Texas objection No. 1 above. Without a graphical presentation, accompanied with a technical and hydrologic explanation of why the Preliminary Report value should be modified, the River Master lacks good cause to change the Preliminary Report.

FINAL CALCULATED DEPARTURE.

The Preliminary Report's Final Calculated Departure was 1.8 TAF. After considering the states' objections, the Final Determination is 2.0 TAF.