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June 23, 2016

VIA FEDERAL EXPRESS

Ms. Amy I. Haas, NMISC General Counsel
Room 101, Bataan Memorial Building
PO Box 25102
Santa Fe NM 87504-5102

Ms. Jane E. Atwood, Assistant Attorney General
Environmental Protection Division
PO Box 12548—MC-066
Austin TX 78711-2548

Re: Texas v. New Mexico, U.S. Supreme Court No. 65, Original

Dear Ms. Haas and Ms. Atwood:

Enclosed please find the Pecos River Final Report for Accounting Year 2016. Three copies were also sent to each Technical Representative. The report includes a note that the states plan to discuss unresolved issues from Water Year 2014 and if another meeting with me would be useful, I will be glad to participate as before.

Yours very truly,

Neil S. Grigg
River Master of the Pecos River

Enclosure: AY 2015 Pecos River Preliminary Report

cc: ✓ Mr. Greg Lewis, NM Technical Representative (w/NM package)
Ms. Suzy Valentine, TX Technical Representative (separate package)

PECOS RIVER COMPACT

Report of the River Master

Water Year 2015

Accounting Year 2016

Final Report

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

PECOS RIVER COMPACT

Report of the River Master

Water Year 2015

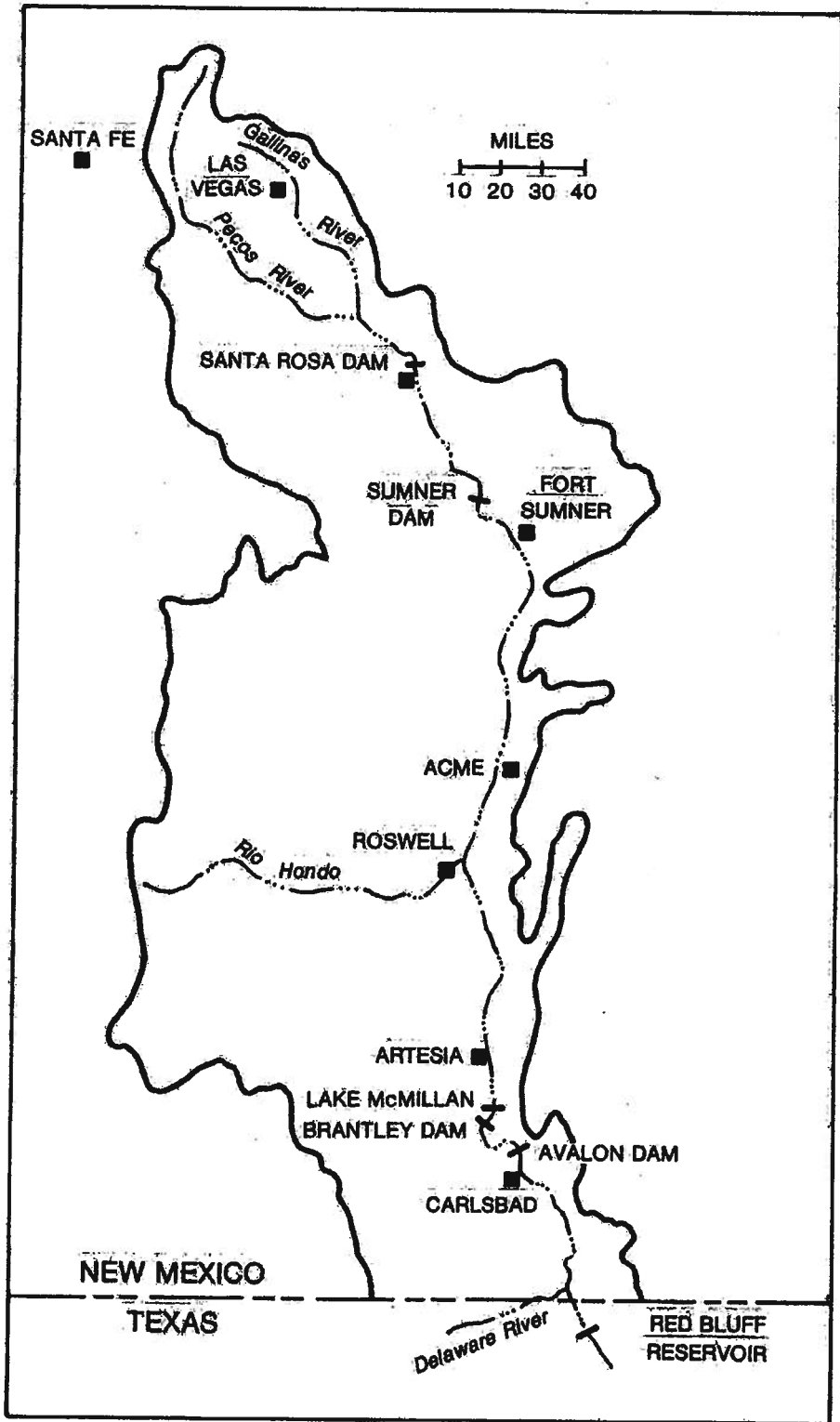
Accounting Year 2016

Final Report

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

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Map of Pecos River Basin Showing Accounting Reaches

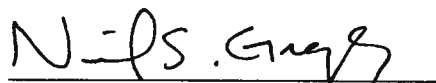
PECOS RIVER COMPACT
Supreme Court of the United States
No. 65, Original
Amended Decree

Final Report of the River Master
Water Year 2015 - Accounting Year 2016
June 23, 2016

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 2015 was an overage of 11,900 acre-feet. The accumulated overage since the beginning of Water Year 1987 is 109,500 acre-feet.



Neil S. Grigg
River Master of the Pecos River

Pecos River Compact		
Accumulated Shortfall or Overage		
	June 23, 2016	
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
2004	8,300	17,200
2005	24,000	41,200
2006	26,100	67,300
2007	25,200	92,500
2008	6,000	98,500
2009	1,600	100,100
2010	-500	99,600
2011	500	100,100
2012	1,900	102,000
2013	-6,300	95,700
2014	1,900	97,600
2015	11,900	109,500

Table 1. General Calculation of Annual Departures in TAF (B.1)			
Water Year	2015		
6/23/2016	WY 2013	WY 2014	WY 2015
B.1.a. Index Inflows			
(1) Annual flood inflow			
(a) Gaged flow Pecos R bel Alamogordo Dam	63.6	120.6	100.7
(b) Flood Inflow Alamogordo - Artesia (Table 2)	54.4	57.3	28.5
(c) Flood Inflow Artesia - Carlsbad (Table 3)	39.9	42.5	3.2
(d) Flood Inflow Carlsbad - State Line (Table 4)	23.2	122.8	6.2
Total (annual flood inflow)	181.1	343.2	138.6
(2) Index Inflow (3-year avg)			221.0
B.1.b. 1947 Condition Delivery Obligation			
(Index Outflow)			106.3
B.1.c. Average Historical (Gaged) Outflow			
(1) Annual historical outflow			
(a) Gaged Flow Pecos River at Red Bluff NM	51.0	146.6	101.1
(b) Gaged Flow Delaware River nr Red Bluff NM	12.2	48.3	5.4
(c) Metered diversions Permit 3254 into C-2713	0.2	0.2	0.2
Total Annual Historical Outflow	63.4	195.1	106.7
(2) Average Historical Outflow (3-yr average)			121.7
B.1.d. Annual Departure			
			15.4
C. Adjustments to Computed Departure			
1. Adjustments for Depletions above Alam Dam			
a. Depletions Due to Irrigation (Table 5)	2.0	-0.2	-3.2
b. Depl fr Operation of Santa Rosa Reservoir (Table 6)	8.6	-1.7	16.7
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	74.2	118.7	114.2
(b) Flood Inflow Alamogordo - Artesia	54.4	57.3	28.5
(c) Flood Inflow Artesia - Carlsbad	39.9	42.5	3.2
(d) Flood Inflow Carlsbad - State Line	23.2	122.8	6.2
Total (annual flood inflow)	191.7	341.3	152.1
Recomputed Index Inflow (3-year avg)			228.4
Recomputed 1947 Condition Del Outflow			
(Index Outflow)			111.4
Recomputed Annual Departures			
			10.3
Credits to New Mexico			
C.2 Depletions Due to McMillan Dike			1.5
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			
			11.9

Table 3. Determination of Flood Inflows, Artesia to Carlsbad (B.4)		2015												
Water Year		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOT
	6/18/2016													
Rio Penasco at Dayton		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
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	0.0	0.0	0.0	0.0
Pecos R at Dam Site 3		1.4	1.3	1.8	13.0	7.7	14.9	9.9	40.9	40.1	3.2	1.2	1.3	136.6
CB Sprgs New Water (from Table 7)		-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		0.7	0.6	1.1	12.2	7.0	14.2	9.1	40.1	39.3	2.5	0.5	0.6	127.9
Evap Loss, Lake Avalon (from Table 10)		0.2	0.3	0.3	0.4	0.3	0.5	0.5	0.7	0.4	0.0	0.2	0.1	3.7
Storage Chg, Lake Avalon (from Table 11)		0.6	0.3	-2.4	0.1	0.0	1.6	-0.8	2.8	0.0	-3.8	0.7	0.8	-0.2
Carls ID diversions		0.0	0.0	3.0	11.0	5.8	11.8	8.5	10.5	6.3	4.7	0.0	0.0	61.6
93% CID diver		0.0	0.0	2.8	10.3	5.4	10.9	7.9	9.7	5.9	4.4	0.0	0.0	57.3
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	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.4
Pecos b Dark Canyon		2.0	1.9	2.0	1.9	2.4	2.2	2.1	19.9	25.3	4.8	2.6	2.3	69.3
Pecos R at Carlsbad		2.0	1.9	2.0	1.9	2.2	2.2	2.1	19.9	25.3	4.6	2.6	2.3	68.9
Total Outflow		2.8	2.5	2.8	12.8	8.0	15.2	10.0	33.3	31.7	5.2	3.6	3.3	131.1
Flood Inflow, DS3-CB		2.1	1.9	1.7	0.6	1.0	1.0	0.9	-6.9	-7.7	2.8	3.1	2.8	3.1
Flood Inflow, Art-CB		2.1	1.9	1.7	0.6	1.0	1.0	0.9	-6.9	-7.7	2.8	3.1	2.8	3.2

Table 4. Summary Table for Computations, Carlsbad to State Line (B.5)					
Water Year	2015				
6/18/2016					
	BCB - RB		Del R*	DC	
	RM				
Jan	0.1		0.0	0.0	
Feb	0.0		0.0	0.0	
Mar	0.1		0.0	0.0	
Apr	0.1		0.0	0.0	
May	0.8		0.1	0.2	
Jun	0.2		0.0	0.0	
Jul	1.0		0.1	0.0	
Aug	0.0		0.0	0.0	
Sep	0.3		0.9	0.0	
Oct	0.7		1.0	0.2	
Nov	0.2		0.0	0.0	
Dec	0.2		0.0	0.0	
Total	3.6		2.2	0.4	
Summary of flood inflows, Carlsbad to State Line, TAF					
Red Bluff - Carlsbad + Dark C RM calcs)					4.0
Delaware River					2.2
Total Flood Inflow, Carlsbad to State Line					6.2
*USGS Computation was amended via Final Report					
Values shown sum to 2.1 TAF but residuals at 1 AF precision add 0.1 TAF					

Table 7. Carlsbad Springs New Water [B.4.c.(2)]					
Water Year	2015				
6/18/2016					
		TAF	AF/day	cfs	Totals
Pecos R bel DC		69.3	189.9	95.7	95.7
Dark Canyon		0.4	1.1	0.6	0.6
Pecos R bel Lake Avalon		53.2	145.8	73.5	73.5
Depletion, cfs					2.0
CID lag seep, cfs (from Table 8)					5.9
Return flow, cfs					1.0
Lake Av lagged seep, cfs (from Table 9)					25.7
PR seepage, cfs					3.0
Carls new water, cfs					-11.9
Carls new wat, TAF					-8.6
Carls new wat monthly, TAF					-0.7

Table 8. Carlsbad Main Canal Seepage Lagged [B.4.c.(2)(e)]													
Water Year	2015												
5/8/2016	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
WY 2015													
CID, TAF	0.0	0.0	3.0	11.0	5.8	11.8	8.5	10.5	6.3	4.7	0.0	0.0	61.6
days/mo	31	28	31	30	31	30	31	31	30	31	30	31	365
cfs	0	0.0	49.3	185.5	94.0	197.6	138.7	170.0	106.2	76.1	0.0	0.0	84.8
cfs, qtr avg			17.0			158.3			138.6			25.6	
WY 2014		1Q	2Q	3Q	4Q								
FLows, cfs				123.5	21.5								
SEVEN %				8.6	1.5								
WY 2015 lagged		1Q	2Q	3Q	4Q								
FLows, cfs		17.0	158.3	138.6	25.6								
SEVEN %		1.2	11.1	9.7	1.8								
LAG		2.5	6.2	8.7	6.0	Avg =	5.9	cfs					

Table 9. Lake Avalon Leakage Lagged [B.4.c.(2)(g)]													
Water Year	2015												
5/8/2016													
WY 2015	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOT
Elev NM rept	75.99	76.47	76.31	73.43	73.56	74.49	75.57	77.50	78.00	75.93	73.60	74.68	
ga ht, avg*	18.99	19.47	19.31	16.43	16.56	17.49	18.57	20.50	21.00	18.93	16.60	17.68	
cfs	28.8	31.1	30.3	16.5	17.2	21.6	26.8	36.0	38.4	28.5	17.3	22.5	
days	31	28	31	30	31	30	31	31	30	31	30	31	365
cfs avg	30.0			18.4			33.7			22.8			26.2
WY 2014		1Q	2Q	3Q	4Q								
cfs				23.2	22.2								
WY 2015 lagged		1Q	2Q	3Q	4Q								
cfs		30.0	18.4	33.7	22.8								
lag cfs		26.3	22.9	28.0	25.7	Avg =	25.7	cfs					
* Computed as WS elev by NM Report minus Gage datum at 3157.0 (USBR datum)													

Table 10. Evaporation Loss at Lake Avalon [B.4.d.(1)]													
Water Year	2015												
5/8/2016	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOT
Av WS NM Rept	75.99	76.47	76.31	73.43	73.56	74.49	75.57	77.50	78.00	75.93	73.60	74.68	
Avalon ga ht, avg, ft*	18.99	19.47	19.31	16.43	16.56	17.49	18.57	20.50	21.00	18.93	16.60	17.68	
Avg area Avalon, ac**	806	841	829	638	646	704	777	918	956	802	648	716	
Panevap Brantley, in.	4.65	5.60	5.73	10.14	11.34	12.01	12.60	12.47	8.71	5.90	4.80	4.34	98.29
Lakeevap Brantley, in.	3.58	4.31	4.41	7.81	8.73	9.25	9.70	9.60	6.71	4.54	3.70	3.34	75.68
Precip Brantley, in.	1.09	0.16	0.37	1.04	3.28	1.01	1.92	0.83	2.14	5.08	0.19	0.86	17.97
Netevap, inches	2.49	4.15	4.04	6.77	5.45	8.24	7.78	8.77	4.57	-0.54	3.51	2.48	57.71
Evaploss Av, TAF	0.17	0.29	0.28	0.36	0.29	0.48	0.50	0.67	0.36	-0.04	0.19	0.15	3.71
* Computed as WS elev by NM Report minus Gage datum at 3157.0 (USBR datum)													
** Based on USBR Area and Capacity Table in effect January 1, 1997													

Table 11. Change in Storage, Lake Avalon [B.4.d.(2)]														
(Gage heights are end of month)														
Water Year	2015													
5/8/2016														
	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOT
	2014	2015												
WS NM Rept	75.6	76.3	76.6	73.3	73.5	73.5	75.7	74.7	78.0	78.0	73.2	74.2	75.3	
Gage EOM, ft*	18.6	19.3	19.6	16.3	16.5	16.5	18.7	17.7	21.0	21.0	16.2	17.2	18.3	
Storage, AF**	2948	3511	3763	1333	1461	1461	3027	2275	5026	5026	1271	1925	2718	
Change sto, TAF		0.6	0.3	-2.4	0.1	0.0	1.6	-0.8	2.8	0.0	-3.8	0.7	0.8	-0.2
* Computed as WS elev by NM Report minus Gage datum at 3157.0 (USBR datum)														
** Based on USBR Area and Capacity Table in effect January 1, 1997														

APPENDIX

**RESPONSE TO STATES'
OBJECTIONS**

RESPONSE TO STATES' OBJECTIONS

Final Report, Accounting Year 2016

NEW MEXICO OBJECTIONS

1. Table 3. Determination of Flood Inflows, Artesia to Carlsbad.

New Mexico noted an error in Table 3 where 2014 data were used incorrectly for Carlsbad Irrigation District (CID) diversions. The objection is accepted and the 2015 data were inserted into a revised Table 3. See also response to Texas objection 2.

2. Table 4. Flood Inflow, Carlsbad to State Line.

a. New Mexico noted that values listed on Table 4 as Delaware River flood inflow were incorrect because they include the entire flow of the river instead of the scalped flood Inflows. The objection is accepted and values have been revised. See also response to Texas objection 3

New Mexico wrote that the Preliminary Report flood inflow analysis appeared inconsistent with the procedure in B.5.a.(3) of the River Masters Manual for periods when Dark Canyon Draw was flowing. The River Master checked this for the dates mentioned (May 5- 6 and October 8) but on all of those dates the scalped flows were positive, so the revised procedures for Section B.5.a.(3) were not needed.

3. Monthly Precipitation and Pan Evaporation for WY 2015

New Mexico reported that Table RM3 provided by the NMISC was incorrect due to an error in pan evaporation data for Sumner Reservoir for November and December. The correct data were inserted into revised Tables 6 and 12.

TEXAS OBJECTIONS

Texas entered a general objection related to unresolved issues from unusual flooding that occurred during WY 2014. These issues were the subject of a meeting between the states' Technical Representatives and the River Master on February 11, 2016. Notes from the meeting as transmitted by Ms. Hannah Riseley-White indicated that the states would work together to determine accounting for 2014-2015 and send to the River Master along with the necessary data adjustment for Dark Canyon Draw. As indicated in its general objection, Texas will contact New Mexico to resolve any issues related to WY 2014 for presentation to the River Master. If another meeting with the River Master is needed to resolve the issues, it can be held at the convenience of the states.

1. Table 7. Carlsbad Springs New Water [B.4.c.(2)]. WY 2015:

Texas noted an incidence where the leap year had not been returned to the 365 day year. This error has been corrected, and the objection is accepted. Tables 3 and 7 have been revised.

2. Table 3. Determination of Flood Inflows, Artesia to Carlsbad [B.4], WY 2015. .

The same objection was made by New Mexico (See NM #1 above). The objection is accepted and corrections have been made.

3. Table 4. Summary Table for Computations, Carlsbad to State Line (B.5)

a. Scalped Delaware River Flood Inflows.

- 1). Texas noted that the River Master had included all Delaware River flows and not only scalped flood flows. This is the same as New Mexico objection 2a above, and is accepted.
- 2). Texas made an independent calculation of Delaware River flood inflows by using a larger scale than USGS. This resulted in identification of additional flood inflows, which were verified by the River Master. The objection is accepted and the value used is 2.2 TAF for Delaware River flood inflows.

b. Scalped Flood Flows for Carlsbad to Red Bluff.

Texas noted several instances where values in the appendix did not look correct.

- 1) Texas is correct that values for January 30-31 were not included. This omission was corrected.
- 2) March and April values were also checked and all numbers calibrated, as outlined by Texas.
- 3) Texas suggested use of incorrect values for December 14-31 for the Pecos River below Dark Canyon gage. This was to be due to changes in the final approved streamflow values. The River Master has not received notification of any such changes and found a May 17, 2016 email message from Jeff Cordova of USGS to Texas that stated "I do not anticipate changes to any of the Pecos gage records for CY15." In any event, as noted by Texas, the totals would change very slightly even if the revisions had been made.
- 4). Texas noted an indication from the Black River hydrograph that there was flood inflow in the Carlsbad to Red Bluff reach in the late September time period (see Texas Exhibit E). The River Master analyzed this time period and agrees with Texas's assertion that 0.3 TAF of flood inflow should be added as a result of the September flows. However, Texas did not show any added flood inflow for August.

FINAL CALCULATED DEPARTURE

The Preliminary Report's Final Calculated Departure was an overage of 11.9 TAF. After considering the states' objections, the Final Determination is an overage of 11.9 TAF.

