No. 65, Original

In The
Supreme Court of the United States

STATE OF TEXAS,

Plaintiff,

v.

STATE OF NEW MEXICO

Defendant.

ON REVIEW OF THE RIVER MASTER'S 2018 FINAL DETERMINATION

APPENDIX TO STATE OF NEW MEXICO'S RESPONSE TO TEXAS'S MOTION FOR REVIEW OF RIVER MASTER'S FINAL DETERMINATION

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February 15, 2019

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Figure 1: Major Features of the Pecos Basin

NEIL S. GRIGG
PROFESSIONAL ENGINEER
749 S. LEMAY, Ste. A3, PMB 330
FT. COLLINS, COLORADO 80524

May 9, 2015

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:

The Pecos River Preliminary Report for Accounting Year 2015 is enclosed. Two copies were also sent to each Technical Representative. Objections are due by June 15, 2015.

Yours very truly,

/s/ Neil S. Grigg
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 2014

Accounting Year 2015

Preliminary Report

May 9, 2015

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

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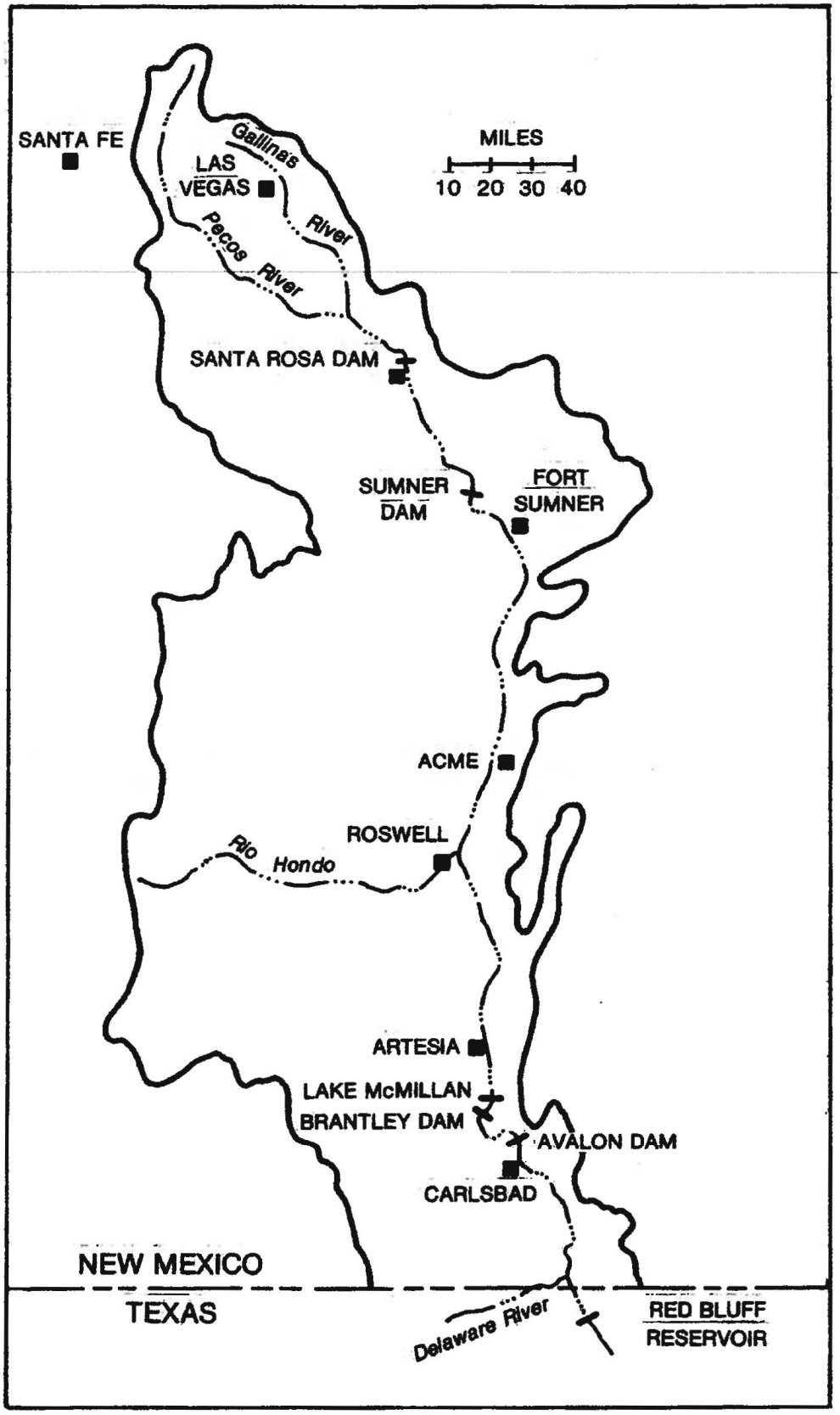


Map of Pecos River Basin Showing Accounting Reaches

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

Preliminary Report of the River Master
Water Year 2014 – Accounting Year 2015
May 9, 2015

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 Preliminary 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 2014 was an overage of 7,500 acre-feet. The accumulated overage since the beginning of Water Year 1987 is 103,200 acre-feet.

/s/ Neil S. Grigg
Neil S. Grigg
River Master of the Pecos River

Pecos River Compact		
Accumulated Shortfall or Overage		
	May 9, 2015	
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	7,500	103,200

Table 1. General Calculation of Annual Departures in TAF (B.1)			
Water Year	2014		
5/9/2015			
	WY 2012	WY 2013	WY 2014
B.1.a. Index Inflows			
(1) Annual flood inflow			
(a) Gaged flow Pecos R bel Alamogordo Dam	64.9	63.6	120.6
(b) Flood Inflow Alamogordo - Artesia (Table 2)	-17.2	54.4	57.5
(c) Flood Inflow Artesia - Carlsbad (Table 3)	11.2	39.9	17.3
(d) Flood Inflow Carlsbad - State Line (Table 4)	3.2	23.2	122.1
Total (annual flood inflow)	62.1	181.1	317.5
(2) Index Inflow (3-year avg)			186.9
B.1.b. 1947 Condition Delivery Obligation			83.8
(Index Outflow)			
B.1.c. Average Historical (Gaged) Outflow			
(1) Annual historical outflow			
(a) Gaged Flow Pecos River at Red Bluff NM	17.7	51.0	146.6
(b) Gaged Flow Delaware River nr Red Bluff NM	1.7	12.2	48.3
(c) Metered diversions Permit 3254 into C-2713	0.0	0.2	0.4
Total Annual Historical Outflow	19.4	63.4	195.3
(2) Average Historical Outflow (3-yr average)			92.7
B.1.d. Annual Departure			8.9
C. Adjustments to Computed Departure			
1. Adjustments for Depletions above Alam Dam			
a. Depletions Due to Irrigation (Table 5)	3.2	2	-0.2
b. Depl fr Operation of Santa Rosa Reservoir (Table 6)	1.0	8.6	-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	69.1	74.2	118.8
(b) Flood Inflow Alamogordo - Artesia	-17.2	54.4	57.5
(c) Flood Inflow Artesia - Carlsbad	11.2	39.9	17.3
(d) Flood Inflow Carlsbad - State Line	3.2	23.2	122.1
Total (annual flood inflow)	66.3	191.7	315.7
Recomputed Index Inflow (3-year avg)			191.2
Recomputed 1947 Condition Del Outflow			86.5
(Index Outflow)			
Recomputed Annual Departures			6.2
Credits to New Mexico			
C.2 Depletions Due to McMillan Dike			1.3
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			7.5

Table 2. Determination of Flood Inflows, Alamogordo Dam to Artesia (B.3)													
Water Year	2014												
5/2/2015													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOT
Flow bel Sumner Dam	0.9	0.7	4.4	25.2	24.3	23.2	15.7	14.8	4.4	4.9	0.7	1.4	120.6
FtSumner Irrig Div	0.0	0.0	4.3	4.5	4.8	5.3	4.6	4.9	3.4	5.3	0.0	0.0	37.1
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	19.7
Flow past FS IDist	1.7	1.3	1.5	22.3	21.9	20.2	13.5	12.2	3.1	2.0	1.7	2.2	103.6
Channel loss	0.2	0.2	0.5	3.7	3.7	4.1	2.5	2.4	0.9	0.7	0.7	0.2	19.8
Residual Flow	1.5	1.2	1.0	18.6	18.2	16.1	11.0	9.8	2.2	1.2	1.0	1.9	83.8
Base Inflow	2.1	2.1	2.3	1.9	1.8	1.8	1.6	1.5	1.4	3.0	3.1	3.1	25.6
River Pump Divers	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.7
Residual, Artesia	3.6	3.1	3.3	20.4	19.8	17.8	12.6	11.2	3.6	4.2	4.1	5.1	108.8
Pecos Flow Artesia	3.6	3.3	3.5	6.4	43.6	7.7	27.9	18.7	33.3	8.2	5.2	5.0	166.3
Flood Inflow, AD-Art	0.0	0.1	0.2	-14.0	23.7	-10.2	15.3	7.5	29.6	4.0	1.1	0.0	57.5

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 Carlsbad (B.4)													
Water Year	2014												
5/2/2015													
	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	0.0	0.0	0.0	0.0
Fourmile Draw nr Lakew	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	7.4	0.0	0.0	0.0	7.5
South Seven Rivers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.5	0.0	0.0	0.0	7.6
Rocky Arroyo at Hwy Br	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.5	0.0	0.0	0.0	19.5
Flood Inflow, Art-DS3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	34.3	0.0	0.0	0.0	34.6
Pecos R at Dam Site 3	1.1	1.1	3.9	17.1	22.9	14.4	12.0	11.6	22.1	1.9	1.4	1.5	111.0
CB Sprgs New Water (from Table 7)	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-3.8
Total Inflow, DS3 - CB	0.8	0.8	3.6	16.8	22.6	14.1	11.7	11.3	21.8	1.6	1.1	1.1	107.2
Evap Loss, Lake Avalon (from Table 10)	0.2	0.3	0.4	0.5	0.5	0.6	0.6	0.3	-0.4	0.3	0.2	0.2	3.7
Storage Chg, Lake Avalon (from Table 11)	0.4	0.2	-1.6	2.6	-2.8	1.8	-1.5	-0.1	3.0	-3.2	0.9	0.9	0.6
Carls ID diversions	0.0	0.0	0.0	4.9	3.8	2.5	0.0	3.7	4.0	14.1	0.0	0.0	33.0
93% CID diver	0.0	0.0	0.0	4.5	3.6	2.4	0.0	3.4	3.7	13.1	0.0	0.0	30.7
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	14.5	0.0	0.0	0.0	14.5
Pecos b Dark Canyon	2.6	1.8	1.9	1.8	16.6	1.3	0.9	2.3	31.7	2.4	2.3	2.3	68.1
Pecos R at Carlsbad	2.6	1.8	1.9	1.8	16.6	1.3	0.9	2.3	17.2	2.4	2.3	2.3	53.5
Total Outflow	3.3	2.4	0.9	9.6	18.0	6.1	0.2	6.2	23.6	12.7	3.4	3.4	89.9
Flood Inflow, DS3-CB	2.6	1.7	-2.7	-7.3	-4.6	-7.9	-11.4	-5.1	1.8	11.1	2.3	2.3	-17.3
Flood Inflow, Art-CB	2.6	1.7	-2.7	-7.3	-4.5	-7.9	-11.4	-5.1	36.2	11.1	2.3	2.3	17.3

Table 4. Summary Table for Computations, Carlsbad to State Line (B.5)							
Water Year	2014						
5/4/2015							
	BCB - RB	BCB - RB*	Del R	DC			
	RM	USGS	USGS				
Jan	0.0	0.0	0.0	0.0			
Feb	0.0	0.2	0.0	0.0			
Mar	0.0	0.2	0.0	0.0			
Apr	0.2	0.7	0.0	0.0			
May	0.2	0.1	0.0	0.0			
Jun	0.2	0.2	0.0	0.0			
Jul**	0.1	0.3	0.0	0.0			
Aug	0.2	0.0	0.0	0.0			
Sep**	74.2	59.6	45.7	0.0			
Oct	0.8	1.0	0.0	0.0			
Nov	0.3	0.8	0.0	0.0			
Dec	0.0	0.2	0.0	0.0			
Total	76.4	63.2	45.7	0.0			
Summary of flood inflows, Carlsbad to State Line, TAF							
Red Bluff - Carlsbad + Dark C RM calcs)					76.4		
Delaware River (USGS Computation)					45.7		
Total Flood Inflow, Carlsbad to State Line					122.1		
* USGS calculations BCB-RB for comparison only. Negative FIF reports not included.							
** See separate calculation for BCB to RB							

Table 5. Depletions Due to Irrigation Above Sumner Dam (C.1.a)								
Water Year	2014							
4/24/2015								
	APR	MAY	JUN	JUL	AUG	SEPT	OCT	TOTAL
Precip Las Vegas FAA AP	0.54	1.16	0.55	4.93	1.87	1.95	0.32	11.32
Eff prec Las Veg FAA AP	0.53	1.11	0.54	3.79	1.72	1.79	0.31	9.79
Precip Pecos Natl Monument	0.29	2.00	0.54	3.37	3.38	2.03	0.82	12.43
Eff Precip Pecos RS	0.28	1.83	0.53	2.86	2.87	1.85	0.80	11.02
Precip Santa Rosa	0.80	1.90	0.62	6.09	1.32	1.31	0.14	12.18
Eff Precip Santa Ro	0.78	1.75	0.61	4.06	1.25	1.24	0.14	9.83
Average eff precip, ft	0.04	0.13	0.05	0.30	0.16	0.14	0.03	0.85
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	0.15	0.23	0.31	0.00	0.11	0.04	0.08	0.92
Acres (most recent inventory)	11529							
Streamflow depletion (actual use), AF	10594							
1947 depletion, AF	10804							
Difference (actual use - 1947 depletion), TAF	-0.2							
Adjustment to Gaged Flow, Pecos River below Sumner Dam, TAF =						-0.2		

Table 6. Depletions Due to Santa Rosa Reservoir Operations (C.1.b)													
Water Year	2014												
4/24/2015													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
LS 2001 table (USBR), add 4,200 feet to value shown; LSR 1997 tables used (COE); Add 4,600 feet to value shown													
Lk Sumner ga ht, avg	61.52	62.65	63.01	62.21	58.02	57.23	59.24	61.03	60.52	60.42	60.83	62.00	
LS content, AF, avg	39229	42283	43292	41073	30798	29079	33580	37958	36669	36421	37448	40505	
LS area, acres, avg	2627	2779	2827	2720	2217	2135	2344	2561	2493	2479	2534	2692	
LS evap, inches	4.87	5.01	10.37	13.86	13.94	15.11	14.50	11.28	6.97	7.37	4.19	3.23	110.69
.77 LS Evap	3.75	3.86	7.98	10.67	10.73	11.63	11.17	8.69	5.37	5.67	3.22	2.49	85.23
LS Precip, inches	0.00	0.11	0.20	0.08	1.93	0.85	5.15	1.72	4.13	0.49	0.59	0.26	15.51
Net LS Evap, inches	3.75	3.75	7.78	10.59	8.80	10.78	6.02	6.97	1.24	5.18	2.63	2.23	69.72
LSum Evaploss, TAF	0.82	0.87	1.83	2.40	1.63	1.92	1.17	1.49	0.26	1.07	0.56	0.50	14.51
L S Rosa ga ht, avg	45.30	45.10	44.85	43.65	31.87	35.53	28.87	36.94	37.43	37.22	36.88	36.66	
LSR content, AF, avg	98174	97439	96525	92220	56544	66272	49263	70365	71834	71202	70186	69536	
LSR area, acres, avg	3687	3666	3641	3531	2516	2823	2299	2970	3016	2995	2965	2948	
LSR evap, inches	3.72	4.98	8.58	8.62	10.88	11.93	11.08	9.77	6.88	6.32	4.71	3.72	91.19
.77 LSR Evap	2.86	3.83	6.61	6.64	8.38	9.19	8.53	7.52	5.30	4.87	3.63	2.86	70.22
LSR precip, inches	0.03	0.06	0.26	0.80	1.90	0.62	6.09	1.32	1.31	0.14	0.97	0.46	13.96
Net LSR Evap, inches	2.83	3.77	6.35	5.84	6.48	8.57	2.44	6.20	3.99	4.73	2.66	2.40	56.26
LSR Evaploss, TAF	0.87	1.15	1.93	1.72	1.36	2.02	0.47	1.54	1.00	1.18	0.66	0.59	14.47
Total evaploss, TAF	1.69	2.02	3.76	4.12	2.98	3.93	1.64	3.02	1.26	2.25	1.21	1.09	28.99
Sum contents, AF	137403	139722	139817	133293	87342	95351	82843	108323	108503	107623	107634	110041	
1947 area, acres	4600	4600	4600	4600	3448	3673	3315	4013	4017	3995	3996	4055	
1947 evaploss, TAF	1.44	1.44	2.98	4.06	2.53	3.30	1.66	2.33	0.41	1.73	0.88	0.75	23.51
current-1947evaploss	0.25	0.58	0.78	0.06	0.46	0.63	-0.02	0.69	0.85	0.52	0.34	0.34	5.48
						Annual adjustment for excess evaporation =							5.5
ADJUSTMENT FOR EXCESSIVE STORAGE IN SANTA ROSA RESERVOIR													
			2013	2013	2014	2014							
			Gage	Storage	Gage	Storage							
EndYear Sumner Sto			4260.94	37728	4262.55	42006							
EndYear S R Sto			4745.44	98691	4736.55	69211							
Sum				136419		111217							
Sto Adjustment, TAF						-7.1							
Adjustm Ex Evap, TAF						5.5							
Total Adjustment,TAF						-1.6							

Storage adjustment
Both equal or less than 129.3 TAF, adjustment is zero
~~Both greater than 129.3 TAF, subtract previous from current year~~
Current year less than 129.3 TAF, previous greater than 129.3 TAF, subtract previous year from 129.3 TAF
Current year greater than 129.3 TAF, previous year less than 129.3 TAF, subtract 129.3 TAF from current year

Table 7. Carlsbad Springs New Water [B.4.c.(2)]					
Water Year	2014				
5/2/2015					
		TAF	AF/day	cfs	Totals
Pecos R bel DC		68.1	186.0	93.7	93.7
Dark Canyon		14.5	39.8	20.1	20.1
Pecos R bel Lake Avalon		34.9	95.4	48.1	48.1
Depletion, cfs					2.0
CID lag seep, cfs (from Table 8)					6.1
Return flow, cfs					1.0
Lake Av lagged seep, cfs (from Table 9)					22.8
PR seepage, cfs					3.0
Carls new water, cfs					-5.2
Carls new wat, TAF					-3.8
Carls new wat monthly, TAF					-0.3

Table 8. Carlsbad Main Canal Seepage Lagged [B.4.c.(2)(e)]													
Water Year	2014												
5/2/2015													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
WY 2014													
CID, TAF	0.0	0.0	4.0	10.7	9.0	10.0	10.6	10.0	2.0	3.9	0.0	0.0	60.1
days/mo	31	28	31	30	31	30	31	31	30	31	30	31	365
cfs	0	0.0	64.6	179.8	146.0	168.2	171.9	162.1	33.4	63.8	0.0	0.0	82.5
cfs, qtr avg			22.2			164.5			123.5			21.5	
WY 2013		1Q	2Q	3Q	4Q								
FLOWS, cfs				42.1	77.0								
SEVEN %				2.9	5.4								
WY 2014 lagged		1Q	2Q	3Q	4Q								
FLOWS, cfs		22.2	164.5	123.5	21.5								
SEVEN %		1.6	11.5	8.6	1.5								
LAG		3.1	7.2	8.4	5.6	Avg =	6.1	cfs					

Table 9. Lake Avalon Leakage Lagged [B.4.c.(2)(g)]													
Water Year	2014												
5/2/2015													
WY 2014	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOT
Elev NM rept	75.06	75.57	75.36	74.43	75.55	73.59	74.00	74.97	75.44	75.03	73.80	75.00	
ga ht, avg*	18.06	18.57	18.36	17.43	18.55	16.59	17.00	17.97	18.44	18.03	16.80	18.00	
cfs	24.3	26.8	25.8	21.3	26.7	17.3	19.3	23.9	26.1	24.2	18.3	24.0	
days	31	28	31	30	31	30	31	31	30	31	30	31	365
cfs avg	25.6			21.8			23.1			22.2			23.2
WY 2013		1Q	2Q	3Q	4Q								
cfs				22.8	19.1								
WY 2014 lagged		1Q	2Q	3Q	4Q								
cfs		25.6	21.8	23.1	22.2								
lag cfs		23.0	22.6	23.1	22.4	Avg =	22.8	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	2014													
5/2/2015														
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOT	
Av WS NM Rept	75.06	75.57	75.36	74.43	75.55	73.59	74.00	74.97	75.44	75.03	73.80	75.00		
Avalon ga ht, avg, ft*	18.06	18.57	18.36	17.43	18.55	16.59	17.00	17.97	18.44	18.03	16.80	18.00		
Avg area Avalon, ac**	741	777	762	700	776	647	672	735	768	739	660	737		
Panevap Brantley, in.	4.65	5.60	9.24	11.76	13.57	15.00	14.05	10.26	6.42	6.58	4.80	4.34	106.27	
Lakeevap Brantley, in.	3.58	4.31	7.11	9.06	10.45	11.55	10.82	7.90	4.94	5.07	3.70	3.34	81.83	
Precip Brantley, in.	0.00	0.19	0.34	0.75	2.16	0.60	0.68	2.46	10.98	0.47	0.71	0.40	19.74	
Netevap, inches	3.58	4.12	6.77	8.31	8.29	10.95	10.14	5.44	-6.04	4.60	2.99	2.94	62.09	
Evaploss Av, TAF	0.22	0.27	0.43	0.48	0.54	0.59	0.57	0.33	-0.39	0.28	0.16	0.18	3.67	
* 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	2014													
5/2/2015														
	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOT
	2013	2014												
WS NM Rept	74.8	75.4	75.7	73.5	77.0	73.2	75.7	73.6	73.4	77.3	73.1	74.4	75.6	
Gage EOM, ft*	17.8	18.4	18.7	16.5	20.0	16.2	18.7	16.6	16.4	20.3	16.1	17.4	18.6	
Storage, AF**	2347	2794	3027	1461	4109	1271	3027	1525	1397	4376	1209	2063	2948	
Change sto, TAF		0.4	0.2	-1.6	2.6	-2.8	1.8	-1.5	-0.1	3.0	-3.2	0.9	0.9	0.6
* 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 12. Data Required for River Master Manual Calculations													
Water Year	2014												
5/2/2015													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
STREAMFLOW GAGING RECORDS, TAF													
Pecos R b Sumner Dam	0.9	0.7	4.4	25.2	24.3	23.2	15.7	14.8	4.4	4.9	0.7	1.4	120.6
Fort Sumner Main C	0.0	0.0	4.3	4.5	4.8	5.3	4.6	4.9	3.4	5.3	0.0	0.0	37.1
Pecos R nr Artesia	3.6	3.3	3.5	6.4	43.6	7.7	27.9	18.7	33.3	8.2	5.2	5.0	166.3
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 Lakewood	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	7.4	0.0	0.0	0.0	7.5
South Seven Rivers nr Lkwd	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.5	0.0	0.0	0.0	7.6
Rocky Arroyo at Hwy Br nr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.5	0.0	0.0	0.0	19.5
Pecos R at Dam Site 3	1.1	1.1	3.9	17.1	22.9	14.4	12.0	11.6	22.1	1.9	1.4	1.5	111.0
Pecos bel Avalon Dam	0.0	0.0	0.0	0.8	15.8	0.0	0.0	1.7	16.7	0.0	0.0	0.0	34.9
Carlsbad Main Canal	0.0	0.0	4.0	10.7	9.0	10.0	10.6	10.0	2.0	3.9	0.0	0.0	60.1
Dark Canyon at Carlsbad	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.5	0.0	0.0	0.0	14.5
Pecos below Dark Canyon	2.6	1.8	1.9	1.8	16.6	1.3	0.9	2.3	31.7	2.4	2.3	2.3	68.1
Pecos R at Red Bluff	3.5	2.8	2.6	2.5	17.7	2.3	2.1	3.5	93.2	6.1	5.6	4.9	146.6
Delaware R nr Red Bluff	0.1	0.1	0.1	0.1	0.0	0.0	0.2	0.0	46.7	0.4	0.3	0.3	48.3
GAGE HEIGHTS													
Avalon gage ht, end mo	75.40	75.70	73.50	77.00	73.20	75.70	73.60	73.40	77.30	73.10	74.40	75.60	
Avalon gage ht, avg	75.06	75.57	75.36	74.43	75.55	73.59	74.00	74.97	75.44	75.03	73.80	75.00	
Sumner Lake ga ht, end mo	62.08	63.12	62.72	61.40	58.03	55.89	64.13	60.57	60.76	60.17	61.39	62.55	
Sumner Lake gage ht, avg	61.52	62.65	63.01	62.21	58.02	57.23	59.24	61.03	60.52	60.42	60.83	62.00	
Lake S Rosa ga ht, end mo*	45.20	45.00	44.64	38.06	35.76	29.95	30.32	37.39	37.46	37.03	36.75	36.55	
Lake S Rosa ga ht, avg*	45.30	45.10	44.85	43.65	31.87	35.53	28.87	36.94	37.43	37.22	36.88	36.66	
* values are referred to 4600 foot level													
**Apparent errors in NM data table for May were changed for Lake Santa Rosa													
PRECIPITATION, INCHES													
Brantley Lake	0.00	0.19	0.34	0.75	2.16	0.60	0.68	2.46	10.98	0.47	0.71	0.40	19.74
Las Vegas FAA AP	0.00	0.05	0.01	0.54	1.16	0.55	4.93	1.87	1.95	0.32	0.64	0.62	12.64
Pecos National Monument	0.00	0.15	0.07	0.29	2.00	0.54	3.37	3.38	2.03	0.82	0.84	0.95	14.44
Santa Rosa*	0.03	0.06	0.26	0.80	1.90	0.62	6.09	1.32	1.31	0.14	0.97	0.46	13.96
Lake Santa Rosa	0.03	0.06	0.26	0.80	1.90	0.62	6.09	1.32	1.31	0.14	0.97	0.46	13.96
Sumner Lake	0.00	0.11	0.20	0.08	1.93	0.85	5.15	1.72	4.13	0.49	0.59	0.26	15.51
	* Note: data from Santa Rosa dam was substituted for missing Santa Rosa data												
PAN EVAPORATION, INCHES													
Lake Santa Rosa	3.72	4.98	8.58	8.62	10.88	11.93	11.08	9.77	6.88	6.32	4.71	3.72	91.2
Lake Sumner	4.87	5.01	10.37	13.86	13.94	15.11	14.50	11.28	6.97	7.37	4.19	3.23	110.7
Brantley Lake	4.65	5.60	9.24	11.76	13.57	15.00	14.05	10.26	6.42	6.58	4.80	4.34	106.3
OTHER REPORTS													
Base Acme-Art, TAF (USGS)	2.1	2.1	2.3	1.9	1.8	1.8	1.6	1.5	1.4	3.0	3.1	3.1	25.6
Pump depl Ac-Artesia, TAF	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.7
Pumping, C-2713, Malaga B													0.4
NM irrig inv, acres (3/9/2000)													11529
NM Transfer water use, TAF													
NM salvaged water, TAF													0.00
Texas, water stored NM, TAF	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
Texas, use Del water, TAF													

Table 12. Data Required for River Master Manual Calculations													
Water Year	2014												
5/2/2015													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
STREAMFLOW GAGING RECORDS, TAF													
Pecos R b Sumner Dam	0.9	0.7	4.4	25.2	24.3	23.2	15.7	14.8	4.4	4.9	0.7	1.4	120.6
Fort Sumner Main C	0.0	0.0	4.3	4.5	4.8	5.3	4.6	4.9	3.4	5.3	0.0	0.0	37.1
Pecos R nr Artesia	3.6	3.3	3.5	6.4	43.6	7.7	27.9	18.7	33.3	8.2	5.2	5.0	166.3
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 Lakewood	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	7.4	0.0	0.0	0.0	7.5
South Seven Rivers nr Lkwd	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.5	0.0	0.0	0.0	7.6
Rocky Arroyo at Hwy Br nr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.5	0.0	0.0	0.0	19.5
Pecos R at Dam Site 3	1.1	1.1	3.9	17.1	22.9	14.4	12.0	11.6	22.1	1.9	1.4	1.5	111.0
Pecos bel Avalon Dam	0.0	0.0	0.0	0.8	15.8	0.0	0.0	1.7	16.7	0.0	0.0	0.0	34.9
Carlsbad Main Canal	0.0	0.0	4.0	10.7	9.0	10.0	10.6	10.0	2.0	3.9	0.0	0.0	60.1
Dark Canyon at Carlsbad	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.5	0.0	0.0	0.0	14.5
Pecos below Dark Canyon	2.6	1.8	1.9	1.8	16.6	1.3	0.9	2.3	31.7	2.4	2.3	2.3	68.1
Pecos R at Red Bluff	3.5	2.8	2.6	2.5	17.7	2.3	2.1	3.5	93.2	6.1	5.6	4.9	146.6
Delaware R nr Red Bluff	0.1	0.1	0.1	0.1	0.0	0.0	0.2	0.0	46.7	0.4	0.3	0.3	48.3
GAGE HEIGHTS													
Avalon gage ht, end mo	75.40	75.70	73.50	77.00	73.20	75.70	73.60	73.40	77.30	73.10	74.40	75.60	
Avalon gage ht, avg	75.06	75.57	75.36	74.43	75.55	73.59	74.00	74.97	75.44	75.03	73.80	75.00	
Sumner Lake ga ht, end mo	62.08	63.12	62.72	61.40	58.03	55.89	64.13	60.57	60.76	60.17	61.39	62.55	
Sumner Lake gage ht, avg	61.52	62.65	63.01	62.21	58.02	57.23	59.24	61.03	60.52	60.42	60.83	62.00	
Lake S Rosa ga ht, end mo*	45.20	45.00	44.64	38.06	35.76	29.95	30.32	37.39	37.46	37.03	36.75	36.55	
Lake S Rosa ga ht, avg*	45.30	45.10	44.85	43.65	31.87	35.53	28.87	36.94	37.43	37.22	36.88	36.66	
* values are referred to 4600 foot level													
**Apparent errors in NM data table for May were changed for Lake Santa Rosa													
PRECIPITATION, INCHES*													
Brantley Lake	0.00	0.19	0.34	0.75	2.16	0.60	0.68	2.46	10.98	0.47	0.71	0.40	19.74
Las Vegas FAA AP	0.00	0.05	0.01	0.54	1.16	0.55	4.93	1.87	1.95	0.32	0.64	0.62	12.64
Pecos National Monument	0.00	0.15	0.07	0.29	2.00	0.54	3.37	3.38	2.03	0.82	0.84	0.95	14.44
Santa Rosa	0.03	0.06	0.26	0.80	1.90	0.62	6.09	1.32	1.31	0.14	0.97	0.46	13.96
Lake Santa Rosa	0.03	0.06	0.26	0.80	1.90	0.62	6.09	1.32	1.31	0.14	0.97	0.46	13.96
Sumner Lake	0.00	0.11	0.20	0.08	1.93	0.85	5.15	1.72	4.13	0.49	0.59	0.26	15.51
* Santa Rosa dam substituted for missing Santa Rosa data. Bat Cave Draw RAWS substituted for Carlsbad Caverns data.													
PAN EVAPORATION, INCHES													
Lake Santa Rosa	3.72	4.98	8.58	8.62	10.88	11.93	11.08	9.77	6.88	6.32	4.71	3.72	91.2
Lake Sumner	4.87	5.01	10.37	13.86	13.94	15.11	14.50	11.28	6.97	7.37	4.19	3.23	110.7
Brantley Lake	4.65	5.60	9.24	11.76	13.57	15.00	14.05	10.26	6.42	6.58	4.80	4.34	106.3
OTHER REPORTS													
Base Acme-Art, TAF (USGS)	2.1	2.1	2.3	1.9	1.8	1.8	1.6	1.5	1.4	3.0	3.1	3.1	25.6
Pump depl Ac-Artesia, TAF	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.7
Pumping, C-2713, Malaga B													0.4
NM irrig inv, acres (3/9/2000)													11529
NM Transfer water use, TAF													
NM salvaged water, TAF													0.00
Texas, water stored NM, TAF	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
Texas, use Del water, TAF													

Appendix A: Flood Inflow Carlsbad to Red Bluff

Hydrograph scalping to determine flood inflows

The flood inflow for Carlsbad below Dark Canyon to Red Bluff during Water Year 2014 includes several events of small magnitude and a period during September 2014 of extremely high flood inflow. This appendix presents the flood inflow estimates for these on a spreadsheet and with graphical displays, and it includes a separate discussion of the September 2014 flooding. The flood inflows for months other than September–October amount to 1.3 TAF (see Table 4) and are much smaller than the September–October flood inflows.

Appendix B is provided to explain the process being followed by the states to develop a procedure to estimate any Unappropriated Flood Inflows.

September-October flood inflows

Given the very heavy rainfall in September 2014, the flood inflow was much higher than average. For that reason, a more detailed analysis of the procedure to estimate the scalped flood inflows is presented here, including a discussion of how the Dark Canyon inflows are handled. Most of the flood inflow for the year is in September, but the hydrograph recession limbs extend into October for both the Red Bluff and Below Carlsbad gages.

It is apparent that the Red Bluff hydrograph begins to increase at September 6 to correlate with the 0.11-inch daily rainfall on that date. Successive heavy rainfall amounts drive the flows at Red Bluff higher until the hydrograph returns to a base level on October 15. These hydrograph rises and rainfalls are evident from the graphs shown in the following pages.

At Carlsbad, the hydrograph also begins to rise at September 6 but with more of an up-and-down pattern than at Red Bluff. From the 17th it begins a rapid rise that corresponds to the very heavy rainfall in the Carlsbad area. Base flow at Carlsbad thus ranges from its low on September 17 to a higher value on October 21.

As discussed in past reports, the curves of base flow can be estimated in several ways. Two extremes are to scalp along the bottom of each lowest hydrograph point or to extend a straight line from the first low point to the last. As shown on the figure that follows, the River Master used intermediate curvilinear paths for these base inflows. It is apparent that if consistent methods are used, the differences among the extremes or the curvilinear path are small, particularly for small flood inflows.

As shown on the spreadsheet entitled “Hydrograph scalping for FIF Carlsbad to Red Bluff, September and October, 2014” the scalping yields a total flood inflow for September and October of 74.9 TAF. There was one episode of negative flood inflow

(September 22), which required application of the procedure in Section B.5 of the River Master's Manual that deals with this situation. How flows at Dark Canyon Draw can create negative scalped flood inflows is evident for September 22 when they cause an increase in the Carlsbad below Dark Canyon gage to make it larger than the flow at Red Bluff.

The required procedure specifies [Section B.5. a. (3)] "Identify the periods when gaged inflows from Dark Canyon Draw are greater than zero. Determine for these periods if the difference in scalped flood flow quantities from (2) above is positive, zero or negative. If positive or zero add the gaged flows of Dark Canyon Draw to the difference in scalped flood inflows. If they are negative subtract the daily Dark Canyon Draw flows from the Pecos River Below Dark Canyon hydrograph and perform the scalping operation again to obtain adjusted flood inflows for these periods. If the difference in adjusted flood inflows is still negative set it to zero; if it is positive use it for this period of Dark Canyon Draw inflows."

The rationale for the procedure is that the gage was originally upstream from Dark Canyon Draw at Carlsbad. Thus, the flood inflow from Dark Canyon would appear at Red Bluff but not at the upstream gage. After the gage was moved, this flood inflow increases the upstream flows at Carlsbad below Dark Canyon and by adding the Dark Canyon inflow to the scalped flood inflow the result should be the same. The event where the Dark Canyon inflow creates a negative result in the difference in scalped flood inflows can occur for large and short term Dark Canyon flows, such as occurred on September 22. If these flows were spread out, the negative difference would normally not occur. The established procedure to subtract Dark Canyon flows and then perform the scalping again is intended to compensate for this type of event.

As shown in the accompanying spreadsheet, after the Dark Canyon flows are subtracted from the Carlsbad below Dark Canyon flows and the scalping procedure is applied again, the results are the same. This outcome arises from the scalping procedure where the Dark Canyon flows are added in one case and then deducted in the other, but the difference in upstream and downstream hydrographs will sum to the same result.

This table illustrates the results for September and October (all values in acre-feet):

	CB b DC to RB (Sep)	CB b DC to RB (Oct)	Dark Canyon Draw	Total
Original procedure	59,634	754	14,517	74,905
After deducting DCD	74,151	754	0	74,905

Note that USGS may report revised values for Dark Canyon flows, but we do not know when they may be available. The correspondence below explains. Should USGS report revised values after either the Preliminary Report or the Final Report is completed, the River Master will notify the states and offer alternative ways to respond.

Correspondence from USGS regard [sic] **Dark Canyon estimates**

Dr. Anne–Marie Matherne wrote (email) to the River Master on March 6, 2015:

The USGS has become aware that the water balance for the stream gages Pecos River below Avalon (08404000), Pecos River below Dark Canyon at Carlsbad (08405200), and Dark Canyon at Carlsbad (08405200) showed a measured imbalance between inflows and outflows for Calendar Year 2014. Upon investigation, we found that the control at Dark Canyon at Carlsbad had changed dramatically because a low-water crossing was replaced by a bridge with a series of box culverts. This change resulted in computation of an extremely high discharge for a flood event on September 22, 2014. The change in the control occurred 3 months prior to the flood.

There are two options for computation of the record at Dark Canyon below Carlsbad for the Calendar Year 2014 record: 1) estimate the flow volume for the September flood period by taking the difference between flow measured at the Pecos River below Avalon and the Pecos River below Dark Canyon; 2) complete a theoretical culvert analysis to determine the new rating for the Dark Canyon at Carlsbad streamgage and apply this new rating for the September 2014 flood period. The culvert analysis is in process and will be completed in about 3 months. The culvert analysis includes a field survey and analysis using HEC-RAS, and will have to go through the USGS review and approval process. We estimate that this process will be completed by mid- to late-June.

We apologize for this delay in computation of the record. Would you prefer that the Pecos River flow separation wait until the Dark Canyon record is finalized, or would you prefer that we develop and use an estimate for Dark Canyon, and revise the analysis when the more accurate number is available? We would of course provide all other data needed in the accounting, and would complete all other parts of the analysis not dependent on the Dark Canyon record, according to our usual schedule.

Please advise us as to how you would like us to proceed. Again, we apologize for the delay in the completion of this record.

Reply (email) by River Master on March 6, 2015:

Thank you for alerting me to this situation. The administrative process we have to work around is the timing set out in the Amended Decree, which is the basis for the annual accounting of delivery obligation on the river. The timing is for the River Master to submit a Preliminary Report to the States by May 15, to receive objections by June 15, and to submit a Final Report by June 30.

If the USGS approvals were in place prior to May 15, then we could include data from the new process in the Preliminary Report. If the USGS approvals occurred such that you provided revised Dark Canyon flows between May 15 and June 30, the States would have no mechanism to object to them in the process. In a similar way, if the approvals came after June 30, then I have no mechanism to revise the Annual Report but it can always be revised in response to a joint motion of the States.

The States may or may not choose to submit a joint motion, so I cannot at this time anticipate what might occur there. Given the uncertainty of the timing of USGS approval, my preferred option is that you include in your March submittal an estimate based on your #1 below (flow balance) and then revise it when you have your new procedure in place. That way we can decide what to do when we get your revised estimate, even if it occurs after July 1. Of course, the sooner the better.

Please include an explanation of how your Dark Canyon estimate was made when you submit the data and materials.

Hydrograph scalping to support Table 4

	2014 Water year									Scalped Totals, cfs-days		
	5/8/2015		PR AT RED BLUFF				PR BELOW DC AT CBD			PRRB	PRBDC	FIF
	Day	Yr Day	Q	Base	Diff		Q	Base	Diff			
JAN	1	1	35				20					
	2	2	34				32					
	3	3	34				31					
	4	4	34				19					
	5	5	41				17					
	6	6	43				39					
	7	7	36				53					
	8	8	34				53					
	9	9	48				51					
	10	10	62				57					
	11	11	63				63					
	12	12	65				59					
	13	13	73				48					
	14	14	76				63					
	15	15	68				68					
	16	16	68				58					
	17	17	90				53					
	18	18	86				45					
	19	19	79				39					
	20	20	74				38					
	21	21	65				38					
	22	22	62				37					
	23	23	59				37					
	24	24	56				36					
	25	25	52				36					
	26	26	55				36					
	27	27	56				35					
	28	28	54				35					
	29	29	55				35					
	30	30	55				35					
	31	31	56				35			0	0	0
FEB	1	32	58				35	35	0			
	2	33	58	58	0		37	35	2			
	3	34	58	57	1		35	35	0			
	4	35	59	56	3		35					
	5	36	58	56	2		34					
	6	37	56	55	1		34					
	7	38	54	54	0		34					
	8	39	54				34					
	9	40	55				33					
	10	41	56				33					
	11	42	55				34					
	12	43	54				33					
	13	44	55				33					
	14	45	54				33					
	15	46	50				33					
	16	47	52				33					
	17	48	50				33					
	18	49	49				34					
	19	50	47				34					
	20	51	46				33					

Hydrograph scalping to support Table 4

	21	52	45				33							
	22	53	44				32							
	23	54	43				32							
	24	55	44				32							
	25	56	45				30							
	26	57	45				30							
	27	58	46				31							
	28	59	43				31				7	2	5	
MAR	1	60	44				31							
	2	61	47				31							
	3	62	47				30							
	4	63	45				31							
	5	64	44				33							
	6	65	43				37							
	7	66	44				37							
	8	67	43				36							
	9	68	41				34							
	10	69	37				31							
	11	70	38				31							
	12	71	40				30							
	13	72	42				31							
	14	73	40				31							
	15	74	38				31							
	16	75	38	38	0		29							
	17	76	40	37.2	2.8		30							
	18	77	39	36.6	2.4		31							
	19	78	36	36	0		31							
	20	79	36				39							
	21	80	36				33							
	22	81	36	36	0		31							
	23	82	43	38.7	4.3		31							
	24	83	47	41.4	5.6		31							
	25	84	44	44	0		30							
	26	85	40				30							
	27	86	38				29							
	28	87	42				30							
	29	88	44				30							
	30	89	43				30							
	31	90	49				30				15	0	15	
APR	1	91	50				30							
	2	92	53				31							
	3	93	46				30							
	4	94	39				31							
	5	95	48				32							
	6	96	44				31							
	7	97	45				30							
	8	98	42				31							
	9	99	47				32							
	10	100	38				32							
	11	101	35				33							
	12	102	33				33							
	13	103	34				32							
	14	104	41				31							
	15	105	57				32							
	16	106	48				33							
	17	107	38				31							

Hydrograph scalping to support Table 4

	18	108	41				30	30	0					
	19	109	43	43	0		39	23.2	16					
	20	110	50	40	10		32	16.6	15					
	21	111	71	37	34		16	10.1	6					
	22	112	82	34	48		3.6	3.6	0					
	23	113	67	32	35		3.8							
	24	114	54	29	25		3.3							
	25	115	36	26	10		2.6							
	26	116	23	23	0		2.4							
	27	117	19				3.5							
	28	118	19				2.6							
	29	119	15				2.6							
	30	120	12				227				162	37	125	
MAY	1	121	12				842							
	2	122	525				905							
	3	123	829				913							
	4	124	867				953							
	5	125	897				923							
	6	126	889				912							
	7	127	873				913							
	8	128	874				878							
	9	129	859				686							
	10	130	758				96							
	11	131	343				20							
	12	132	175				14							
	13	133	107				12							
	14	134	77				9.8							
	15	135	61				9.9							
	16	136	51				10							
	17	137	48				11							
	18	138	40				10							
	19	139	34				13							
	20	140	32				16							
	21	141	38				16							
	22	142	37				16	16	0					
	23	143	36				27	16.5	11					
	24	144	36	36	0		36	17	19					
	25	145	44	37	8		24	17.5	7					
	26	146	86	37	49		18	18	0					
	27	147	80	38	43		17							
	28	148	66	38	28		17							
	29	149	50	39	12		18							
	30	150	39	39	0		18							
	31	151	36				19				139	36	103	
JUN	1	152	35				19							
	2	153	44				20							
	3	154	38				19							
	4	155	33				20							
	5	156	37				21							
	6	157	33				21	21	0					
	7	158	31	31	0		22	20.833	1					
	8	159	51	31	20		23	20.667	2					
	9	160	87	31	56		22	20.5	1					
	10	161	75	32	44		23	20.333	3					
	11	162	49	32	17		24	20.167	4					
	12	163	38	32	6		24	20	4					

Hydrograph scalping to support Table 4

	13	164	33	32	1		29	19.833	9						
	14	165	32	32	0		27	19.667	7						
	15	166	27	32	-5		25	19.5	6						
	16	167	35	33	3		25	19.333	6						
	17	168	49	33	16		23	19.167	4						
	18	169	39	33	6		19	19	0						
	19	170	34	34	0		22								
	20	171	36				20								
	21	172	35				23								
	22	173	33				23								
	23	174	36				24								
	24	175	32				23								
	25	176	27				23								
	26	177	30				25								
	27	178	28				25								
	28	179	28				24								
	29	180	28				16								
	30	181	32				17				163	47	116		
JUL	1	182	31	31	0		17								
	2	183	55	31	24		17								
	3	184	46	31	16		16								
	4	185	40	30	10		16								
	5	186	30	30	0		16								
	6	187	27				17								
	7	188	24				17								
	8	189	25				16								
	9	190	34				16								
	10	191	37				12								
	11	192	43				10								
	12	193	42				11								
	13	194	41				11								
	14	195	38				11								
	15	196	35	35	0		11	11	0						
	16	197	38	30	9		13	11.333	2						
	17	198	40	29	11		12	11.667	0						
	18	199	39	29	11		12	12	0						
	19	200	40	28	12		13	12.333	1						
	20	201	40	28	13		17	12.667	4						
	21	202	32	27	5		13	13	0						
	22	203	30	27	4		13								
	23	204	33	26	7		13								
	24	205	28	26	3		13								
	25	206	25	25	0		12								
	26	207	26				13								
	27	208	26				14								
	28	209	25				13								
	29	210	24				14								
	30	211	25				18	18	0						
	31	212	24				61	16.95	44		122	51	71		
AUG	1	213	21	21	0		18	15.7	2						
	2	214	42	21	21		20	14.45	6						
	3	215	59	22	37		18	13.2	5						
	4	216	51	22	29		498	11.95	486						
	5	217	107	22	85		218	10.7	207						
	6	218	354	22	332		29	9.45	20						
	7	219	153	23	130		8.2	8.2	0						

Hydrograph scalping to support Table 4

	8	220	82	23	59		5.5							
	9	221	52	23	29		8.7							
	10	222	42	23	19		5.3							
	11	223	34	24	10		6	6	0					
	12	224	46	24	22		7.9	6.4783	1					
	13	225	43	24	19		8.8	6.9565	2					
	14	226	33	24	9		9.7	7.4348	2					
	15	227	30	25	5		12	7.913	4					
	16	228	29	25	4		13	8.3913	5					
	17	229	37	25	12		14	8.8696	5					
	18	230	40	25	15		17	9.3478	8					
	19	231	31	26	5		18	9.8261	8					
	20	232	29	26	3		20	10.304	10					
	21	233	30	26	4		20	10.783	9					
	22	234	34	26	8		20	11.261	9					
	23	235	45	27	18		21	11.739	9					
	24	236	48	27	21		21	12.217	9					
	25	237	41	27	14		22	12.696	9					
	26	238	35	27	8		22	13.174	9					
	27	239	36	28	8		22	13.652	8					
	28	240	45	28	17		22	14.13	8					
	29	241	42	28	14		19	14.609	4					
	30	242	36	28	8		18	15.087	3					
	31	243	32	29	3		18	15.565	2		968	851	117	
SEP	1	244	29	29	0		18							
	2	245	37				17							
	3	246	39				17							
	4	247	37				17							
	5	248	32				17							
	6	249	47				27							
	7	250	94				27	For September - October see separate						
	8	251	97				20	spreadsheet						
	9	252	91				19							
	10	253	70				19							
	11	254	52				20							
	12	255	389				40							
	13	256	415				20							
	14	257	203				20							
	15	258	123				21							
	16	259	82				19							
	17	260	68				12							
	18	261	528				90							
	19	262	13500				434							
	20	263	7360				683							
	21	264	3800				544							
	22	265	10200				12000							
	23	266	5990				1400							
	24	267	1490				209							
	25	268	1010				89							
	26	269	385				50							
	27	270	258				38							
	28	271	212				35							
	29	272	183				34							
	30	273	155				35				45410	8026	37384	
OCT	1	274	142				35							
	2	275	133				35							

Hydrograph scalping to support Table 4

	3	276	124				35							
	4	277	119				37							
	5	278	112				38							
	6	279	110				37							
	7	280	112				38							
	8	281	107				36							
	9	282	106				35							
	10	283	106				37							
	11	284	101				35							
	12	285	93				37							
	13	286	89				38							
	14	287	89				36							
	15	288	87				37							
	16	289	89				37							
	17	290	93				38							
	18	291	93				39							
	19	292	87				40	40	0					
	20	293	86	86	0		46	41.5	5					
	21	294	92	86	6		43	43	0					
	22	295	100	86	14		42							
	23	296	99	86	13		42							
	24	297	92	87	5		43							
	25	298	91	87	4		42							
	26	299	90	87	3		43							
	27	300	87	87	0		42							
	28	301	86				43							
	29	302	86				42							
	30	303	83				44							
	31	304	79				41				462	42	420	
NOV	1	305	76	76	0		43							
	2	306	87	78	9		44	44	0					
	3	307	97	80	17		49	42.6	6					
	4	308	108	83	25		55	41.3	14					
	5	309	119	85	34		40	40	0					
	6	310	121	87	34		40							
	7	311	106	89	17		39							
	8	312	100	92	8		41							
	9	313	98	94	4		39							
	10	314	98	96	2		39							
	11	315	96	96	0		37							
	12	316	96				37							
	13	317	92				36							
	14	318	92				38							
	15	319	93				38							
	16	320	95				38							
	17	321	98				37							
	18	322	100				37							
	19	323	99				37							
	20	324	96				36							
	21	325	96				37							
	22	326	87				37							
	23	327	92				36							
	24	328	87				35							
	25	329	84				35							
	26	330	78				36							
	27	331	77				35							

Total for October shows 380 cfs-days
plus another 40 cfs-days from October 19-27

Hydrograph scalping to support Table 4

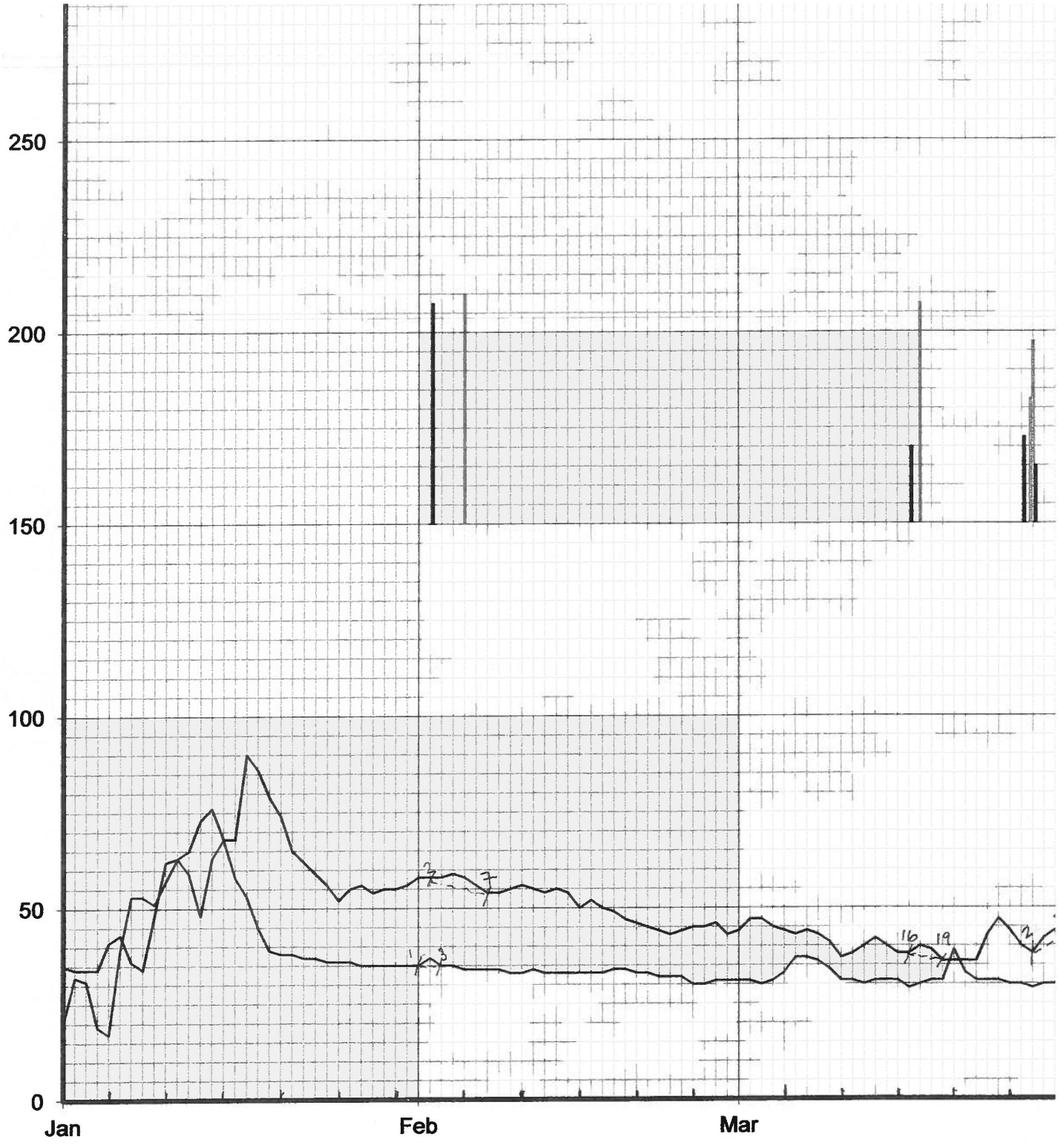
	28	332	79				37							
	29	333	81				36							
	30	334	82				36				150	20	130	
DEC	1	335	82				36							
	2	336	81				36							
	3	337	80				37							
	4	338	80				36							
	5	339	82				37							
	6	340	73				35							
	7	341	79				36							
	8	342	80				36							
	9	343	81				36							
	10	344	80				36							
	11	345	80				36							
	12	346	83				36							
	13	347	84				37							
	14	348	80				35							
	15	349	77				36							
	16	350	78				36							
	17	351	78				36							
	18	352	95				36							
	19	353	81				37							
	20	354	79				37							
	21	355	78				37							
	22	356	78				37							
	23	357	79				39							
	24	358	79				38							
	25	359	79				38							
	26	360	78	78	0		37	37	0					
	27	361	79	78	1		40	37	3					
	28	362	82	78	4		37	37	0					
	29	363	83	79	4		37							
	30	364	81	79	2		36							
	31	365	79	79	0		35				11	3	8	
Total, cfs-days			73918				34312				47609	9115	38494	

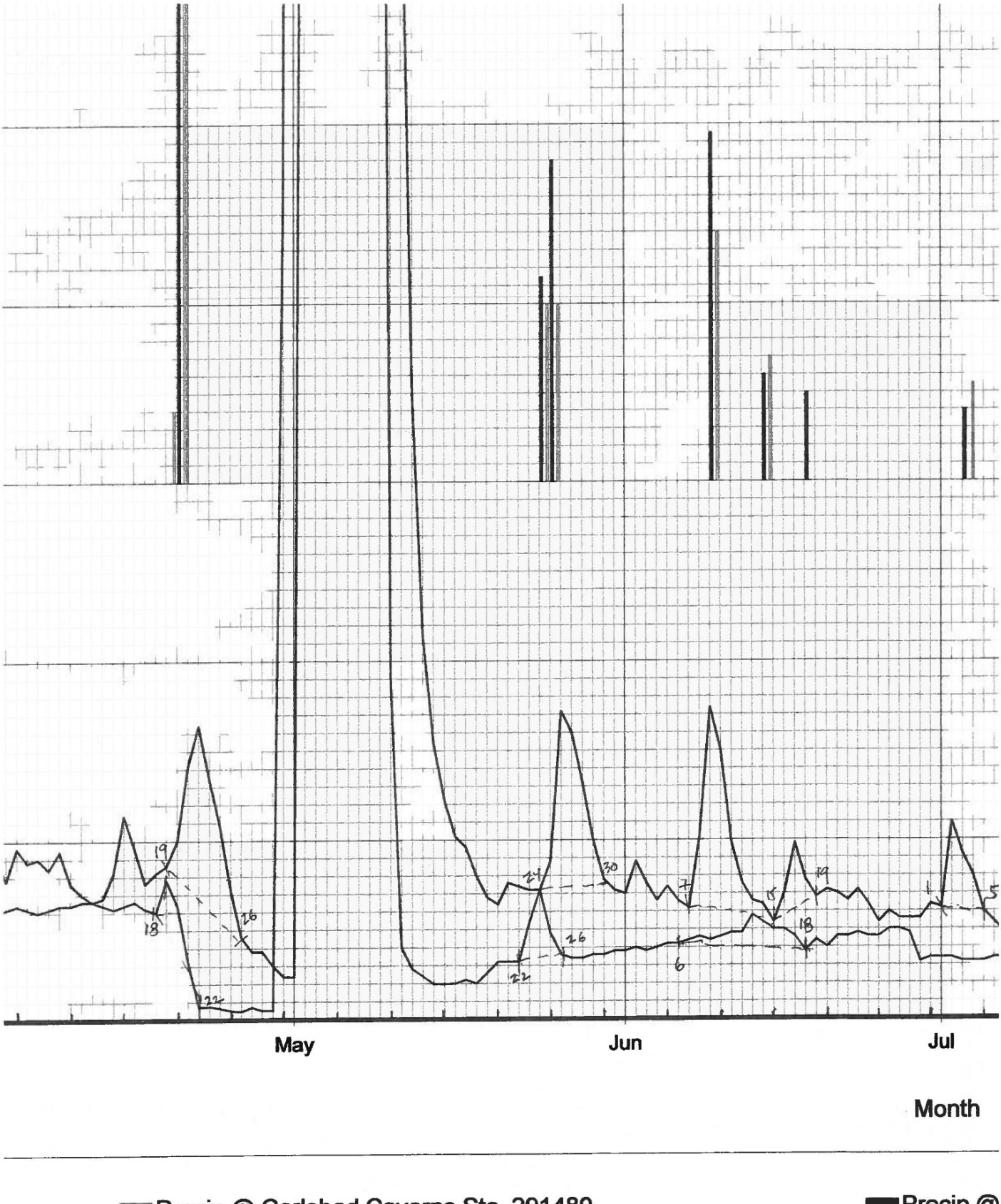
Totals	RB	BDC	Diff, c-d	Diff TAF
Jan	0	0	0	0.0
Feb	7	2	5	0.0
Mar	15	0	15	0.0
Apr	162	37	125	0.2
May	139	36	103	0.2
Jun	163	47	116	0.2
Jul	122	51	71	0.1
Aug	968	851	117	0.2
Sep	45410	8026	37384	74.2
Oct	462	42	420	0.8
Nov	150	20	130	0.3
Dec	11	3	8	0.0
cfs-d	47609	9115	38494	
TAF	94.4	18.1		76.4

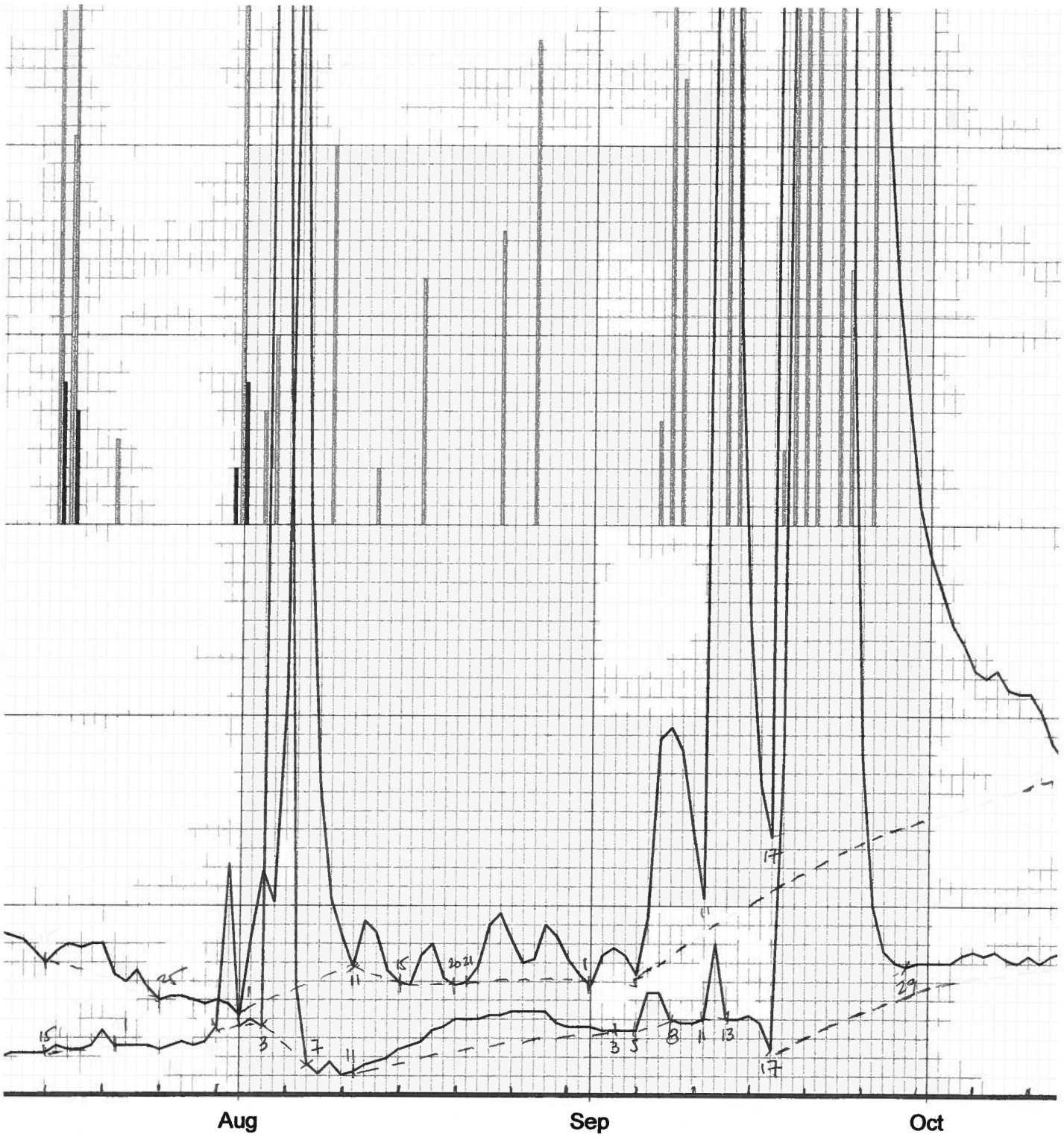
Hydrograph scalping for FIF Carlsbad to Red Bluff, September and October, 2014

Date	Days	Flow data			Scalping							Scalping minus DC (DC flows deducted)						Revised FIF	
		RB	BDC	DCD		RB			BDC					w/DC out					
					RB	BaseR	Diff		BDC	BaseRB	Diff	RB-BDC		BDC	BaseRB	Diff		RB-BDC	
1	1	29	18																
2	2	37	17																
3	3	39	17																
4	4	37	17																
5	5	32	17		32	32.38	0					0						0	
6	6	47	27		47	34	13					13						13	
7	7	94	27		94	37	57					57						57	
8	8	97	20		97	39	58					58						58	
9	9	91	19		91	41	50					50						50	
10	10	70	19		70	42	28					28						28	
11	11	52	20		52	44	8					8						8	
12	12	389	40		389	46	343					343						343	
13	13	415	20		415	48	367					367						367	
14	14	203	20		203	50	153					153						153	
15	15	123	21		123	52	71					71						71	
16	16	82	19		82	53	29					29						29	
17	17	68	12		68	55	13		12	12	0	13		12	12	0		13	
18	18	528	90		528	57	471		90	15	75	396		90	15	75		396	
19	19	13500	434	356	13500	58	13442		434	17	417	13024		78	17	61		13380	
20	20	7360	683	592	7360	60	7300		683	18	665	6635		91	18	73		7227	
21	21	3800	544	422	3800	61	3739		544	19	525	3214		122	19	103		3636	
22	22	10200	12000	5190	10200	63	10137		12000	21	11979	-1842	Negative FIF	6810	21	6789		3348	
23	23	5990	1400	744	5990	64	5926		1400	22	1378	4548		656	22	634		5292	
24	24	1490	209	15	1490	66	1424		209	23	186	1238		194	23	171		1253	
25	25	1010	89		1010	67	943		89	24	65	878		89	24	65		878	
26	26	385	50		385	68	317		50	25	25	292		50	25	25		292	
27	27	258	38		258	70	188		38	26	12	177		38	26	12		177	
28	28	212	35		212	71	141		35	27	8	134	Sep total	35	27	8		134	Sep total
29	29	183	34		183	72	111		34	28	6	105		34	28	6		105	
30	30	155	35		155	73	82		35	29	6	76	30065	35	29	6		76	37384
1	31	142	35		142	74	68		35	30	5	63		35	30	5		63	
2	32	133	35		133	76	57		35	31	4	53		35	31	4		53	
3	33	124	35		124	77	47		35	32	3	44		35	32	3		44	
4	34	119	37		119	78	41		37	32	5	37		37	32	5		37	
5	35	112	38		112	79	33		38	33	5	28		38	33	5		28	

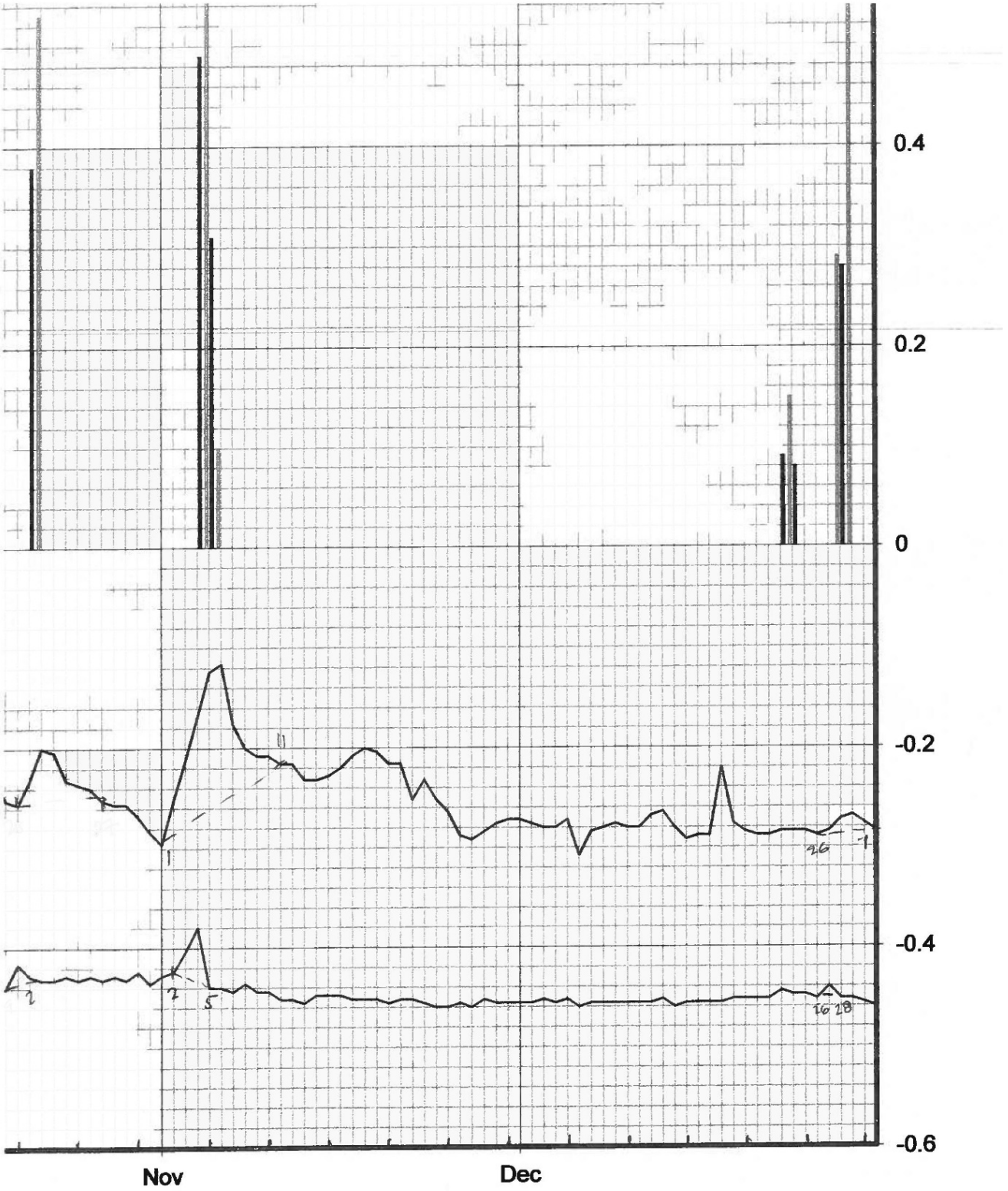
6	36	110	37			110	79	31		37	34	3		27			37	34	3		27	
7	37	112	38			112	80	32		38	34	4		28			38	34	4		28	
8	38	107	36			107	81	26		36	34	2		24			36	34	2		24	
9	39	106	35			106	82	24		35	35	0		24			35	35	0		24	
10	40	106	37			106	83	23		37	35	2		21			37	35	2		21	
11	41	101	35			101	84	17		35	35	0		18			35	35	0		18	
12	42	93	37			93	84	9		37	36	1		7	**Oct**		37	36	1		7	**Oct**
13	43	89	38			89	85	4		38	36	2		2	**total**		38	36	2		2	**total**
14	44	89	36			89	86	3		36	36	0		3			36	36	0		3	
15	45	87	37			87	86	1		37	36	1		0	380		37	36	1		0	380
	Summary																					
		w/DC	wo/DC																			
	Sep	30065	37384																			
	Oct	380	380																			
	DC	7319	0																			
	Total	37764	37764																			
	AF	74905	74905																			


250
200
150
100
50
0
Jan
Feb
Mar
Precip @ Carlsbad Sta. 291469


May
Jun
Jul
Month
Precip @ Carlsbad Caverns Sta. 291480
Precip @



sbad FAA Sta. 291475 —— Pecos River below Dark Canyon


0.4
0.2
0
-0.2
-0.4
-0.6
Nov
Dec
—Pecos River at Red Bluff

Appendix B: Unappropriated flood flows

This appendix records correspondence among the States and the River Master relative to whether Unappropriated Flood Flows should be included in this year's Pecos River annual accounting. The States will be evaluating the issue and sending a recommendation about how to proceed. The recommendation may arrive after the Final Report has been sent, and it may be necessary to modify the Report to recognize the Unappropriated Flood Flows.

Message from New Mexico and Texas

On 4/9/2015 Greg Lewis sent the following email in his capacity as New Mexico's Engineer Advisor and Suzy Valentine, Texas' Pecos River Engineer Advisor.

As you know, 2014 was an unusual year on the Pecos River. Extraordinarily heavy monsoon rains in September completely filled Red Bluff Reservoir resulting in an uncontrolled spill from its service spillway over the period of September 21 through October 3, 2014. Owing to the lack of available storage in Texas, and ongoing flooding concerns between Brantley Reservoir and the Texas state line, New Mexico did not release water from Brantley Reservoir. New Mexico and Texas officials worked closely together last fall and winter concerning Pecos River water operations and agreed that holding water back in Brantley Reservoir was the appropriate alternative.

In September 2014, Brantley Reservoir quickly exceeded the maximum authorized Carlsbad Project conservation storage limit of 42,057 acre feet. Storage continued to increase to over 85,000 acre-feet until the Carlsbad Irrigation District started its first release of the season from Brantley Reservoir on March 30, 2015.

On November 20, 2014, Texas requested that New Mexico continue to store waters that would otherwise have been delivered to Texas "until such time as they can be utilized in Red Bluff Reservoir." New Mexico formally responded affirmatively to Texas' request on January 26, 2015. The correspondence between the two states' Pecos River Commissioners is attached.

It appears to us, as explained in New Mexico's response to Texas, that the water held in Brantley Reservoir above the Carlsbad Project's conservation storage maximum meets the definition of Unappropriated Flood Waters contained in Article II(i) of the 1948 Pecos River Compact. Additionally, we understand, in accordance with Section C.4. of the Pecos River Master's Manual, it is the responsibility of the federal River Master to "determine and apportion any unappropriated flood waters using methodologies not inconsistent with applicable provisions of the Compact and this (Pecos River Master's) Manual."

To our knowledge, 2014 is the first time that storage of Texas' water in New Mexico's reservoirs and storage of Unappropriated Flood Waters has occurred. Moreover, the accounting specifics of such storage are not well documented in the River Master's Manual. Accordingly, we would very much appreciate an opportunity to discuss with you, and gain your insights into, how the accounting should be done.

Please let us know at your convenience of your availability for such a discussion. In the near future, we both have time available April 16th and 17th, as well as April 20th through 23rd.

Thank you for your consideration of this request and we look forward to hearing from you.

Conference call between River Master and the States

The River Master and Engineer Advisers met by conference call on April 16. This is the River Master's summary of the call.

Thank you for joining our call yesterday (April 16) to discuss the issue of apparent Unappropriated Flood Waters in Water Year 2014. I would like to summarize our discussion with this message.

You alerted me to this situation in a joint email sent on April 9. The hydrologic phenomena were the heavy rains in September 2014 that filled Red Bluff Reservoir and led to your agreement to hold water in Brantley Reservoir for flood management and the needs of Texas. You provided me with copies of the correspondence between the Pecos River Commissioners of both states. As this is the first time under the Amended Decree that storage of Texas' water in New Mexico reservoirs has occurred, we need to develop procedures to account for the water and apparent Unappropriated Flood Waters under Article II(i) of the Pecos River Compact and Section C.4 of the Pecos River Master's Manual.

During our call we discussed the technical issues involved and the process we may follow to develop the procedures and account for the water. Technical issues that were introduced were allocation of evaporative losses and stream losses, along with the timing of storage and release decisions. Along with these is the overall issue of accounting for what are defined as Unappropriated Flood Waters and any allocation between the states. These technical issues need to be studied and defined to clarify them in some detail.

As a process going forward, we determined that as Technical Advisers of the states, you would jointly evaluate the issues and develop a work plan and timeline to propose accounting procedures that are agreeable to both states. Given the short time before the due date for the River Master's Preliminary Report, we determined that I would

prepare it under the assumption that once the new procedures are in place, we can implement a one-time correction for any Unappropriated Flood Water issues that affected the determination for Water Year 2014. We also noted that you will have the opportunity to object to any of the findings in this Preliminary Report, so this provides an opportunity to evaluate the calculation for Water Year 2014 after the numbers are evident.

This approach provides the states with time for careful study of the issues and for the development of mutually-acceptable procedures. If you chose [sic] to meet with me, we could arrange working session(s) when and if they were needed. We also have the draft procedures contained in the document provided by Ms. Valentine after the call. This document is titled: "Manual of Procedures for Use by Engineering Advisory Committee to Compute Pecos River Compact Compliance Using Inflow-Outflow Methods of Measuring Changes in Streamflow Depletion, Pecos River Basin, New Mexico." It is dated August 15, 1985 and does not bear any marking of being a court exhibit. I did not have a copy of it. The document offers a concept for procedures to account for Unappropriated Flood Waters that you may want to review.

I hope that this summary describes our discussed [sic] accurately, and if you have any changes or additions, please let me know.

PECOS RIVER COMPACT

Report of the River Master

Water Year 2014

Accounting Year 2015

Final Report

June 26, 2015

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

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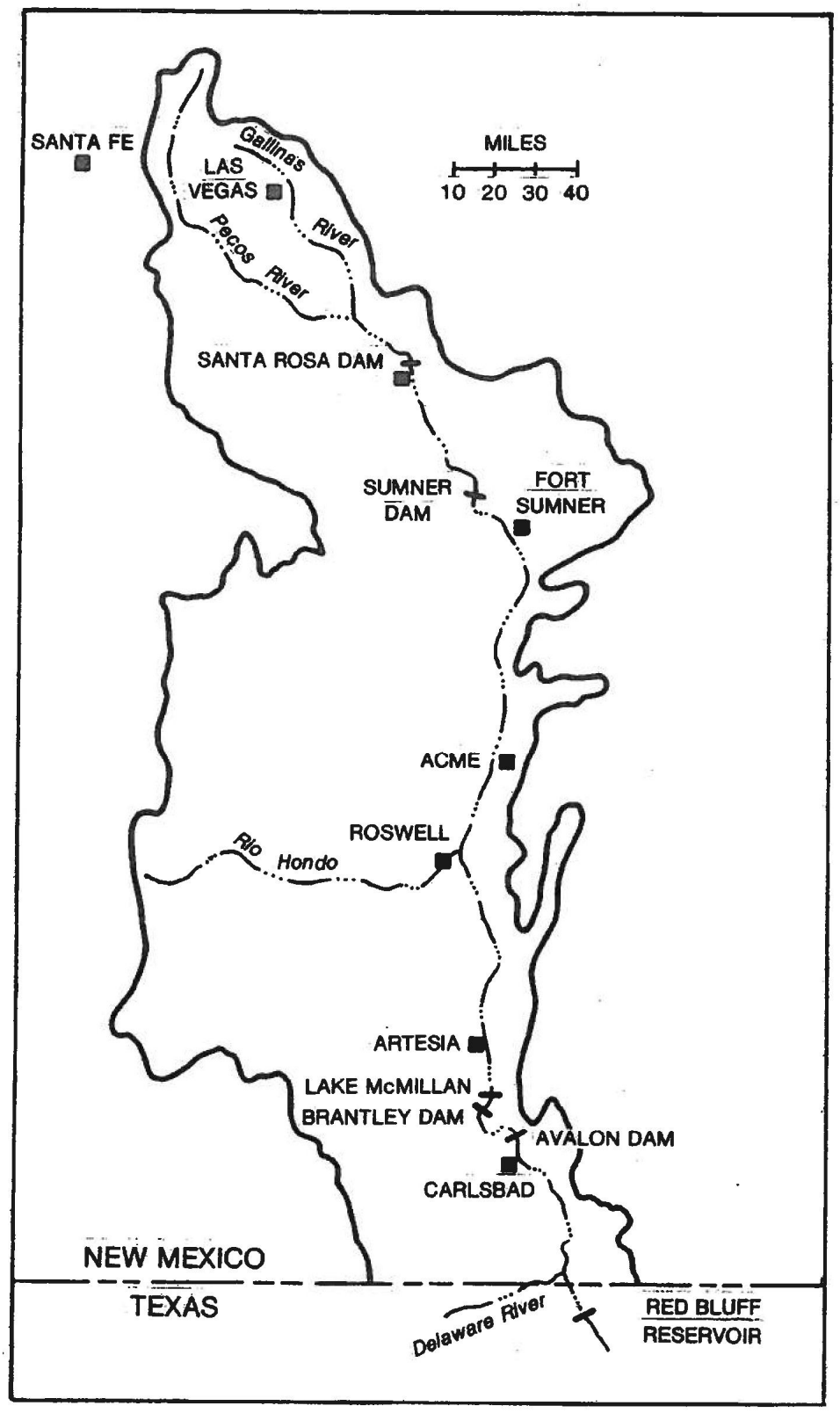

Map of Pecos River Basin Showing Accounting Reaches

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

Final Report of the River Master
Water Year 2014 – Accounting Year 2015
June 26, 2015

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 2014 was an overage of 1,900 acre-feet. The accumulated overage since the beginning of Water Year 1987 is 97,600 acre-feet.

/s/ Neil S. Grigg
Neil S. Grigg
River Master of the Pecos River

Pecos River Compact		
Accumulated Shortfall or Overage		
	June 25, 2015	
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

Table 1. General Calculation of Annual Departures in TAF (B.1)			
Water Year	2014		
6/24/2015			
	WY 2012	WY 2013	WY 2014
B.1.a. Index Inflows			
(1) Annual flood inflow			
(a) Gaged flow Pecos R bel Alamogordo Dam	64.9	63.6	120.6
(b) Flood Inflow Alamogordo - Artesia (Table 2)	-17.2	54.4	57.3
(c) Flood Inflow Artesia - Carlsbad (Table 3)	11.2	39.9	42.5
(d) Flood Inflow Carlsbad - State Line (Table 4)	3.2	23.2	122.8
Total (annual flood inflow)	62.1	181.1	343.2
(2) Index Inflow (3-year avg)			195.5
B.1.b. 1947 Condition Delivery Obligation			89.3
(Index Outflow)			
B.1.c. Average Historical (Gaged) Outflow			
(1) Annual historical outflow			
(a) Gaged Flow Pecos River at Red Bluff NM	17.7	51.0	146.6
(b) Gaged Flow Delaware River nr Red Bluff NM	1.7	12.2	48.3
(c) Metered diversions Permit 3254 into C-2713	0.0	0.2	0.2
Total Annual Historical Outflow	19.4	63.4	195.1
(2) Average Historical Outflow (3-yr average)			92.6
B.1.d. Annual Departure			3.4
C. Adjustments to Computed Departure			
1. Adjustments for Depletions above Alam Dam			
a. Depletions Due to Irrigation (Table 5)	3.2	2	-0.2
b. Depl fr Operation of Santa Rosa Reservoir (Table 6)	1.0	8.6	-1.7
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	69.1	74.2	118.7
(b) Flood Inflow Alamogordo - Artesia	-17.2	54.4	57.3
(c) Flood Inflow Artesia - Carlsbad	11.2	39.9	42.5
(d) Flood Inflow Carlsbad - State Line	3.2	23.2	122.8
Total (annual flood inflow)	66.3	191.7	341.3
Recomputed Index Inflow (3-year avg)			199.8
Recomputed 1947 Condition Del Outflow			92.1
(Index Outflow)			
Recomputed Annual Departures			0.6
Credits to New Mexico			
C.2 Depletions Due to McMillan Dike			1.4
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			1.9

Table 2. Determination of Flood Inflows, Alamogordo Dam to Artesia (B.3)													
Water Year	2014												
6/24/2015													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOT
Flow bel Sumner Dam	0.9	0.7	4.4	25.2	24.3	23.2	15.7	14.8	4.4	4.9	0.7	1.4	120.6
FtSumner Irrig Div	0.0	0.0	4.3	4.5	4.8	5.3	4.6	4.9	3.4	5.3	0.0	0.0	37.1
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	19.7
Flow past FS IDist	1.7	1.3	1.5	22.3	21.9	20.2	13.5	12.2	3.1	2.0	1.7	2.2	103.6
Channel loss	0.2	0.2	0.5	3.7	3.7	4.1	2.5	2.4	0.9	0.7	0.7	0.2	19.8
Residual Flow	1.5	1.2	1.0	18.6	18.2	16.1	11.0	9.8	2.2	1.2	1.0	1.9	83.8
Base Inflow	2.1	2.1	2.3	1.9	1.8	1.8	1.6	1.5	1.5	3.0	3.1	3.1	25.8
River Pump Divers	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.7
Residual, Artesia	3.6	3.1	3.3	20.4	19.9	17.8	12.6	11.2	3.7	4.2	4.1	5.1	108.9
Pecos Flow Artesia	3.6	3.3	3.5	6.4	43.6	7.7	27.9	18.7	33.3	8.2	5.2	5.0	166.3
Flood Inflow, AD-Art	0.0	0.1	0.2	-14.0	23.7	-10.2	15.3	7.5	29.6	4.0	1.1	0.0	57.3

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 Carlsbad (B.4)													
Water Year	2014												
6/24/2015													
	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	0.0	0.0	0.0	0.0
Fourmile Draw nr Lakew	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	7.4	0.0	0.0	0.0	7.5
South Seven Rivers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.5	0.0	0.0	0.0	7.6
Rocky Arroyo at Hwy Br	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.5	0.0	0.0	0.0	19.5
Flood Inflow, Art-DS3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	34.3	0.0	0.0	0.0	34.6
Pecos R at Dam Site 3	1.1	1.1	3.9	17.1	22.9	14.4	12.0	11.6	22.1	1.9	1.4	1.5	111.0
CB Sprgs New Water (from Table 7)	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-3.8
Total Inflow, DS3 - CB	0.8	0.8	3.6	16.8	22.6	14.1	11.7	11.3	21.8	1.6	1.1	1.1	107.2
Evap Loss, Lake Avalon (from Table 10)	0.2	0.3	0.4	0.5	0.5	0.6	0.6	0.3	-0.4	0.3	0.2	0.2	3.7
Storage Chg, Lake Avalon (from Table 11)	0.4	0.2	-1.6	2.6	-2.8	1.8	-1.5	-0.1	3.0	-3.2	0.9	0.9	0.6
Carls ID diversions	0.0	0.0	4.0	10.7	9.0	10.0	10.6	10.0	2.0	3.9	0.0	0.0	60.1
93% CID diver	0.0	0.0	3.7	10.0	8.4	9.3	9.8	9.3	1.9	3.6	0.0	0.0	55.9
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	14.5	0.0	0.0	0.0	14.5
Pecos b Dark Canyon	2.6	1.8	1.9	1.8	16.6	1.3	0.9	2.3	31.7	2.4	2.3	2.3	68.1
Pecos R at Carlsbad	2.6	1.8	1.9	1.8	16.6	1.3	0.9	2.3	17.2	2.4	2.3	2.3	53.5
Total Outflow	3.3	2.4	4.6	15.0	22.8	13.1	10.0	12.0	21.7	3.3	3.4	3.4	115.1
Flood Inflow, DS3-CB	2.6	1.7	1.0	-1.9	0.2	-1.0	-1.6	0.7	0.0	1.7	2.3	2.3	7.9
Flood Inflow, Art-CB	2.6	1.7	1.0	-1.9	0.3	-0.9	-1.6	0.8	34.3	1.7	2.3	2.3	42.5

Table 4. Summary Table for Computations, Carlsbad to State Line (B.5)							
Water Year	2014						
6/24/2015							
	BCB - RB	BCB - RB*	Del R***	DC			
	RM	USGS	USGS				
Jan	0.0	0.0	0.0	0.0			
Feb	0.0	0.2	0.0	0.0			
Mar	0.0	0.2	0.0	0.0			
Apr	0.2	0.7	0.0	0.0			
May	0.2	0.1	0.0	0.0			
Jun	0.2	0.2	0.0	0.0			
Jul**	0.1	0.3	0.1	0.0			
Aug	0.2	0.0	0.0	0.0			
Sep**	74.2	59.6	46.3	0.0			
Oct	0.8	1.0	0.0	0.0			
Nov	0.3	0.8	0.0	0.0			
Dec	0.0	0.2	0.0	0.0			
Total	76.4	63.2	46.4	0.0			
Summary of flood inflows, Carlsbad to State Line, TAF							
Red Bluff - Carlsbad + Dark C RM calcs)					76.4		
Delaware River (USGS Computation)					46.4		
Total Flood Inflow, Carlsbad to State Line					122.8		
* USGS calculations BCB-RB for comparison only. Negative FIF reports not included.							
** See separate calculation for BCB to RB in the Preliminary Report							
*** As corrected, see Response to Objections.							

Table 5. Depletions Due to Irrigation Above Sumner Dam (C.1.a)								
Water Year	2014							
4/24/2015								
	APR	MAY	JUN	JUL	AUG	SEPT	OCT	TOTAL
Precip Las Vegas FAA AP	0.54	1.16	0.55	4.93	1.87	1.95	0.32	11.32
Eff prec Las Veg FAA AP	0.53	1.11	0.54	3.79	1.72	1.79	0.31	9.79
Precip Pecos Natl Monument	0.29	2.00	0.54	3.37	3.38	2.03	0.82	12.43
Eff Precip Pecos RS	0.28	1.83	0.53	2.86	2.87	1.85	0.80	11.02
Precip Santa Rosa	0.80	1.90	0.62	6.09	1.32	1.31	0.14	12.18
Eff Precip Santa Ro	0.78	1.75	0.61	4.06	1.25	1.24	0.14	9.83
Average eff precip, ft	0.04	0.13	0.05	0.30	0.16	0.14	0.03	0.85
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	0.15	0.23	0.31	0.00	0.11	0.04	0.08	0.92
Acres (most recent inventory)	11529							
Streamflow depletion (actual use), AF	10594							
1947 depletion, AF	10804							
Difference (actual use - 1947 depletion), TAF	-0.2							
Adjustment to Gaged Flow, Pecos River below Sumner Dam, TAF =						-0.2		

Table 6. Depletions Due to Santa Rosa Reservoir Operations (C.1.b)													
Water Year	2014												
6/24/2015													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
LS 2001 table (USBR), add 4,200 feet to value shown; LSR 1997 tables used (COE); Add 4,600 feet to value shown													
Lk Sumner ga ht, avg	61.52	62.65	63.01	62.21	58.02	57.23	59.24	61.03	60.52	60.42	60.83	62.00	
LS content, AF, avg	39229	42283	43292	41073	30798	29079	33580	37958	36669	36421	37448	40505	
LS area, acres, avg	2627	2779	2827	2720	2217	2135	2344	2561	2493	2479	2534	2692	
LS evap, inches	4.87	5.01	10.37	13.86	13.94	15.11	14.50	11.28	6.97	7.37	4.19	3.23	110.69
.77 LS Evap	3.75	3.86	7.98	10.67	10.73	11.63	11.17	8.69	5.37	5.67	3.22	2.49	85.23
LS Precip, inches	0.00	0.11	0.20	0.08	1.93	0.85	5.15	1.72	4.13	0.49	0.59	0.26	15.51
Net LS Evap, inches	3.75	3.75	7.78	10.59	8.80	10.78	6.02	6.97	1.24	5.18	2.63	2.23	69.72
LSum Evaploss, TAF	0.82	0.87	1.83	2.40	1.63	1.92	1.17	1.49	0.26	1.07	0.56	0.50	14.51
L S Rosa ga ht, avg	45.30	45.10	44.85	43.65	35.06	35.53	28.87	36.94	37.43	37.22	36.88	36.66	
LSR content, AF, avg	98174	97439	96525	92220	64973	66272	49263	70365	71834	71202	70186	69536	
LSR area, acres, avg	3687	3666	3641	3531	2764	2823	2299	2970	3016	2995	2965	2948	
LSR evap, inches	3.72	4.98	8.58	8.62	10.88	11.93	11.08	9.77	6.88	6.32	4.71	3.72	91.19
.77 LSR Evap	2.86	3.83	6.61	6.64	8.38	9.19	8.53	7.52	5.30	4.87	3.63	2.86	70.22
LSR precip, inches	0.03	0.06	0.26	0.80	1.90	0.62	6.09	1.32	1.31	0.14	0.97	0.46	13.96
Net LSR Evap, inches	2.83	3.77	6.35	5.84	6.48	8.57	2.44	6.20	3.99	4.73	2.66	2.40	56.26
LSR Evaploss, TAF	0.87	1.15	1.93	1.72	1.49	2.02	0.47	1.54	1.00	1.18	0.66	0.59	14.61
Total evaploss, TAF	1.69	2.02	3.76	4.12	3.12	3.93	1.64	3.02	1.26	2.25	1.21	1.09	29.12
Sum contents, AF	137403	139722	139817	133293	95771	95351	82843	108323	108503	107623	107634	110041	
1947 area, acres	4600	4600	4600	4600	3688	3673	3315	4013	4017	3995	3996	4055	
1947 evaploss, TAF	1.44	1.44	2.98	4.06	2.71	3.30	1.66	2.33	0.41	1.73	0.88	0.75	23.68
current-1947evaploss	0.25	0.58	0.78	0.06	0.41	0.63	-0.02	0.69	0.85	0.52	0.34	0.34	5.44
						Annual adjustment for excess evaporation =							5.4
ADJUSTMENT FOR EXCESSIVE STORAGE IN SANTA ROSA RESERVOIR													
			2013	2013	2014	2014							
			Gage	Storage	Gage	Storage							
EndYear Sumner Sto			4260.94	37728	4262.55	42006							
EndYear S R Sto			4745.44	98691	4736.55	69211							
Sum				136419		111217							
Sto Adjustment, TAF						-7.1							
Adjustm Ex Evap, TAF						5.4							
Total Adjustment,TAF						-1.7							
	Storage adjustment												
	Both equal or less than 129.3 TAF, adjustment is zero												
	~~Both greater than 129.3 TAF, subtract previous from current year~~												
	Current year less than 129.3 TAF, previous greater than 129.3 TAF, subtract previous year from 129.3 TAF												
	Current year greater than 129.3 TAF, previous year less than 129.3 TAF, subtract 129.3 TAF from current year												

Table 7. Carlsbad Springs New Water [B.4.c.(2)]					
Water Year	2014				
5/2/2015					
		TAF	AF/day	cfs	Totals
Pecos R bel DC		68.1	186.0	93.7	93.7
Dark Canyon		14.5	39.8	20.1	20.1
Pecos R bel Lake Avalon		34.9	95.4	48.1	48.1
Depletion, cfs					2.0
CID lag seep, cfs (from Table 8)					6.1
Return flow, cfs					1.0
Lake Av lagged seep, cfs (from Table 9)					22.8
PR seepage, cfs					3.0
Carls new water, cfs					-5.2
Carls new wat, TAF					-3.8
Carls new wat monthly, TAF					-0.3

Table 8. Carlsbad Main Canal Seepage Lagged [B.4.c.(2)(e)]													
Water Year	2014												
5/2/2015													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
WY 2014													
CID, TAF	0.0	0.0	4.0	10.7	9.0	10.0	10.6	10.0	2.0	3.9	0.0	0.0	60.1
days/mo	31	28	31	30	31	30	31	31	30	31	30	31	365
cfs	0	0.0	64.6	179.8	146.0	168.2	171.9	162.1	33.4	63.8	0.0	0.0	82.5
cfs, qtr avg			22.2			164.5			123.5			21.5	
WY 2013		1Q	2Q	3Q	4Q								
FLOWS, cfs				42.1	77.0								
SEVEN %				2.9	5.4								
WY 2014 lagged		1Q	2Q	3Q	4Q								
FLOWS, cfs		22.2	164.5	123.5	21.5								
SEVEN %		1.6	11.5	8.6	1.5								
LAG		3.1	7.2	8.4	5.6	Avg =	6.1	cfs					

Table 9. Lake Avalon Leakage Lagged [B.4.c.(2)(g)]													
Water Year	2014												
5/2/2015													
WY 2014	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOT
Elev NM rept	75.06	75.57	75.36	74.43	75.55	73.59	74.00	74.97	75.44	75.03	73.80	75.00	
ga ht, avg*	18.06	18.57	18.36	17.43	18.55	16.59	17.00	17.97	18.44	18.03	16.80	18.00	
cfs	24.3	26.8	25.8	21.3	26.7	17.3	19.3	23.9	26.1	24.2	18.3	24.0	
days	31	28	31	30	31	30	31	31	30	31	30	31	365
cfs avg	25.6			21.8			23.1			22.2			23.2
WY 2013		1Q	2Q	3Q	4Q								
cfs				22.8	19.1								
WY 2014 lagged		1Q	2Q	3Q	4Q								
cfs		25.6	21.8	23.1	22.2								
lag cfs		23.0	22.6	23.1	22.4	Avg =	22.8	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	2014													
5/2/2015														
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOT	
Av WS NM Rept	75.06	75.57	75.36	74.43	75.55	73.59	74.00	74.97	75.44	75.03	73.80	75.00		
Avalon ga ht, avg, ft*	18.06	18.57	18.36	17.43	18.55	16.59	17.00	17.97	18.44	18.03	16.80	18.00		
Avg area Avalon, ac**	741	777	762	700	776	647	672	735	768	739	660	737		
Panevap Brantley, in.	4.65	5.60	9.24	11.76	13.57	15.00	14.05	10.26	6.42	6.58	4.80	4.34	106.27	
Lakeevap Brantley, in.	3.58	4.31	7.11	9.06	10.45	11.55	10.82	7.90	4.94	5.07	3.70	3.34	81.83	
Precip Brantley, in.	0.00	0.19	0.34	0.75	2.16	0.60	0.68	2.46	10.98	0.47	0.71	0.40	19.74	
Netevap, inches	3.58	4.12	6.77	8.31	8.29	10.95	10.14	5.44	-6.04	4.60	2.99	2.94	62.09	
Evaploss Av, TAF	0.22	0.27	0.43	0.48	0.54	0.59	0.57	0.33	-0.39	0.28	0.16	0.18	3.67	
* 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	2014													
5/2/2015														
	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOT
	2013	2014												
WS NM Rept	74.8	75.4	75.7	73.5	77.0	73.2	75.7	73.6	73.4	77.3	73.1	74.4	75.6	
Gage EOM, ft*	17.8	18.4	18.7	16.5	20.0	16.2	18.7	16.6	16.4	20.3	16.1	17.4	18.6	
Storage, AF**	2347	2794	3027	1461	4109	1271	3027	1525	1397	4376	1209	2063	2948	
Change sto, TAF		0.4	0.2	-1.6	2.6	-2.8	1.8	-1.5	-0.1	3.0	-3.2	0.9	0.9	0.6
* 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 12. Data Required for River Master Manual Calculations													
Water Year	2014												
6/23/2015													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
STREAMFLOW GAGING RECORDS, TAF													
Pecos R b Sumner Dam	0.9	0.7	4.4	25.2	24.3	23.2	15.7	14.8	4.4	4.9	0.7	1.4	120.6
Fort Sumner Main C	0.0	0.0	4.3	4.5	4.8	5.3	4.6	4.9	3.4	5.3	0.0	0.0	37.1
Pecos R nr Artesia	3.6	3.3	3.5	6.4	43.6	7.7	27.9	18.7	33.3	8.2	5.2	5.0	166.3
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 Lakewood	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	7.4	0.0	0.0	0.0	7.5
South Seven Rivers nr Lkwd	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.5	0.0	0.0	0.0	7.6
Rocky Arroyo at Hwy Br nr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.5	0.0	0.0	0.0	19.5
Pecos R at Dam Site 3	1.1	1.1	3.9	17.1	22.9	14.4	12.0	11.6	22.1	1.9	1.4	1.5	111.0
Pecos bel Avalon Dam	0.0	0.0	0.0	0.8	15.8	0.0	0.0	1.7	16.7	0.0	0.0	0.0	34.9
Carlsbad Main Canal	0.0	0.0	4.0	10.7	9.0	10.0	10.6	10.0	2.0	3.9	0.0	0.0	60.1
Dark Canyon at Carlsbad	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.5	0.0	0.0	0.0	14.5
Pecos below Dark Canyon	2.6	1.8	1.9	1.8	16.6	1.3	0.9	2.3	31.7	2.4	2.3	2.3	68.1
Pecos R at Red Bluff	3.5	2.8	2.6	2.5	17.7	2.3	2.1	3.5	93.2	6.1	5.6	4.9	146.6
Delaware R nr Red Bluff	0.1	0.1	0.1	0.1	0.0	0.0	0.2	0.0	46.7	0.4	0.3	0.3	48.3
GAGE HEIGHTS													
Avalon gage ht, end mo	75.40	75.70	73.50	77.00	73.20	75.70	73.60	73.40	77.30	73.10	74.40	75.60	
Avalon gage ht, avg	75.06	75.57	75.36	74.43	75.55	73.59	74.00	74.97	75.44	75.03	73.80	75.00	
Sumner Lake ga ht, end mo	62.08	63.12	62.72	61.40	58.03	55.89	64.13	60.57	60.76	60.17	61.39	62.55	
Sumner Lake gage ht, avg	61.52	62.65	63.01	62.21	58.02	57.23	59.24	61.03	60.52	60.42	60.83	62.00	
Lake S Rosa ga ht, end mo	45.20	45.00	44.64	38.06	35.76	29.95	30.32	37.39	37.46	37.03	36.75	36.55	
Lake S Rosa ga ht, avg	45.30	45.10	44.85	43.65	35.06	35.53	28.87	36.94	37.43	37.22	36.88	36.66	
PRECIPITATION, INCHES*													
Brantley Lake	0.00	0.19	0.34	0.75	2.16	0.60	0.68	2.46	10.98	0.47	0.71	0.40	19.74
Las Vegas FAA AP	0.00	0.05	0.01	0.54	1.16	0.55	4.93	1.87	1.95	0.32	0.64	0.62	12.64
Pecos National Monument	0.00	0.15	0.07	0.29	2.00	0.54	3.37	3.38	2.03	0.82	0.84	0.95	14.44
Santa Rosa	0.03	0.06	0.26	0.80	1.90	0.62	6.09	1.32	1.31	0.14	0.97	0.46	13.96
Lake Santa Rosa	0.03	0.06	0.26	0.80	1.90	0.62	6.09	1.32	1.31	0.14	0.97	0.46	13.96
Sumner Lake	0.00	0.11	0.20	0.08	1.93	0.85	5.15	1.72	4.13	0.49	0.59	0.26	15.51
* Santa Rosa dam substituted for missing Santa Rosa data. Bat Cave Draw RAWS substituted for Carlsbad Caverns data.													
PAN EVAPORATION, INCHES													
Lake Santa Rosa	3.72	4.98	8.58	8.62	10.88	11.93	11.08	9.77	6.88	6.32	4.71	3.72	91.2
Lake Sumner	4.87	5.01	10.37	13.86	13.94	15.11	14.50	11.28	6.97	7.37	4.19	3.23	110.7
Brantley Lake	4.65	5.60	9.24	11.76	13.57	15.00	14.05	10.26	6.42	6.58	4.80	4.34	106.3
OTHER REPORTS													
Base Acme-Art, TAF (USGS)	2.1	2.1	2.3	1.9	1.8	1.8	1.6	1.5	1.5	3.0	3.1	3.1	25.8
Pump depl Ac-Artesia, TAF	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.7
Pumping, C-2713, Malaga B													0.2
NM irrig inv, acres (3/9/2000)													11529
NM Transfer water use, TAF													
NM salvaged water, TAF													0.00
Texas, water stored NM, TAF	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
Texas, use Del water, TAF													

APPENDIX

RESPONSE TO STATES' OBJECTIONS AND PENDING ISSUES

RESPONSE TO STATES' OBJECTIONS

Final Report, Accounting Year 2015

NEW MEXICO'S OBJECTIONS

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

New Mexico noted an error in Table 3 where 2013 data were used for CID diversions. The objection is accepted. See #3 below in the responses to Texas's objections. Tables 1 and 3 have been corrected.

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

New Mexico explained the 2014 CID release schedules from Avalon Dam. Two such releases were noted: April 30 through May 12 and August 3 through 10. In the case of WY 2014, New Mexico indicated that the Preliminary Report did not exclude from scalping the 1,733 AF release in August. This was reanalyzed to respond to the objection.

The operational release from Lake Avalon appears at the Pecos River below Dark Canyon gage and is also apparent at the Red Bluff gage later and more spread out. Given the rainfall that occurred on August 2-3, it is difficult to identify exactly which components of the hydrographs are due to releases and to rainfall. However, it is evident that little flood runoff occurred during August. The analysis in the Preliminary Report showed 0.23 TAF of flood runoff for the month. The River Master's reanalysis, taking into account New Mexico's report of the releases and studying the lag more closely, showed a total of 0.27 TAF. The reanalysis is not considered as more accurate than the original analysis in the Preliminary Report so no change was made.

The operational releases are apparent on the hydrographs, but it will be helpful if in the future New Mexico includes a table to show the releases in future compact accounting data transmittals.

3. Table RM1. End of Month and Average Reservoir Elevations for WY 2014.

New Mexico reported corrections for reservoir elevations at Lake Santa Rosa. See item #1 for Texas's objection on the same error. The average gage height was corrected and the value shown in the Corps report of 4,735.06 was used. Table 6 has been corrected. The error for end-of-month reservoir elevation did not require correction as it was anticipated in the Preliminary Report.

4. Monthly Pumping for C-2713 for WY 2014.

New Mexico reported a corrected value for the monthly pumping, see # 1 below in Texas's objections. Tables 1 and 12 were corrected.

5. Table 4. Flood Flows in the Delaware River.

New Mexico found an error in the summation of scalped Delaware River flows as reported by USGS. This is also discussed in Texas's objection # 4 below. The objection is accepted, and the revised value is 46.3 TAF. See Texas #4 below for additional discussion.

TEXAS'S OBJECTIONS

1. Table 12. Data Required for River Master Manual Calculations, WY 2014.

Lake Santa Rosa Gage Height. Texas found an error in the reported value for average gage height for May at Lake Santa Rosa. New Mexico reported the same error in the data provided to the River master. The objection is accepted and Tables 6 and 12 have been corrected. Texas showed different end of year storage values for both lakes than in the Preliminary Report, but they could not be checked and did not affect the result.

Texas also noted the incorrect footnote that the elevation for Lake Santa Rosa was referred to the 4600 foot level, and it has been removed.

Base Inflows, Acme to Artesia Reach. Texas found rounding errors from the USGS data report for May and September. The objection is accepted and corrections made to Tables 1 and 2.

Pumping for C-2713 Diversion for the Malaga Bend Project. Texas found an incorrect value for the pumping totals. New Mexico also reported the same error. The pumping totals have been revised to 247 acre-feet.

2. Table 6. Depletions Due to Santa Rosa Reservoir Operations [C.1.b], WY 2014.

Table 6 has been revised to reflect the changed data reported in item #1 above under "Lake Santa Rosa Gage Height."

3. Table 3. Determination of Flood Inflows, Artesia to Carlsbad [B.4], WY 2014.

Texas reported that the Preliminary Report contained incorrect data for Carlsbad Irrigation District Diversions resulting from use of 2013 data (Table 12 has the correct 2014 data but it was not added to Table 3). New Mexico also noted this error, and the objection is accepted. Tables 1 and 3 have been corrected.

4. Table 4. Summary Table for Computations, Carlsbad to State Line [B.5], WY 2014.

USGS Scalped Delaware River Flood Inflows. Texas noted the same error in summation of flows as New Mexico did (see NM #5 above). The objection is accepted

Texas Scalped Delaware River Flood Inflows. Texas found an event in July that added 0.1 TAF to the total computed by USGS. The River Master examined the July data and agrees that it should be counted so the objection is accepted. The total Delaware River flood inflow is therefore 46.4 TAF.

Carlsbad to Red Bluff Flood Flows. Texas recomputed scalped flood flows and arrived at 76.8 TAF as opposed to the Preliminary Report's 76.4 TAF. Exhibits G and H show Texas's computations. The difference between Texas's and the Preliminary Report's estimates is very small and there is much margin for different interpretations. For these reasons, the objection is rejected.

FINAL CALCULATED DEPARTURE

The Preliminary Report's Final Calculated Departure was an overage of 7.5 TAF. After considering the states' objections, the Final Determination is an overage of 1.9 TAF.

PENDING ISSUES

The Preliminary Report for Accounting Year 2015 explained two issues which remain unresolved: 1) possible revision of Dark Canyon inflow estimates based on an ongoing USGS reassessment of the gage rating curve; and 2) pending discussions about how to handle potential Unappropriated Flood Flows that occurred during Water Year 2014.

The Amended Decree provides two avenues for the States to agree on how these issues should be handled once they are clarified:

1. The States can reach agreement on the action; or
2. Either State can initiate a motion to be considered by the River Master.

The Amended Decree does not provide the River Master with unilateral authority to modify the Final Determination for Accounting Year 2015 unless the States initiate a request under one of these avenues.

No. 65, Original

IN THE
SUPREME COURT OF THE UNITED STATES
OCTOBER TERM, 2015

STATE OF TEXAS, Plaintiff,

V.

STATE OF NEW MEXICO, Defendant.

Before the River Master:
Neil S. Grigg

TEXAS' RESPONSE TO THE PECOS RIVER MASTER'S PRELIMINARY REPORT FOR WATER YEAR 2015/ACCOUNTING YEAR 2016

TO THE RIVER MASTER OF THE PECOS RIVER:

The State of Texas has reviewed the River Master's Preliminary Report for Water Year 2015. Texas' comments and objections are contained in Exhibit 1, entitled "Texas' Comments/Objections," which is attached hereto and incorporated fully herein for all purposes. Texas respectfully requests the River Master make the changes outlined in Exhibit 1.

Respectfully submitted on this 14th day of June, 2016.

/s/ Jane E. Atwood
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TECHNICAL REPRESENTATIVE
FOR THE STATE OF TEXAS

CERTIFICATE OF SERVICE

On this 14th day of June, 2016, a true and correct copy of Texas' foregoing Response to the Pecos River Master's Preliminary Report for Water Year 2015/ Accounting Year 2016 was sent by Certified Mail, Return Receipt Requested to:

Amy Haas, Esq.
General Counsel
New Mexico Interstate Stream Commission
P. O. Box 25102
Santa Fe, New Mexico 87504

Greg Lewis, P.E
Engineer Advisor, Pecos River Compact
New Mexico Interstate Stream Commission
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/s/ Jane E. Atwood
JANE E. ATWOOD

TEXAS' COMMENTS/OBJECTIONS
Water Year 2015 – Accounting Year 2016

Texas generally objects to the River Master (RM) Preliminary Report for Water Year (WY) 2015 to the extent that it is affected by revisions related to WY 2014. Outstanding issues exist with the accounting for WY 2014 related to the unusual flood flows occurring during that period. Issues include, for example, modifications for the revised and approved USGS Dark Canyon Draw stream flows for WY 2014, but are not limited to that issue alone. Texas will contact New Mexico to resolve any issues related to WY 2014 for presentation to the River Master.

Texas' comments and additional objections to the RM Preliminary Report dated May 9, 2016, are set forth below.

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

The conversion calculation for the Pecos River below Avalon in Table 7 appears to use 366 days instead of 365, as well as a value rounded to the nearest 1,000 [sic] acre-foot (AF) instead of the nearest 1 AF, per the Joint Motion of 2002. Therefore, 53.2 thousand acre-feet (TAF) would be a total of 53.180 TAF, which was provided in the tables sent by the USGS for Station 08404000, Pecos River below Avalon Dam, NM. Therefore, 53.180/365 days in 2015 equals 145.699 AF/day, or 145.7 AF per day, and the resulting cubic feet per second (cfs) is 73.5 cfs, not 73.3 cfs. The amount of Carlsbad Springs new water per month would be -0.714 TAF/month or -8.568 (-8.6) TAF/year. While this 100 AF/year difference is not significant in Table 7, it carries through to Table 3, and Texas would like to point out the error and differences found in Table 7. See Exhibit A.

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

Table 3 for WY 2015 includes monthly and annual data from WY 2014 for the Carlsbad Irrigation District diversions and 93% of diversions (totals of 60.1 and 55.9 TAF, respectively). A revised Table 3 is attached (Exhibit B) with the correct numbers for WY 2015 (annual totals of 61.6 and 57.3 TAF), as reported by the USGS for the Carlsbad Main Canal gage. These values also have significant impacts to subsequent calculations which are also highlighted. Ultimately, the Flood Inflows, Artesia to Carlsbad are calculated to be 3.1 TAF (not 1.7 TAF), as shown in Table 3 in Exhibit B.

3. Table 4. Summary Table for Computations, Carlsbad to State Line [B.5], WY 2015:

<u>Scalped Delaware River Flood Inflows:</u>

The preliminary River Master values for the Delaware flood flows are the total gaged flows from the USGS of 5.4 TAF, not scalped flows per B.5.b. of the RM Manual. The sum of daily flood inflows for WY 2015 were determined by the USGS to be 1.5 TAF.

Texas has calculated the scalped Delaware flood flows resulting in 2.2 TAF based on the amount of precipitation in the region, particularly during August through September of 2015. When the data is plotted at a larger scale, the base flow separation can be accomplished at a higher resolution, resulting in additional flood flows. See the attached Exhibit C for a graph of the Texas scalped Delaware flood inflows versus the USGS values. Exhibit D shows the resulting values for the flood inflows [sic] the Delaware River.

Scalped Flood Flows for Carlsbad to Red Bluff

In the Appendix to the Preliminary River Master Report for WY 2015, there were several months where the values look incorrect:

- The scalped flows for January 30 and 31 values were not included in the totals. Therefore, the total base flow for the Pecos River at Red Bluff and below Dark Canyon should be 69-23=46 cfs for January.
- The values shown in the summary table for March and April are not correctly input from the hydrograph results. This does not impact March, but it does add 0.1 TAF for April (60-19=41 cfs = 81.3 AF), which impacts the total.
- Note that the USGS streamflow values for December 14-31 for below Dark Canyon are incorrect due to changes in the final approved streamflow values. This changes the totals very slightly.
- During August and September, there is significant rainfall during the time operational releases were being made from Brantley Reservoir which would have produced runoff. The hydrograph presented in the RM Preliminary Report shows the scalped flood inflows for August and September, but the table noted that there were no discernable flood inflows (FIF). Texas' scalping showed that there would be at least 129 cfs (about 256 AF [sic]) of flood flows during this period. The graph in Exhibit E shows that during this time the Black River was flowing so there would have been inflows in addition to the operational releases.

With these additional flood inflows for this reach, the total flood inflows from Carlsbad to Red Bluff would be 3.7 TAF, instead of 3.3 TAF as shown in Exhibit F for Table 4.

4. Table 1. General Calculation of Annual Departures in TAF for WY 2014:

Applying the corrections from Table 7, Table 3 and Table 4 into Table 1 results in a revised total of 12.2 TAF shown in Exhibit G.

Exhibit A

Table 7. Carlsbad Springs New Water [B.4.c.(2)] - with Revisions TAF for WY 2015 (CY 2015)

Description	RM Preliminary				Texas Revisions			
	TAF	AF/day **	cfs ***	Totals (cfs)	TAF	AF/day **	cfs ***	Totals (cfs)
Pecos R blw D ark Canyon *	69.30	189.9	95.7	95.7	69.30	189.9	95.75	95.7
Dark Canyon Draw *	0.40	1.10	0.6	0.6	0.39	1.08	0.5	0.5
Pecos R blw L Avalon *	53.20	145.4	73.3	73.3	53.18	145.7	73.5	73.5
Annual Depletion (cfs) B4.c.(2)(d) - input				2.0				2.00
CID Main canal lag seep (cfs) (from Table 8)				5.9				5.9
Average Return low (cfs) B4.c.(2)(f) - input				1.0				1.00
L Avalon lag seep (from Table 9)				25.7				25.7
Average Pecos R seepage B4.c.(2)(h) - input				3.0				3.00
Carlsbad Springs new water (cfs)				-11.7				-11.8
Carlsbad Springs new water (TAF) (for Table 3)				-8.5				-8.6
Carlsbad Springs new water monthly (TAF) (for Table 3)				**-0.7**				**-0.714**

** USGS streamflow gage data*

*** TAF*1000/no days per year*

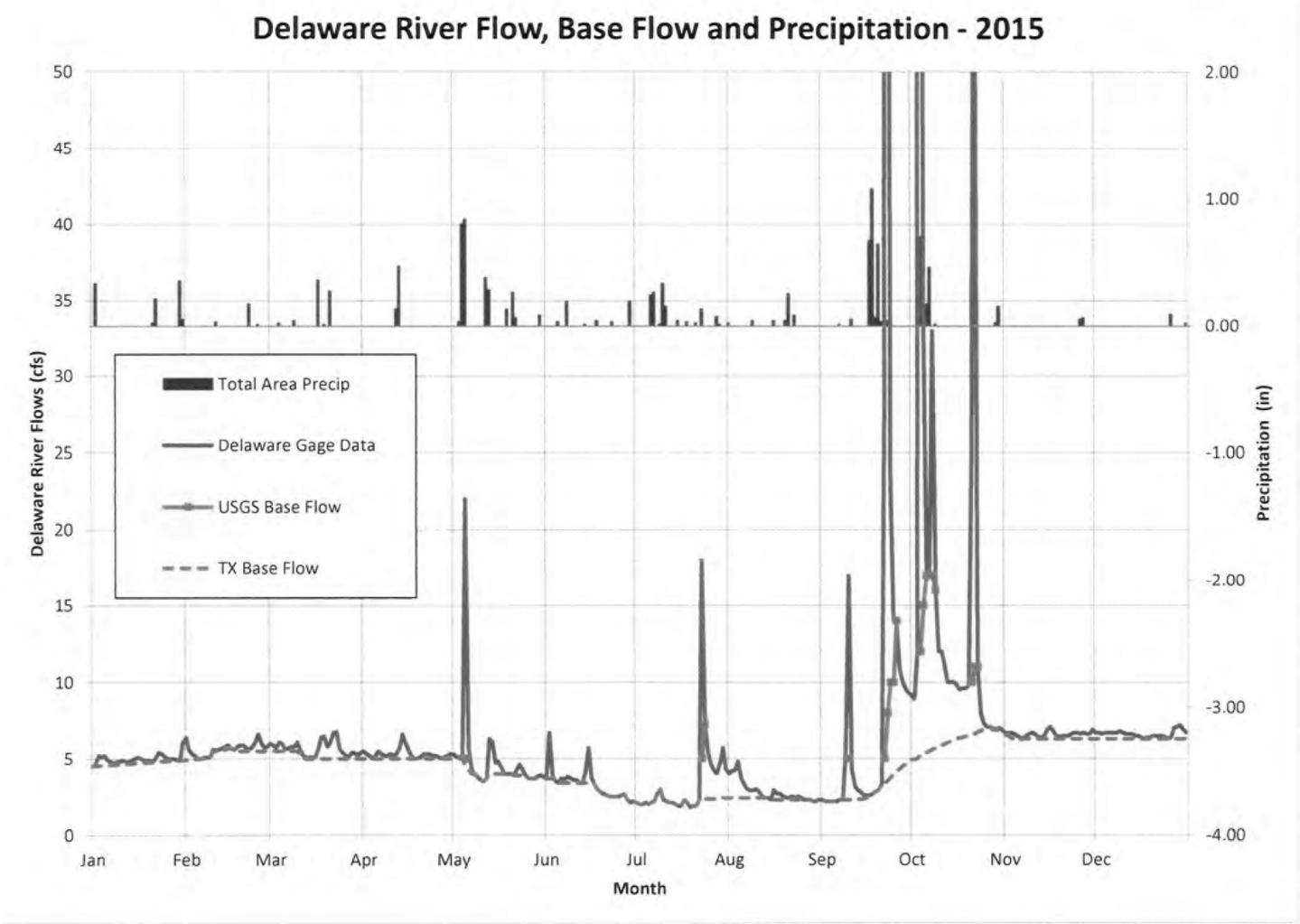
**** cfs= TAF/1.9835*

Exhibit B

Table 3. Determination of Flood Inflows, Artesia to Carlsbad [B.4] - with Revisions TAF for WY 2015 (CY 2015)

Description	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	RM Preliminary
Rio Peñasco at Dayton (Table 12)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Fourmile Draw nr Lakewood (Table 12)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
S Seven Rivers nr Lakewood (Table 12)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Rocky A at Hwy Br nr Carlsbad (Table 12)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.04	0.0
Flood inflow, Artesia-DS3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.04	0.0
Pecos R at DS3 nr Carlsbad (Table 12)	1.43	1.31	1.83	12.96	7.67	14.93	9.85	40.86	40.05	3.19	1.21	1.27	136.56	136.56
C Springs new water (Table 7)	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-0.71	-8.57	-8.5
Total inflow, DS3-Carlsbad	0.72	0.60	1.12	12.25	6.96	14.22	9.14	40.15	39.34	2.48	0.50	0.56	127.99	128.1
L Avalon evap loss (Table 10)	0.17	0.29	0.28	0.36	0.29	0.48	0.51	0.67	0.36	-0.04	0.19	0.15	3.72	3.7
L Avalon ch in storage (Table 11)	0.56	0.25	-2.43	0.13	0.00	1.57	-0.75	2.75	0.00	-3.76	0.65	0.79	-0.23	-0.23
CID diversion (Table 12)	0.00	0.00	3.03	11.04	5.78	11.76	8.53	10.45	6.32	4.68	0.00	0.00	61.59	60.1
Net CID diversion (CID Div * 0.93)	0.00	0.00	2.82	10.27	5.38	10.94	7.93	9.72	5.88	4.35	0.00	0.00	57.28	55.9
Other depletions *(hard coded)*	0.10	0.10	0.10	0.10	0.10	0.10	0.20	0.20	0.10	0.10	0.10	0.10	1.40	1.4
Dark Canyon Dr at Carlsbad (Table 12)	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.39	0.4
Pecos R blw D C Dr at Carlsbad (Table 12)	1.97	1.87	2.00	1.94	2.37	2.15	2.10	19.91	25.31	4.79	2.62	2.27	69.30	69.3
Pecos R at Carlsbad	1.97	1.87	2.00	1.94	2.19	2.15	2.10	19.91	25.31	4.58	2.62	2.27	68.91	68.91
Total outflow, DS3-Carlsbad	2.80	2.51	2.77	12.79	7.96	15.24	9.99	33.25	31.65	5.24	3.56	3.31	131.07	129.7
Flood inflow, DS3-Carlsbad	2.08	1.92	1.65	0.55	1.00	1.02	0.85	-6.90	-7.68	2.77	3.07	2.76	3.08	1.6
Flood inflow, Artesia-Carlsbad	2.08	1.92	1.65	0.55	1.00	1.02	0.85	1.50	-7.68	2.81	3.07	2.76	3.12	1.7

Exhibit C



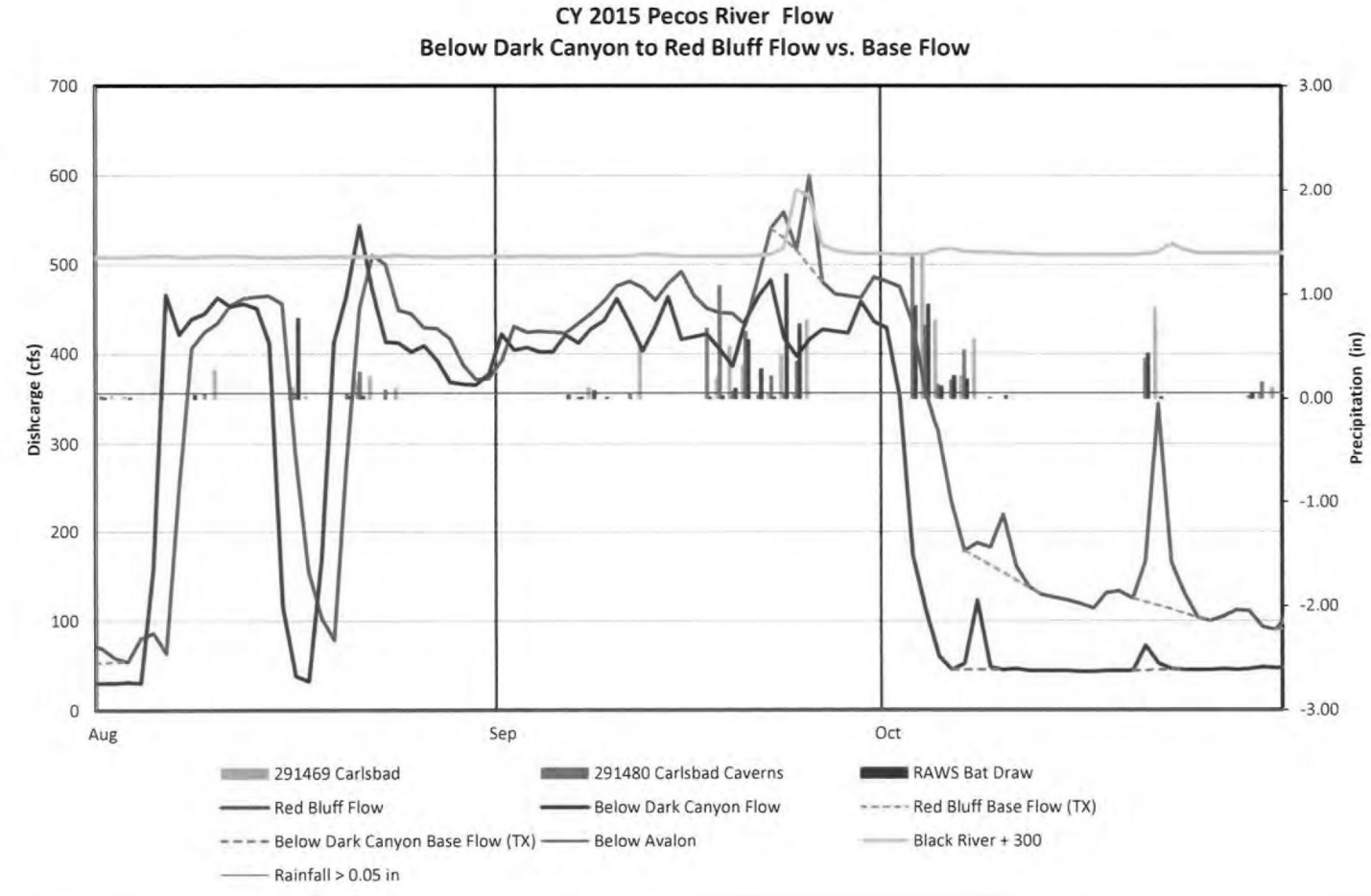
Scalp-Delaware CY2015.xlsx 6/13/2016

Exhibit D

Delaware River Flood Inflow Summary

Delaware River Flood Inflow WY 2015 (CY 2015)				
Month	USGS Scalping Original Flood Inflow		Texas Scalping Flood Inflow	
	(cfs)	(TAF)	(cfs)	(TAF)
Jan	0	0	9	0.0
Feb	0	0	8	0.0
Mar	0	0	16	0.0
Apr	0	0	10	0.0
May	17	0	28	0.1
Jun	0	0	11	0.0
Jul	13	0	39	0.1
Aug	0	0	15	0.0
Sep	373	1	434	0.9
Oct	367	1	503	1.0
Nov	0	0	9	0.0
Dec	0	0	10	0.0
Total	770	1.5	1091	2.2

Exhibit E



Scalp-Blw Dark Canyon-Red Bluff CY2015.xlsx, Graph (2)

Exhibit F

Table 4. Summary Table for Computations, Carlsbad to State Line (B.5) TAF for WY 2015 (CY 2015)

	Carlsbad to Red Bluff				Delaware River				Dark Canyon			
Month	RM Prelim	USGS	RM Rev	Texas	RM Prelim	USGS	RM Rev	Texas	RM Prelim	USGS	Texas	Month
Jan	0.1	0.1	0.1	0.1	0.3	0.0	0.0	0.0	0.00	0.00	0.00	Jan
Feb	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.00	0.00	0.00	Feb
Mar	0.1	0.1	0.1	0.1	0.4	0.0	0.0	0.0	0.00	0.00	0.00	Mar
Apr	0.0	0.5	0.0	0.1	0.3	0.0	0.0	0.0	0.00	0.00	0.00	Apr
May	0.8	1.1	0.8	0.8	0.3	0.0	0.1	0.1	0.18	0.18	0.18	May
Jun	0.2	0.7	0.2	0.3	0.2	0.0	0.0	0.0	0.00	0.00	0.00	Jun
Jul	1.0	0.9	1.0	1.0	0.2	0.0	0.1	0.1	0.00	0.00	0.00	Jul
Aug	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.00	0.00	0.00	Aug
Sep	0.0	0.0	0.0	0.3	1.0	0.7	0.9	0.9	0.00	0.00	0.00	Sep
Oct	0.7	1.6	0.7	0.7	1.4	0.7	1.0	1.0	0.21	0.21	0.21	Oct
Nov	0.2	0.2	0.2	0.2	0.4	0.0	0.0	0.0	0.00	0.00	0.00	Nov
Dec	0.2	0.2	0.2	0.2	0.4	0.0	0.0	0.0	0.00	0.00	0.00	Dec
Total	**3.3**	**5.5**	**3.3**	**3.7**	**5.4**	**1.5**	**2.2**	**2.2**	**0.4**	**0.4**	**0.4**	**Total**

Summary of flood inflows, Carlsbad to State Line, TAF	RM Prelim	USGS	RM Rev	Texas
Calsbad to Red Bluff	**3.3**	**5.5**	**3.3**	**3.7**
Dark Canyon	**0.4**	**0.4**	**0.4**	**0.4**
Delaware River	**5.4**	**1.5**	**2.2**	**2.2**
Total Flood Inflow, Carlsbad to State Line (for Table 1)	**9.1**	**7.4**	**5.9**	**6.2**

Exhibit G

Table 1. Determination of Flood Inflows, Alamogordo Dam to Artesia [B.3 TAF for WY 2015 (CY 2015)

NEW MEXICO'S PECOS RIVER WATER DELIVERY OBLIGATION TO TEXAS

Prep. by: Suzy Valentine, P.E. Chk: Stephen Mahr

Date: 06/13/16

	2015		11.9	11.9	12.2	12.2
Table 1. General Calculation of Annual Departures	**Final RM Values**		**USGS**	**RM Prelim Original**	**RM Prelim Revised**	**TX Prelim**
	2013	**2014**	**2015**	**2015**	**2015**	**2015**
B.1.a. Index Inflows						
(1) Annual flood inflow						
(a) Gaged flow Pecos R blw Sumner Dam (Table 12)	63.6	120.6	100.7	100.7	100.7	100.7
(b) Flood inflow Sumner Dam to Artesia (Table 2)	54.4	57.3	28.5	28.5	28.5	28.5
(c) Flood inflow Artesia to Carlsbad (Table 3)	39.9	42.5	3.1	1.7	**3.1**	3.1
(d) Flood inflow Carlsbad to State Line (Table 4)	23.2	122.8	7.4	9.1	**5.9**	**6.2**
Total annual flood inflow	181.1	343.2	139.7	140.0	138.2	138.6
(2) Index inflow (3-year average)		195.5	221.4	221.4	220.8	221.0
B.1.b. 1947- Condition Delivery ((Index Outflow Eqn)		89.3	106.6	106.6	106.2	106.3
B.1.c. Average Historical (Gaged) Outflow						
(1) Annual historical outflow						
(a) Gaged flow Pecos R at Red Bluff, NM (Table 12)	51.0	146.6	101.1	101.1	101.1	101.1
(b) Gaged flow Delaware R nr Red Bluff, NM (Table 12)	12.2	48.3	5.4	5.4	5.4	5.4
(c) Annual diversions for C-2713, Brine Partners, (Table 12)	0.2	0.2	0.2	0.2	0.2	0.2
Total annual historical outflow	63.4	195.1	106.6	106.7	106.6	106.6
(2) Average historical outflow (3-year average)		92.6	121.7	121.7	121.7	121.7
B.1.d. Annual Departure		3.4	15.2	15.1	15.5	15.4
C. Adjustments to Computed Departure						
(1) Adjustments for depletions above Sumner Dam						
(a) Depletions due to irrigation (Table 5)	2.0	-0.2	-3.2	-3.2	-3.2	-3.2
(b) Depl from operation of Santa Rosa Reservoir (Table 6)	8.6	-1.7	15.3	15.3	15.3	15.3
(c) Transfer of water use to upstream of Sumner Dam (Table 12)	0.0	0.0	0.0	0.0	0.0	0.0
C.1. Recomputed Index Inflows						
(1) Annual flood inflow						
(a) Gaged flow Pecos R blw Sumner Dam	74.2	118.7	112.8	112.8	112.8	112.8
(b) Flood inflow Sumner Dam to Artesia	54.4	57.3	28.5	28.5	28.5	28.5
(c) Flood inflow Artesia to Carlsbad	39.9	42.5	3.1	1.7	3.1	3.1
(d) Flood inflow Carlsbad to State Line	23.2	122.8	7.4	9.1	5.9	6.2
Total annual flood inflow	191.7	341.3	151.9	152.1	150.3	150.7
Recomputed index inflow (3-year average)		199.8	228.3	228.4	227.8	227.9
C.1.c. Recomputed 1947-Condition Delivery Obligation		92.1	111.3	111.4	111.0	111.1
(Recomputed Index Outflow)						
Recomputed Annual Departures		0.6	10.4	10.3	10.7	10.6
Credits to New Mexico						
C.2. Depletions due to McMillan Dike		1.4	1.5	1.5	1.5	1.5
C.3. Salvage water analysis (Table 12)		0.0	0.0	0.0	0.0	0.0
C.4. Unappropriated flood waters		0.0	0.0	0.0	0.0	0.0
C.5. Texas water stored in NM reservoirs (Table 12)		0.0	0.0	0.0	0.0	0.0
C.6. Beneficial CU of Delaware River water (Table 12)		0.0	0.0	0.0	0.0	0.0
Final Calculated Departure, TAF		**1.9**	**11.9**	**11.9**	**12.2**	**12.2**

From: Lewis, Greg J., OSE
To: Dixon, Deborah, OSE; Haas, Amy, OSE; Work, Dominique, OSE; De Saillan, Charles, OSE
Cc: Davis, Daniel, OSE; Riselev-White, Hannah, OSE
Subject: February 11th Meeting with Pecos River Master
Date: Monday, February 15, 2016 11:12:07 AM
Attachments: Meeting with Pecos River Master Neil Grigg 11 Feb 2016.docx

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Colleagues:

We had a good meeting on Thursday with the Pecos River Master and our Texas counterparts. Although it was not without some difficult moments, I think we arrived at an equitable and appropriate path forward. The attached file is an outline of our discussions and our next steps that was put together by New Mexico and Texas at the end of our meeting.

The short version:

- The water held in Brantley in 2014-2015 will not be considered Unappropriated Flood Water (UFW) as defined in the Compact and River Master Manual
- Instead, for this instance, the water will simply be Texas water stored in New Mexico
- Texas will pay for all evaporative losses that occurred while the water was stored in Brantley (as we accounted in our Excel workbook)
- New Mexico and Texas will work over the next several months to develop protocols for defining and administering UFW for future occurrences

We will probably have a follow-on meeting with the River Master when a UFW operations draft is prepared (sometime this summer?) to get his input and move toward finalizing the protocols as an amendment to the River Master Manual.

Let me know if you have questions or would like additional information.

Greg

From: Neil Grigg [mailto:neilg@engr.colostate.edu]
Sent: Monday, February 15, 2016 9:35 AM
To: Riseley-White, Hannah, OSE; Suzy Valentine; Christine.peters@tceq.texas.gov; Lewis, Greg J., OSE
Subject: Re: Discussion Outline + Next Steps – 2/11 Meeting with Pecos River Master

Hello to all,

Thank you for a productive meeting that identified a good path forward for the issues we discussed. I thought that Hannah captured the main points well in the summary memo, and I look forward to hearing from the states when further information is available. Also, I am available to meet in this way any time that the two states decide such a meeting will be helpful.

With best regards,

Neil Grigg

On 2/11/2016 5:24 PM, Riseley-White, Hannah, OSE wrote:

> Hello All,
>
> Thanks for a fruitful discussion today. Here's what we captured this afternoon in a rough outline. Looking forward to fleshing this out with you all and working together to determine protocol for possible future 'Unappropriated Flood Waters'.
>
> Here are our next steps:
>
> – Everyone to review the attached outline and send track changes to the group so as to finalize meeting notes from today
> – States to work together to determine accounting for 2014-2015 event and send to Dr. Grigg in time for 2015 accounting (to also include necessary data adjustment for Dark Canyon Draw)
> – States to work together to wordsmith the Dark Canyon language to the RM Manual and propose change to Dr. Grigg
> – States to work together on protocol moving forward for Unappropriated Flood Waters
>
> Thanks again,
>
> Hannah
>
> **Hannah Riseley-White**
> Water Resource Specialist
> NM Interstate Stream Commission
> Pecos River Bureau
> 505.827.4029

– –

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From: Suzy Valentine
To: Lewis, Greg J., OSE; Davis, Daniel, OSE; Riseley-White, Hannah, OSE
Subject: CY2015 Evap Test 5-5-16.xlsx
Date: Thursday, May 5, 2016 2:43:42 PM
Attachments: CY2015 Evap Test 5-5-16.xlsx

I redid the evaporation analyses using 2015 data (with USGS scalping) for 2016 and 2017. Please let me know if you find any errors this time. Here is what I found:

- All the methods have the same results over the 4-year time period impacted by the averaging
- Averaging in either B.1.c or C.5 only serves to reduce the impacts slightly in 2014 and 2015, but extends impacts into 2016 and 2017 with no real benefits.
- Adding the full evap in C.5 increases in the impacts in 2014 and 2015, but does not impact future years.
- Using 2015 as the base year for 2016 and 2017 really makes a difference, but the impact is relative. I have not evaluated the USGS scalping to know if it is correct or not.

Therefore, to me the most straightforward and simplest way to deal with the evaporation is to add it into C.5 as a credit.

What do you think?
Thanks!
Suzy

Table	Description	2014	2015	2016	2017	Total
1-A	No Evap (for comparison)	0.7	15.9	44.3	58.2	119.0
1-B	Evap averaged in B.1.c	2.0	22.9	51.3	63.9	140.0
1-C	Full Evap added in C.5	4.5	33.1	44.3	58.2	140.0
1-D	Evap averaged in C.5	2.0	22.9	51.3	63.9	140.0

Table 1. Determination of Flood Inflows, Alamogordo Dam to Artesia [B.3.] **TAF for WY 2015 (CY 2015)**
NEW MEXICO'S PECOS RIVER WATER DELIVERY OBLIGATION TO TEXAS
Prepared by: Suzy Valentine, P.E. **2015**
Today is:

USGS Data Est. of CY Departure = **15.9**

Table 1. General Calculation of Annual Departures

	Final RM Values			USGS
	2012	2013	2014	2015
B.1.a. Index Inflows				
(1) Annual flood inflow				
(a) Gaged flow Pecos R blw Sumner Dam (Table 12)	64.9	63.6	120.6	100.7
(b) Flood inflow Sumner Dam to Artesia (Table 2)	-17.2	54.4	57.5	28.5
(c) Flood inflow Artesia to Carlsbad (Table 3)	11.2	39.9	42.5	3.1
(d) Flood inflow Carlsbad to State Line (Table 4)	3.2	23.2	128.3	**7.0**
Total annual flood inflow	62.1	181.1	348.9	139.3
(2) Index inflow (3-year average)			197.4	223.1
B.1.b. 1947- Condition Delivery Obligation (Index Outflow)			90.5	107.8
B.1.c. Average Historical (Gaged) Outflow				
(1) Annual historical outflow				
(a) Gaged flow Pecos R at Red Bluff, NM (Table 12)	17.7	51.0	146.6	101.1
(b) Gaged flow Delaware R nr Red Bluff, NM (Table 12)	1.7	12.2	48.3	5.4
(c) Annual diversions for C-2713, Brine Partners, (Table 12)	0	0.2	0.2	0.197
(d) Annual evaporation from stored Texas water	0	0.0	0.0	0.0
Total annual historical outflow	19.4	63.4	195.1	106.6
(2) Average historical outflow (3-year average)			92.6	121.7
B.1.d. Annual Departure			2.1	14.0
C. Adjustments to Computed Departure				
(1) Adjustments for depletions above Sumner Dam				
(a) Depletions due to irrigation (Table 5)	3.2	2.0	-0.2	-3.2
(b) Depl from operation of Santa Rosa Reservoir (Table 6)	1	8.6	-1.7	-7.1
(c) Transfer of water use to upstream of Sumner Dam (Table 12)	0	0.0	0.0	0.0
C.1. Recomputed Index Inflows				
(1) Annual flood inflow				
(a) Gaged flow Pecos R blw Sumner Dam	69.1	74.2	118.7	90.5
(b) Flood inflow Sumner Dam to Artesia	-17.2	54.4	57.3	28.5
(c) Flood inflow Artesia to Carlsbad	11.2	39.9	42.5	3.1
(d) Flood inflow Carlsbad to State Line	3.2	23.2	128.3	7.0
Total annual flood inflow	66.3	191.7	346.8	129.0
Recomputed index inflow (3-year average)			201.6	222.5
C.1.c. Recomputed 1947-Condition Delivery Obligation (Recomputed Index Outflow)			93.3	107.4
Recomputed Annual Departures			-0.7	14.4
Credits to New Mexico				
C.2. Depletions due to McMillan Dike			1.4	1.5
C.3. Salvage water analysis (Table 12)			0.0	0.0
C.4. Unappropriated flood waters			0.0	0.0
C.5. Texas water stored in NM reservoirs (Table 12)			0.0	0.0
C.6. Beneficial CU of Delaware River water (Table 12)			0.0	0.0
Final Calculated Departure, TAF			**0.7**	**15.9**

Table 1. Determination of Flood Inflows, Alamogordo Dam to Artesia [B.3.] **TAF for WY 2015 (CY 2015)**
NEW MEXICO'S PECOS RIVER WATER DELIVERY OBLIGATION TO TEXAS
Prepared by: Suzy Valentine, P.E. **2015**
Today is:

USGS Data Est. of CY Departure = **22.9**

Table 1. General Calculation of Annual Departures

	2012	Final RM Values 2013	2014	USGS 2015
B.1.a. Index Inflows				
(1) Annual flood inflow				
(a) Gaged flow Pecos R blw Sumner Dam (Table 12)	64.9	63.6	120.6	100.7
(b) Flood inflow Sumner Dam to Artesia (Table 2)	-17.2	54.4	57.5	28.5
(c) Flood inflow Artesia to Carlsbad (Table 3)	11.2	39.9	42.5	3.1
(d) Flood inflow Carlsbad to State Line (Table 4)	3.2	23.2	128.3	**7.0**
Total annual flood inflow	62.1	181.1	348.9	139.3
(2) Index inflow (3-year average)			197.4	223.1
B.1.b. 1947- Condition Delivery Obligation (Index Outflow)			90.5	107.8
B.1.c. Average Historical (Gaged) Outflow				
(1) Annual historical outflow				
(a) Gaged flow Pecos R at Red Bluff, NM (Table 12)	17.7	51.0	146.6	101.1
(b) Gaged flow Delaware R nr Red Bluff, NM (Table 12)	1.7	12.2	48.3	5.4
(c) Annual diversions for C-2713, Brine Partners, (Table 12)	0	0.2	0.2	0.197
(d) Annual evaporation from stored Texas water	0	0.0	3.827	17.211
Total annual historical outflow	19.4	63.4	198.9	123.9
(2) Average historical outflow (3-year average)			93.9	128.7
B.1.d. Annual Departure			3.4	21.0
C. Adjustments to Computed Departure				
(1) Adjustments for depletions above Sumner Dam				
(a) Depletions due to irrigation (Table 5)	3.2	2.0	-0.2	-3.2
(b) Depl from operation of Santa Rosa Reservoir (Table 6)	1	8.6	-1.7	-7.1
(c) Transfer of water use to upstream of Sumner Dam (Table 12)	0	0.0	0.0	0.0
C.1. Recomputed Index Inflows				
(1) Annual flood inflow				
(a) Gaged flow Pecos R blw Sumner Dam	69.1	74.2	118.7	90.5
(b) Flood inflow Sumner Dam to Artesia	-17.2	54.4	57.3	28.5
(c) Flood inflow Artesia to Carlsbad	11.2	39.9	42.5	3.1
(d) Flood inflow Carlsbad to State Line	3.2	23.2	128.3	7.0
Total annual flood inflow	66.3	191.7	346.8	129.0
Recomputed index inflow (3-year average)			201.6	222.5
C.1.c. Recomputed 1947-Condition Delivery Obligation (Recomputed Index Outflow)			93.3	107.4
Recomputed Annual Departures			0.6	21.4
Credits to New Mexico				
C.2. Depletions due to McMillan Dike			1.4	1.5
C.3. Salvage water analysis (Table 12)			0.0	0.0
C.4. Unappropriated flood waters			0.0	0.0
C.5. Texas water stored in NM reservoirs (Table 12)			0.0	0.0
C.6. Beneficial CU of Delaware River water (Table 12)			0.0	0.0
Final Calculated Departure, TAF			**2.0**	**22.9**

Table 1. Determination of Flood Inflows, Alamogordo Dam to Artesia [B.3.] **TAF for WY 2015 (CY 2015)**
NEW MEXICO'S PECOS RIVER WATER DELIVERY OBLIGATION TO TEXAS
Prepared by: Suzy Valentine, P.E. **2015**
Today is:

USGS Data Est. of CY Departure = **33.1**

Table 1. General Calculation of Annual Departures

	2012	Final RM Values 2013	2014	USGS 2015
B.1.a. Index Inflows				
(1) Annual flood inflow				
(a) Gaged flow Pecos R blw Sumner Dam (Table 12)	64.9	63.6	120.6	100.7
(b) Flood inflow Sumner Dam to Artesia (Table 2)	-17.2	54.4	57.5	28.5
(c) Flood inflow Artesia to Carlsbad (Table 3)	11.2	39.9	42.5	3.1
(d) Flood inflow Carlsbad to State Line (Table 4)	3.2	23.2	128.3	**7.0**
Total annual flood inflow	62.1	181.1	348.9	139.3
(2) Index inflow (3-year average)			197.4	223.1
B.1.b. 1947- Condition Delivery Obligation (Index Outflow)			90.5	107.8
B.1.c. Average Historical (Gaged) Outflow				
(1) Annual historical outflow				
(a) Gaged flow Pecos R at Red Bluff, NM (Table 12)	17.7	51.0	146.6	101.1
(b) Gaged flow Delaware R nr Red Bluff, NM (Table 12)	1.7	12.2	48.3	5.4
(c) Annual diversions for C-2713, Brine Partners, (Table 12)	0	0.2	0.2	0.2
(d) Annual evaporation from stored Texas water	0	0.0	0.0	0.0
Total annual historical outflow	19.4	63.4	195.1	106.6
(2) Average historical outflow (3-year average)			92.6	121.7
B.1.d. Annual Departure			2.1	14.0
C. Adjustments to Computed Departure				
(1) Adjustments for depletions above Sumner Dam				
(a) Depletions due to irrigation (Table 5)	3.2	2.0	-0.2	-3.2
(b) Depl from operation of Santa Rosa Reservoir (Table 6)	1	8.6	-1.7	-7.1
(c) Transfer of water use to upstream of Sumner Dam (Table 12)	0	0.0	0.0	0.0
C.1. Recomputed Index Inflows				
(1) Annual flood inflow				
(a) Gaged flow Pecos R blw Sumner Dam	69.1	74.2	118.7	90.5
(b) Flood inflow Sumner Dam to Artesia	-17.2	54.4	57.3	28.5
(c) Flood inflow Artesia to Carlsbad	11.2	39.9	42.5	3.1
(d) Flood inflow Carlsbad to State Line	3.2	23.2	128.3	7.0
Total annual flood inflow	66.3	191.7	346.8	129.0
Recomputed index inflow (3-year average)			201.6	222.5
C.1.c. Recomputed 1947-Condition Delivery Obligation (Recomputed Index Outflow)			93.3	107.4
Recomputed Annual Departures			-0.7	14.4
Credits to New Mexico				
C.2. Depletions due to McMillan Dike			1.4	1.5
C.3. Salvage water analysis (Table 12)			0.0	0.0
C.4. Unappropriated flood waters			0.0	0.0
C.5. Texas water stored in NM reservoirs (Table 12)	0	0.0	3.8	17.2
C.6. Beneficial CU of Delaware River water (Table 12)			0.0	0.0
Final Calculated Departure, TAF			**4.5**	**33.1**

Table 1. Determination of Flood Inflows, Alamogordo Dam to Artesia [B.3.] **TAF for WY 2015 (CY 2015)**
NEW MEXICO'S PECOS RIVER WATER DELIVERY OBLIGATION TO TEXAS
Prepared by: Suzy Valentine, P.E. **2015**
Today is:

USGS Data Est. of CY Departure = **22.9**

Table 1. General Calculation of Annual Departures

	Final RM Values			USGS
	2012	2013	2014	2015
B.1.a. Index Inflows				
(1) Annual flood inflow				
(a) Gaged flow Pecos R blw Sumner Dam (Table 12)	64.9	63.6	120.6	100.7
(b) Flood inflow Sumner Dam to Artesia (Table 2)	-17.2	54.4	57.5	28.5
(c) Flood inflow Artesia to Carlsbad (Table 3)	11.2	39.9	42.5	3.1
(d) Flood inflow Carlsbad to State Line (Table 4)	3.2	23.2	128.3	**7.0**
Total annual flood inflow	62.1	181.1	348.9	139.3
(2) Index inflow (3-year average)			197.4	223.1
B.1.b. 1947- Condition Delivery Obligation (Index Outflow)			90.5	107.8
B.1.c. Average Historical (Gaged) Outflow				
(1) Annual historical outflow				
(a) Gaged flow Pecos R at Red Bluff, NM (Table 12)	17.7	51.0	146.6	101.1
(b) Gaged flow Delaware R nr Red Bluff, NM (Table 12)	1.7	12.2	48.3	5.4
(c) Annual diversions for C-2713, Brine Partners, (Table 12)	0	0.2	0.2	0.2
(d) Annual evaporation from stored Texas water	0	0.0	0.0	0.0
Total annual historical outflow	19.4	63.4	195.1	106.6
(2) Average historical outflow (3-year average)			92.6	121.7
B.1.d. Annual Departure			2.1	14.0
C. Adjustments to Computed Departure				
(1) Adjustments for depletions above Sumner Dam				
(a) Depletions due to irrigation (Table 5)	3.2	2.0	-0.2	-3.2
(b) Depl from operation of Santa Rosa Reservoir (Table 6)	1	8.6	-1.7	-7.1
(c) Transfer of water use to upstream of Sumner Dam (Table 12)	0	0.0	0.0	0.0
C.1. Recomputed Index Inflows				
(1) Annual flood inflow				
(a) Gaged flow Pecos R blw Sumner Dam	69.1	74.2	118.7	90.5
(b) Flood inflow Sumner Dam to Artesia	-17.2	54.4	57.3	28.5
(c) Flood inflow Artesia to Carlsbad	11.2	39.9	42.5	3.1
(d) Flood inflow Carlsbad to State Line	3.2	23.2	128.3	7.0
Total annual flood inflow	66.3	191.7	346.8	129.0
Recomputed index inflow (3-year average)			201.6	222.5
C.1.c. Recomputed 1947-Condition Delivery Obligation (Recomputed Index Outflow)			93.3	107.4
Recomputed Annual Departures			-0.7	14.4
Credits to New Mexico				
C.2. Depletions due to McMillan Dike			1.4	1.5
C.3. Salvage water analysis (Table 12)			0.0	0.0
C.4. Unappropriated flood waters			0.0	0.0
C.5. Texas water stored in NM reservoirs (Table 12)			1.3	7.0
C.6. Beneficial CU of Delaware River water (Table 12)			0.0	0.0
Final Calculated Departure, TAF			**2.0**	**22.9**

[SEAL]
KEN PAXTON
ATTORNEY GENERAL OF TEXAS

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January 11, 2017

Amy Haas
Legal Advisor
New Mexico Interstate Stream Commission
P. O. Box 25102
Santa Fe, New Mexico 87504

RE: Proposal to Revise Accounting for WY 2014-2015, Pecos River Compact

Dear Amy:

After reviewing New Mexico's request for credit for evaporative losses from water stored in Brantley Reservoir in 2014 and the Pecos River Master's Water Year ("WY") 2015 accounting, Texas now believes that the equitable apportionment of water in WY 2014 and WY 2015 requires the treatment of certain flows as unappropriated flood water. This position is consistent with your request for evaporation credit because Article VI(d) of the Pecos River Compact provides that reservoir losses can only be charged "[i]f *unappropriated flood waters* apportioned to Texas are stored in facilities constructed in New Mexico."[1]

Texas seeks common ground on a fair apportionment for only WY 2014 and WY 2015. We do not propose the development of new River Master accounting procedures for future unappropriated flood water events. Attachment 1 contains revised river master accounting summary tables for WY 2014 and WY 2015 and a detailed list of the proposed modifications to the current accounting. We are also providing copies of the spreadsheets referenced in this proposal for your review.

In short, our proposal results in a net credit to New Mexico from the current 2014-2015 accounting of 3.1 AF.[2]

To our knowledge, no flood waters in the Pecos have ever been apportioned as unappropriated flood water, however, the extraordinary flood flows in 2014 and the eventual waste of much of this water present the exact situation the states envisioned in the Pecos River Compact's unappropriated flood water provisions. The Pecos River Compact reflects an agreement that when flood flows are so large that water passes

[1] Pecos River Compact, Art. VI(d) (emphasis added).

[2] The proposal modifies the WY 2014 departure from 0.7 to -16.9 AF (including corrections for Dark Canyon) and modifies the WY 2015 departure from 11.9 to 33.8. See Attachment 1.

Red Bluff Reservoir and Girvin, Texas, unused and wasted, the states will split the loss by apportioning these unappropriated flood waters fifty percent to each state. As set forth in 1948 by R. J. Tipton, Engineer Advisor to the Federal Compact Representative:

> "There is a quantity of floodwater that is unappropriated in the basin. It wastes to the Gulf of Mexico unused. That quantity of water is that water which spills from Red Bluff Reservoir and is not used in the Texas area above Girvin. That water belongs to neither State. It can be made usable by the construction of additional storage facilities. The two States at this moment have agreed to apportion that on a 50-50 basis. I think that is eminently fair. I can see no other basis for doing that."[3]

The states also agreed that unappropriated flood water included water stored in New Mexico that would otherwise spill over Red Bluff Reservoir unused. In the Compact, unappropriated flood water includes water, which if not impounded, would flow past Girvin, Texas.[4] The Pecos River Commission interpreted this definition as it applied to water stored in Brantley Reservoir in a resolution stating that water can only be stored in Brantley above 40,000 AF (adjusted for sedimentation) for purposes of flood control or as unappropriated flood water.[5]

The 2014 Flood Event

A review of the 2014 Flood Event and its aftermath support the first ever application of the unappropriated flood water provisions of the Pecos River Compact. In mid-September 2014, the remnants of Tropical Storm Odile resulted in widespread heavy rainfall in the Pecos River Basin in New Mexico and Texas from September 19 through October 3, 2014. In an effort to control the heavy rainfall and resulting flood, New Mexico began to curtail releases from Brantley and Avalon dams on September 8, 2014, and continued to hold water in Brantley Reservoir throughout the rest of 2014. By September 19, 2014, Brantley Reservoir had exceeded its 42,057 acre-feet (AF) maximum authorized Brantley Project conservation storage limit and by October 3, 2014, reached over 78,000 AF.[6] The reservoir ultimately impounded 35,687 AF above 42,057 AF from September 19 through October 12, 2014, during the actual storm event, and 43,173 AF in both WY 2014 and WY 2015. By the end of 2014,

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[3] Transcript, Pecos River Commission Meeting, Nov. 8-13, 1948, at 98.

[4] Pecos River Compact, Art. II(i).

[5] Pecos River Commission Resolution of March 6, 1984.

[6] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2014 Table at D35.

Brantley Reservoir reached 81,095 AF[7] and eventually reached a maximum storage of over 85,000 AF on March 25, 2015.[8]

During the 2014 Flood Event, Red Bluff Reservoir rose from about 50 percent full prior to the storm event and began spilling on September 21, 2014. Ultimately, Red Bluff Reservoir rose to a depth of over four feet above its uncontrolled service spillway, and spilled about 64,000 AF through the service and principal spillways to the Pecos River wasted and unused from September 19 through November 21, 2014.[9]

On November 20, 2014, the Texas Commissioner to the Pecos River Commission, Rick Tate, sent an email requesting that New Mexico continue to store waters that would otherwise have been released downstream to Texas "until such time as they can be utilized in Red Bluff Reservoir." New Mexico's commissioner to the Pecos River Commission, Ray Willis, formally responded affirmatively to Texas's request on January 26, 2015.

Red Bluff Reservoir remained above an elevation of 2,824.5 feet (NGVD, USGS data) through March 2015.[10] With less than three feet of freeboard below the service spillway elevation, there was still not a sufficient factor of safety for the reservoir to receive the deliveries of water from the 2014 and 2015 storage without releasing water downstream unused. Therefore, Red Bluff Water Power Control District (Red Bluff) requested that New Mexico and the Bureau of Reclamation (Reclamation) continue to hold water in Brantley Reservoir as long as possible until the deliveries could be stored in Red Bluff Reservoir and beneficially used as indicated in Texas's request letter of November 20, 2014.

Reclamation, New Mexico and Texas met several times by conference call between February and March of 2015, during which Reclamation indicated it could no longer hold water in Brantley Reservoir without a contract under the Warren Act and would, therefore, release water from Brantley even if Red Bluff Reservoir was full and would have to pass flows downstream. In response, on March 8, 2015, Red Bluff began to release water to make room for the additional inflows of the planned deliveries. Red Bluff released 29,710 AF[11] between March 8 and June 15, 2015, when irrigation releases (11,361 AF)[12] also began. In October 2015, Red Bluff again made

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[7] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2014 Table at D124.

[8] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2015 Table at B86.

[9] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2014 Table at O127.

[10] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, Red Bluff Capacity at G460.

[11] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2015 Table at M369.

[12] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2015 Table at L368.

releases, ultimately releasing a total of 42,239 AF unused to allow room for the deliveries from Brantley Reservoir.[13]

Proposed Revisions to WY 2014 and WY 2015 Accounting

1. Correction of Dark Canyon Draw Flood Inflows

As Texas and New Mexico have previously agreed, the flood inflows contained in the current WY 2014 accounting have an incorrect figure based on the streamflow values estimated by the USGS for the Dark Canyon Draw gage (08405105) during the 2014 Flood Event. We propose submitting the agreed Dark Canyon correction to the River Master along with any agreement we reach on the proposal for treatment of unappropriated flood water.[14]

2. Revised Apportionment as Unappropriated Flood Water of the Water Stored in Brantley Reservoir and Evaporative Loss Credit

To properly apportion the water stored in Brantley Reservoir and, as discussed above, to provide New Mexico with reservoir loss credit for the stored unappropriated flood water, Texas proposes apportioning as unappropriated flood water all of the water stored in Brantley Reservoir in WY 2014 and WY 2015 above the allowable amount for Carlsbad Irrigation District's (CID's) storage in Brantley Reservoir.[15] As discussed in more detail below, once the amount stored is determined, then the unappropriated flood water must be removed from index inflows apportioned with the 1947 index formula and the average historical (gaged) outflow in both WY 2014 and WY 2015.[16] After removing the flows from the index apportionment, the proposal treats the Texas portion of the WY 2014 unappropriated flood water stored in Brantley Reservoir (fifty percent of the total unappropriated flood water) as a delivery debit in WY 2014 for later delivery to Texas (see line C.4) and credits New Mexico for evaporation occurring in WY 2014 from the Texas stored water (see line C.5).[17]

In WY 2015, when the stored water was released to Texas, the proposal credits New Mexico for delivery of the Texas portion of the stored unappropriated flood

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[13] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2015 Table at M368.

[14] See Dark Canyon Approved 9.2014.xlsx. Adjustments for using the final USGS flows for Dark Canyon Draw during the 2014 flood event resulted in a reduction of the credit for New Mexico from 1.9 thousand acre-feet (TAF) to 0.7 TAF.

[15] Allowable CID storage was 42,057 AF for WY 2014 and 42,196 AF for WY 2015.

[16] See Attachment 1, Table 1 for WY 2014 and WY 2015; WY2014 Accounting Tables UFW Final.xlsx and WY2015 Accounting Tables UFW Final.xlsx.

[17] See Attachment 1, Table 1 for WY 2014; WY2014 Accounting Tables UFW Final.xlsx.

water.[18] This amount was calculated as fifty percent of the total amount stored (see line C.4). The evaporation occurring in WY 2015 from the Texas water stored in Brantley Reservoir is also credited to New Mexico (see line C.5).[19]

a. Calculation of the Amount of Stored Unappropriated Flood Water

The proposed amount stored of 43,173 AF is calculated as the peak storage through the last day of continuously accumulated storage in Brantley Reservoir on March 25, 2015. As shown in the attached spreadsheet, of this 39,083 AF accumulated in WY 2014 and 4,135 AF accumulated in WY 2015.[20] This stored unappropriated flood water was then deducted from Brantley storage inflows in Table 2 (Flood inflow Sumner Dam to Artesia) and Table 3 (Flood Inflow Artesia to Carlsbad) for the amount in WY 2014 and Table 2 for the amount in WY 2015.[21]

In WY 2015 when New Mexico released the stored water, a total of 29,946 AF was subtracted from the gaged outflows in the Pecos River gages below Brantley to Red Bluff in Tables 7 and 12, with reductions for channel losses downstream. The elevation and storage at Avalon was also adjusted to remove these flows.[22] Almost all of the released stored water passed Red Bluff Reservoir wasted and unused in WY 2015, again demonstrating the need to account for the stored water as unappropriated flood water.[23]

b. Calculation of the Reservoir Loss or Evaporation Credit

The calculation of the reservoir loss or evaporation credit proposed here varies from the calculated evaporation and crediting in New Mexico's proposal. We disagree with New Mexico's proposed evaporation credit because it doesn't charge the losses to each state in proportion to the stored water allocated to each state and it incorrectly allocates too much water to Texas.

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[18] See Attachment 1, Table 1 for WY 2015; WY2015 Accounting Tables UFW Final.xlsx. Note that New Mexico is credited for the full amount stored; Texas absorbs the channel losses.

[19] *Id*.

[20] Brantley and Red Bluff Reservoir Operations 2014-2015.xlsx, 2014 Table at E128, 2015 Table at C370.

[21] See Attachment 1, Table 1 for WY 2014 and WY 2015; 2014 Accounting Tables UFW Final.xlsx and WY2015 Accounting Tables UFW Final.xlsx.

[22] See WY2015 Accounting Tables UFW Final.xlsx, Table 12 at J23.

[23] During WY 2015, Red Bluff Reservoir released about 29,710 AF of the 29,946 AF of stored unappropriated flood water that was released downstream from Avalon Reservoir because Red Bluff could not accommodate the deliveries. Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2015 Table at M369.

New Mexico's calculation of an evaporation credit for the water stored in Brantley above the maximum allowable for the CID project incorrectly allocates evaporation to the Texas portion of the stored water. As set forth in the Pecos River Compact, "[r]eservoir losses shall be charged to each state in proportion to the quantity of water belonging to the state in storage at the time the losses occur."[24] In its proposal, New Mexico calculated evaporation with a "stacked" methodology by first calculating the evaporation as if the reservoir was at the maximum allowable volume and then allocating all of the remaining evaporation up to the actual reservoir level to Texas. This method incorrectly charges Texas for all of the evaporation at the top layer of the reservoir and its larger area instead of allocating the total evaporation for the reservoir in proportion to the amount of water in the reservoir allocated to each state.

Our proposed evaporation credit begins with calculating the total reservoir evaporation based on the pan evaporation and reservoir area. The amount of allowable storage for New Mexico is then subtracted from the daily total storage in Brantley Reservoir between September 19, 2014 and September 13, 2015, when the deliveries to Texas have been completed and the unappropriated flood waters are reduced to zero, to determine the evaporation related to storage of unappropriated flood water stored for each year.[25] The total evaporation for each water year is then divided on volume percentage between the CID storage and the stored unappropriated flood water. One-half of the evaporation for unappropriated flood water stored was then apportioned and credited to New Mexico in each accounting year. As shown in the attached spreadsheet, the amount for 2014 was 3.297 TAF and 2015 was 15.251 TAF based on this method.[26]

3. Revised Apportionment of Unappropriated Flood Water that Passed Red Bluff Reservoir and Girvin, Texas, Unused During the 2014 Flood Event

In addition to water stored in Brantley Reservoir from the 2014 Flood Event, approximately 63,862 AF passed through Red Bluff Reservoir and flowed past Girvin, Texas, wasted and unused during the 2014 Flood Event.[27] Our proposal also seeks to

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[24] Pecos River Compact, Art. VI(d)(iii).

[25] Note that the evaporation is accumulated until all the stored water was released in September 2015, whereas the stored total is based on the maximum level of Brantley Reservoir in March of 2015. Pro-rated Evap 2014-2015 Final.xlsx, Evap Summary and Brantley Accounting Table

[26] Evap Summary, Pro-rated Evap 2014-2015 Final.xlsx. This spreadsheet provides a summary and comparison of the evaporation amounts, and the attached table "Brantley accounting table" contains the calculations.

[27] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2014 Table at O127. Red Bluff Water Power Control District provided the flow data in this spreadsheet.

have this water apportioned as unappropriated flood water per the Pecos River Compact.[28] To make this correction, similar to the stored water, this unappropriated flood water is removed from the index inputs that are apportioned with the 1947 condition index formula and from the deliveries that are compared to the 1947 index output to determine departures. This water does not appear in any later credit or debit in the accounting; it is simply removed from the accounting entirely as both states split the lost water.

The proposal calculates this unappropriated flood water as the sum of Red Bluff Reservoir spills and releases during the 2014 Flood Event for a total of 63,862 AF.[29] This unappropriated flood water was removed from the regular flood inflows in Table 4 (Flood inflow Carlsbad to State Line) and from the gaged flows for the Pecos River at Red Bluff in Table 12 in the accounting tables for WY 2014.[30] As shown in the proposed new Table 1 for WY 2014, the proposal reduces the total annual regular flood inflow from 348.7 TAF to 245.8 TAF, and the Average Historical Outflow from 195.1 TAF to 131.3 TAF.[31]

We look forward to discussing this proposal and resolving the issues presented when we meet with you on January 26th.

Sincerely,

/s/ Jane E. Atwood

Jane E. Atwood
Assistant Attorney General
Office of the Attorney General of Texas
Environmental Protection Division
P. O. Box 12548
Austin, Texas 78711-2548
(512) 463-2012
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Cc: Suzy Valentine, P.E., Texas Commission on Environmental Quality, Technical Advisor for the State of Texas

Hannah Riseley-White, New Mexico Interstate Stream Commission, Technical Advisor for the State of New Mexico

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[28] Pecos River Compact, Art. II (i)(definition); Art. VI, (c)(iv) (Unappropriated floodwaters not stored should be calculated with inflow-outflow method).

[29] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2014 Table at 0127.

[30] See WY2014 Accounting Tables UFW Final.xlsx, Table 4 at 124; Table 12 at P17.

[31] Attachment I, Table I for WY 2014; 2014 Accounting Tables UFW Final.xlsx.

Attachment 1

Revisions to WY 2014 and WY 2015 accounting tables for Unappropriated Flood Waters

1. Revisions related to the change in Dark Canyon Draw USGS data for 2014:
   a. This is [sic] straight-forward change in the Dark Canyon flows and re-scalping the reach from Carlsbad to Red Bluff. NM has already agreed to this change in WY 2014 Tables 1, 3, 4, 7, and 12.[1] The result of this change in the original accounting is to reduce the credit from 1.9 TAF to 0.7 TAF. These changes were incorporated into the revised analyses for unappropriated flood water (UFW) in WY 2014 and WY 2015 as described below.
2. Considering the storage held in Brantley above the CID allowable maximums for each year to be UFW, as defined in the Pecos River Compact and the 1984 Resolution related to how Brantley will be operated:
   a. 2014: Removing UFW inflows into Brantley from index inflows (Tables 1, 2, 3, and 12)[1]
      i. Inflows are based on increase in storage in Brantley above CID/NM allowable storage of 42,057 AF in 2014 = 39,038 AF
   b. 2015: Removing UFW inflows into Brantley from index inflows (Tables 1, 2, and 12)[2]
      i. Inflows are based on change in storage in Brantley when storage was above CID/NM allowable storage of 42,196 AF in 2015 until the reservoir peak in March and when NM began to release for CID = 4,135 AF[3]
   c. 2015: Removing 2014 UFW NM releases to Red Bluff in 2015 from the inflows and outflows (below Avalon) (Tables 1, 3, 7, 9, 10, 11 and 12)[2]
      i. Inflows based on releases to Texas in 2015 as reported by NM ISC = 29,946 AF (from Avalon)[3]
      ii. Adjustments were also made to elevation of Avalon in the accounting tables to account for lower elevations during months if no releases were made[2]
   d. 2014: Subtracting ½ of the 2014 stored UFW flows, since it has not been delivered yet (Table 1, C.4) = 0.5 x 39,038 = 19,519 AF[1]
   e. 2015: Adding ½ of the 2014 plus 2015 stored UFW (when it was delivered) (Table 1, C.4) = 0.5 x (39,038 + 4,135) = 21,587 AF[2]
3. Revising the evaporation on the additional storage of UFW in Brantley by pro-rating the daily evaporation according to the percentage of each volume for the CID/NM storage and the additional UFW storage:
   a. 2014: Adding ½ of evaporation (Table 1, C.5), .5 x 3,297 AF = 1,649 AF[4]
   b. 2015: Adding ½ of evaporation (Table 1, C.5), .5 x 15,251 AF = 7,626 AF[4]

4. Considering the flood water generated below Brantley in 2014 which spilled from Red Bluff to be UFW per the Compact definition:

    a. 2014: Removing the amount spilled and released from Red Bluff in 2014 during the storm event (63,862 AF)[3] from the flood inflows from Carlsbad to State Line (Tables 1 and 4)[1]

    b. 2014: Removing the amount spilled and released from Red Bluff (63,862 AF) from Pecos River at Red Bluff gage outflows. This water simply goes away as UFW because it is split 50-50 between the states (Tables 1 and 12)[1]

[1] *WY2014 Accounting Tables UFW Final.xlsx*

[2] *WY2015 Accounting Tables UFW Final.xlsx*

[3] *Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx*

[4] *Pro-rated Evap 2014-2015 Final.xlsx*

Table 1. General Calculation of Annual Departures (B.1) **WY (CY) 2014**

Prep Suzy Valentine, P.E.
Tod: 01/10/17

With Brantley storage removed, Red Bluff spills removed, and minus 1/2 storage plus 1/2 evap and DC Adj

2014

Final Est. of CY Departure = | **1.9** | **0.7** | **-16.9** | **TAF**

	Final RM Values		RM Original	DC Adjusted	UFW Rev and DC Adj		Notes
	2012	2013	2014	2014	2014		
B.1.a. Index Inflows							
(1) Annual flood inflow							
(a) Gaged flow Pecos R blw Sumner Dam (Table 12)	64.9	63.6	120.6	120.6	120.6		
(b) Flood inflow Sumner Dam to Artesia (Table 2)	-17.2	54.4	57.3	57.3	**22.3**	35.038	removed Brantley storage
(c) Flood inflow Artesia to Carlsbad (Table 3)	11.2	39.9	42.5	42.5	**38.4**	4.0	removed Brantley storage
(d) Flood inflow Carlsbad to State Line (Table 4)	3.2	23.2	122.8	**128.3**	**64.4**	63.862	removed spills and releases from Red Bluff
Total annual flood inflow	62.1	181.1	343.23	348.73	245.7		
(2) Index inflow (3-year average)			195.5	197.3	163.0		
B.1.b. 1947- Condition Delivery Obligation			89.3	90.5	68.9		
B.1.c. Average Historical (Gaged) Outflow							
(1) Annual historical outflow							
(a) Gaged flow Pecos R at Red Bluff, NM (Table 12)	17.7	51.0	146.6	146.6	**82.8**	63.862	removed spills and releases from Red Bluff
(b) Gaged flow Delaware R nr Red Bluff, NM (Table 12)	1.7	12.2	48.3	48.3	48.3		
(c) Annual diversions for C-2713, SWS, (Table 12)	0.0	0.2	0.2	0.2	0.2		
Total annual historical outflow	19.4	63.4	195.1	195.1	131.3		
(2) Average historical outflow (3-year average)			92.6	92.6	71.4		
B.1.d. Annual Departure			3.4	2.2	2.4		
C. Adjustments to Computed Departure							
(1) Adjustments for depletions above Sumner Dam							
(a) Depletions due to irrigation (Table 5)	3.2	2.0	-0.2	-0.2	-0.2		
(b) Depl from operation of Santa Rosa Res (Table 6)	1.0	8.6	-1.7	-1.7	-1.7		
(c) Transf. water use to upstr. Sumner Dam (Table 12)	0.0	0.0	0.0	0.0	0.0		
C.1. Recomputed Index Inflows							
(1) Annual flood inflow							
(a) Gaged flow Pecos R blw Sumner Dam	69.1	74.2	118.7	118.8	118.8		
(b) Flood inflow Sumner Dam to Artesia	-17.2	54.4	57.3	57.3	**22.3**	35.038	removed Brantley storage
(c) Flood inflow Artesia to Carlsbad (Table 3)	11.2	39.9	42.5	42.5	**38.4**	4.0	removed Brantley storage
(d) Flood inflow Carlsbad to State Line	3.2	23.2	122.8	128.3	**64.4**	63.862	removed spills and releases from Red Bluff
Total annual flood inflow	66.3	191.7	341.3	346.9	243.9		
Recomputed index inflow (3-year average)			199.8	201.6	167.3		
C.1.c. Recomputed 1947-Condition Delivery Obligation (Recomputed Index Outflow)			92.1	93.3	71.5		
Recomputed Annual Departures			0.6	-0.7	-0.2		
Credits to New Mexico							
C.2. Depletions due to McMillan Dike			1.4	1.4	1.1		
C.3. Salvage water analysis (Table 12)			0.0	0.0	0.0		
Subtotal			**1.9**	**0.7**	**1.0**		
C.4. Unappropriated flood waters			0.0	0.0	**-19.5**	39.038	subtract 1/2 of Brantley storage not yet delivered
C.5. Texas water stored in NM reservoirs (Table 12)			0.0	0.0	**1.6**	3.3	add 1/2 Brantley additional evap for 2014
C.6. Beneficial CU of Delaware River water (Table 12)			0.0	0.0	0.0		
Final Calculated Departure, TAF			**1.9**	**0.7**	**-16.9**		

Table 1. General Calculation of Annual Departures in TAF (B.1) (WY 2015)

ADJUSTED FOR UNAPPROPRIATED FLOOD FLOWS 2015

Prep. by: Suzy Valentine, P.E.

Date: 01/11/17

	0.7	**-16.9**	**11.9**	**33.8**	

	Final RM Values	Revised RM Values *	Removed RB Spills, Brantley storage removed, 1/2 evap added *	Final RM Values	Removed Brantley Releases, with 1/2 Storage and 1/2 Evap Added	Notes
	2013	**2014**	**2014**	**2015**	**2015**	
B.1.a. Index Inflows						
(1) Annual flood inflow						
(a) Gaged flow Pecos R blw Sumner Dam (Table 12)	63.6	120.6	120.6	100.7	100.7	
(b) Flood inflow Sumner Dam to Artesia (Table 2)	54.4	57.3	22.3	28.5	24.4	4.135 remove Brantley 2015 storage
(c) Flood inflow Artesia to Carlsbad (Table 3)	39.9	42.5	38.4	3.2	2.1	29.9 remove Avalon 2015 releases
(d) Flood inflow Carlsbad to State Line (Table 4)	23.2	122.8	64.4	6.2	6.2	
Total annual flood inflow	181.1	343.2	245.7	138.6	133.3	
(2) Index inflow (3-year average)		195.5	163.0	221.0	186.7	
B.1.b. 1947- Condition Delivery Obligation (Index Outflow Eqn)		89.3	68.9	106.3	83.6	
B.1.c. Average Historical (Gaged) Outflow						
(1) Annual historical outflow						
(a) Gaged flow Pecos R at Red Bluff, NM (Table 12)	51.0	146.6	82.8	101.1	74.9	29.9 remove Avalon 2015 releases
(b) Gaged flow Delaware R nr Red Bluff, NM (Table 12)	12.2	48.3	48.3	5.4	5.4	
(c) Annual diversions for C-2713, Brine Partners, (Table 12)	0.2	0.2	0.2	0.2	0.2	
Total annual historical outflow	63.4	195.1	131.3	106.7	80.5	
(2) Average historical outflow (3-year average)		92.6	71.4	121.7	91.7	
B.1.d. Annual Departure		3.4	2.4	15.4	8.1	
C. Adjustments to Computed Departure						
(1) Adjustments for depletions above Sumner Dam						
(a) Depletions due to irrigation (Table 5)	2.0	-0.2	-0.2	-3.2	-3.2	
(b) Depl from operation of Santa Rosa Reservoir (Table 6)	8.6	-1.7	-1.7	16.7	16.7	
(c) Transfer water use to upstream Sumner Dam (Table 12)	0.0	0.0	0.0	0.0	0.0	
C.1. Recomputed Index Inflows						
(1) Annual flood inflow						
(a) Gaged flow Pecos R blw Sumner Dam	74.2	118.7	118.7	114.2	114.2	
(b) Flood inflow Sumner Dam to Artesia	54.4	57.3	22.3	28.5	24.4	
(c) Flood inflow Artesia to Carlsbad (Table 3)	39.9	42.5	38.4	3.2	2.1	
(d) Flood inflow Carlsbad to State Line	23.2	122.8	64.4	6.2	6.2	
Total annual flood inflow	191.7	341.3	243.8	152.0	146.8	
Recomputed index inflow (3-year average)		199.8	167.3	228.3	194.1	
C.1.c. Recomputed 1947-Condition Delivery Obligation (Recomputed Index Outflow)		93.3	71.5	111.4	88.4	
Recomputed Annual Departures		-0.7	-0.2	10.3	3.3	
Credits to New Mexico						
C.2. Depletions due to McMillan Dike		1.4	1.1	1.5	1.3	
C.3. Salvage water analysis (Table 12)		0.0	0.0	0.0	0.0	
Subtotal		**0.7**	1.0	**11.9**	4.6	
C.4. Unappropriated flood waters		0.0	-19.5	0.0	21.6	43.2 add 1/2 of Brantley storage for both 2014 and 2015
C.5. Texas water stored in NM reservoirs (Table 12)		0.0	1.6	0.0	7.6	15.2 add 1/2 Brantley additional pro-rated evap for 2015
C.6. Beneficial CU of Delaware River water (Table 12)		0.0	0.0	0.0	0.0	
Final Calculated Departure, TAF		**0.7**	-16.9	**11.9**	33.8	

December 13, 2017

Via Email: neil.grigg@colostate.edu
Neil S. Grigg, P.E., Ph.D.
Pecos River Compact River Master
749 S. Lemay, Ste A3, PMB 330
Ft. Collins, CO 80524

Dear Dr. Grigg,

Thank you for your July 19, 2017 letter. We appreciate your invitation to discuss the process for resolving the disputes surrounding the storm events that occurred in Water Year 2014. The States of New Mexico and Texas have conferred, and we write to jointly request your assistance in resolving the Pecos River Compact accounting for the unprecedented flows of the river that occurred in September 2014 and the subsequent storage of water in Brantley Reservoir in 2014 and 2015. As discussed below, the purpose of this letter is to request your feedback on the suggested procedure for the resolution of this issue.

Beginning in mid-September 2014, the remnants of Tropical Storm Odile resulted in widespread heavy rainfall in the Pecos River Basin in New Mexico and Texas. The United States Bureau of Reclamation ("Reclamation") began to curtail releases from Brantley and Avalon dams for public health and safety reasons. By September 19, storage in Brantley Reservoir had exceeded the maximum-authorized Carlsbad Project conservation storage limit (42,057 acre-feet), and by October 3, 2014, 36,419 acre-feet had been impounded above that limit.

Before the flood event, Red Bluff Reservoir was about 50 percent full. Ultimately, Red Bluff Reservoir rose to a depth of over four feet above its uncontrolled principal spillway. Red Bluff released and spilled about 64,000 acre-feet through the outlet works and spillways to the Pecos River from September 19 through November 21, 2014. On November 20, 2014, the Pecos River Commissioner for Texas, Mr. Rick Tate, sent an official request that "New Mexico store Texas' portion of the flows until such time as they can be utilized in Red Bluff Reservoir." On January 26, 2015, the Pecos River Commissioner for New Mexico, Mr. Ray Willis, responded that New Mexico did not object to temporary storage of water for Texas in Brantley Reservoir. Brantley Reservoir reached a maximum storage of over 85,000 acre-feet on March 25, 2015, impounding 43,033 acre-feet above the Carlsbad Project conservation storage limit. New Mexico and Texas agree that evaporative losses occurred in Brantley Reservoir, but disagree on the methodology for calculating these losses.

During conference calls between Reclamation, New Mexico, and Texas in February and March 2015, Reclamation indicated that it could no longer hold water in Brantley Reservoir without a Warren Act contract, which neither Texas nor New Mexico had.

In anticipation of releases from Brantley Reservoir, Red Bluff Reservoir, which was still full from the rainfall event, began releasing water to make room for additional inflows of the planned deliveries. Red Bluff released approximately 30,000 acre-feet between March 8 and June 15, 2015. Red Bluff began releases to irrigation districts on June 15, 2015. Between August 5 and September 8, 2015, Reclamation released approximately 30,000 acre-feet from Brantley Reservoir to the state line.

In February 2016, technical representatives from Texas and New Mexico met with you to determine how the event would be reflected in the Pecos River Compact accounting for WY2014-15. Since then, New Mexico and Texas have worked to resolve this accounting adjustment. Unfortunately, however, the States are unable to come to agreement. To this end, and in accordance with the decrees of the United States Supreme Court in 1987 and 1988, we seek your resolution of the final accounting for WY 2014-15.

The States have worked together and have reached consensus on the facts in this letter. Additionally, the States propose the following process for presenting each State's position on this adjustment:

1. By December 22, 2017, each State will present you with a position paper addressing the accounting adjustment;
2. By January 19, 2017 [sic], each State will submit a response to the other State's position paper.

Finally, if you would find it helpful, both States are willing to meet with you on any date between January 29 and 30 or February 7 and 16 to discuss this matter.

Procedures for hydrograph scalping of the Carlsbad to Red Bluff reach can be addressed, as suggested in your July 19 letter, once this issue is resolved.

Both New Mexico and Texas appreciate your assistance in finalizing the Pecos River Compact accounting for WY 2014-15 and request that you inform us at your earliest convenience if you agree to this process.

Respectfully,

NEW MEXICO		**TEXAS**	
/s/	HRW Engineer Advisor	/s/	Suzy Valentine Engineer Advisor
/s/	K. Bannerman Legal Advisor	/s/	Mary Smith Legal Advisor

NEW MEXICO INTERSTATE STREAM COMMISSION

[SEAL]

BATAAN MEMORIAL BUILDING,
ROOM 101
POST OFFICE BOX 25102
SANTA FE, NEW MEXICO
87504-5102
(505) 827-6160
FAX: (505) 827-6188

December 22, 2017

SENT BY ELECTRONIC AND CERTIFIED MAIL
neil.grigg@colostate.edu

Neil S. Grigg, P.E., Ph.D.
River Master of the Pecos River
749 South Lemay Avenue Ste A3, PMB 330
Fort Collins, Colorado 80524

Re: New Mexico Position Paper on Accounting Adjustment for Water Year 2015

Dear Dr. Grigg:

Pursuant to your letter of December 19, 2017, the State of New Mexico respectfully submits this position paper on the necessary accounting adjustment for the River Masters Report for Water Year 2015 resulting from the storm events in the Pecos River Basin in 2014. New Mexico appreciates the opportunity to submit this position paper and your willingness to assist in resolving this matter. As explained below, Texas should be charged with evaporation losses from water that was stored in Brantley Reservoir in New Mexico at the request of Texas between September 19, 2014 and September 8, 2015. The total evaporation loss amounts to 21,071 acre-feet of water.

I. BACKGROUND

Under the Pecos River Compact, ratified in 1949, and the Amended Decree of the U.S. Supreme Court, dated March 1988, New Mexico must deliver water to Texas or face serious consequences. New Mexico takes its obligations under the Compact and Amended Decree seriously as demonstrated by its actions since the Amended Decree was issued. The New Mexico Legislature has enacted a law that provides for the purchase of water rights to ensure compliance with the Compact and Amended Decree. NMSA 1978, §§ 72-1-2.4 (2002), 72-1-2.6 (2008). Under this and pre-existing

authority, New Mexico has purchased water rights associated with over 21,000 acres of land in the Roswell Artesian Basin and in the Carlsbad Basin. New Mexico, through the Interstate Stream Commission and the Office of the State Engineer, has also entered into a Settlement Agreement with the United States Bureau of Reclamation (Reclamation), Carlsbad Irrigation District, and Pecos Valley Artesian Conservancy District, dated March 25, 2003, to ensure compliance with the Compact and the Amended Decree. Accordingly, New Mexico has endeavored to fully meet its delivery obligations to Texas under the Compact.

Heavy rainfall in the Pecos Basin in September 2014 resulted in widespread flooding. Water was initially held above the Carlsbad Project's conservation limit of 42,057 acre-feet in Brantley Reservoir beginning on September 19, 2014 in response to public safety concerns. After the flooding had subsided, Red Bluff Reservoir was full and had no available storage capacity. Consequently, on November 20, 2014 the Pecos River Commissioner for Texas, Mr. Frederic Tate, sent an email letter to New Mexico requesting that "New Mexico store Texas' portion of the flows until such time as they can be utilized in Red Bluff Reservoir." On January 26, 2015, the Pecos River Commissioner for New Mexico, Mr. Ray Willis, responded affirmatively to Texas' request, concurring with the proposed continued storage in Brantley Reservoir. New Mexico supported such extended storage to promote interstate comity and cooperation, consistent with the Compact, and to allow delivery of water to Texas when Texas could more beneficially use it. However, Commissioner Willis stated in the letter that "Texas will assume responsibility for all evaporative losses on water stored in Brantley Reservoir above the Carlsbad Project's storage limitation." New Mexico would not have concurred with the storage without that understanding. The November 2014 and January 2015 correspondence between Commissioners Tate and Willis is attached hereto as **Exhibit 1**.

Reclamation owns and operates Brantley Reservoir. Brantley Reservoir has a total storage capacity of up to approximately 300,000 acre-feet. With New Mexico's concurrence, Reclamation agreed to continue storing Texas' water. Brantley Reservoir reached a storage volume of over 85,000 acre-feet of water on March 25, 2015. Ultimately, between September 19, 2014 and September 8, 2015 approximately 51,000 acre-feet were stored for Texas.

The Texas irrigation districts served by Red Bluff Reservoir did not call for water as expected at the start of the 2015 season. That spring, Reclamation expressed concern over the extended storage of Texas water in Brantley Reservoir without a Warren Act contract authorizing the storage. The Warren Act of February 21, 1911 authorized the United States to execute contracts for the conveyance and storage of non-project water in federal facilities when excess capacity exists. By July 2015 Reclamation determined it could no longer hold the water and encouraged Texas to

"either begin negotiating a contract or call for the release of the water." A copy of the email correspondence from Reclamation is attached hereto as **Exhibit 2**. As Texas did not express interest in pursuing a Warren Act contract, Reclamation coordinated a release of the water stored for Texas. Approximately 29,946 acre-feet of water was released from Brantley Reservoir to Texas between August 5, 2015 and September 8, 2015. New Mexico calculates that 21,071 acre-feet of water evaporated from the water stored for Texas over the period of storage in Brantley Reservoir.

On February 11, 2016, technical representatives from New Mexico and Texas met with the River Master in Fort Collins, Colorado to discuss the accounting adjustment necessary as a result of the storage of this water, and to attempt to reach an agreement on the adjustment. As discussed in more detail in Section II.0 below, the collective decision was that the water stored in Brantley Reservoir was stored on behalf of Texas at Texas' request, and therefore that evaporation loss from the stored water would be borne entirely by Texas.

In the spring of 2016, representatives of the states had several conversations in an effort to agree on the method to credit New Mexico for the evaporation losses. On May 6, 2016, New Mexico transmitted to Texas a draft joint motion, which proposed an accounting adjustment based on the discussions held on February 11, 2016 in Fort Collins, as well as subsequent discussions. By late summer 2016, Texas suggested for the first time that it might pursue a different approach. To that end, on January 11, 2017, Texas sent New Mexico a letter proposing an alternative accounting adjustment by which, among other things, Texas and New Mexico would share the evaporation losses from Brantley Reservoir. New Mexico responded by letter on April 26, 2017, disagreeing with Texas' proposal. A copy of the letter is attached hereto as **Exhibit 3**.

II. TEXAS SHOULD BE CHARGED FOR THE EVAPORATION OF WATER STORED AT TEXAS' REQUEST AND ON TEXAS' BEHALF

The water that New Mexico stored in Brantley Reservoir between September 19, 2014 and September 8, 2015 was stored at the request of Texas and on the behalf of Texas. Due to the storm events in 2014, flooding, and associated safety concerns, New Mexico, Texas, and Reclamation all agreed to store the storm water in Brantley Reservoir. After the flooding had subsided, Texas requested that Reclamation continue to hold water for Texas. New Mexico concurred with the request to promote interstate comity and cooperation and to allow delivery to Texas when Texas could most beneficially use the water. However, New Mexico conditioned its concurrence on Texas assuming responsibility for evaporation loss. Texas never disputed this condition. As explained below, such condition was supported by the terms of the Pecos

River Compact. New Mexico should not be penalized for storing this water on behalf of, and to assist, Texas.

A. The Pecos River Compact Provides that Evaporation from Water Stored for Texas Should Be Charged to Texas

An interstate stream compact is "a legal document that must be construed and applied in accordance with its terms." *Texas v. New Mexico*, 482 U.S. 124, 128 (1987). Article IV(e) of the Pecos River Compact contemplates that Texas may store water in works in New Mexico. And the terms of the Compact specifically address the consumptive use of water incident to its storage or impoundment in another state. Article XII of the compact provides in relevant part that "[t]he consumptive use of water by the United States or any of its agencies . . . incident to the diversion, impounding, or conveyance of water in one state for use in the other state shall be charged to such latter state." Thus, the evaporation loss of water incident to the impounding of water in Brantley Reservoir – which is owned by Reclamation – in New Mexico for use in Texas is to be charged to Texas according to the terms of the Compact.

B. New Mexico Conditioned Storage in New Mexico for Texas on Texas Assuming Responsibility for All Associated Evaporation Losses

Article IV(e) of the Pecos River Compact allows the Pecos River Commission to "determine the conditions under which Texas may store water in works constructed in and operated by New Mexico." As explained above, the Pecos River Commissioner for Texas, by letter dated November 20, 2014, requested that New Mexico store water for Texas until the water could be used in Red Bluff Reservoir. The Pecos River Commissioner for New Mexico, by letter dated January 26, 2015, concurred with the request, but with the condition that "Texas will assume responsibility for all evaporation losses on water stored in Brantley Reservoir above the Carlsbad Project's storage limitation." The Texas Commissioner did not object to or disagree with this condition nor, at the time, did any representatives of Texas. New Mexico thus understood that Texas would fully assume the associated evaporation losses.

Partially relying on this condition, and as a matter of comity and cooperation, New Mexico agreed to the extended storage of the water in Brantley Reservoir, which continued until September 2015. Were it not for Texas' request, and New Mexico's conditional concurrence, New Mexico would have requested that Reclamation release the water to the Texas state line as soon as public safety would have allowed.

During the extended period of storage in Brantley Reservoir, Texas never disagreed with the condition that Texas would be charged with the entire evaporation

loss. Although the states held several conference calls to discuss coordination of the water storage, Texas did not raise any objections during those discussions. Indeed, as late as February 2016, as discussed in section II.D below, representatives of Texas agreed that Texas would be charged with the evaporation loss. It was not until January 2017 that Texas first formally took the position that the evaporation loss should be divided equally. By 2017, however, it was too late to change or object to this condition.

C. Texas Acknowledged that It Should Be Charged for the Total Evaporation Loss from Water Stored on Its Behalf

Texas acknowledged that it should be charged for the total amount of evaporation loss from water stored at Brantley Reservoir on its behalf. During the February 11, 2016 technical meeting in Fort Collins, several potential alternatives were evaluated and discussed to account for the water stored at Brantley Reservoir, and the associated evaporation loss. The collective decision was that the water stored was not "unappropriated flood waters" as defined in the Compact, but rather it was water stored on behalf of Texas at the request of Texas. This decision is memorialized in Meeting Notes attached hereto as **Exhibit 4**.

This decision was largely informed by two factors. First, the Pecos River Commission has not adopted any regulations or protocols that clearly define the term "unappropriated flood waters," or that specify how such waters would be declared or accounted for under the Compact. In the history of the Compact this term has never been applied. Second, at the time they agreed to the storage, the states' intent was to store water for Texas; it was not their intent to share the stored flood waters.

Details of the accounting were also discussed at the February 11, 2016 meeting. It was determined that the storage and release of Texas' water held in Brantley Reservoir would not affect Compact accounting procedures, except that the volume evaporated from Texas' water while it was held in Brantley Reservoir would be added as delivery to Texas by New Mexico.

In addition, the states agreed to work together over the next year to determine protocols for "unappropriated flood waters." Protocols would include criteria for designating unappropriated flood waters, the methods for accounting for such flood waters, and how to deal with flood flows below Brantley Reservoir.

D. New Mexico Should Not Be Penalized for Its Good Faith Efforts to Assist Texas

Article I of the Pecos River Compact states that among the purposes of the Compact are "to promote interstate comity," and "to remove causes of present and future controversies." It was in the spirit of this article that New Mexico concurred with Texas' request that water be stored in Brantley Reservoir. New Mexico should not be penalized for this good faith effort to promote interstate comity and to remove the cause of a potential future controversy.

New Mexico concurred with Texas' request for extended storage in Brantley Reservoir to promote comity and cooperation with Texas. If not for Texas' request for extended storage, and the condition New Mexico placed on its concurrence, New Mexico would have released the waters held for Texas as soon as public safety would have allowed, and those flows would have contributed to New Mexico's delivery obligations to Texas. New Mexico acted, in furtherance of the purposes of the Compact, by agreeing to storage of the water rather than delivering it to Texas as quickly as possible. Only at the insistence of Reclamation was the water released from Brantley Reservoir earlier than may have been optimal for Texas.

Storing this water at Brantley Reservoir had no benefit to New Mexico under the Compact or otherwise. The water in Brantley Reservoir was not stored for the benefit of the Carlsbad Irrigation District. Nor was it stored for the benefit of any other water user in New Mexico. It was stored at the request of and on behalf of Texas alone. Unless Texas is charged with the full evaporation loss associated with those waters, New Mexico will be penalized for cooperating with Texas. Such an outcome would be at odds with the stated purposes of the Compact to promote interstate comity and resolve potential future controversies. It would also defeat the intent of the Pecos River Commissioners at the time they discussed storage of Texas water in New Mexico.

III. ACCOUNTING

New Mexico has prepared a summation of the evaporation losses incurred by the water stored in Brantley Reservoir for Texas, including evaporation losses solely from the Texas pool. These calculations are based on daily evaporation data collected by the Brantley Reservoir dam tender and the 2013 Brantley Reservoir Area Capacity Tables provided by Reclamation. Texas' portion of the evaporation losses is calculated based on the increased surface area that resulted from storage above the Carlsbad Project's conservation storage limit between September 19, 2014 and September 8, 2015. Evaporation losses incurred from the Carlsbad Project pool are charged to New Mexico. This summation is listed in the Tables attached hereto as **Exhibit 5**. Table A

in Exhibit 5 is a summary table, while Table B is a more detailed summation of daily evaporation. The total evaporation loss amounts to 21,071 acre-feet of water.

New Mexico has also prepared a calculation of the necessary adjustment to the River Master Final Report for Water Year 2015 to account for the evaporation losses. That calculation is set forth in a revised Table 1 from New Mexico's compact accounting workbook, attached hereto as **Exhibit 6**. The 21,071 acre-feet of evaporation losses are included in row *C.5. Texas water stored in NM reservoirs*. Alternatively, those losses could be allocated to the Final Reports for the Water Years in which they occurred, 2014 and 2015, 3,827 acre-feet and 17,244 acre-feet respectively. However, in order to simplify this accounting adjustment, New Mexico recommends that the full 21,071 acre-feet be applied in a one-time adjustment to the final Water Year 2015 accounting.

IV. CONCLUSION

For the foregoing reasons, New Mexico requests the River Master Report for Water Year 2015 include, as water delivered by New Mexico to Texas, 21,071 acre-feet of water evaporated from Texas' water while it was stored in New Mexico between September 19, 2014 and September 8, 2015. The necessary adjustment to the report is set forth in Exhibit 6 hereto. New Mexico is prepared to file a motion seeking such an adjustment to the report, as required by Article III.D of the U.S. Supreme Court's Amended Decree of March 28, 1988. *See Texas v. New Mexico*, 485 U.S. 388, 393 (1988).

Once this accounting issue is resolved, New Mexico is prepared to work with Texas to clarify the term "unappropriated flood waters," to establish protocols for future application of the term, and to develop Warren Act contracts for both states to secure the authority to store and share future flood waters in the cooperative spirit of the Compact.

Thank you for your consideration of this matter.

Respectfully submitted,

/s/ HRW
Hannah Riseley-White
New Mexico Engineer Advisor

/s/ Charles de Saillan
Charles de Saillan
Legal Advisor

cc: Ray Willis
Pecos River Commissioner for New Mexico

Frederic Tate
Pecos River Commissioner for Texas

Topper Thorpe
Chairman, New Mexico Interstate Stream Commission

Tom Blaine, P.E.
Secretary, New Mexico Interstate Stream Commission

Suzy Valentine, P.E., CFM
Texas Engineer Advisor

Mary Smith
Texas Legal Advisor

Amy Nerison
Office of the Governor of New Mexico

LIST OF EXHIBITS

Exhibit 1: Email letter from Frederic Tate, Pecos River Commissioner for Texas, to Ray Willis, Pecos River Commissioner for New Mexico, dated November 20, 2014; letter from Ray Willis, Pecos River Commissioner for New Mexico, to Frederic Tate, Pecos River Commissioner for Texas, dated January 26, 2015.

Exhibit 2: Email from Carolyn Donnelly, Reclamation, to Suzy Valentine, Texas Engineer Advisor, dated July 10, 2015.

Exhibit 3: Letter from Amy I. Haas, General Counsel, New Mexico Interstate Stream Commission, to Jane E. Atwood, Assistant Attorney General, Office of the Attorney General of Texas, dated April 26, 2017.

Exhibit 4: Meeting Notes of Meeting held in Fort Collins, Colorado on February 11, 2017, among New Mexico, Texas, and the Pecos River Master.

Exhibit 5: Table A: Summary of Evaporation Loss from the Texas and New Mexico Pools in Brantley Reservoir and Delivery of Water to Texas, September 19, 2014 through September 8, 2015; Table B: Brantley Reservoir Storage of Water for Texas and the Carlsbad Project, September 19, 2014 and September 8, 2015.

Exhibit 6: Table 1: WY2015 New Mexico Pecos River Compact Overage or Shortfall.

* * *

[Omitted duplicate of Exhibit located at Tex. Br. 61a-64a.]

EXHIBIT 2

Riseley-White, Hannah, OSE

From: Lewis, Greg J., OSE
Sent: Friday, July 10, 2015 4:05 PM
To: Davis, Daniel, OSE; Riseley-White, Hannah, OSE
Subject: FW: Storage of Texas' water in Brantley

Greg Lewis
Pecos Basin Manager
New Mexico Interstate Stream Commission
P.O. Box 25102
Santa Fe, New Mexico 87504-5102
(505) 827-7867 v
(505) 476-0399 f

From: Donnelly, Carolyn [mailto:cdonnelly@usbr.gov]
Sent: Friday, July 10, 2015 4:00 PM
To: Suzy Valentine
Cc: Lewis, Greg J., OSE; Robin Prewit <redbluff@windstream.net> (redbluff@windstream.net); Dale Ballard; Jennifer Faler; Kenneth Rice
Subject: Storage of Texas' water in Brantley

Suzy,

At the time of last September's large storms, Reclamation understood the need to hold the resulting floodwater in Brantley to prevent further damage to Red Bluff's service spillway, and also to reduce the chance of damage downstream of Red Bluff Reservoir. Because Brantley has a large capacity, and because of safety concerns related to Pecos River crossings in Eddy County, New Mexico, we were happy to do this while Red Bluff completed work on the spillway and Eddy County secured their river crossings.

We have spent some time reviewing this use of our facility in light of Reclamation's existing authorities. Flood control is an authorized purpose of the Brantley Project, so Reclamation is authorized to re-regulate this water. Under this authority, however, we are not authorized to store this floodwater.

Under the authority of the Warren Act, Reclamation may store water for entities with which it has a contract. Article VI of the Pecos River Compact discusses storage of floodwater for Texas in facilities in New Mexico. The floodwater currently in Brantley has been re-regulated, but if this water were to remain in Brantley we would consider it to be stored for the State of Texas and therefore it would require a Warren Act contract. As we do not have a Warren Act contract with Texas to store water in Brantley, and, as the water has remained in Brantley for about 9 months, we feel that

we are moving from re-regulation to storage, and Texas should either begin negotiating a contract or call for the release of the water.

We therefore ask that Texas begin moving this water out of Brantley in the first week of August. We will work with all involved parties to determine appropriate release rates and conditions surrounding the release of this water, but, without a contract, Reclamation does not have the authority to hold this water in Brantley any longer.

Carolyn

* * *

[Omitted duplicate of Exhibits located at Tex. Br. 89a-98a, 70a-72a, 100a-106a.]

TABLE 1

WY2015 NEW MEXICO PECOS RIVER COMPACT OVERAGE OR SHORTFALL

Estimate of WY 2015 Departure =	**33.0 TAF**

B.1.a.(1) - Index Inflow, Sumner Dam to NM-TX state line	**2013**	**2014**	**2015**
(a) Gaged flow Pecos River below Sumner Dam (Table 12)	63.6	120.6	100.7
(b) Flood inflow Sumner Dam to Artesia (Table 2)	54.4	57.3	28.5
(c) Flood inflow Artesia to Carlsbad (Table 3)	39.9	42.5	3.2
(d) Flood inflow Carlsbad to State Line (Table 4)	23.2	122.8	6.2
Total annual flood inflow =	**181.1**	**343.2**	**138.6**
B.1.a.(2) - Index inflow (3-year average)			**221.0**

B.1.b. - 1947 Condition Delivery Obligation (Index Outflow)	**106.3**

B.1.c.(1) - Average Historical Outflow at NM-TX state line	**2013**	**2014**	**2015**
(a) Gaged flow Pecos R at Red Bluff, NM (Table 12)	51.0	146.6	101.1
(b) Gaged flow Delaware R nr Red Bluff, NM (Table 12)	12.2	48.3	5.4
(c) Annual diversions for C-2713, Brine Partners, (Table 12)	0.2	0.2	0.2
Total annual historical outflow =	**63.4**	**195.1**	**106.7**
B.1.c.(2) Average historical outflow (3-year average)			**121.7**

B.1.d. - Annual Departure	**15.4**

C.1. - Adjustments for Depletions above Sumner Dam	**2013**	**2014**	**2015**
(a) Depletions due to irrigation (Table 5)	2.0	-0.2	-3.2
(b) Depl from operation of Santa Rosa Reservoir (Table 6)	8.6	-1.7	16.7
(c) Transfer of water use to upstream of Sumner Dam (Table 12)	0.0	0.0	0.0

Recomputed Index Inflows	**2013**	**2014**	**2015**
(a) Gaged flow Pecos River below Sumner Dam	74.2	118.7	114.2
(b) Flood inflow Sumner Dam to Artesia	54.4	57.3	28.5
(c) Flood inflow Artesia to Carlsbad	39.9	42.5	3.2
(d) Flood inflow Carlsbad to State Line	23.2	122.8	6.2
Total annual flood inflow =	**191.7**	**341.3**	**152.1**
Recomputed index inflow (3-year average)			**228.4**

C.1.c. Recomputed 1947-Condition Delivery Obligation	**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 (Table 12)	0.0
C.4. Unappropriated flood waters	0.0
C.5. Texas water stored in NM reservoirs (Table 12)	21.1
C.6. Beneficial CU of Delaware River water (Table 12)	0.0

Final Calculated Departure, TAF	**33.0**

EXHIBIT 6

[SEAL]
KEN PAXTON
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December 22, 2017

Neil S. Grigg, P.E., Ph.D.
Pecos River Compact River Master
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Via E-mail and Certified Mail, Return Receipt Requested

Dear Dr. Grigg,

After reviewing New Mexico's request for credit for evaporative losses from water stored in Brantley Reservoir in 2014 and the Pecos River Master's Water Year ("WY") 2015 accounting, Texas believes that the equitable apportionment of water in WY 2014 and WY 2015 requires the treatment of certain flows as unappropriated flood water. This position is consistent with New Mexico's request for evaporation credit because Article VI(d) of the Pecos River Compact provides that reservoir losses can only be charged "[i]f *unappropriated flood waters* apportioned to Texas are stored in facilities constructed in New Mexico."[1]

Texas seeks a decision on a fair apportionment for only WY 2014 and WY 2015. We do not propose the development of new River Master accounting procedures for future unappropriated flood water events. Attachments 1, 2, and 3 contain Texas's proposed revised river master accounting summary tables for WY 2014 and WY 2015 and a detailed list of the proposed modifications to the current accounting. We are also providing copies of the spreadsheets referenced in this proposal for your review.

In short, our proposal would revise the final value for WY 2014 from 1.9 thousand acre-feet ("TAF") to -16.9 TAF and the final value for WY 2015 from 11.9 TAF to 33.8 TAF. New Mexico's net credit for WY 2014-2015 would change from 13.8 TAF in the original accounting to 16.9 TAF – or an additional 3.1 TAF in credit to New Mexico.[2]

To our knowledge, no flood waters in the Pecos have ever been apportioned as unappropriated flood water, however, the extraordinary flood flows in 2014 and the eventual waste of much of this water present the exact situation the states envisioned

[1] Pecos River Compact, Art. VI(d) (emphasis added).

[2] See Attachments 1, 2, and 3. These numbers include the agreed upon correction for Dark Canyon, discussed below.

in the Pecos River Compact's unappropriated flood water provisions. The Pecos River Compact reflects an agreement that when flood flows are so large that water passes Red Bluff Reservoir and Girvin, Texas, unused and wasted, the states will split the loss by apportioning these unappropriated flood waters fifty percent to each state. As set forth in 1948 by R. J. Tipton, Engineer Advisor to the Federal Compact Representative:

> "There is a quantity of floodwater that is unappropriated in the basin. It wastes to the Gulf of Mexico unused. That quantity of water is that water which spills from Red Bluff Reservoir and is not used in the Texas area above Girvin. That water belongs to neither State. It can be made usable by the construction of additional storage facilities. The two States at this moment have agreed to apportion that on a 50-50 basis. I think that is eminently fair. I can see no other basis for doing that."[3]

The states also agreed in the Compact that unappropriated flood water included water stored in New Mexico that would otherwise spill over Red Bluff Reservoir unused. In the Compact, unappropriated flood water includes water, which if not impounded, would flow past Girvin, Texas.[4] The Pecos River Commission interpreted this definition as it applied to water stored in Brantley Reservoir in a resolution stating that water can only be stored in Brantley above 40,000 AF (adjusted for sedimentation) for purposes of flood control or as unappropriated flood water.[5]

The 2014 Flood Event

A review of the 2014 Flood Event and its aftermath support the first ever application of the unappropriated flood water provisions of the Pecos River Compact. In September and October 2014, the remnants of Tropical Storm Odile resulted in widespread heavy rainfall in the Pecos River Basin in New Mexico and Texas. In an effort to control the heavy rainfall and resulting flood, New Mexico began to curtail releases from Brantley and Avalon dams on September 8, 2014, and continued to hold water in Brantley Reservoir throughout the rest of 2014. By September 19, 2014, Brantley Reservoir had exceeded the 42,057 AF maximum authorized Carlsbad Irrigation District (CID) Project conservation storage limit.[6] And by October 3, 2014, Brantley Reservoir was storing over 78,000 AF of water.[7] The reservoir ultimately impounded 36,419 AF above 42,057 AF from September 19 through October 3, 2014, during the actual storm event, and 43,173 AF in both WY 2014 and WY 2015. By the

[3] Transcript, Pecos River Commission Meeting, Nov. 8-13, 1948, at 98.

[4] Pecos River Compact, Art. II(i).

[5] Pecos River Commission Resolution of March 6, 1984.

[6] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2014 Table at D21.

[7] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2014 Table at D35.

end of 2014, Brantley Reservoir reached 81,095 AF.[8] and eventually reached a maximum storage of over 85,000 AF on March 25, 2015.[9]

Before the 2014 Flood Event, Red Bluff Reservoir was about 50 percent full. Because of the 2014 Flood Event, Red Bluff Reservoir began spilling on September 21, 2014. Ultimately, Red Bluff Reservoir rose to a depth of over four feet above its uncontrolled service spillway and spilled about 64,000 AF through the outlet works and principal spillway to the Pecos River, wasted and unused, from September 19 through November 21, 2014.[10]

On November 20, 2014, the Texas Commissioner to the Pecos River Commission, Rick Tate, sent an email requesting that New Mexico continue to store waters that would otherwise have been released downstream to Texas "until such time as they can be utilized in Red Bluff Reservoir." New Mexico's commissioner to the Pecos River Commission, Ray Willis, formally responded affirmatively to Texas's request on January 26, 2015.

Red Bluff Reservoir remained above an elevation of 2,826 feet (NAND 88) through March 2015.[11] The service spillway elevation for Red Bluff Reservoir is 2,828.9 (NAND 88).[12] With less than three feet of freeboard below the service spillway elevation, there was still not a sufficient factor of safety for the reservoir to receive the deliveries of water from the 2014 and 2015 storage without releasing water downstream unused. Therefore, Red Bluff Water Power Control District (Red Bluff) requested that New Mexico and the Bureau of Reclamation (Reclamation) continue to hold water in Brantley Reservoir as long as possible until the deliveries could be stored in Red Bluff Reservoir and beneficially used as indicated in Texas's request letter of November 20, 2014.

Reclamation, New Mexico and Texas met several times by conference call between February and March of 2015, during which Reclamation indicated it could no longer hold water in Brantley Reservoir without a contract under the Warren Act and would, therefore, release water from Brantley even if Red Bluff Reservoir was full and would have to pass flows downstream. In response, on March 8, 2015, Red Bluff began to release water to make room for the additional inflows of the planned deliveries. Red Bluff released 29,710 AF.[13] between March 8 and June 15, 2015, when

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[8] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2014 Table at D124.

[9] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2015 Table at C86.

[10] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2014 Table at Q128.

[11] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, Red Bluff Capacity at G460.

[12] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, Red Bluff Capacity at I5.

[13] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2015 Table at 0369.

irrigation releases (11,361 AF)[14] also began. In October 2015, Red Bluff again made releases, ultimately releasing a total of 42,239 AF unused to allow room for the deliveries from Brantley Reservoir.[15]

Proposed Revisions to WY 2014 and WY 2015 Accounting

1. Correction of Dark Canyon Draw Flood Inflows

Texas and New Mexico agree that the flood inflows contained in the current WY 2014 accounting have an incorrect figure based on the streamflow values estimated by the USGS for the Dark Canyon Draw gage (08405105) during the 2014 Flood Event. We propose that this correction be made along with any correction for the treatment of unappropriated flood water.[16]

2. Revised Apportionment as Unappropriated Flood Water of the Water Stored in Brantley Reservoir and Evaporative Loss Credit

To properly apportion the water stored in Brantley Reservoir and, as discussed above, to provide New Mexico with reservoir loss credit for the stored unappropriated flood water, Texas proposes apportioning as unappropriated flood water all of the water stored in Brantley Reservoir in WY 2014 and WY 2015 above the allowable amount for CID's storage in Brantley Reservoir.[17] As discussed in more detail below, once the amount stored is determined, then the unappropriated flood water must be removed from index inflows apportioned with the 1947 index formula and the average historical (gaged) outflow in both WY 2014 and WY 2015.[18] After removing the flows from the index apportionment, the proposal treats the Texas portion of the WY 2014 unappropriated flood water stored in Brantley Reservoir (fifty percent of the total unappropriated flood water) as a delivery debit in WY 2014 for later delivery to Texas (see line C.4) and credits New Mexico for evaporation occurring in WY 2014 from the Texas stored water (see line C.5).[19]

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[14] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2015 Table at N368.

[15] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2015 Table at 0368.

[16] See Dark Canyon Approved 9.2014.xlsx. Adjustments for using the final USGS flows for Dark Canyon Draw during the 2014 flood event resulted in a reduction of the credit for New Mexico from 1.9 TAF to 0.7 TAF.

[17] Allowable CID storage was 42,057 AF for WY 2014 and 42,196 AF for WY 2015. See Note 6 in Brantley accounting table in Texas Water Stored in NM Tracking Table APPROVED USGS.xlsx.

[18] See Attachment 2: Table 1 for WY 2014 and Attachment 3: Table for WY 2015; WY2014 Accounting Tables UFW Final.xlsx and WY2015 Accounting Tables UFW Final.xlsx.

[19] See Attachment 2: Table 1 for WY 2014; WY2014 Accounting Tables UFW Final.xlsx.

In WY 2015, when the stored water was released to Texas, the proposal credits New Mexico for delivery of the Texas portion of the stored unappropriated flood water.[20] This amount was calculated as fifty percent of the total amount stored (see line C.4). The evaporation occurring in WY 2015 from the Texas water stored in Brantley Reservoir is also credited to New Mexico (see line C.5).[21]

a. Calculation of the Amount of Stored Unappropriated Flood Water

The proposed amount stored of 43,173 AF is calculated as the amount stored in Brantley Reservoir over the CID maximum of 42,057 AF in 2014 plus the amount of storage through the peak accumulated storage in Brantley Reservoir on March 25, 2015. As shown in the attached spreadsheet, of this 39,038 AF accumulated in WY 2014 and 4,135 AF accumulated in WY 2015.[22] This stored unappropriated flood water was then deducted from Brantley storage inflows in Table 2 (Flood inflow Sumner Dam to Artesia) and Table 3 (Flood Inflow Artesia to Carlsbad) for the amount in WY 2014 and Table 2 for the amount in WY 2015.[23]

In WY 2015 when New Mexico released the stored water, a total of 29,946 AF was subtracted from the gaged outflows in the Pecos River gages below Brantley to Red Bluff in Tables 7 and 12, with reductions for channel losses downstream.[24] The elevation and storage at Avalon was also adjusted to remove these flows.[25] Almost all of the released stored water passed Red Bluff Reservoir wasted and unused in WY 2015, again demonstrating the need to account for the stored water as unappropriated flood water.[26]

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[20] See Attachment 3: Table 1 for WY 2015; WY2015 Accounting Tables UFW Final.xlsx. Note that New Mexico is credited for the full amount stored; Texas absorbs the channel losses.

[21] *Id.*

[22] Brantley and Red Bluff Reservoir Operations 2014-2015.xlsx, 2014 Table at E129, 2015 Table at D370.

[23] See Attachment 2: Table 1 for WY 2014 and Attachment 3: Table 1 for WY 2015; 2014 Accounting Tables UFW Final.xlsx and WY2015 Accounting Tables UFW Final.xlsx.

[24] WY2015 Accounting Tables UFW Final.xlsx.

[25] See WY2015 Accounting Tables UFW Final.xlsx, Table 12 at J23.

[26] During WY 2015, Red Bluff Reservoir released about 29,710 AF of the 29,946 AF of stored unappropriated flood water that was released downstream from Avalon Reservoir because Red Bluff could not accommodate the deliveries. Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2015 Table at O369.

b. Calculation of the Reservoir Loss or Evaporation Credit

The calculation of the reservoir loss or evaporation credit proposed here varies from the calculated evaporation and crediting in New Mexico's proposal. We disagree with New Mexico's proposed evaporation credit because it doesn't charge the losses to each state in proportion to the stored water allocated to each state, and it incorrectly allocates too much water to Texas.

New Mexico's calculation of an evaporation credit for the water stored in Brantley above the maximum allowable for the CID project incorrectly allocates evaporation to the Texas portion of the stored water. As set forth in the Pecos River Compact, "[r]eservoir losses shall be charged to each state in proportion to the quantity of water belonging to the state in storage at the time the losses occur."[27] In its proposal, New Mexico calculated evaporation based on the elevation of the assumed CID storage rather than based on the quantity of water belonging to each state. This "stacked" methodology first calculates the evaporation for New Mexico as if the reservoir was at the maximum allowable volume for CID and then allocates the remaining evaporation up to the actual reservoir level to Texas. This method incorrectly charges Texas for all of the evaporation at the top layer of the reservoir and its larger area instead of allocating the total evaporation for the reservoir in proportion to the amount of water in the reservoir allocated to each state.

Our proposed evaporation credit begins with calculating the total reservoir evaporation based on the pan evaporation and reservoir area. The amount of allowable storage for New Mexico is then subtracted from the daily total storage in Brantley Reservoir between September 19, 2014, and September 13, 2015, when the deliveries to Texas were completed and the unappropriated flood waters were reduced to zero, to determine the evaporation related to storage of unappropriated flood water stored for each year.[28] The total evaporation for each water year is then divided on volume percentage between the CID storage and the stored unappropriated flood water. One-half of the evaporation for unappropriated flood water stored was then apportioned and credited to New Mexico in each accounting year. As shown in the attached spreadsheet, the amount for 2014 was 3.297 TAF and for 2015 was 15.251 TAF based on this method.[29]

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[27] Pecos River Compact, Art. VI(d)(iii).

[28] Note that the evaporation is accumulated until all the stored water was released in September 2015, whereas the stored total is based on the maximum level of Brantley Reservoir in March of 2015. Pro-rated Evap 2014-2015 Final.xlsx, Evap Summary and Brantley rev accounting table.

[29] Evap Summary, Pro-rated Evap 2014-2015 Final.xlsx. This spreadsheet provides a summary and comparison of the evaporation amounts, and the attached table "Brantley rev accounting table" contains the calculations.

3. Revised Apportionment of Unappropriated Flood Water that Passed Red Bluff Reservoir and Girvin, Texas, Unused During the 2014 Flood Event

In addition to water stored in Brantley Reservoir from the 2014 Flood Event, approximately 63,862 AF passed through Red Bluff Reservoir and flowed past Girvin, Texas, wasted and unused during the 2014 Flood Event.[30] Our proposal also seeks to have this water apportioned as unappropriated flood water per the Pecos River Compact.[31] To make this correction, similar to the stored water, this unappropriated flood water is removed from the index inputs that are apportioned with the 1947 condition index formula and from the deliveries that are compared to the 1947 index output to determine departures. This water does not appear in any later credit or debit in the accounting; it is simply removed from the accounting entirely as both states split the lost water.

The proposal calculates this unappropriated flood water as the sum of Red Bluff Reservoir spills and releases during the 2014 Flood Event for a total of 63,862 AF.[32] This unappropriated flood water was removed from the regular flood inflows in Table 4 (Flood inflow Carlsbad to State Line) and from the gaged flows for the Pecos River at Red Bluff in Table 12 in the accounting tables for WY 2014.[33] As shown in the proposed new Table 1 for WY 2014, the proposal reduces the total annual regular flood inflow from 348.7 TAF to 245.8 TAF, and the Total Annual Historical Outflow from 195.1 TAF to 131.3 TAF.[34]

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[30] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2014 Table at Q128. Red Bluff Water Power Control District provided the Red Bluff Reservoir flow data in this spreadsheet.

[31] Pecos River Compact, Art. II (i)(definition); Art. VI, (c)(iv) (Unappropriated floodwaters not stored should be calculated with inflow-outflow method).

[32] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2014 Table at Q128.

[33] See WY2014 Accounting Tables UFW Final.xlsx, Table 4 at 124; Table 12 at Q17.

[34] Attachment 2: Table 1 for WY 2014; 2014 Accounting Tables UFW Final.xlsx.

We look forward to discussing this proposal and answering any questions you may have.

Sincerely,

Mary Smith

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Cc: Suzy Valentine, P.E., Texas Commission on Environmental Quality, Technical Advisor for the State of Texas

Kim Bannerman, New Mexico Interstate Stream Commission, Attorney for the State of New Mexico

Hannah Riseley-White, New Mexico Interstate Stream Commission, Technical Advisor for the State of New Mexico

Attachment 1

Revisions to WY 2014 and WY 2015 accounting tables for Unappropriated Flood Waters

1. Revisions related to the change in Dark Canyon Draw USGS data for 2014:
    a. This is [sic] straight-forward change in the Dark Canyon flows and re-scalping the reach from Carlsbad to Red Bluff. NM has already agreed to this change in WY 2014 Tables 1, 3, 4, 7, and 12.[(1)] The result of this change in the original accounting is to reduce the credit from 1.9 TAF to 0.7 TAF. These changes were incorporated into the revised analyses for unappropriated flood water (UFW) in WY 2014 and WY 2015 as described below.
2. Considering the storage held in Brantley above the CID allowable maximums for each year to be UFW, as defined in the Pecos River Compact and the 1984 Resolution related to how Brantley will be operated:
    a. 2014: Removing UFW inflows into Brantley from index inflows (Tables 1, 2, 3, and 12)[(1)]
        i. Inflows are based on increase in storage in Brantley above CID/NM allowable storage of 42,057 AF in 2014 = 39,038 AF
    b. 2015: Removing UFW inflows into Brantley from index inflows (Tables 1, 2, and 12)[(2)]
        i. Inflows are based on change in storage in Brantley when storage was above CID/NM allowable storage of 42,196 AF in 2015 until the reservoir peak in March and when NM began to release for CID = 4,135 AF[(3)]
    c. 2015: Removing 2014 UFW NM releases to Red Bluff in 2015 from the inflows and outflows (below Avalon) (Tables 1, 3, 7, 9, 10, 11 and 12)[(2)]
        i. Inflows based on releases to Texas in 2015 as reported by NM ISC = 29,946 AF (from Avalon)[(3)]
        ii. Adjustments were also made to elevation of Avalon in the accounting tables to account for lower elevations during months if no releases were made[(2)]
    d. 2014: Subtracting ½ of the 2014 stored UFW flows, since it has not been delivered yet (Table 1, C.4) = 0.5 x 39,038 = 19,519 AF[(1)]
    e. 2015: Adding ½ of the 2014 plus 2015 stored UFW (when it was delivered) (Table 1, C.4) = 0.5 x (39,038 + 4,135) = 21,587 AF[(4)]
3. Revising the evaporation on the additional storage of UFW in Brantley by pro-rating the daily evaporation according to the percentage of each volume for the CID/NM storage and the additional UFW storage:
    a. 2014: Adding ½ of evaporation (Table 1, C.5), .5 x 3,297 AF = 1,649 AF[(4)]
    b. 2015: Adding ½ of evaporation (Table 1, C.5), .5 x 15,251 AF = 7,626 AF[(4)]

4. Considering the flood water generated below Brantley in 2014 which spilled from Red Bluff to be UFW per the Compact definition:

    a. 2014: Removing the amount spilled and released from Red Bluff in 2014 during the storm event (63,862 AF)[3] from the flood inflows from Carlsbad to State Line (Tables 1 and 4)[1]

    b. 2014: Removing the amount spilled and released from Red Bluff (63,862 AF) from Pecos River at Red Bluff gage outflows. This water simply goes away as UFW because it is split 50-50 between the states (Tables 1 and 12)[1]

[1] *WY2014 Accounting Tables UFW Final.xlsx*

[2] *WY2015 Accounting Tables UFW Final.xlsx*

[3] *Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx*

[4] *Pro-rated Evap 2014-2015 Final.xlsx*

Attachment 2

Table 1. General Calculation of Annual Departures (B.1) **WY (CY) 2014**

ADJUSTED FOR UNAPPROPRIATED FLOOD FLOWS **2014**

With Brantley storage removed, Red Bluff spills removed, and minus 1/2 storage plus 1/2 evap and DC Adj

Prepa Suzy Valentine, P.E.

Toda 12/21/17

Final Est. of CY Departure = **1.9** **0.7** **-16.9** **TAF**

	Final RM Values		RM Original	DC Adjusted	UFW Rev and DC Adj	Notes	
	2012	2013	2014	2014	2014		
B.1.a. Index Inflows							
(1) Annual flood inflow							
(a) Gaged flow Pecos R blw Sumner Dam (Table 12)	64.9	63.6	120.6	120.6	120.6		
(b) Flood inflow Sumner Dam to Artesia (Table 2)	-17.2	54.4	57.3	57.3	**22.3**	**35.038**	**removed Brantley storage**
(c) Flood inflow Artesia to Carlsbad (Table 3)	11.2	39.9	42.5	42.5	**38.4**	**4.0**	**removed Brantley storage**
(d) Flood inflow Carlsbad to State Line (Table 4)	3.2	23.2	122.8	**128.3**	**64.4**	**63.862**	**removed spills and releases from Red Bluff**
Total annual flood inflow	62.1	181.1	343.23	348.73	245.75		
(2) Index inflow (3-year average)			195.5	197.3	163.0		
B.1.b. 1947- Condition Delivery Obligation			89.3	90.5	68.9		
B.1.c. Average Historical (Gaged) Outflow							
(1) Annual historical outflow							
(a) Gaged flow Pecos R at Red Bluff, NM (Table 12)	17.7	51.0	146.6	146.6	**82.8**	**63.862**	**removed spills and releases from Red Bluff**
(b) Gaged flow Delaware R nr Red Bluff, NM (Table 12)	1.7	12.2	48.3	48.3	48.3		
(c) Annual diversions for C-2713, SWS, (Table 12)	0.0	0.2	0.2	0.2	0.2		
Total annual historical outflow	19.4	63.4	195.1	195.1	131.3		
(2) Average historical outflow (3-year average)			92.6	92.6	71.4		
B.1.d. Annual Departure			3.4	2.2	2.4		
C. Adjustments to Computed Departure							
(1) Adjustments for depletions above Sumner Dam							
(a) Depletions due to irrigation (Table 5)	3.2	2.0	-0.2	-0.2	-0.2		
(b) Depl from operation of Santa Rosa Res (Table 6)	1.0	8.6	-1.7	-1.7	-1.7		
(c) Transf. water use to upstr. Sumner Dam (Table 12)	0.0	0.0	0.0	0.0	0.0		
C.1. Recomputed Index Inflows							
(1) Annual flood inflow							
(a) Gaged flow Pecos R blw Sumner Dam	69.1	74.2	118.7	118.7	118.7		
(b) Flood inflow Sumner Dam to Artesia	-17.2	54.4	57.3	57.3	**22.3**	**35.038**	**removed Brantley storage**
(c) Flood inflow Artesia to Carlsbad (Table 3)	11.2	39.9	42.5	42.5	**38.4**	**4.0**	**removed Brantley storage**
(d) Flood inflow Carlsbad to State Line	3.2	23.2	122.8	128.3	**64.4**	**63.862**	**removed spills and releases from Red Bluff**
Total annual flood inflow	66.3	191.7	341.3	346.8	243.8		
Recomputed index inflow (3-year average)			199.8	201.6	167.3		
C.1.c. Recomputed 1947-Condition Delivery Obligation (Recomputed Index Outflow)			92.1	93.3	71.5		
Recomputed Annual Departures			0.6	-0.7	-0.2		
Credits to New Mexico							
C.2. Depletions due to McMillan Dike			1.4	1.4	1.1		
C.3. Salvage water analysis (Table 12)			0.0	0.0	0.0		
Subtotal			**1.9**	**0.7**	**1.0**		
C.4. Unappropriated flood waters			0.0	0.0	**-19.5**	**39.038**	**subtract 1/2 of Brantley storage not yet delivered**
C.5. Texas water stored in NM reservoirs (Table 12)			0.0	0.0	**1.6**	**3.3**	**add 1/2 Brantley additional evap for 2014**
C.6. Beneficial CU of Delaware River water (Table 12)			0.0	0.0	0.0		
Final Calculated Departure, TAF			**1.9**	**0.7**	**-16.9**		

Attachment 3

Table 1. General Calculation of Annual Departures in TAF (B.1) (WY 2015)

ADJUSTED FOR UNAPPROPRIATED FLOOD FLOWS **2015**

Prep. by: Suzy Valentine, P.E.

Date: 12/21/17

		0.7	-16.9	11.9	33.8	
	Final RM Values	**Revised RM Values with DC Corrections***	**Removed RB Spills, Brantley storage removed, 1/2 evap added ***	**Final RM Values**	**Removed Brantley Releases, with 1/2 Storage and 1/2 Evap Added**	**Notes**
	2013	**2014**	**2014**	**2015**	**2015**	
B.1.a. Index Inflows						
(1) Annual flood inflow						
(a) Gaged flow Pecos R blw Sumner Dam (Table 12)	63.6	120.6	120.6	100.7	100.7	
(b) Flood inflow Sumner Dam to Artesia (Table 2)	54.4	57.3	22.3	28.5	24.4	4.134 remove Brantley 2015 storage
(c) Flood inflow Artesia to Carlsbad (Table 3)	39.9	42.5	38.4	3.2	2.1	29.9 remove Avalon 2015 releases
(d) Flood inflow Carlsbad to State Line (Table 4)	23.2	128.3	64.4	6.2	6.2	
Total annual flood inflow	181.1	348.7	245.75	138.6	133.3	
(2) Index inflow (3-year average)		197.3	163.0	222.8	186.7	
B.1.b. 1947- Condition Delivery Obligation (Index Outflow Eqn)		90.5	68.9	107.5	83.6	
B.1.c. Average Historical (Gaged) Outflow						
(1) Annual historical outflow						
(a) Gaged flow Pecos R at Red Bluff, NM (Table 12)	51.0	146.6	82.8	101.1	74.9	29.9 remove Avalon 2015 releases
(b) Gaged flow Delaware R nr Red Bluff, NM (Table 12)	12.2	48.3	48.3	5.4	5.4	
(c) Annual diversions for C-2713, Brine Partners, (Table 12)	0.2	0.2	0.2	0.2	0.2	
Total annual historical outflow	63.4	195.1	131.3	106.7	80.5	
(2) Average historical outflow (3-year average)		92.6	71.4	121.7	91.7	
B.1.d. Annual Departure		2.2	2.4	14.2	8.1	
C. Adjustments to Computed Departure						
(1) Adjustments for depletions above Sumner Dam						
(a) Depletions due to irrigation (Table 5)	2.0	-0.2	-0.2	-3.2	-3.2	
(b) Depl from operation of Santa Rosa Reservoir (Table 6)	8.6	-1.7	-1.7	16.7	16.7	
(c) Transfer water use to upstream Sumner Dam (Table 12)	0.0	0.0	0.0	0.0	0.0	
C.1. Recomputed Index Inflows						
(1) Annual flood inflow						
(a) Gaged flow Pecos R blw Sumner Dam	74.2	118.7	118.7	114.2	114.2	
(b) Flood inflow Sumner Dam to Artesia	54.4	57.3	22.3	28.5	24.4	
(c) Flood inflow Artesia to Carlsbad (Table 3)	39.9	42.5	38.4	3.2	2.1	
(d) Flood inflow Carlsbad to State Line	23.2	128.3	64.4	6.2	6.2	
Total annual flood inflow	191.7	346.8	243.8	152.0	146.8	
Recomputed index inflow (3-year average)		201.6	167.3	230.2	194.1	
C.1.c. Recomputed 1947-Condition Delivery Obligation (Recomputed Index Outflow)		93.3	71.5	112.7	88.4	
Recomputed Annual Departures		-0.7	-0.2	9.1	3.3	
Credits to New Mexico						
C.2. Depletions due to McMillan Dike		1.4	1.1	1.5	1.3	
C.3. Salvage water analysis (Table 12)		0.0	0.0	0.0	0.0	
Subtotal		**0.7**	**1.0**	**11.9**	**4.6**	
C.4. Unappropriated flood waters		0.0	-19.5	0.0	21.6	43.2 add 1/2 of Brantley storage for both 2014 and 2015
C.5. Texas water stored in NM reservoirs (Table 12)		0.0	1.6	0.0	7.6	15.3 add 1/2 Brantley additional pro-rated evap for 2015
C.6. Beneficial CU of Delaware River water (Table 12)		0.0	0.0	0.0	0.0	
Final Calculated Departure, TAF		**0.7**	**-16.9**	**11.9**	**33.8**	

[SEAL]
KEN PAXTON
ATTORNEY GENERAL OF TEXAS

Post Office Box 12548, Austin, Texas 78711-2548 •
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January 26, 2018

Neil S. Grigg, P.E., Ph.D.
Pecos River Compact River Master
749 S. Lemay, Ste. A3, PMB 330
Ft. Collins, CO 80524
neil.grigg@colostate.edu

Via E-mail and Certified Mail, Return Receipt Requested # 7008 2810 0000 1187 9552

Re: Texas Response to New Mexico's December 22, 2017, Position Paper on Accounting Adjustment for Water Year 2015

Dear Dr. Grigg,

Thank you for the opportunity to respond to New Mexico's position paper. For the reasons stated below, Texas disagrees with New Mexico's proposed accounting related to the 2014 flood event.

Texas shouldn't be charged for all evaporative losses.

1. **The flood waters from Tropical Storm Odile stored in Brantley Reservoir are unappropriated flood waters.**

The Pecos River Compact (the Compact) defines "unappropriated flood waters" as "water originating in the Pecos River Basin above Red Bluff Dam in Texas, the impoundment of which will not deplete the water usable by the storage and diversion facilities existing in either state under the 1947 condition and which if not impounded will flow past Girvin, Texas."[1] Beginning in September 2014, the Bureau of Reclamation (Reclamation) impounded flood water from Tropical Storm Odile to prevent downstream flooding.[2] After Reclamation indicated that its flood control objective was ending and that it would not be able to continue to hold water in Brantley Reservoir without a contract under the Warren Act, Red Bluff Reservoir released 29,710 AF of water to make room for flood water releases from Brantley.[3]

[1] Pecos River Compact, Art. II(i).

[2] Brantley and Red Bluff Reservoir operations 2014-2015.xlsx, 2014 Table at D21.

[3] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2015 Table at O369. Red Bluff ultimately released 42,239 AF of water to accommodate releases from Brantley Reservoir. Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2015 Table at O368. None of this water was used. However, Texas did not include releases made on behalf of Carlsbad Irrigation District as unappropriated flood water in its proposed accounting.

This water flowed past Girvin, Texas, unused and wasted. Therefore, it is unappropriated flood water under the Compact.[4]

Article III(f) of the Compact states that "[b]eneficial consumptive use of unappropriated waters is hereby apportioned fifty per cent (50%) to Texas and fifty per cent (50%) to New Mexico." And the Compact apportions reservoir losses associated with the storage of unappropriated flood waters "in proportion to the quantity of water belonging to the state in storage at the time the losses occur."[5] Therefore, Texas's proposed accounting credits New Mexico for delivery of the Texas portion of the stored unappropriated flood water and for evaporative losses for Texas's portion of the stored water.[6]

2. Article XII doesn't apply because Texas didn't use the water stored in Brantley.

Article XII of the Compact provides that consumptive uses by the United States, including uses incident to impoundment, are charged to the state in which the use is made.[7] This provision doesn't apply to the 2014-2015 storage of unappropriated flood waters in Brantley Reservoir for one simple reason: the water was not used in Texas. Ultimately, Red Bluff released 29,710 AF of water to make room for the flood water releases from Brantley Reservoir.[8] The water passed Girvin, Texas, unused.

Reclamation wasn't storing the flood waters for use in Texas. Reclamation's stated purpose and legal authority for holding the water was flood control (for both states).[9] In an email to the states, Ms. Carolyn Donnelly, Bureau of Reclamation, stated that Reclamation was holding the water to prevent damage to Red Bluff

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[4] Even the New Mexico Commissioner acknowledged at the time that the water was most likely unappropriated flood water under the Compact. In his letter to Commissioner Tate, Commissioner Willis stated: "It is my understanding that the Pecos River Commission engineer advisers from Texas and New Mexico, Ms. Suzy Valentine and Mr. Greg Lewis, respectively, are in agreement that the water held in Brantley Reservoir above its Carlsbad Project storage limitation as a result of the September 2014 storm events is likely Unappropriated Flood Waters, as defined in Article II(i) of the 1948 Pecos River Compact." *See* Exhibit 1 to New Mexico Position Paper, January 26, 2015, letter from Commissioner Willis to Commissioner Tate.

[5] Pecos River Compact, Art. VI(d)(iii).

[6] For further detail, *see* Texas Position Paper at 4-5.

[7] "The consumptive use of water by the United States or any of its agencies, instrumentalities or wards shall be charged as a use by the state in which the use is made; provided, that such consumptive use incident to the diversion, impounding, or conveyance of water in one state for use in the other state shall be charged to such latter state." Pecos River Compact Art. XII.

[8] Brantley and Red Bluff Reservoir operations 2014-2015 Final.xlsx, 2015 Table at O369.

[9] Exhibit 2 to New Mexico's Position Paper. Texas disagrees with the characterization of many of the statements in New Mexico's Position Paper. But in the interest of brevity, Texas will respond only to those statements that are relevant to its response.

Reservoir's service spillway, to reduce flooding downstream of Red Bluff Reservoir, and to address New Mexico's concerns related to Pecos River crossings in Eddy County, NM.[10] In July 2015, Reclamation began reviewing its authority to continue to hold the water and concluded that its flood control authority was beginning to expire.[11] Because the State of Texas didn't have a contract to store water in Brantley Reservoir, Reclamation told Texas that it would begin releases the first week of August 2015.[12] To accommodate Reclamation's release of flood water, Red Bluff Reservoir had to release water due to dam safety requirements.[13] That water passed Girvin, Texas, unused. Therefore, the accounting for the delivery of the water and evaporative losses during its storage in Brantley Reservoir are governed by Article III(f) and Article VI(d)(iii) of the Compact.

3. **Texas didn't agree to be charged for all evaporative losses from Brantley.**

On November 20, 2014, the Texas commissioner asked New Mexico to store water until "such time as they can be utilized in Red Bluff Reservoir."[14] In response, the New Mexico commissioner agreed and stated that it was his position that Texas should bear all evaporative losses.[15] Texas never agreed to this condition.[16] However, even if

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[10] Exhibit 2 to New Mexico's Position Paper. New Mexico states that they only agreed that water be held in Brantley out of comity for Texas. But Odile resulted in flooding on the Pecos in New Mexico as well as Texas. The flooding washed all but one bridge out over the Pecos in New Mexico, and a swift release of water from Brantley would have threatened New Mexico's only remaining river crossing downstream of Brantley Reservoir in 2015. *See* Exhibit 1: 2015.02.03 – Sheppard to Marshall *et al.*, re Water release from Brantley Reservoir. *See also*, Exhibit 2: 2015.01.28 – Donnelly to Lewis *et al.*, re Brantley.

[11] Exhibit 2 to New Mexico's Position Paper.

[12] Exhibit 2 to New Mexico's Position Paper. New Mexico implies that Texas should have contracted for storage in Brantley. While Reclamation suggests that Texas could contract for storage, it's questionable whether Texas could have done so. New Mexico's Position Paper at 2. The Warren Act doesn't appear to authorize contracts with states. *See* 43 U.S.C. § 523. And other applicable laws, such as the National Environmental Policy Act and the Endangered Species Act, would have prevented a timely contract even if the Warren Act were applicable.

[13] *See* Texas Position Paper at 3.

[14] Exhibit 1 to New Mexico Position Paper, November 20, 2014, email from Commissioner Tate to Commissioner Willis.

[15] Exhibit 1 to New Mexico Position Paper, January 26, 2015, letter from Commissioner Willis to Commissioner Tate. New Mexico argues that under Article IV(e) of the Compact allows the Pecos River Commission to "determine the conditions under which Texas may store water in works constructed in and operated by New Mexico." This provision is inapplicable. New Mexico Position Paper at 4. New Mexico does not operate Brantley Reservoir. *See* New Mexico Position Paper at 2.

[16] Texas has never agreed to New Mexico's accounting. New Mexico first presented its formal proposal for a final accounting to Texas's legal adviser on August 22, 2016. *See* Exhibit 3: 2016.08.22 – Haas to Atwood re Draft Joint Motion re Storage of Texas Water. On September 30, 2016, Texas's

it had, it wouldn't apply to the accounting, because New Mexico didn't deliver the water to Texas when Texas could use it.

New Mexico says that it never would have agreed to the storage if it couldn't charge all the evaporative losses to Texas. But if Reclamation released the water in 2014, the flood damage concerns in New Mexico would still have prevented the release of flood inflows as they occurred, and some storage in 2014 and 2015 would have been required.[17] Ultimately, the water would still have flowed past Girvin, Texas, wasted and unused. Whether released in November 2014 or August 2015, the water was unappropriated flood water, and thus both states bear the loss of the use of that water equally under the Compact.

4. **The Compact requires that evaporative losses be calculated by volume, not by elevation.**

As set forth in further detail in Texas's position paper, Texas disagrees with New Mexico's calculation of an evaporation credit for the water stored in Brantley.[18] New Mexico calculates evaporation based on the elevation of the assumed Carlsbad Irrigation District storage rather than the quantity of water belonging to each state.[19] This method incorrectly charges Texas for all the evaporation at the top layer of the reservoir with its larger area. The Compact states that "[r]eservoir losses shall be charged to each state in proportion to the quantity of water belonging to the state in storage at the time the losses occur."[20] The Texas proposal calculates the loss by volume, in accordance with the Compact.

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legal adviser indicated that Texas would present a counter-proposal. Exhibit 4: 2016.09.30 – Atwood to Haas re Draft Joint Motion re Storage of Texas Water. New Mexico and Texas notified the River Master of a potential dispute in October 2016. Exhibit 5: 2016.10.13 – Update on Accounting Dispute to Dr. Grigg. Texas presented New Mexico with its counter-proposal in January 2017. New Mexico urges that Texas should be bound by New Mexico's accounting, claiming that the Texas engineer adviser agreed to it in concept at a February 2016 meeting between engineer advisers. Texas disagrees with New Mexico's characterization of the meeting. Regardless, however, of the characterization of events, the Texas engineer adviser doesn't have the legal authority to bind Texas in a Compact dispute. *See*, *generally*, Pecos River Compact.

[17] For example, on February 3, 2015, Mr. Chuck Sheppard of Southwest Salt, a New Mexico company, wrote to representatives of Texas and New Mexico expressing his concern about a release from Brantley Reservoir and the potential to wash out the Dog Town road and bridge in New Mexico. *See* Exhibit 1: 2015.02.03 – Sheppard to Marshall *et al.*, re Water release from Brantley Reservoir. *See also*, Exhibit 2: 2015.01.28 – Donnelly to Lewis *et al.*, re Brantley.

[18] Texas Position Paper at 5. New Mexico also proposes to account for all evaporative loss only in Water Year 2015. Because evaporation occurred in both years, those losses should be accounted for in both Water Year 2014 and 2015, as set forth in Texas's proposal.

[19] Exhibit 5 to New Mexico Position Paper, footnotes 9 and 11.

[20] Pecos River Compact, Art. VI(d)(iii).

The flood water that passed Red Bluff Reservoir and Girvin, Texas, are unappropriated flood waters.

As set forth in further detail in Texas's position paper, in addition to the water stored in Brantley Reservoir from the 2014 flood event, approximately 63,862 AF passed through Red Bluff Reservoir and flowed past Girvin, Texas, wasted and unused due to the 2014 flood event. Therefore, this water meets the Compact's definition of unappropriated flood water and should be apportioned equally between the states. The New Mexico proposal counts the unused water as a State-line delivery credit, rather than unappropriated flood water, as the Compact requires.

New Mexico's proposed accounting violates the Compact and gives New Mexico a windfall for flood waters that Texas didn't benefit from.

Neither state benefited from the use of the flood waters from the 2014 flood event. When the states negotiated the Compact, they decided that neither state should be charged for water that it couldn't use. As R.J. Tipton, the engineer adviser to the Federal Compact Representative, stated in 1948:

> There is a quantity of floodwater that is unappropriated in the basin. It wastes to the Gulf of Mexico unused. That quantity of water is that water which spills from Red Bluff Reservoir and is not used in the Texas area above Girvin. That water belongs to neither State. It can be made usable by the construction of additional storage facilities. The two States at this moment have agreed to apportion that on a 50-50 basis. I think that is eminently fair. I can see no other basis for doing that.[21]

New Mexico's accounting treats wasted and unused water as if Texas had been able to use it, turning an historic weather event into a windfall for New Mexico. Providing credit for all the evaporative losses for non-beneficial flood waters, plus giving full delivery credit for flood waters wasted downstream is not an equitable distribution of the 2014 flood event, but benefits New Mexico to the detriment of Texas. Texas isn't asking to penalize New Mexico for storing water. It is simply asking for an equitable distribution that complies with the terms of the Compact.

[21] Transcript, Pecos River Commission Meeting, Nov. 8-13, 1948, at 98.

We look forward to the opportunity to discuss Texas's proposal with you further on March 1, 2018.

Sincerely,

/s/ Mary Smith
Mary E. Smith
Assistant Attorney General
Office of the Attorney General
Environmental Protection Division
P.O. Box 12548
Austin, Texas 78711-2548
Phone: (512) 475-4041

Cc: Suzy Valentine, P.E., Texas Commission on Environmental Quality, Technical Adviser for the State of Texas

Charles De Saillan, New Mexico Interstate Stream Commission, Attorney for the State of New Mexico *Via E-mail and CMRRR* 7008 2810 0000 1187 9576

Hannah Riseley-White, New Mexico Interstate Stream Commission, Technical Adviser for the State of New Mexico, *Via E-mail and CMRRR* 7008 2810 0000 1187 9569

* * *

[Omitted duplicate of Exhibits located at Tex. Br. 134a-137a.]

EXHIBIT 3

From: Haas, Amy, OSE
To: Atwood, Jane
Cc: Riseley-White, Hannah, OSE
Subject: Draft Joint Motion re Storage of Texas Water in New Mexico
Date: Monday, August 22, 2016 5:37:28 PM
Attachments: Motion to River Master –
TX Water Stored in NM NM Draft 8 22 16 PM.docx

Hello, Jane-

I have attached a draft joint motion to reconcile and account for Texas water stored in New Mexico during 2014 and 2015. The motion is intended to capture the discussions of the Texas and New Mexico Pecos River Compact Engineer Advisers (Suzy Valentine and Greg Lewis, respectively) in early 2016, as well as their meeting and calls with the River Master, Dr. Neil Grigg.

I would appreciate comments and edits at your earliest convenience as this issue is time-sensitive for New Mexico. Specifically, under the 2003 Pecos Settlement Agreement between New Mexico, the US (BOR), Carlsbad Irrigation District (CID) and Pecos Valley Artesian Conservancy District, the CID's deliveries to Texas are dependent upon how large New Mexico's cumulative Compact credit is on November 1st. The River Master's disposition of evaporation losses on Texas water stored in NM will directly bear on the amount of NM's Compact credit.

I look forward to hearing from you.

Regards,

Amy I. Haas
General Counsel
New Mexico Interstate Stream Commission
P.O. Box 25102
Santa Fe, New Mexico 87504
Phone: (505) 476-0558

* * *

[Omitted duplicate of Exhibit located at Tex. Br. 156a-159a.]

EXHIBIT 5

From: Suzy Valentine
To: Neil Grigg PhD
Cc: Hannah Riseley-White (hannah.riseley-white@state.nm.us); Atwood, Jane; amy.haas@state.nm.us
Subject: Update on Pecos River accounting motions
Date: Thursday, October 13, 2016 4:59:36 PM

Dr. Grigg,

Over the past year, Texas and New Mexico have been working to resolve the outstanding questions associated with the Pecos River and the precipitation events of 2014. Specifically, we have been discussing how to account for the 2014 flood inflows, subsequent storage in Brantley Reservoir, and eventual releases in 2015, all in accordance with the Pecos River Compact (Compact). As you recall, this was the topic of our meeting with you on February 11th of this year.

Since our February meeting, your final determination of Compact accounting for the Water Year 2015 has been completed. In addition, based on new USGS streamflow data, the two states have agreed on an approach to incorporate the changes in flows for Dark Canyon Draw for 2014. Also, in accordance with its understanding of the outcome of the February meeting, New Mexico drafted a proposed joint motion to modify the Water Year 2015 accounting by treating the storage of flood flows above the conservation storage limit in Brantley Reservoir as Texas' water and accounting for the additional evaporative losses associated with that storage as a credit to New Mexico. Texas disagrees with the New Mexico proposal for crediting reservoir losses and believes that treatment of all of the 2014 flood inflows as "regular" flood inflows in the 2014 and 2015 accounting does not meet the requirements of the Compact. Texas has been working on another accounting proposal for 2014 and 2015.

We would like to apologize for the delay in resolving this issue. Texas anticipates that it will complete its analyses and proposal in the next few weeks, and will submit both to New Mexico for its review and consideration. Thereafter, the states plan to meet to determine whether we can come to agreement on a joint motion to resolve the accounting issue. If this is not possible, we will respectfully request a meeting with you to discuss any discrepancies within our proposals and to work out a solution. Both states are committed to finding an equitable solution to this unprecedented situation on the Pecos River.

Thank you very much for your patience and assistance in this matter.

Regards,

Suzy and Hannah

Suzy Valentine, P.E., CFM
Interstate River Compacts Coordinator
Texas Commission on Environmental Quality
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Hannah Riseley-White
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NEW MEXICO INTERSTATE STREAM COMMISSION

[SEAL]

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January 26, 2017

SENT BY ELECTRONIC AND CERTIFIED MAIL
neil.grigg@colostate.edu

Neil S. Grigg, P.E., Ph.D.
River Master of the Pecos River
749 South Lemay Avenue Ste A3, PMB 330
Fort Collins, Colorado 80524

Re: New Mexico Response to Texas' Position Paper

Dear Dr. Grigg:

Pursuant to your letter of December 19, 2017, the State of New Mexico respectfully submits this response to the position paper of Texas, dated December 22, 2017.[1] In its position paper, Texas argues that the water the U.S. Bureau of Reclamation (Reclamation) stored in Brantley Reservoir in New Mexico at the request of Texas between September 19, 2014 and September 8, 2015 is "unappropriated flood waters" as defined in the Pecos River Compact.[2] Although the stored water was never apportioned between the states for their beneficial use, Texas nevertheless argues that the evaporation loss from this water should be charged equally to New Mexico and to Texas. In addition, Texas argues that the storm water that was released and spilled from Red Bluff Reservoir and flowed past Girvin, Texas is also "unappropriated flood waters" and the "loss" of that water should likewise be charged to New Mexico and Texas.

New Mexico disagrees that the loss of these waters should be apportioned between the states. First, the water was stored in Brantley Reservoir at the request

[1] Letter from Mary E. Smith, Assistant Attorney General, Texas Office of the Attorney General, to Neil Grigg, River Master of the Pecos River (Dec. 22, 2017) (hereinafter "Texas Position Paper").

[2] Pecos River Compact, art. II(i), Public Law No. 81-91 (1949).

of Texas and on the behalf of Texas. Texas should be responsible for evaporation loss from water stored on its behalf. Second, the states never agreed that these were "unappropriated flood waters" within the meaning of the Compact, and as to the water stored in Brantley Reservoir, the states agreed that it was not "unappropriated flood water." Third, the Compact provides for apportioning only the benefit – not the loss – of "unappropriated flood waters." Fourth, New Mexico had no control over water that was released or spilled from Red Bluff Reservoir, a Texas facility. The water lost to evaporation in Brantley Reservoir should not be charged to New Mexico, but should properly be charged, in full, to Texas. Nor should any of the water that was released or spilled from Red Bluff Reservoir be charged to New Mexico.

I. WATER STORED IN BRANTLEY RESERVOIR AT THE REQUEST OF TEXAS

The foundation of Texas' argument is that the water Reclamation stored at Texas' request in Brantley Reservoir in 2014 and 2015 is "unappropriated flood waters" within the meaning of the Pecos River Compact. As discussed below, that premise should be rejected for four related reasons.

A. The Water Stored in Brantley Reservoir Was Stored for Texas

As discussed in New Mexico's opening Position Paper, the water that Reclamation stored in Brantley Reservoir was water stored in New Mexico at the request of Texas and on behalf of Texas. New Mexico never intended to put the water to beneficial use within its borders; New Mexico intended only to deliver the water to the Texas state line in furtherance of its obligations under the Compact. If not for Texas' request to store the water, and New Mexico's agreement as a matter of comity and cooperation, the water would have been delivered to the state line, and there would not have been any evaporation loss.[3] As the New Mexico Pecos River Commissioner stated in his January 2015 response to Texas, "[b]ut for Texas' request, New Mexico would have released to the Texas state line all water above the Carlsbad Project storage limit."[4] New Mexico should not be charged with the evaporation loss resulting from that storage.

As also explained in New Mexico's Position Paper, Article XII of the Compact addresses the loss of water incident to its storage by a federal agency in another state.

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[3] *See* River Master's Notes for Discussion with States' Technical Representatives at 5-7 (Jan. 15, 2016), attached hereto as **Exhibit 7**. To avoid confusion, New Mexico is continuing Exhibit numbers from its initial Position Paper. Accordingly, exhibits to this Response to Texas' Position Paper start at Exhibit 7.

[4] Letter from Ray Willis, Pecos River Commissioner for New Mexico, to Frederic Tate, Pecos River Commissioner for Texas (Jan. 26, 2015), attached to the New Mexico Position Paper as Exhibit 1.

It provides that the "consumptive use of water by the United States or any of its agencies . . . incident to the diversion, impounding, or conveyance of water in one state for use in the other state shall be charged to such latter state." Thus, the evaporation loss of water resulting from Reclamation's storage of water in Brantley Reservoir in New Mexico for use in Texas is to be charged to Texas according to the terms of the Compact.

Texas is therefore incorrect when it asserts, in the first paragraph of its position paper, that "Article VI(d) of the Pecos River Compact provides that reservoir losses can only be charged '[i]f *unappropriated flood waters* apportioned to Texas are stored in facilities constructed in New Mexico.' "[5] Neither Article VI(d) nor any other provision of the Compact states that reservoir losses can only be charged to a state if there have been "unappropriated flood waters." And Texas' assertion directly contradicts Article XII of the Compact.

B. The Water Stored For Texas In Brantley Reservoir Was Not Treated as "Unappropriated Flood Waters"

The water stored for Texas in Brantley Reservoir was not treated by the states as "unappropriated flood waters."[6] The term "unappropriated flood waters" was put in the Compact for a specific purpose. As with the related term "salvaged water," the drafters of the Compact in 1947 envisioned that "unappropriated flood waters" would be impounded for the beneficial use of both states. Thus, the Compact provides that the "[b]eneficial consumptive use of unappropriated flood waters is hereby apportioned fifty per cent (50%) to Texas and fifty per cent (50%) to New Mexico."[7] To allow for the impoundment and distribution of such waters for the benefit of both states in the future, the Compact encouraged the states to construct additional reservoir capacity.[8] As Royce J. Tipton, the federal engineer advisor to the Pecos River Commission, explained during the November 1948 Commission meeting, "unappropriated flood waters" are waters "which at the moment are not beneficially useable in the basin." Such water "wastes to the Gulf of Mexico unused." That water, he continued "can be made useable by the construction of additional storage facilities." Referring to the Compact, he explained that "Wile two States at this moment have agreed to apportion that on a 50-50 basis."[9] Thus, the drafters of the

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[5] Texas Position Paper, p. 1 (emphasis in original).

[6] *See Tarrant Reg'l Water Dist. v. Herrmann*, 569 U.S. 614, 636 (2013) (States' course of conduct is highly significant evidence of an interstate water compact's terms).

[7] Pecos River Compact, art. III(f) (emphasis added).

[8] *Id.* art, IV(c)(ii).

[9] Pecos River Compact Commission Meeting, November 8 to 13, 1948, Inclusive, Austin, Texas, *reprinted in* U.S. SENATE, PECOS RIVER COMPACT, S. Doc. No. 81-109, at p. 98 (Aug. 19, 1949).

Compact intended that "unappropriated flood waters" would be impounded, apportioned equally between the states, and put to beneficial use by both states.

But during the time that Reclamation stored the water, the states did not take any steps to apportion the stored water for the mutual benefit of both states under the Compact. They never treated the impounded water as "unappropriated flood waters" within the meaning of the Compact. Without having apportioned the benefit of that water between the states, it would be illogical to now apportion the evaporation loss of that water between the states.

Neither the Pecos River Commission nor the River Master have adopted any procedures for declaring or determining that storm water is (or is not) "unappropriated flood waters." Nor have they adopted any procedures for measuring or allocating such waters. Although the Compact expressly authorizes the Pecos River Commission to adopt rules and regulations, the Commission has not developed any rules or regulations for "unappropriated flood waters." Designation of "unappropriated flood waters" is not self-executing. Without any rules or procedures in place, it is not possible to conclude, especially after the fact, that the water stored in Brantley Reservoir was "unappropriated flood waters."

Consequently, throughout the time that Reclamation stored the water for Texas in Brantley Reservoir, the states did not treat that water as "unappropriated flood waters," but treated it as water stored for Texas. The states never reached any agreement or understanding that the water was "unappropriated flood waters." The Pecos River Commission never made any formal declaration or determination that the water stored for Texas was "unappropriated flood waters," nor did the River Master. Nor did the Commission or the River Master ever make any findings as to the quantities of "unappropriated flood water," although the Pecos River Compact and the River Master's Manual expressly authorize such findings.[10] Nor did the Commission, or the River Master, have any plan to apportion the water for the beneficial use of both states. In November 2014, when he requested that the water be stored in New Mexico, the Pecos River Commissioner for Texas did not suggest that the stored water would be "unappropriated flood waters," or that the water would be apportioned for the beneficial use of both states.[11] Although the Pecos Commissioner for New Mexico, in response, noted his understanding that the state technical advisors had agreed the water "likely" was "unappropriated flood water," he also pointed out that no "official designation" of the water as "unnappropriated flood water" had been made. And he expressly stated that any evaporative loss from the stored water was not to be

[10] Pecos River Compact, art. V(d)(9); The Pecos River Masters Manual, p. 26 (July 28, 2003).

[11] Email from Rick Tate, Pecos River Commissioner for Texas, to Ray Willis, Pecos River Commissioner for New Mexico (Nov. 20, 2014), attached to the New Mexico Position Paper (Dec. 22, 2017) as Exhibit 1.

apportioned, but was to be borne entirely by Texas.[12] Further, the state technical advisors later agreed the water was *not* "unappropriated flood waters," as explained below.

Thus, New Mexico never understood the water that Reclamation stored in Brantley Reservoir for Texas to be "unapproporiated flood waters," and New Mexico never considered putting any portion of that water to beneficial use within its borders. Rather, New Mexico agreed to storage of the water in Brantley Reservoir, and then the water was delivered to the Texas state line to further New Mexico's delivery obligations under the Compact. Had New Mexico representatives known that Texas would seek to charge New Mexico with the evaporation loss incidental to the storage, they would not have agreed to the storage.

C. The States Agreed that the Water Stored in Brantley Reservoir Was *Not* "Unappropriated Flood Water"

To protect the integrity of relations between states, the United States Supreme Court has discouraged parties to interstate agreements from taking inconsistent positions according to the exigencies of the moment: "where a party assumes a certain position in a legal proceeding, and succeeds in maintaining that position he may not thereafter, simply because his interests have changed, assume a contrary position, especially if it be to the prejudice of the party who has acquiesced in the position formerly taken by him."[13] The principles underlying that doctrine apply to the current proceeding.

The states met with the River Master on February 11, 2016 specifically to discuss whether the stored water was "unappropriated flood waters." After considering the issue with the River Master, the state technical advisors agreed the water was *not* "unappropriated flood waters." That agreement was reached because no protocols were in place to address "unappropriated flood waters," and because the states' intent

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[12] Letter from Ray Willis, Pecos River Commissioner for New Mexico, to Frederic Tate, Pecos River Commissioner for Texas (Jan. 26, 2015), attached to the New Mexico Position Paper as Exhibit 1.

[13] *New Hampshire v. Maine*, 532 U.S. 742, 749 (2001) (citation omitted); *see also id.* at 751-55 (holding that New Hampshire was judicially estopped from giving a different meaning to the term "Middle of the River," which it defined in one manner in settling the initial dispute, and in another manner in a subsequent proceeding); *Yniguez v. Arizona*, 939 F.2d 727, 738 (9th Cir. 1991) (judicial estoppel, also known as "preclusion of inconsistent positions," prohibits a litigant from asserting inconsistent positions in the same litigation); *Humetrix, Inc. v. Gemplus S.C.A.*, 268 F.3d 1197, 1204 (9th Cir. 2001) (the doctrine is "commonly applied to bar a party from making a factual assertion in a legal proceeding which directly contradicts an earlier assertion made in the same proceeding").

was to store the water initially for public safety, and later as a matter of comity between the states.[14]

In light of the original communication between the states, the states' mutual understanding that the water was stored for Texas, and Texas' initial acknowledgment that the stored water was not "unappropriated flood water," Texas' recent change in position should be viewed as nothing more than a transparent attempt to gain an accounting benefit. The River Master should not sanction Texas' change in position because it would unfairly prejudice New Mexico.

D. The Compact Apportions the Benefits of "Unappropriated Flood Waters," Not the Losses from those Waters

The loss of water, due to evaporation, from the pool of water that Reclamation stored for Texas in Brantley Reservoir should not be apportioned between the states. As explained above, the purpose of the "unappropriated flood waters" provisions in the Compact – as well as the related provisions on "water salvage" – was to obtain additional water for the states mutually to put to beneficial use. Flood water originating above the Red Bluff Dam would be captured, impounded, equally apportioned, and allocated to the two states for their beneficial use. The Compact states that "[*b*]*eneficial consumptive use* of unappropriated flood waters is hereby apportioned" fifty percent to each state.[15] Thus, Texas is wrong when it states that the Compact "reflects an agreement that when flood flows are so large that water passes Red Bluff Reservoir and Girvin, Texas, unused and wasted, the states will split the loss by apportioning these unappropriated flood waters fifty percent to each state."[16] The Compact states no such thing. It is the benefit of "unappropriated flood waters," not the loss of such waters, that the Compact apportions equally. Texas' argument turns the equal apportionment provision on its head.

II. WATER RELEASED AND SPILLED FROM RED BLUFF RESERVOIR

Texas also argues that, in addition to fifty percent of the evaporation loss from the water stored at Brantley Reservoir, New Mexico should also be charged with a portion of the water that was released and spilled from Red Bluff Reservoir in Texas and flowed past Girvin, Texas "wasted and unused." Texas' argument on this point is untenable.

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[14] Notes from Meeting with Pecos River Master Neil Grigg, Fort Collins, Colorado (Feb. 11, 2016), attached to the New Mexico Position Paper as Exhibit 4.

[15] Pecos River Compact, art. III(f) (emphasis added).

[16] Texas Position Paper, pp. 1-2.

If Texas' argument were adopted, New Mexico would be charged for water that was "lost" entirely within the State of Texas. New Mexico has no control over the disposition of water once that water has been delivered at the state line. Under the Compact, New Mexico is obligated to deliver a certain volume of water in the Pecos River to the Texas state line. New Mexico's obligation ends at the state line. During the meeting of the Pecos River Commission in 1948, the Commissioner for Texas, Charles Miller, recognized this point, stating that, "when we get the water in Texas, it is our business how it is used. If we haven't got sense enough to irrigate then that is our own funeral."[17] Texas, under its proposal, apparently would penalize New Mexico for Texas' own failure to put delivered water to beneficial use. To do so would be unreasonable.

The indefensibility of Texas' argument is aptly illustrated by gage data showing releases from Red Bluff Reservoir over the last several years. In 2012 and 2013, immediately prior to the storm events of 2014, Texas apparently released no more than a minimal volume of water from Red Bluff Reservoir for irrigation purposes. The closest gage to Red Bluff Reservoir is the USGS Pecos River near Orla, Texas gage (USGS gage 08412500), located approximately six miles downstream of the reservoir, but upstream of diversions for irrigators served by Red Bluff. Based on the 78-year period of record at that gage, releases for irrigation in 2012 and 2013 were approximately one percent of median. The gage data, in both tabular and graphic form, are attached hereto as **Exhibit 8**. If releases for irrigation had been comparable to normal annual releases, the reservoir would have had more storage capacity available and fewer spills and releases would have occurred during the 2014 storm event. New Mexico has no control over the disposition of waters stored in Red Bluff Reservoir and therefore should not be debited for any spills or releases that are affected by storage levels.

Moreover, the Compact does not provide for the apportionment between the states of water that is "lost," especially water that is "lost" in Texas. As explained with respect to the Brantley Reservoir water, the Pecos River Compact addresses "unappropriated flood waters" so that the states can capture that water and share in its benefit. Again, under the Compact, it is the *beneficial consumptive use* of "unappropriated flood waters" that is apportioned fifty percent to Texas and fifty percent to New Mexico.[18] The Compact says nothing about the states sharing the loss of flood water that flows to Girvin, Texas. As Royce J. Tipton explained, "unappropriated flood waters," which were unusable in 1949, could "be made useable by the construction of additional storage facilities." The storage facilities could then

[17] Transcript, Meeting of the Pecos River Compact Commission at Santa Fe, New Mexico, p. 57 (Mar. 11, 1948).

[18] Pecos River Compact, art. III(f).

be used to impound flood water, which could then be put to beneficial use in both states. Tipton went on to explain that "[t]he two States at this moment have agreed to apportion that [i.e., the stored water] on a 50-50 basis."[19] There was never any mention of apportioning the water that was "lost."

Finally, the states have never reached any agreement or understanding that the water that spilled from Red Bluff Reservoir was "unappropriated flood waters." Nor did the Pecos River Commission make any determination that these waters were or could be "unappropriated flood waters." Texas' "proposal" to charge New Mexico with a portion of this "lost" water was never even suggested until January 11, 2017 in a letter from the Texas Office of the Attorney General.

III. ACCOUNTING

New Mexico's proposed accounting adjustment, based on the decision made at our meeting held in Fort Collins, Colorado on February 11, 2016, would simply credit New Mexico for the evaporation loss associated with all waters stored solely for Texas in 2014 and 2015 in a one-time adjustment to the Water Year (WY) 2015 accounting.[20] That total amount, as calculated by New Mexico, is 21.1 thousand acre-feet (TAF). The table used by New Mexico to calculate this amount was attached to New Mexico's Position Paper as Exhibit 5. New Mexico proposes adding 21.1 TAF to Table 1, row C.5. *Texas water stored in NM reservoirs*. Alternatively, those losses could be allocated to the Water Years in which they occurred, approximately 3.8 TAF in WY 2014 and approximately 17.2 TAF in WY 2015.

Texas' proposal would result in a cumulative debit to New Mexico of nearly 30 TAF through WY 2017. In comparison to New Mexico's proposal, Texas' proposed accounting adjustment for WY 2014 and WY 2015 would result in a much larger debit to New Mexico in WY 2014 and WY 2015, and it would result in further compound debits to New Mexico in WY 2016 and WY 2017. Tables summarizing these results are attached hereto as **Exhibit 9**.

Texas states in its position paper that its proposal would result in an additional credit to New Mexico of 3.1 TAF in WY 2015.[21] But that is not the case. Texas' proposal would actually result in a reduction to New Mexico's credit of approximately 15.5 TAF in WY 2015. In addition, due to the three year averaging used in Pecos River Compact accounting, Texas' adjustments to inflows and outflows in WY 2014 and WY 2015

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[19] Pecos River Compact Commission Meeting, November 8 to 13, 1948, Inclusive, Austin, Texas, *reprinted in* U.S. SENATE, PECOS RIVER COMPACT, S. Doc. No. 81-109, at p. 98 (Aug. 19, 1949).

[20] Notes from Meeting with Pecos River Master Neil Grigg, Fort Collins, Colorado (Feb. 11, 2016), attached to the New Mexico Position paper as Exhibit 4.

[21] Texas Position Paper, p. 1.

would result in decreases to New Mexico's credit through WY 2017. Through WY 2017 Texas' proposed adjustments would result in a cumulative decrease in New Mexico's credit of almost 30 TAF.

The nearly 30 TAF debit that New Mexico would suffer under Texas' proposal would include both reductions due to evaporation losses from water stored for Texas in Brantley Reservoir and reductions due to the "loss" of water released and spilled from Red Bluff Reservoir. New Mexico would be debited by approximately 7 TAF through WY 2017 for evaporation losses at Brantley Reservoir and, in addition, approximately 22 TAF through WY 2016 for water released and spilled from Red Bluff Reservoir.

New Mexico therefore disagrees with Texas' proposed accounting adjustments for WY 2014 and WY 2015. The most significant issues are explained below. Additional concerns and questions are presented in a table attached hereto as **Exhibit 10**.

A. Changes Made by Texas to Remove Estimated 2014 Red Bluff Releases and Spills Would Unfairly Debit New Mexico by Approximately 22 TAF

Most significantly, as explained in Section II above, Texas' proposal to remove the water released and spilled from Red Bluff Reservoir from the accounting is inappropriate and is not supported by either the Pecos River Compact or the River Master's Manual. It would unfairly debit New Mexico by approximately 22 TAF in WY 2016, as shown in Exhibit 9.

In addition, the volume of water that spilled from Red Bluff Reservoir in 2014 is very uncertain. Releases are measured by the dam tender, but quantifying uncontrolled spills presents a significant challenge. The gage used by Texas to estimate spills is the USGS Orla gage (USGS gage 08412500), located approximately six miles downstream of Red Bluff Reservoir. This calculation requires estimating inflows to the Pecos River between Red Bluff Reservoir and the Orla gage, including inflows from Screwbean Creek and any other flood inflows.[22] Texas subtracts these estimated inflows from the Orla gage flow data roughly to determine the volume of water spilled from Red Bluff Reservoir. Unfortunately there is no gage on the Pecos River closer to Red Bluff Reservoir from which to obtain a more accurate determination. Therefore, this calculation is fraught with uncertainty and speculation.

[22] State of Texas, Excel workbook, Brantley and Red Bluff Reservoir operations 2014-2015 Final REV 12-20-17.xlxs [sic].

B. Texas' Adjustments Related to Waters Stored in Brantley Reservoir in WY 2014 and 2015 Unfairly Debit New Mexico by Approximately 7 TAF

Texas' proposed adjustments to account for the water stored in Brantley Reservoir in WY 2014 and WY 2015 result in a reduction to New Mexico's credit in WY 2017 of approximately 7 TAF as shown in the tables attached hereto as Exhibit 9. Largely, the impacts to New Mexico result from Texas' handling of the evaporation loss in 2014 and 2015. Texas credits New Mexico for 9.2 TAF in WY 2014 and 2015.[23] This is a reduction of 11.9 TAF from New Mexico's proposal of the full 21.1 TAF that resulted from waters stored entirely on Texas' behalf and at Texas' request. Again, without Texas' request those waters would have been released to the state line, and contributed to New Mexico's credit.

In addition, New Mexico disagrees with Texas' calculation of evaporation loss as proportional to total volume in storage.[24] The Compact indicates that water stored for Texas in New Mexico reservoirs should be treated as if it were the uppermost pool.[25] Moreover, when the volume of water stored in Brantley Reservoir exceeds the conservation limit for the Carlsbad Project, surface area on the reservoir increases significantly, which results in a much greater evaporation loss. New Mexico should not be debited for additional evaporation loss simply because it agreed to Reclamation's storage of water for Texas.

C. New Mexico and Texas Agree on the Necessary Adjustment to USGS Gage Data for Dark Canyon Draw in WY 2014

New Mexico and Texas are in agreement on the necessary adjustment related to revisions in USGS data for Dark Canyon Draw (USGS gage 08405150) for WY 2014.[26] These adjustments result in an increase to New Mexico's delivery obligation of 1.2 TAF, and therefore a reduction to New Mexico's credit of 1.2 TAF. This change was included, and is highlighted, in Exhibit 9.

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[23] State of Texas, Excel workbooks, Pro-rated Evap 2014-2015 Final 12-20-17 b.xlsx, WY2014 Accounting Tables UFW Final 12-21-17.xlsx and WY2015 Accounting Tables UFW Final 12-21-17.xlsx.

[24] State of Texas, Excel workbook, Pro-rated Evap 2014-2015 Final 12-20-17 b.xlsx.

[25] *See* Pecos River Compact art. VI(d)(i).

[26] Texas Position Paper, p. 3.

IV. CONCLUSION

Therefore, New Mexico recommends that the evaporation loss from the water that Reclamation stored for Texas in Brantley Reservoir in 2014 and 2015 should entirely be the responsibility of Texas. Critically, Texas' accounting adjustments for the water that was released and spilled in 2014 from Red Bluff Reservoir is unfair and not justified under the Compact. Together these adjustments penalize New Mexico by a total of roughly 30 TAF in a manner inconsistent with the spirit of comity provided for by the Compact.

As stated in its position paper, New Mexico is prepared to work cooperatively with Texas to clarify the term "unappropriated flood waters," to establish protocols for future application of the term, and to develop Warren Act contracts for both states to secure the authority to store and share future flood waters.

Thank you again for your consideration of this matter.

Respectfully submitted,

/s/ HRW
Hannah Riseley-White
New Mexico Engineer Advisor

/s/ Charles de Saillan
Charles de Saillan
Legal Advisor

cc: Ray Willis
Pecos River Commissioner for New Mexico

Frederic Tate
Pecos River Commissioner for Texas

Mark Sanchez
Chairman, New Mexico Interstate Stream Commission

Tom Blaine, P.E.
Secretary, New Mexico Interstate Stream Commission

Suzy Valentine, P.E., CFM
Texas Engineer Advisor

Mary Smith
Texas Legal Advisor

Amy Nerison
Office of the Governor of New Mexico

LIST OF EXHIBITS

NM Exhibit 7

Unappropriated Flood Waters in the Pecos River Compact

River Master's Notes for Discussion with States' Technical Representatives

January 15, 2016

Purpose

These notes were prepared by the Pecos River Master to facilitate a discussion with the states' Technical Representatives, which is scheduled for February 11, 2016. The notes provide a review of information and options to provide background for the discussion and do not represent any findings or decisions.

Context for the discussion

Large flows during September 2014 created a situation where, for the first time unappropriated flood waters as referred to in the Pecos River Compact (Compact) may have occurred. The Compact and the River Master's Manual (RMM) include provisions for the allocation of unappropriated flood waters, but these have never been implemented. Moreover, given the lack of definitive procedures in the Compact, its accompanying discussion by the Engineering Advisory Committee (EAC), or the RMM, a clear process to allocate unappropriated flood waters has not been developed. For these reasons it is necessary to evaluate and clarify the conditions under which unappropriated flood waters are declared and assessed.

Conditions have changed since the Compact was approved, both in the physical condition of the river and in the way that annual delivery obligations are determined. Notable changes in storage capacity since 1947 are: raising Sumner Dam height in 1956, construction of Santa Rosa Dam in 1981, and construction of Brantley Dam in 1987, with the breaching of McMillan Dam in 1991. These changes were envisioned when that [sic] the RMM was prepared in 1987, but their nature and extent were not known when the Compact was developed. Procedures were added to the RMM in 1992 to recognize the implementation of Brantley Reservoir. Other changes include channel shifts and alterations, reservoir sedimentation, and altered diversion capacity, among others. The significance of the added storage to the issue of unappropriated flood waters is greater capacity to store flood waters in New Mexico than when the Compact was completed.

The change in how decisions are made about annual delivery obligations at the state line affects the possible declaration of unappropriated flood waters. Prior to the Amended Decree, a declaration of unappropriated flood waters was to be based on collaborative work within the Pecos River Compact Commission (PRCC) but specific procedures have been implemented through the Amended Decree and the River

Master's Manual (RMM). This change is a significant issue because the PRCC process could involve analysis and adjustments agreed on by the states, whereas the RMM process mostly follows a set formula without discretion. As will be discussed later, a declaration of unappropriated flood waters does not follow a formula and would have to be handled differently than other determinations under the RMM.

September 2014 flooding and storage arrangements

New Mexico and Texas informed the River Master via email on April 9, 2015 that heavy rains in September 2014 had created conditions leading to an agreement among the states to store water in Brantley Reservoir until Texas determined that it could be utilized in Red Bluff Reservoir (Email from Lewis and Valentine, April 9, 2015). Copies of correspondence between the states' Pecos River Commissioners were provided (Texas' request for storage and New Mexico's response).

A conference call was held on April 16, 2015 between the states and the River Master with the outcome being agreement that the states' technical advisors would evaluate the issues and develop a work plan and timeline to propose accounting procedures that are agreeable to both states. Texas also provided a document titled: "Manual of Procedures for Use by Engineering Advisory Committee to Compute Pecos River Compact Compliance Using Inflow-Outflow Methods of Measuring Changes in Streamflow Depletion, Pecos River Basin, New Mexico" which is dated August 15, 1985 and contains apparent unimplemented concepts for making the determination of unappropriated flood waters. These were probably discussed among the states' Technical Advisors of the time, with a joint decision to omit these procedures from the later versions of the manual, which eventually became the RMM. The apparent reason for not including these procedures in the RMM is that they are complex and untested; thus the study of the procedures was left for later and is occurring now.

Texas also provided a copy of a PRC resolution dated March 6, 1984 about use of flood storage in Brantley Reservoir and how decisions by NM will respect TX water entitlements. Storage of unappropriated flood waters is mentioned in the resolution as an exception to the provisions, but how such flood waters would be designated and handled is not explained. The rate of increase of sediment accumulation in Brantley Reservoir is explained, along with procedures to maintain conservation storage into the future.

New Mexico and Texas sent an email on December 15, 2015 to request another conference call to discuss the status of river accounting. New Mexico has sent an accounting estimate to Texas for review. A conference call was held on December 29, 2015 and the River Master agreed to prepare background notes about accounting for unappropriated flood waters and to work with the states to schedule a meeting in

February 2016 to evaluate the procedures going forward. These notes are prepared to support discussion in that meeting.

Definition of unappropriated flood waters

How to allocate unappropriated flood waters is discussed in SD 109 along with the inflow-outflow method of determining the shares of water to NM and TX. The principal architect of these approaches was Royce J. Tipton, an engineer who has been credited with developing the inflow-outflow method for annual accounting and the concept of the unappropriated flood waters. He had been chair of the Consulting Board of the Pecos River Joint Investigation, which was completed in 1942 and was appointed later as Chairman of the EAC for the Compact Commission. The apparent reason to designate unappropriated flood waters is to distinguish between periods of ordinary and extraordinary flood inflows. The dividing line between these categories of flood inflows seems to be set at whether, in the 1947 condition, the waters could be stored or diverted and used or whether they could not.

The terminology includes the word "unappropriated" and the phrase "flood waters." In compact accounting, flood waters generally mean runoff over and above base flows and the word unappropriated means waters not allocated to either state under the terms of the Compact or, in other words, waters which have not been assigned as water rights under the Compact. Water rights in the context of the Compact are determined annually through the inflow-outflow method and the allocation formula is the regression equation in the RMM.

The Pecos River Compact in Section II(i) specifies: "The term "unappropriated flood waters" means water originating in the Pecos River Basin above Red Bluff Dam in Texas, the impoundment of which will not deplete the water usable by the storage and diversion facilities existing in either state under the 1947 condition and which if not impounded will flow past Girvin, Texas." Taken in the context of 1947, this seems to mean that unappropriated flood waters are those that cannot be used by either state with evidence of that being that they would flow past Girvin, TX unused. The phrase " . . . the impoundment of which will not deplete the water usable by the storage and diversion facilities existing in either state under the 1947 condition" is less clear but apparently was added to anticipate added future storage capacity in NM over and above the 1947 condition and to indicate the opportunity to impound the unappropriated flood waters.

The meaning of unappropriated flood waters was clarified in the Engineering Advisory Committee Report that accompanies the Compact in SD 109. This report is entitled a "Manual of Inflow-Outflow Methods of Measuring Changes in Stream-Flow Depletion." On page 162 of SD109 an interpretation is provided: "Determination of

Unappropriated Floodwater – If there is no change in conditions on the stream from those which were estimated by the 1947 condition, the unappropriated floodwater will be the quantities as defined by the compact, namely, waters which will spill from Red Bluff Reservoir and which will pass Girvin, Tex., unused with existing storage and diversion facilities. In the event another reservoir, such as reservoir No. 3, is constructed, and assuming no other changes in conditions, the unappropriated flood waters in that reservoir could be readily ascertained as the quantities which if not impounded by No. 3 would spill from Red Bluff Reservoir and pass Girvin unused."

Note in particular how the EAC assessed that unappropriated flood waters would be computed under changed conditions: "However, determination of such waters may be more complicated if the 1947 condition materially changed. For example, if the base flow entering the river between Roswell and Artesia increases, this will have the effect of reducing the amount of water that will spill both from Alamogordo Reservoir and from Red Bluff Reservoir. It is apparent that to make a sufficiently accurate determination for the purpose intended of the unappropriated flood waters, it will be necessary to reconstruct the river to the 1947 condition and make a routing study by the methods used by the engineering advisory committee. Such studies will be necessary only at the times when it is believed that unappropriated flood waters under the definition of the compact have entered the river."

While this explanation seems to introduce complexity in any method to determine unappropriated flood waters, it is well to remember that the statement was written prior to the development of the RMM. In the RMM development process, resolution of the issues of changed conditions compared to the [sic] 1947 was accomplished. This means that the basis for today's accounting is that the RMM is up-to-date on the changes in river condition and there is no current need to go back to reconstruct the river to the 1947 condition.

Unappropriated flood waters were explained further by Tipton when testifying before the Pecos River Compact Commission (PRCC) about the issue: "I believe that the term "Unappropriated floodwaters" which appears in subparagraph (i) is plain. It means just what it says, viz: that any floodwater that is not now used in the basin above Girvin, Tex., is unappropriated floodwater, or water that would spill from Red Bluff Dam and would pass all the present diversion and storage facilities in Texas and flow unused past Girvin, Tex. That is what is meant by unappropriated floodwater" (Meeting of the Pecos River Compact Commission, Santa Fe, NM, December 4, 1948, page 114 of SD 109)."

Section III(f) of the Compact also specifies that "Beneficial consumptive use of unappropriated flood waters is hereby apportioned fifty per cent (50%) to Texas and fifty per cent (50%) to New Mexico." Later in these notes it will be explained that an

important implication of a declaration of unappropriated flood waters is credit for them in NM's delivery obligation, but how that would be beneficial consumptive use is not clear.

Inflow-outflow method

The inflow-outflow method is the main tool to compute the allocation of annual Pecos River flows to the states. As a method to compute gains and losses along the river it can be applied as a reach-by-reach water balance model to determine the yields of sub-basins as they flow to the mainstem. As conditions change in the reaches and tributary subbasins, the calculations would require re-calibration to enable them to simulate current conditions. This would require periodic updating of data and would enable comparison of current conditions to the 1947 condition, although with considerable data collection and computational effort.

The effects of changes in the river were examined during the development of the Amended Decree and incorporated into the RMM, which had provisions for computations related to storage facilities constructed in NM since 1947 with the exception of Brantley Reservoir, which came on line after the RMM was developed. The effects of Brantley Reservoir were studied during the process that followed NM's Third Motion to Modify the Manual and changes to the RMM were made in 1992.

The RMM does not contain provisions for how the unappropriated flood waters are to be computed in the context of the inflow-outflow method. How these would be computed depends not only on changed conditions but also on how each state makes its decisions about whether water can be used or not, and these decisions are made independently. In other words, determination of unappropriated flood waters involves how they are detected and declared, as well as how conditions on the river have changed as compared to the 1947 condition. The primary issue seems to be how unappropriated flood waters may be detected and declared as a function of decisions made by each state. An analysis of scenarios may help to clarify this issue.

Scenarios

The variables that create scenarios of possible unappropriated flood waters involve the quantity of flood waters and where and when they occur, as well as the status of the capacity in NM and/or TX to store or use the flows. Two basic cases seem worthy of analysis: the case where NM lacks storage or diversion capacity for large flood flows and must release water downstream; and the case where TX lacks storage or diversion capacity and either requests temporary storage in NM or allows the water to flow past Girvin TX unused. The correlation of the two possible cases seems to lie in communication and cooperation between the states.

To illustrate, in the event of 2014 NM intended to release the water as shown by this statement by Commissioner Willis: “But for Texas request, New Mexico would have released to the Texas state line all water above the Carlsbad Project storage limit” (Commissioner Willis letter to Commissioner Tate, January 26, 2015). So, it was Texas’ determination that the water could not be stored in Red Bluff Reservoir that triggered the possibility of a declaration of unappropriated flood waters. This is evident from Commissioner Willis’ letter of November 20: “Due to the recent flood events in the Pecos River basin, the large amounts of flows generated, and the resulting conditions in the Pecos River, it is my request that New Mexico store Texas’ portion of the flows until such time as they can be utilized in Red Bluff Reservoir.”

If NM had lacked storage capacity, there would have been no option to store the flood waters and they would have flowed across the state line and been credited as part of NM’s delivery obligation unless a declaration of unappropriated flood waters was made, in which case 50-percent of the flood waters would be allocated to Texas and the same to NM. However, it would seem that NM would prefer to receive credit for 100-percent of the flow rather than 50-percent of the flow, whereas it would seem to be to TX’s benefit to have the flows designated as unappropriated flood waters. This would be a case where neither state actually used the water but the issue would be how much credit NM received for it. Whether this is beneficial consumptive use remains a question.

In the present case NM had the storage capacity and Texas made the request for the waters to be stored. The states consider that the waters would have passed Girvin without being used and may have met the definition of unappropriated flood waters. It is also apparent that the other condition was met: “ . . . the impoundment of which will not deplete the water usable by the storage and diversion facilities existing in either state under the 1947 condition,” but analysis of this requirement is more complex. For example, if the water was impounded for a long time and reservoir evaporation losses were high, then it could be declared that water usable is depleted.

Because New Mexico intended to release the flood waters as part of its delivery obligation it was not considering them as unappropriated flood waters until the Texas request. This situation was apparently anticipated by Texas’ Technical Representative in preparing the “Manual of Procedures for use by Engineering Advisory Committee to Compute Pecos River Compact Compliance,” dated August 15, 1985. The manual includes the phrase: “Computation of unappropriated flood waters will be made whenever requested by a State Commissioner . . . ” (Section B.7.b., page 15). Note that this manual was prepared before the Amended Decree and seems to envision work within the PRCC to determine unappropriated flood waters rather than the procedure that was included later in the RMM that instructs the River Master to make the determination. So before the Amended Decree, the concept was

that a State Commissioner could request computation of unappropriated flood waters, and now the concept is that the River Master determines when they occur and their quantity.

Does a declaration of unappropriated flood waters matter?

The cases discussed above seem to illustrate that if large flood flows occur in NM when it has storage available, then NM may decide independently to store the flood waters or release them to Red Bluff Reservoir. Neither decision would trigger a declaration of unappropriated flood waters. Even if NM lacked storage capacity for the flood waters, it could still count them toward its delivery obligation. This indicates that the main condition that would trigger a declaration of unappropriated flood waters is lack of availability of storage in Red Bluff Reservoir to carry the water over for use in Texas, which is what happened in 2014.

Because NM may have capacity to store or release flood waters it can influence the options that Texas has for storing and using flood waters. This is because reservoirs in series are interdependent in the sense that you can decide how to balance storage among them. As the downstream state, Texas has less control than NM because it must take the water released by NM whether it has capacity in Red Bluff Reservoir or not. If it has storage capacity, then the apparent best choice is to store the waters for later utilization but if it lacked capacity it will either pass the flows downstream or request NM to store the water. In any case, Texas will be seeking to manage Red Bluff Reservoir as part of its water management strategy.

As Texas determines its water management options, it can at any time request that some of its water be stored in NM reservoirs. This is anticipated by RMM Section C.5. (Texas Water Stored in New Mexico Reservoirs): "If a quantity of the Texas allocation is stored in facilities constructed in New Mexico at the request of Texas, then to the extent not inconsistent with the conditions imposed pursuant to Article IV(e) of the Compact, this quantity will be reduced by the amount of reservoir losses attributable to its storage, and, when released for delivery to Texas, the quantity released less channel losses is to be delivered by New Mexico at the New Mexico – Texas state line."

Thus, it seems that a request by Texas to store water could either be considered as due to its own needs (such as repairs being made on facilities) or due to high levels of flood waters that it cannot store. In any case, NM has discretion as to whether it agrees to store TX water or not. Whether NM decides to store water or not store water will depend primarily on its own storage needs and it is expected that its decisions will be made so as to maximize its water entitlements.

How flood waters going to TX are designated and possibly stored in NM would seem to matter because unappropriated flood waters are apportioned 50-50 to the states

but other flood inflows are apportioned according to the RMM regression formula. Flood waters are measured twice. In the first instance, they are accounted for to determine the allocation via the regression formula, and in the second instance they are measured as delivery of water by NM at the state line.

If the flood waters are not counted as flood inflow and not part of "flood inflow," then they are not allocated by the allocation formula. They also would not be credited to NM as delivered water, but would be accounted for separately. Thus, if they are not designated as unappropriated flood waters they will be allocated by the formula, which assigns a delivery obligation that begins at 0 and increases as a percentage as index inflows increase. This can be seen by analysis of the regression equation ($y = 0.0489892(x)^{1.42318)}$ for a range of index inflows:

Index inflow, TAF	1947 Condition Outflow, TAF	Percentage (Outflow/Inflow)
0	0.0	0.00
50	12.8	0.26
100	34.4	0.34
150	61.2	0.41
200	92.2	0.46

This is a general indicator because the index inflow is a three-year average but it does show how the percentage allocation differs if flood flow is delivered by NM and counted toward delivery obligation or if the flood flow is designated as unappropriated flood waters.

If the flood waters are designated as unappropriated flood waters, then they would be separated from other flood inflows and not counted as flood inflows for the regression formula or credited to NM for delivery. An accounting procedure to divide the flows 50-50 would have to be developed.

Another factor to consider is deduction of losses for the two situations: 1) Texas' water is held in NM reservoirs; or 2) unappropriated flood waters are declared and held in storage in NM. Computation procedures would be needed for evaporation losses and stream losses between Brantley Reservoir and the state line.

Conclusions and need for further analysis

The analysis points to several issues to be discussed further, such as:

1. When and why to declare or not declare unappropriated flood waters;
2. Conditions when TX might request that NM store its [sic] and how NM will decide whether or not to store the water;
3. If unappropriated flood waters are declared, how their quantity should be determined relative to the 1947 condition;
4. If unappropriated flood waters are declared, the procedure to be followed to compute losses at delivery;
5. General procedures for allocation of water during periods of high flow at different locations and in different conditions of reservoir storage and diversion capacity in each state.

These questions raise a number of complexities, and given the infrequent occurrence of the possibility of unappropriated flood waters, it might be expedient to focus on the 2014 incident and let the agreement about it become a matter of record in annual accounting and to guide the states and the River Master in possible future episodes. Rather than to attempt to develop detailed procedures to insert into the RMM it might be more feasible to let experience with episodes that occur create precedents for how large flows should be handled and the cooperative approaches taken by the states to respond to them.

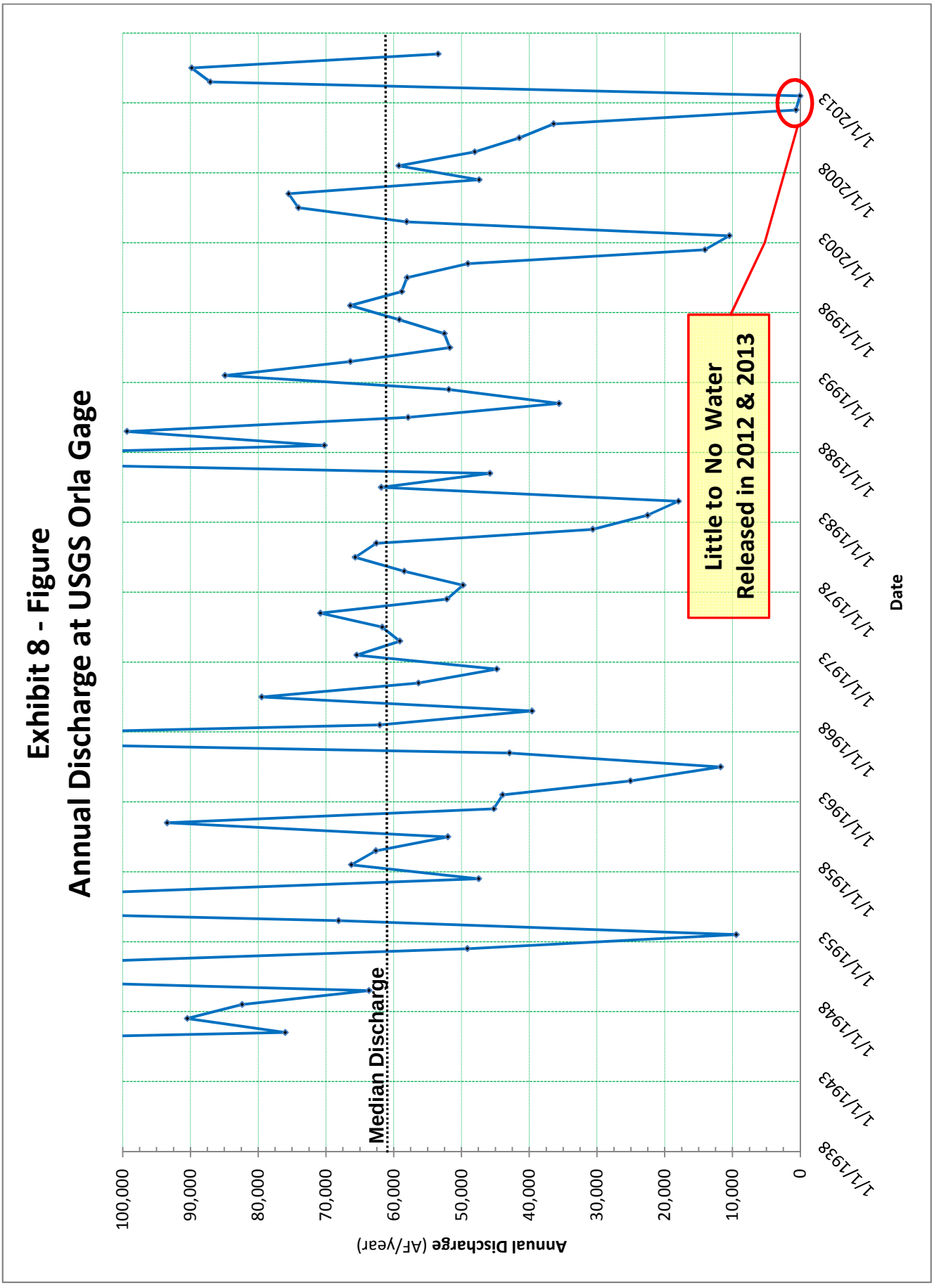
Exhibit 8 - Figure
Annual Discharge at USGS Orla Gage
Annual Discharge (AF/year)
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
Median Discharge
Little to No Water
Released in 2012 & 2013
1/1/1938
1/1/1943
1/1/1948
1/1/1953
1/1/1958
1/1/1963
1/1/1968
1/1/1973
1/1/1978
1/1/1983
1/1/1988
1/1/1993
1/1/1998
1/1/2003
1/1/2008
1/1/2013
Date

Exhibit 8 -Table

ANNUAL MEAN DISCHARGE at USGS ORLA GAGE

1938 to 2016

USGS SITE	YEAR	CFS		AF/Y
8412500	1938	300.1		**216882**
8412500	1939	256.4		**185300**
8412500	1940	151.8		**109706**
8412500	1941	1284		**927947**
8412500	1942	1115		**805811**
8412500	1943	428		**309316**
8412500	1944	225.8		**163186**
8412500	1945	244		**176339**
8412500	1946	105.2		**76028**
8412500	1947	125.2		**90482**
8412500	1948	114		**82388**
8412500	1949	88.1		**63670**
8412500	1950	194.8		**140782**
8412500	1951	152.4		**110139**
8412500	1952	68		**49144**
8412500	1953	13.1		**9467**
8412500	1954	94.3		**68151**
8412500	1955	217		**156826**
8412500	1956	143.5		**103707**
8412500	1957	65.7		**47481**
8412500	1958	91.7		**66272**
8412500	1959	86.7		**62658**
8412500	1960	72		**52034**
8412500	1961	129.3		**93445**
8412500	1962	62.6		**45241**
8412500	1963	60.8		**43940**
8412500	1964	34.7		**25078**
8412500	1965	16.3		**11780**
8412500	1966	59.4		**42928**
8412500	1967	213.1		**154007**
8412500	1968	85.9		**62080**

Exhibit 8 -Table

ANNUAL MEAN DISCHARGE at USGS ORLA GAGE

1938 to 2016

USGS SITE	YEAR	CFS		AF/Y
8412500	1969	54.8		**39604**
8412500	1970	110		**79497**
8412500	1971	78		**56371**
8412500	1972	62		**44807**
8412500	1973	90.6		**65477**
8412500	1974	81.8		**59117**
8412500	1975	85.4		**61719**
8412500	1976	98		**70825**
8412500	1977	72.2		**52179**
8412500	1978	68.9		**49794**
8412500	1979	80.9		**58466**
8412500	1980	90.9		**65693**
8412500	1981	86.6		**62586**
8412500	1982	42.4		**30642**
8412500	1983	31.2		**22548**
8412500	1984	24.9		**17995**
8412500	1985	85.6		**61863**
8412500	1986	63.4		**45819**
8412500	1987	207.8		**150177**
8412500	1988	97.2		**70246**
8412500	1989	137.5		**99371**
8412500	1990	80.1		**57888**
8412500	1991	49.3		**35629**
8412500	1992	71.8		**51890**
8412500	1993	117.5		**84917**
8412500	1994	91.9		**66416**
8412500	1995	71.6		**51745**
8412500	1996	72.7		**52540**
8412500	1997	81.9		**59189**
8412500	1998	91.9		**66416**
8412500	1999	81.4		**58828**

Exhibit 8 -Table

ANNUAL MEAN DISCHARGE at USGS ORLA GAGE

1938 to 2016

USGS SITE	YEAR	CFS		AF/Y
8412500	2000	80.3		**58033**
8412500	2001	67.9		**49071**
8412500	2002	19.5		**14093**
8412500	2003	14.5		**10479**
8412500	2004	80.4		**58105**
8412500	2005	102.5		**74077**
8412500	2006	104.5		**75522**
8412500	2007	65.6		**47409**
8412500	2008	82		**59261**
8412500	2009	66.5		**48060**
8412500	2010	57.4		**41483**
8412500	2011	50.4		**36424**
8412500	**2012**	0.894		**646**
8412500	**2013**	0.064		**46**
8412500	2014	120.5		**87085**
8412500	2015	124.3		**89832**
8412500	2016	74		**53480**
		Average =		**91210**
		Median =		**60490**

Note: Acre-feet per year calculated by NMISC

Table 9-1a
Summary of Accounting Differences (TAF)
All Adjustments Proposed by Texas [(1)]

Accounting Year	NM Proposed Departure[(2)]	TX Proposed Departure	Annual Difference	Cumulative Difference
2014 Water Year	0.7	-16.9	-17.6	**-17.6**
2015 Water Year	31.7	33.8	2.1	**-15.5**
2016 Water Year	27.2	20.5	-6.7	**-22.2**
2017 Water Year[(3)]	24.8	17.0	-7.8	**-30.0**

Note: 1. Includes Texas' Attachment 1 Items 1, 2, 3 & 4

2. Final River Master accounting with Dark Canyon adjustment and 21.1 TAF evaporation credit for New Mexico applied in 2015

3. Final River Master accounting for Water Year 2012 used as a surrogate for water year 2017

Table 9-2a
Summary of Accounting Differences (TAF)
Brantley Adjustments Proposed by Texas [(1)]

Accounting Year	Final Report Departure[(2)]	TX Proposed Departure	Annual Difference	Cumulative Difference
2014 Water Year	0.7	-8.8	-9.5	**-9.5**
2015 Water Year	31.7	41.1	9.4	**-0.1**
2016 Water Year	27.2	28.2	1.0	**0.9**
2017 Water Year[(3)]	24.8	17.0	-7.8	**-6.9**

Note: 1. Includes Texas' Attachment 1 Items 1, 2 & 3 only

2. Final River Master accounting with Dark Canyon adjustment and 21.1 TAF evaporation credit for New Mexico applied in 2015

3. Final River Master accounting for Water Year 2012 used as a surrogate for water year 2017

Table 9-3a
Summary of Accounting Differences (TAF)
2014 Red Bluff Releases & Spills Adjustments Proposed by Texas [(1)]

Accounting Year	Final Report Departure[(2)]	TX Proposed Departure	Annual Difference	Cumulative Difference
2014 Water Year	0.7	-7.0	-7.7	**-7.7**
2015 Water Year	10.6	3.7	-6.9	**-14.6**
2016 Water Year	27.2	19.8	-7.4	**-21.9**
2017 Water Year[(3)]	24.8	24.8	0.0	**-21.9**

Note: 1. Includes Texas' Attachment 1 Item 4 only

2. Final River Master accounting with Dark Canyon adjustment and 21.1 TAF evaporation credit for New Mexico applied in 2015

3. Final River Master accounting for Water Year 2012 used as a surrogate for water year 2017

Table 9-1b

ACCOUNTING DIFFERENCES - New Mexico versus All Adjustments Proposed by Texas

Water Years 2014 through 2017

New Mexico Accounting

Annual Departure =	0.7	31.7	27.2	24.8		
Cumulative Departure =	**96.4**	**128.1**	**155.2**	**180.0**		

B.1.a.(1) - Index Inflow, Sumner Dam to NM-TX state line	**2012[1]**	**2013[1]**	**2014**	**2015**	**2016[1]**	**2017[2]**
(a) Gaged flow Pecos River below Sumner Dam (Table 12)	64.9	63.6	120.6	100.7	128.6	64.9
(b) Flood inflow Sumner Dam to Artesia (Table 2)	-17.2	54.4	57.3	28.5	-2.6	-17.2
(c) Flood inflow Artesia to Carlsbad (Table 3)	11.2	39.9	42.5	3.2	15.3	11.2
(d) Flood inflow Carlsbad to State Line (Table 4)	3.2	23.2	128.3	6.2	9.5	3.2
Total annual flood inflow =	**62.1**	**181.1**	**348.7**	**138.6**	**150.8**	**62.1**
B.1.a.(2) - Index inflow (3-year average)			**197.3**	**222.8**	**212.7**	**117.2**
B.1.b. - 1947 Condition Delivery Obligation (Index Outflow)			**90.5**	**107.5**	**100.7**	**43.1**
B.1.c.(1) - Average Historical Outflow at NM-TX state line	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
(a) Gaged flow Pecos R at Red Bluff, NM (Table 12)	17.7	51.0	146.6	101.1	75.4	17.7
(b) Gaged flow Delaware R nr Red Bluff, NM (Table 12)	1.7	12.2	48.3	5.4	6.2	1.7
(c) Annual diversions for C-2713, Brine Partners, (Table 12)	0.0	0.2	0.2	0.2	0.2	0.0
Total annual historical outflow =	**19.4**	**63.4**	**195.1**	**106.7**	**81.8**	**19.4**
B.1.c.(2) Average historical outflow (3-year average)			**92.6**	**121.7**	**127.9**	**69.3**
B.1.d. - Annual Departure			**2.2**	**14.2**	**27.2**	**26.2**
C.1. - Adjustments for Depletions above Sumner Dam	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
(a) Depletions due to irrigation (Table 5)	3.2	2.0	-0.2	-3.2	1.3	3.2
(b) Depl from operation of Santa Rosa Reservoir (Table 6)	1.0	8.6	-1.7	16.7	-6.3	1.0
(c) Transfer of water use to upstream of Sumner Dam (Table 12)	0.0	0.0	0.0	0.0	0.0	0.0
Recomputed Index Inflows	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
(a) Gaged flow Pecos River below Sumner Dam	69.1	74.2	118.7	114.2	123.6	69.1
(b) Flood inflow Sumner Dam to Artesia	-17.2	54.4	57.3	28.5	-2.6	-17.2
(c) Flood inflow Artesia to Carlsbad	11.2	39.9	42.5	3.2	15.3	11.2
(d) Flood inflow Carlsbad to State Line	3.2	23.2	128.3	6.2	9.5	3.2
Total annual flood inflow =	**66.3**	**191.7**	**346.8**	**152.1**	**145.8**	**66.3**
Recomputed index inflow (3-year average)			**201.6**	**230.2**	**214.9**	**121.4**
C.1.c. Recomputed 1947-Condition Delivery Obligation			**93.3**	**112.7**	**102.2**	**45.3**
Recomputed Annual Departures			**-0.7**	**9.1**	**25.7**	**24.0**
Credits to New Mexico						
C.2. Depletions due to McMillan Dike			1.4	1.5	1.5	0.8
C.3. Salvage water analysis (Table 12)			0.0	0	0	0
C.4. Unappropriated flood waters			0.0	0	0	0
C.5. Texas water stored in NM reservoirs (Table 12)			0.0	**21.1**	0	0
C.6. Beneficial CU of Delaware River water (Table 12)			0.0	0	0	0
Final Calculated Departure, TAF			**0.7**	**31.7**	**27.2**	**24.8**

Texas Accounting - Attachment 1 Items 1, 2, 3 & 4

	-16.9	33.8	20.5	17.0
	78.8	**112.6**	**133.1**	**150.0**
DIFFERENCE =	***-17.6***	***-15.5***	***-22.2***	***-30.0***

2012[1]	**2013[1]**	**2014**	**2015**	**2016[1]**	**2017[2]**
64.9	63.6	120.6	100.7	128.6	64.9
-17.2	54.4	**22.3**	**24.4**	-2.6	-17.2
11.2	39.9	**38.4**	**2.1**	15.3	11.2
3.2	23.2	**64.4**	6.2	9.5	3.2
62.1	**181.1**	**245.8**	**133.3**	**150.8**	**62.1**
		163.0	**186.7**	**176.6**	**115.4**
		68.9	**83.6**	**77.3**	**42.2**
2012	**2013**	**2014**	**2015**	**2016**	**2017**
17.7	51.0	**82.8**	**74.9**	75.4	17.7
1.7	12.2	48.3	5.4	6.2	1.7
0.0	0.2	0.2	0.2	0.2	0.0
19.4	**63.4**	**131.3**	**80.5**	**81.8**	**19.4**
		71.4	**91.7**	**97.9**	**60.6**
		2.4	**8.1**	**20.6**	**18.4**
2012	**2013**	**2014**	**2015**	**2016**	**2017**
3.2	2.0	-0.2	-3.2	1.3	3.2
1.0	8.6	-1.7	16.7	-6.3	1.0
0.0	0.0	0.0	0.0	0.0	0.0
2012	**2013**	**2014**	**2015**	**2016**	**2017**
69.1	74.2	118.7	114.2	123.6	69.1
-17.2	54.4	**22.3**	**24.4**	-2.6	-17.2
11.2	39.9	**38.4**	**2.1**	15.3	11.2
3.2	23.2	**64.4**	6.2	9.5	3.2
66.3	**191.7**	**243.8**	**146.8**	**145.8**	**66.3**
		167.3	**194.1**	**178.8**	**119.6**
		71.5	**88.4**	**78.6**	**44.4**
		-0.2	**3.3**	**19.2**	**16.2**
		1.1	1.3	1.2	0.8
		0.0	0	0	0
		-19.5	21.6	0	0
		1.6	7.6	0	0
		0.0	0	0	0
		-16.9	**33.8**	**20.5**	**17.0**

2014 TX Notes:	**2015 TX Notes:**
35.038 removed Brantley storage	4.134 remove Brantley 2015 storage
4.0 removed Brantley storage	29.9 remove Avalon 2015 releases
63.862 removed RB spills and releases	*Removes approx. 1.1 TAF from inflows
63.862 removed RB spills and releases	29.9 remove Avalon 2015 release
	*Removes approx. 26.2 TAF from outlfows
35.038 removed Brantley storage	4.134 remove Brantley 2015 storage
4.0 removed Brantley storage	29.9 remove Avalon 2015 releases
63.862 removed RB spills and releases	

2014 Summary:	**2015 Summary:**
Removes 102.9 TAF (39.038 + 63.862) from inflows	Removes 5.234 TAF (4.134 + 1.1) from inflows
Removes 63.85 TAF from outflows	Removes 26.2 TAF from outlflows

39.038 subtract 1/2 of Brantley storage	43.2 add 1/2 of Brantley storage
3.3 add 1/2 Brantley 2014 evap	15.3 add 1/2 Brantley 2015 evap

Notes: 1. Final River Master accounting

2. Final River Master accounting for Water Year 2012 used as a surrogate for water year 2017

Texas data adjustment

Incorporates Dark Canyon 2014 USGS data adjustment included in Texas accounting

Correction for rounding (hard coded)

App. 153

Table 9-2b

ACCOUNTING DIFFERENCES - New Mexico versus Brantley Adjustments Proposed by Texas

Water Years 2014 through 2017

New Mexico Accounting

Annual Departure =	0.7	31.7	27.2	24.8
Cumulative Departure =	**96.4**	**128.1**	**155.2**	**180.0**

B.1.a.(1) - Index Inflow, Sumner Dam to NM-TX state line	**2012[1]**	**2013[1]**	**2014**	**2015**	**2016[1]**	**2017[2]**
(a) Gaged flow Pecos River below Sumner Dam (Table 12)	64.9	63.6	120.6	100.7	128.6	64.9
(b) Flood inflow Sumner Dam to Artesia (Table 2)	-17.2	54.4	57.3	28.5	-2.6	-17.2
(c) Flood inflow Artesia to Carlsbad (Table 3)	11.2	39.9	42.5	3.2	15.3	11.2
(d) Flood inflow Carlsbad to State Line (Table 4)	3.2	23.2	128.3	6.2	9.5	3.2
Total annual flood inflow =	**62.1**	**181.1**	**348.7**	**138.6**	**150.8**	**62.1**
B.1.a.(2) - Index inflow (3-year average)			**197.3**	**222.8**	**212.7**	**117.2**
B.1.b. - 1947 Condition Delivery Obligation (Index Outflow)			**90.5**	**107.5**	**100.7**	**43.1**

B.1.c.(1) - Average Historical Outflow at NM-TX state line	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
(a) Gaged flow Pecos R at Red Bluff, NM (Table 12)	17.7	51.0	146.6	101.1	75.4	17.7
(b) Gaged flow Delaware R nr Red Bluff, NM (Table 12)	1.7	12.2	48.3	5.4	6.2	1.7
(c) Annual diversions for C-2713, Brine Partners, (Table 12)	0.0	0.2	0.2	0.2	0.2	0.0
Total annual historical outflow =	**19.4**	**63.4**	**195.1**	**106.7**	**81.8**	**19.4**
B.1.c.(2) Average historical outflow (3-year average)			**92.6**	**121.7**	**127.9**	**69.3**
B.1.d. - Annual Departure			**2.2**	**14.2**	**27.2**	**26.2**

C.1. - Adjustments for Depletions above Sumner Dam	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
(a) Depletions due to irrigation (Table 5)	3.2	2.0	-0.2	-3.2	1.3	3.2
(b) Depl from operation of Santa Rosa Reservoir (Table 6)	1.0	8.6	-1.7	16.7	-6.3	1.0
(c) Transfer of water use to upstream of Sumner Dam (Table 12)	0.0	0.0	0.0	0.0	0.0	0.0

Recomputed Index Inflows	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
(a) Gaged flow Pecos River below Sumner Dam	69.1	74.2	118.7	114.2	123.6	69.1
(b) Flood inflow Sumner Dam to Artesia	-17.2	54.4	57.3	28.5	-2.6	-17.2
(c) Flood inflow Artesia to Carlsbad	11.2	39.9	42.5	3.2	15.3	11.2
(d) Flood inflow Carlsbad to State Line	3.2	23.2	128.3	6.2	9.5	3.2
Total annual flood inflow =	**66.3**	**191.7**	**346.8**	**152.1**	**145.8**	**66.3**
Recomputed index inflow (3-year average)			**201.6**	**230.2**	**214.9**	**121.4**
C.1.c. Recomputed 1947-Condition Delivery Obligation			**93.3**	**112.7**	**102.2**	**45.3**
Recomputed Annual Departures			**-0.7**	**9.1**	**25.7**	**24.0**
Credits to New Mexico						
C.2. Depletions due to McMillan Dike			1.4	1.5	1.5	0.8
C.3. Salvage water analysis (Table 12)			0.0	0	0	0
C.4. Unappropriated flood waters			0.0	0	0	0
C.5. Texas water stored in NM reservoirs (Table 12)			0.0	**21.1**	0	0
C.6. Beneficial CU of Delaware River water (Table 12)			0.0	0	0	0
Final Calculated Departure, TAF			**0.7**	**31.7**	**27.2**	**24.8**

Texas Accounting - Attachment 1 Items 1, 2 & 3 Only

	-8.8	41.1	28.2	17.0
	86.9	**128.0**	**156.2**	**173.2**
DIFFERENCE =	***-9.5***	***-0.1***	***1.0***	***-6.9***

2012[1]	**2013[1]**	**2014**	**2015**	**2016[1]**	**2017[2]**
64.9	63.6	120.6	100.7	128.6	64.9
-17.2	54.4	**22.3**	**24.4**	-2.6	-17.2
11.2	39.9	**38.4**	**2.1**	15.3	11.2
3.2	23.2	128.3	6.2	9.5	3.2
62.1	**181.1**	**309.6**	**133.3**	**150.8**	**62.1**
		184.3	**208.0**	**197.9**	**115.4**
		82.1	**97.5**	**90.9**	**42.2**

2012	**2013**	**2014**	**2015**	**2016**	**2017**
17.7	51.0	146.6	**74.9**	75.4	17.7
1.7	12.2	48.3	5.4	6.2	1.7
0.0	0.2	0.2	0.2	0.2	0.0
19.4	**63.4**	**195.1**	**80.5**	**81.8**	**19.4**
		92.6	**113.0**	**119.1**	**60.6**
		10.6	**15.5**	**28.3**	**18.4**

2012	**2013**	**2014**	**2015**	**2016**	**2017**
3.2	2.0	-0.2	-3.2	1.3	3.2
1.0	8.6	-1.7	16.7	-6.3	1.0
0.0	0.0	0.0	0.0	0.0	0.0

2012	**2013**	**2014**	**2015**	**2016**	**2017**
69.1	74.2	118.7	114.2	123.6	69.1
-17.2	54.4	**22.3**	**24.4**	-2.6	-17.2
11.2	39.9	**38.4**	**2.1**	15.3	11.2
3.2	23.2	128.3	6.2	9.5	3.2
66.3	**191.7**	**307.7**	**146.8**	**145.8**	**66.3**
		188.6	**215.4**	**200.1**	**119.6**
		84.8	**102.5**	**92.3**	**44.4**
		7.8	**10.5**	**26.8**	**16.2**
		1.3	1.4	1.4	0.8
		0.0	0	0	0
		-19.5	21.6	0	0
		1.6	7.6	0	0
		0.0	0	0	0
		-8.8	**41.1**	**28.2**	**17.0**

2014 TX Notes:	**2015 TX Notes:**
35.038 removed Brantley storage	4.134 remove Brantley 2015 storage
4.0 removed Brantley storage	29.9 remove Avalon 2015 releases
	*Removes approx. 1.1 TAF from inflows
	29.9 remove Avalon 2015 release
	*Removes approx. 26.2 TAF from outlfows
35.038 removed Brantley storage	4.134 remove Brantley 2015 storage
4.0 removed Brantley storage	29.9 remove Avalon 2015 releases

2014 Summary:	**2015 Summary:**
Removes 39.038 TAF from inflows	Removes 5.234 TAF (4.134 + 1.1) from inflows
	Removes 26.2 TAF from outlflows

39.038 subtract 1/2 of Brantley storage	43.2 add 1/2 of Brantley storage
3.3 add 1/2 Brantley 2014 evap	15.3 add 1/2 Brantley 2015 evap

Notes: 1. Final River Master accounting

2. Final River Master accounting for Water Year 2012 used as a surrogate for water year 2017

Texas data adjustment

Incorporates Dark Canyon 2014 USGS data adjustment included in Texas accounting

Correction for rounding (hard coded)

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Table 9-3b

ACCOUNTING DIFFERENCES - New Mexico versus 2014 Red Bluff Releases and Spills Adjustments Proposed by Texas

Water Years 2014 through 2017

New Mexico Accounting

Annual Departure =	0.7	10.6	27.2	24.8		
Cumulative Departure =	**96.4**	**107.0**	**134.1**	**158.9**		

B.1.a.(1) - Index Inflow, Sumner Dam to NM-TX state line	**2012[1]**	**2013[1]**	**2014**	**2015**	**2016[1]**	**2017[2]**
(a) Gaged flow Pecos River below Sumner Dam (Table 12)	64.9	63.6	120.6	100.7	128.6	64.9
(b) Flood inflow Sumner Dam to Artesia (Table 2)	-17.2	54.4	57.3	28.5	-2.6	-17.2
(c) Flood inflow Artesia to Carlsbad (Table 3)	11.2	39.9	42.5	3.2	15.3	11.2
(d) Flood inflow Carlsbad to State Line (Table 4)	3.2	23.2	128.3	6.2	9.5	3.2
Total annual flood inflow =	**62.1**	**181.1**	**348.7**	**138.6**	**150.8**	**62.1**
B.1.a.(2) - Index inflow (3-year average)			**197.3**	**222.8**	**212.7**	**117.2**
B.1.b. - 1947 Condition Delivery Obligation (Index Outflow)			**90.5**	**107.5**	**100.7**	**43.1**

B.1.c.(1) - Average Historical Outflow at NM-TX state line	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
(a) Gaged flow Pecos R at Red Bluff, NM (Table 12)	17.7	51.0	146.6	101.1	75.4	17.7
(b) Gaged flow Delaware R nr Red Bluff, NM (Table 12)	1.7	12.2	48.3	5.4	6.2	1.7
(c) Annual diversions for C-2713, Brine Partners, (Table 12)	0.0	0.2	0.2	0.2	0.2	0.0
Total annual historical outflow =	**19.4**	**63.4**	**195.1**	**106.7**	**81.8**	**19.4**
B.1.c.(2) Average historical outflow (3-year average)			**92.6**	**121.7**	**127.9**	**69.3**
B.1.d. - Annual Departure			**2.2**	**14.2**	**27.2**	**26.2**

C.1. - Adjustments for Depletions above Sumner Dam	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
(a) Depletions due to irrigation (Table 5)	3.2	2.0	-0.2	-3.2	1.3	3.2
(b) Depl from operation of Santa Rosa Reservoir (Table 6)	1.0	8.6	-1.7	16.7	-6.3	1.0
(c) Transfer of water use to upstream of Sumner Dam (Table 12)	0.0	0.0	0.0	0.0	0.0	0.0

Recomputed Index Inflows	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
(a) Gaged flow Pecos River below Sumner Dam	69.1	74.2	118.7	114.2	123.6	69.1
(b) Flood inflow Sumner Dam to Artesia	-17.2	54.4	57.3	28.5	-2.6	-17.2
(c) Flood inflow Artesia to Carlsbad	11.2	39.9	42.5	3.2	15.3	11.2
(d) Flood inflow Carlsbad to State Line	3.2	23.2	128.3	6.2	9.5	3.2
Total annual flood inflow =	**66.3**	**191.7**	**346.8**	**152.1**	**145.8**	**66.3**
Recomputed index inflow (3-year average)			**201.6**	**230.2**	**214.9**	**121.4**
C.1.c. Recomputed 1947-Condition Delivery Obligation			**93.3**	**112.7**	**102.2**	**45.3**
Recomputed Annual Departures			**-0.7**	**9.1**	**25.7**	**24.0**
Credits to New Mexico						
C.2. Depletions due to McMillan Dike			1.4	1.5	1.5	0.8
C.3. Salvage water analysis (Table 12)			0.0	0	0	0
C.4. Unappropriated flood waters			0.0	0	0	0
C.5. Texas water stored in NM reservoirs (Table 12)			0.0	**0.0**	0	0
C.6. Beneficial CU of Delaware River water (Table 12)			0.0	0	0	0
Final Calculated Departure, TAF			**0.7**	**10.6**	**27.2**	**24.8**

Texas Accounting - Attachment 1 Items 1 & 4 Only

	-7.0	3.7	19.8	24.8
	88.7	**92.4**	**112.2**	**137.0**
DIFFERENCE =	***-7.7***	***-14.6***	***-21.9***	***-21.9***

2012[1]	**2013[1]**	**2014**	**2015**	**2016[1]**	**2017[2]**
64.9	63.6	120.6	100.7	128.6	64.9
-17.2	54.4	57.3	28.5	-2.6	-17.2
11.2	39.9	42.5	3.2	15.3	11.2
3.2	23.2	64.4	6.2	9.5	3.2
62.1	**181.1**	**284.8**	**138.6**	**150.8**	**62.1**
		176.0	**201.5**	**191.4**	**117.2**
		76.9	**93.2**	**86.6**	**43.1**

2012	**2013**	**2014**	**2015**	**2016**	**2017**
17.7	51.0	82.8	101.1	75.4	17.7
1.7	12.2	48.3	5.4	6.2	1.7
0.0	0.2	0.2	0.2	0.2	0.0
19.4	**63.4**	**131.3**	**106.7**	**81.8**	**19.4**
		71.4	**100.5**	**106.6**	**69.3**
		-5.5	**7.2**	**20.0**	**26.2**

2012	**2013**	**2014**	**2015**	**2016**	**2017**
3.2	2.0	-0.2	-3.2	1.3	3.2
1.0	8.6	-1.7	16.7	-6.3	1.0
0.0	0.0	0.0	0.0	0.0	0.0

2012	**2013**	**2014**	**2015**	**2016**	**2017**
69.1	74.2	118.7	114.2	123.6	69.1
-17.2	54.4	57.3	28.5	-2.6	-17.2
11.2	39.9	42.5	3.3	15.3	11.2
3.2	23.2	64.4	6.2	9.5	3.2
66.3	**191.7**	**282.9**	**152.2**	**145.8**	**66.3**
		180.3	**208.9**	**193.6**	**121.4**
		79.6	**98.1**	**88.1**	**45.3**
		-8.2	**2.3**	**18.5**	**24.0**
		1.2	1.4	1.3	0.8
		0.0	0	0	0
		0.0	0	0	0
		0.0	0	0	0
		0.0	0	0	0
		-7.0	**3.7**	**19.8**	**24.8**

2014 TX Notes:

63.862 removed RB spills and releases

63.862 removed RB spills and releases

63.862 removed RB spills and releases

2014 Summary:
Removes 63.85 TAF from inflows and outflows

Notes:
1. Final River Master accounting
2. Final River Master accounting for Water Year 2012 used as a surrogate for water year 2017

Texas data adjustment

Incorporates Dark Canyon 2014 USGS data adjustment included in Texas accounting

Correction for rounding (hard coded)

App. 155

Exhibit 10
Additional Concerns and Questions
Texas' Proposed Accounting Adjustments

No.	Citation	Description	Concerns & Questions
1	Texas Position Paper, p. 4-6 *Attachment 1, items 2 and 4* *WY2014 Accounting Tables UFW Final 12-21-17.xlsx* *WY2015 Accounting Tables UFW Final 12-21-17.xlsx*	Adjustments to remove inflows and outflows	- Exact volumes and timing for removals from USGS gage data of inflows and outflows is subjective. Gages include: *Pecos River near Artesia, Fourmile Draw near Lakewood, S. Seven Rivers near Lakewood, Pecos River at DS3, Pecos River below Avalon, Pecos River below Dark Canyon* and *Pecos River at Red Bluff.* - Adjustments to Avalon Reservoir elevations in August and September of 2015, the associated impacts to inflows below Avalon, and adjustments made to USGS gage data need further evaluation and explanation. - Texas' proposal for the handling of assumed "unappropriated flood waters" (UFW) is one of a number of possible approaches. New Mexico would like to work with Texas to determine the process for future declaration and fair accounting related to UFW.
2	Texas Position Paper, p. 1 *Attachment 1, items 2-3*	Determination of unappropriated flood waters	- Texas does not explain why the conservation storage limit for the Carlsbad Project in Brantley Reservoir, as opposed to the total conservation storage limit in New Mexico (176,500 AF), is an appropriate trigger for generating “UFW” in the Pecos Basin.
3	Texas Position Paper, p. 4 *Attachment 1, item 2.b* *Brantley and Red Bluff operations 2014-2015 Final REV 12-20-2017.xlsx* *WY2015 Accounting Tables UFW Final 12-21-17.xlsx*	Calculation of 2015 water volume above the Carlsbad Project in Brantley reservoir (4,135 AF)	- This value does not account for the change in the Carlsbad Project conservation maximum of 42,057 in 2014 to 42,196 AF in 2015 as a result of estimated sediment accumulation in Brantley Reservoir.

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June 25, 2018

U.S. Mail and Email

Dr. Neil S. Grigg
River Master of the Pecos River
737 S. Lemay, Ste. B4, PMB 330
Fort Collins, Colorado 80524
Neil.Grigg@colostate.edu

Re: *Texas v. New Mexico*
No. 65, Orig., U.S. Supreme Court
Joint Response to Letter of June 25, 2018

Dear Dr. Grigg:

Thank you for the letter of June 25, 2018 regarding a briefing schedule to resolve the dispute over the accounting for water stored in Brantley Reservoir in 2014. This joint response is submitted by the States of Texas and New Mexico ("States").

The States have been working cooperatively to propose a process for resolving the dispute. At the May 31, 2018 meeting, the States agreed to propose a briefing schedule for addressing the following two questions:

(1) Does the River Master have the authority to adjust the accounting related to the 2014 storm event; and

(2) If so, how should the accounting be adjusted?

After conferring, and considering summer travel schedules, the States now jointly proposed the following briefing schedule:

(1)	Friday, July 13, 2018:	Deadline for Motions to be filed
(2)	Friday, July 27, 2018:	Deadline for Responses to be filed
(3)	Friday, August 10, 2018:	Deadline for Replies to be filed
(4)	Friday, September 10, 2018:	Deadline for a Decision from the River Master

The States still anticipate being able to agree to the accounting adjustment for Dark Canyon Draw. We are working cooperatively on a joint motion that we anticipate filing with you by August 10, 2018.

Please advise if the schedule for briefing and submitting the Dark Canyon Draw revision is acceptable.

In addition, to the extent that resolution of these issues affect the Water Year 2017 accounting, to give you enough time to fully consider the positions of the States, we intend to seek an extension of the deadline for submission of the Final Report from the Supreme Court from July 1st to September 10th. I have inquired from the Clerk of the Court, and was informed that the Clerk is authorized to grant such an extension. I was advised to submit a letter requesting the extension. Attached as Exhibit A is a draft of that letter, which we would like to file as soon as possible. Could you please review the letter, and advise as to whether you approve of the request? You will see that we have highlighted language indicating your approval. Please advise as to whether this language is agreeable, and if not, how it should be adjusted.

Thank you for your consideration.

Respectfully submitted,

/s/ JW

Jeffrey Wechsler
Counsel for the New Mexico Interstate Stream Commission

And

Mary Smith
Legal Advisor for the State of Texas

cc: Suzy Valentine (Technical Advisor for the State of Texas)
John Longworth (Director of the New Mexico Interstate Stream Commission)
Hannah Riseley-White (Technical Advisor for the State of New Mexico)

EXHIBIT A

[Logo]
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June 25, 2018

U.S. Mail and Email

Scott S. Harris
Clerk of the Court
Supreme Court of the United States
1 First Street, NE
Washington, DC 20543-0001
sharris@supremecourt.gov

Re: *Texas v. New Mexico*
No. 65, Orig., U.S. Supreme Court
Joint Letter Requesting Extension of Deadline for Pecos River Master to Submit Final Report for Water Year 2017

Dear Mr. Harris:

This joint letter is submitted by the States of Texas and New Mexico ("States"), with the approval of the Court appointed Pecos River Master. The Court entered its Amended Decree and Order in this case on March 28, 1988, enforcing the Pecos River Compact and appointing a River Master. 485 U.S. 388 (1988). Pursuant to Section III.B of the Amended Decree, the Pecos River Master must deliver his Final Report containing the annual water year accounting to the Court by July 1st of each year. The purpose of this letter is to request a two-month extension of that deadline to allow time for the River Master to resolve an issue that could affect the Water Year 2017 accounting.

Beginning in mid-September 2014, the remnants of Tropical Storm Odile resulted in widespread heavy rainfall in the Pecos River Basin. By October, approximately 36,000 acre-feet of water over the amount reserved for New Mexico's water users was stored by the United States Bureau of Reclamation ("Reclamation") in Brantley Reservoir in New Mexico for public health and safety reasons. Before the water was released, Texas requested that New Mexico consent to the continued

storage of Texas' portion until such time as Texas could use the water. In March, 2015, however, Reclamation indicated that it could no longer hold water in Brantley Reservoir without a Warren Act contract, which neither Texas nor New Mexico had. The water was released between August 5 and September 8, 2015.

The States dispute whether the Compact, the Amended Decree, and the River Master Manual address how the water and related evaporation from the storm event should be accounted for and whether the accounting for past years may be adjusted through the Water Year 2017 accounting. The States have engaged in good faith negotiations and have met with the River Master, but they were unable to resolve these issues. The States have agreed to brief the issues for resolution by the River Master.

Water Year 2017 is the last year affected by the three-year averaging that includes Water Year 2015. An extension of the deadline for the 2017 Final Report would allow the issue to be fully briefed before the River Master so that he can make adjustments to the three-year accounting if he determines it is appropriate. The River Master's decision may resolve this issue without the need for further attention from the Court. The States therefore request an extension of the deadline for the River Master to submit his Final Report for Water Year 2017 until September 10, 2018. The States have inquired with the River Master, and he concurs in this request.

Please let us know if you have any questions or if we can be of any assistance to the Court.

Respectfully submitted,

Jeffrey J. Wechsler

cc: Dr. Neil S. Grigg (River Master for the Pecos River)
Mary Smith (Legal Advisor for the State of Texas)
Suzy Valentine (Technical Advisor for the State of Texas)
John Longworth (Director of the New Mexico Interstate Stream Commission)
Hannah Riseley-White (Technical Advisor for the State of New Mexico)