

Table 6. Depletions Due to Santa Rosa Reservoir Operations (C.1.b)													
Water Year	2022												
5/11/2023													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
<i>LS 2013 table (USBR), add 4,200 feet to value shown; LSR 1997 tables used (COE); Add 4,700 feet to value shown</i>													
Lk Sumner ga ht, avg	48.16	50.38	50.25	49.59	47.11	44.52	37.67	41.92	45.61	43.31	45.37	48.93	
LS content, AF, avg	13289	16153	15972	15080	12092	9516	4813	7424	10535	8491	10303	14229	
LS area, acres, avg	1188	1398	1388	1321	1097	890	528	725	977	808	962	1255	
LS evap, inches	4.56	4.78	8.35	15.64	19.66	15.58	16.41	11.76	10.64	6.37	4.45	3.64	121.83
.77 LS Evap	3.51	3.68	6.43	12.04	15.14	12.00	12.64	9.06	8.19	4.90	3.42	2.80	93.81
LS Precip, inches	0.03	0.08	0.24	0.00	0.30	1.93	0.92	2.39	0.25	2.42	0.21	0.33	9.10
Net LS Evap, inches	3.48	3.60	6.19	12.04	14.84	10.07	11.72	6.67	7.94	2.48	3.21	2.47	84.71
LSum Evaploss, TAF	0.34	0.42	0.72	1.33	1.36	0.75	0.52	0.40	0.65	0.17	0.26	0.26	7.16
L S Rosa ga ht, avg	15.61	15.50	15.28	14.95	14.74	9.80	3.04	8.81	8.22	11.38	14.02	14.10	
LSR content, AF, avg	18329	18208	17956	17590	17360	12606	7859	11800	11337	13960	16585	16670	
LSR area, acres, avg	1136	1130	1119	1103	1092	834	572	797	774	907	1058	1062	
LSR evap, inches	3.72	4.98	8.58	11.19	13.82	11.59	12.64	9.19	9.75	4.97	4.80	3.76	98.99
.77 LSR Evap	2.86	3.83	6.61	8.62	10.64	8.92	9.73	7.08	7.51	3.83	3.70	2.90	76.22
LSR precip, inches	0.36	0.39	0.59	0.00	0.34	2.63	0.70	2.87	0.48	2.71	0.26	0.18	11.51
Net LSR Evap, inches	2.50	3.44	6.02	8.62	10.30	6.29	9.03	4.21	7.03	1.12	3.44	2.72	64.71
LSR Evaploss, TAF	0.24	0.32	0.56	0.79	0.94	0.44	0.43	0.28	0.45	0.08	0.30	0.24	5.08
Total evaploss, TAF	0.58	0.74	1.28	2.12	2.29	1.18	0.95	0.68	1.10	0.25	0.56	0.50	12.24
* Indicates below 4700 ft													
Sum contents, AF	31618	34361	33928	32670	29452	22122	12672	19224	21872	22451	26888	30899	
1947 area, acres	1597	1681	1668	1629	1527	1159	804	1036	1149	1173	1439	1574	
1947 evaploss, TAF	0.46	0.50	0.86	1.64	1.89	0.97	0.78	0.58	0.76	0.24	0.39	0.32	9.40
current-1947evaploss	0.12	0.24	0.42	0.48	0.41	0.21	0.16	0.11	0.34	0.01	0.18	0.17	2.84
Annual adjustment for excess evaporation =													2.8
ADJUSTMENT FOR EXCESSIVE STORAGE IN SANTA ROSA RESERVOIR													
			2021	2021	2022	2022							
			Gage	Storage	Gage	Storage							
EndYear Sumner Sto			4246.73	11681	4250.34	16097							
EndYear S R Sto			4715.67	18397	4714.09	16659							
Sum				30078		32756							
Sto Adjustment, TAF						0.0							
Adjustm Ex Evap, TAF						2.8							
Total Adjustment, TAF						2.8							
	<u>Storage adjustment</u>												
	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	2022				
4/20/2023					
		TAF	AF/day	cfs	Totals
Pecos R bel DC		20.1	55.1	27.8	27.8
Dark Canyon		0.0	0.1	0.1	0.1
Pecos R bel Lake Avalon		0.0	0.0	0.0	0.0
Depletion, cfs					2.0
CID lag seep, cfs (from Table 8)					5.4
Return flow, cfs					1.0
Lake Av lagged seep, cfs (from Table 9)					18.2
PR seepage, cfs					3.0
Carls new water, cfs					2.16
Carls new wat, TAF					1.6
Carls new wat monthly, TAF					0.1

Table 8. Carlsbad Main Canal Seepage Lagged [B.4.c.(2)(e)]													
Water Year	2022												
4/20/2023													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOTAL
WY 2022													
CID, TAF	0.0	0.0	1.7	9.2	7.6	7.8	6.1	5.8	7.3	7.7	0.2	0.0	53.4
days/mo	31	28	31	30	31	30	31	31	30	31	30	31	365
cfs	0	0	27.7	154.6	123.3	131.4	98.5	93.6	122.4	125.7	4.1	0.2	73.5
cfs, qtr avg			9.6			136.3			104.7			43.8	
WY 2021		1Q	2Q	3Q	4Q								
FLOWS, cfs				134.5	59.7								
SEVEN %				9.4	4.2								
WY 2022 lagged		1Q	2Q	3Q	4Q								
FLOWS, cfs		9.6	136.3	104.7	43.8								
SEVEN %		0.7	9.5	7.3	3.1								
LAG		3.3	5.7	7.0	5.6	Avg =	5.4	cfs					

Table 9. Lake Avalon Leakage Lagged [B.4.c.(2)(g)]													
Water Year	2022												
	4/20/2023												
WY 2022	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOT
Elev NM rept	74.98	75.40	75.49	73.65	73.61	73.62	73.07	73.25	73.18	72.42	59.21	58.00	
ga ht, avg*	17.98	18.40	18.49	16.65	16.61	16.62	16.07	16.25	16.18	15.42	2.21	1.00	
cfs	23.9	26.0	26.4	17.6	17.4	17.4	14.8	15.7	15.3	11.7	0.0	0.0	
days	31	28	31	30	31	30	31	31	30	31	30	31	365
cfs avg	25.4			17.5			15.3			3.9			15.5
WY 2021		1Q	2Q	3Q	4Q								
cfs				31.7	20.0								
WY 2022 lagged		1Q	2Q	3Q	4Q								
cfs		25.4	17.5	15.3	3.9								
lag cfs		24.6	20.5	17.7	10.0	Avg =	18.2	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	2022												
5/11/2023													
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOT
Av WS NM Rept	74.98	75.40	75.49	73.65	73.61	73.62	73.07	73.25	73.18	72.42	59.21	58.00	
Avalon ga ht, avg, ft*	17.98	18.40	18.49	16.65	16.61	16.62	16.07	16.25	16.18	15.42	2.21	1.00	
Avg area Avalon, ac**	795	812	816	647	642	644	579	600	592	526	0	0	
Panevap Brantley, in.	4.65	5.60	7.91	12.78	16.27	14.36	14.99	10.71	8.05	5.45	4.80	4.34	109.91
Lakeevap Brantley, in.	3.58	4.31	6.09	9.84	12.53	11.06	11.54	8.25	6.20	4.20	3.70	3.34	84.63
Precip Brantley, in.	0.03	0.00	0.09	0.00	0.00	1.26	0.17	5.10	1.95	1.61	1.06	0.06	11.33
Netevap, inches	3.55	4.31	6.00	9.84	12.53	9.80	11.37	3.15	4.25	2.59	2.64	3.28	73.30
Evaploss Av, TAF	0.24	0.29	0.41	0.53	0.67	0.53	0.55	0.16	0.21	0.11	0.00	0.00	3.69
* Computed as WS elev by NM Report minus Gage datum at 3157.0 (USBR datum)													
** Based on 2006 USBR Area and Capacity Table													

Table 11. Change in Storage, Lake Avalon [B.4.d.(2)]														
(Gage heights are end of month)														
Water Year	2022													
6/16/2023														
	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	TOT
	2021	2022												
WS NM Rept	74.71	75.20	75.52	73.90	73.88	74.36	74.02	72.98	73.06	73.64	71.86	58.00	58.00	
Gage EOM, ft*	17.71	18.20	18.52	16.90	16.88	17.36	17.02	15.98	16.06	16.64	14.86	1.00	1.00	
Storage, AF**	2231	2617	2877	1647	1633	1970	1729	1074	1120	1475	487	0	0	
Change sto, TAF		0.4	0.3	-1.2	0.0	0.3	-0.2	-0.7	0.0	0.4	-1.0	-0.5	0.0	-2.2
* Computed as WS elev by NM Report minus Gage datum at 3157.0 (USBR datum)														
** Based on 2006 USBR Area and Capacity Table														

APPENDIX

RESPONSE TO STATES'
OBJECTIONS

Response to states' objections for Accounting Year 2023

New Mexico's objections

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

New Mexico found that the River Master had by error omitted the Total Annual Historical Outflow for WY2022. Texas reported the same error, and the objection is accepted.

Table 11 Change in Storage, Lake Avalon [B.4.d.(2)] and Table 3. Determination of Flood Inflows, Artesia to Carlsbad (B.4)

New Mexico reported that by error the River Master had used surface area rather than reservoir volume in computing monthly changes in storage. Texas reported the same error, and the objection is accepted. There were small differences in the monthly volume values shown by the states, and these might have stemmed from using the 0.1 or 0.01 elevation increments in the reservoir table. I used the 0.01 increment table, and the values checked with NM's, so these are shown in the Final Report. Texas's monthly values varied slightly from these, but the annual totals were the same.

Table 12. Data Required for River Master Manual Calculations

New Mexico reported that the value for brine diversion at permit C-2713, Malaga B should be 455.36 AF rather than the 45.36 AF that was in the Preliminary Report. Texas reported the same error, and the objection is accepted. After joint consultation, the River Master, New Mexico, and Texas found that the problem stemmed from a typographical error in the data transmittal, and this has been corrected in the Final Report.

Results of New Mexico's objections

New Mexico provided a revised Table 1 that showed a delivery shortfall of 0.7 TAF for Water Year 2022.

Texas's objections

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

Texas reported the same error as New Mexico, see the discussion above.

Table 11 Change in Storage, Lake Avalon [B.4.d.(2)] and Table 3. Determination of Flood Inflows, Artesia to Carlsbad (B.4)

Texas reported the same error as New Mexico, see the discussion above.

Table 3. Determination of Flood Inflows, Artesia to Carlsbad (B.4)

Texas reported the same error as New Mexico, see the discussion above.

Table 12. Data Required for River Master Manual Calculations

Texas reported the same error as New Mexico, see the discussion above.

Results of Texas's objections

Texas reported a final computation of a delivery shortfall of 0.6 TAF for Water Year 2022.

Results after considering states' objections

Table 1 was modified to include the corrections shown above. The final departure for WY 2022 was -0.6 TAF, which is the same as Texas's computation. New Mexico's Table 1 showed -0.7 TAF, but the difference is probably due to rounding.