

RIO GRANDE CANALIZATION PROJECT

WATER BUDGET STUDY

Final Report

Appendix F4 - Water Budget Analysis Summary

Normal Single Pulse Hydrograph, Scenario S2

(Based on HEC-RAS Model Results)

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Table F4-1: RGCP Channel Water Budget Equation Analysis Segment 1

Normal Single Pulse Hydrograph (S2)

(Units = Acre- (Units = Acre-Feet)

	Segment 1 - Caballo Dam to Leasburg Dam (Upper Reach)													
	Qcus	Pc	Qcin	Qirf	Qeff	Qgwrfl	Qcdfs	Qcs	Qfpr	ET	ET	Qda	Qdu	Δsic
Date	Upstream Channel Inflow, River Below Caballo Dam	Precipitation Flows in River Channel	In-channel Stormwater/ Ungaged Return Inflow	Irrigation Return Flow (none in Segment 1)	Treated Effluent Return Flow	Groundwater Return Flow	Downstream Channel Outflow, below Leasburg Cable	Channel Seepage	Floodplain Recharge	Open Water Channel Evaporation	Riparian Evapo- transpiration	Diversions Authorized (Percha, Arrey, & Leasburg)	Diversions Unauthorized (1% of Authorized)	In-channel Change in Storage
3/31/2012	0.0	0.1	43.8	0.0	1.0	28.8	44.9	13.6	6.3	6.2	33.7	0.0	0.0	-31.0
4/1/2012	991.7	0.1	0.0	0.0	1.0	28.8	616.3	31.4	6.3	13.7	33.7	0.0	0.0	320.2
4/2/2012	2975.2	0.7	0.0	0.0	1.0	28.8	614.0	83.0	6.3	13.7	33.7	0.0	0.0	2255.1
4/3/2012	2975.2	0.6	0.0	0.0	1.0	28.8	2834.4	109.8	6.3	13.7	33.7	0.0	0.0	7.7
4/4/2012	2975.2	0.8	0.0	0.0	1.0	28.8	2846.3	109.8	6.3	13.7	33.7	0.0	0.0	-4.0
4/5/2012	2975.2	1.2	0.0	0.0	1.0	28.8	2846.2	109.8	6.3	13.7	33.7	0.0	0.0	-3.5
4/6/2012	2975.2	0.7	0.0	0.0	1.0	28.8	2846.3	109.8	6.3	13.7	33.7	0.0	0.0	-4.1
4/7/2012	2975.2	1.3	0.0	0.0	1.0	28.8	2846.5	109.8	6.3	13.7	33.7	0.0	0.0	-3.7
4/8/2012	2975.2	0.6	0.0	0.0	1.0	28.8	2846.3	109.8	6.3	13.7	33.7	0.0	0.0	-4.2
4/9/2012	2975.2	0.1	0.0	0.0	1.0	28.8	2846.4	109.8	6.3	13.7	33.7	0.0	0.0	-4.8
4/10/2012	2975.2	0.2	0.0	0.0	1.0	28.8	2846.4	109.8	6.3	13.7	33.7	0.0	0.0	-4.8
4/11/2012	2975.2	1.2	0.0	0.0	1.0	28.8	2846.2	109.8	6.3	13.7	33.7	0.0	0.0	-3.5
4/12/2012	2975.2	1.6	0.0	0.0	1.0	28.8	2846.3	109.8	6.3	13.7	33.7	0.0	0.0	-3.2
4/13/2012	2975.2	0.1	0.0	0.0	1.0	28.8	2846.5	109.8	6.3	13.7	33.7	0.0	0.0	-4.8
4/14/2012	2380.2	0.3	381.3	0.0	1.0	28.8	2762.5	101.6	6.3	13.7	33.7	0.0	0.0	-126.2
4/15/2012	2380.2	1.0	0.0	0.0	1.0	28.8	2272.8	95.7	6.3	13.7	33.7	0.0	0.0	-11.3
4/16/2012	2380.2	0.4	0.0	0.0	1.0	28.8	2268.2	95.7	6.3	13.7	33.7	0.0	0.0	-7.3
4/17/2012	2380.2	2.5	0.0	0.0	1.0	28.8	2268.2	95.7	6.3	13.7	33.7	0.0	0.0	-5.1
4/18/2012	2380.2	0.3	0.0	0.0	1.0	28.8	2268.0	95.7	6.3	13.7	33.7	0.0	0.0	-7.1
4/19/2012	2380.2	0.3	0.0	0.0	1.0	28.8	2268.1	95.7	6.3	13.7	33.7	0.0	0.0	-7.3
4/20/2012	2380.2	0.8	0.0	0.0	1.0	28.8	2268.1	95.7	6.3	13.7	33.7	0.0	0.0	-6.7
4/21/2012	2380.2	0.1	0.0	0.0	1.0	28.8	2268.2	95.7	6.3	13.7	33.7	0.0	0.0	-7.5
4/22/2012	2380.2	0.3	0.0	0.0	1.0	28.8	2268.3	95.7	6.3	13.7	33.7	0.0	0.0	-7.4
4/23/2012	2380.2	2.4	0.0	0.0	1.0	28.8	2268.2	95.7	6.3	13.7	33.7	0.0	0.0	-5.2
4/24/2012	2380.2	1.0	0.0	0.0	1.0	28.8	2268.2	95.7	6.3	13.7	33.7	0.0	0.0	-6.6
4/25/2012	2380.2	0.2	0.0	0.0	1.0	28.8	2268.0	95.7	6.3	13.7	33.7	0.0	0.0	-7.3
4/26/2012	2380.2	1.8	0.0	0.0	1.0	28.8	2268.0	95.7	6.3	13.7	33.7	0.0	0.0	-5.6
4/27/2012	2380.2	1.4	0.0	0.0	1.0	28.8	2255.9	94.3	6.3	13.7	33.7	99.2	1.0	-92.7
4/28/2012	2380.2	0.7	0.0	0.0	1.0	28.8	2161.9	91.8	6.3	13.7	33.7	200.3	2.0	-99.0
4/29/2012	2380.2	1.1	0.0	0.0	1.0	28.8	2075.5	90.7	6.3	13.7	33.7	198.3	2.0	-9.2
4/30/2012	2380.2	1.4	0.0	0.0	1.0	28.8	2075.3	90.7	6.3	13.7	33.7	200.3	2.0	-10.7
5/1/2012	1983.5	0.4	254.6	0.0	1.0	28.8	2040.8	85.1	6.3	21.5	33.7	200.3	2.0	-121.4
5/2/2012	1983.5	1.2	0.0	0.0	1.0	28.8	1696.2	79.5	6.3	21.5	33.7	261.6	2.6	-87.1
5/3/2012	1983.5	2.4	0.0	0.0	1.0	28.8	1629.7	78.2	6.3	21.5	33.7	297.9	3.0	-54.6
5/4/2012	1983.5	1.3	0.0	0.0	1.0	28.8	1596.1	77.8	6.3	21.5	33.7	297.9	3.0	-21.6
5/5/2012	1983.5	0.9	0.0	0.0	1.0	28.8	1595.0	77.8	6.3	21.5	33.7	297.9	3.0	-21.0
5/6/2012	1983.5	0.7	0.0	0.0	1.0	28.8	1594.3	77.6	6.3	21.5	33.7	308.2	3.1	-30.7
5/7/2012	1983.5	1.5	0.0	0.0	1.0	28.8	1585.4	77.4	6.3	21.5	33.7	308.2	3.1	-20.8
5/8/2012	1983.5	0.3	0.0	0.0	1.0	28.8	1593.8	79.9	6.3	21.5	33.7	144.8	1.4	132.2
5/9/2012	1983.5	0.8	73.4	0.0	1.0	28.8	1749.7	83.9	6.3	21.5	33.7	0.0	0.0	192.4
5/10/2012	1983.5	0.3	41.3	0.0	1.0	28.8	1881.0	85.6	6.3	21.5	33.7	0.0	0.0	26.8
5/11/2012	1983.5	1.0	0.0	0.0	1.0	28.8	1883.4	85.6	6.3	21.5	33.7	0.0	0.0	-16.2
5/12/2012	1983.5	0.4	0.0	0.0	1.0	28.8	1883.3	85.6	6.3	21.5	33.7	0.0	0.0	-16.8
5/13/2012	1983.5	0.6	0.0	0.0	1.0	28.8	1883.3	85.6	6.3	21.5	33.7	0.0	0.0	-16.6
5/14/2012	1983.5	1.3	0.0	0.0	1.0	28.8	1883.4	85.6	6.3	21.5	33.7	0.0	0.0	-15.9
5/15/2012	1983.5	0.5	0.0	0.0	1.0	28.8	1883.4	85.6	6.3	21.5	33.7	0.0	0.0	-16.7
5/16/2012	1983.5	1.5	0.0	0.0	1.0	28.8	1870.4	83.5	6.3	21.5	33.7	152.7	1.5	-154.8
5/17/2012	1983.5	1.7	0.0	0.0	1.0	28.8	1728.5	79.5	6.3	21.5	33.7	299.5	3.0	-157.1
5/18/2012	1983.5	2.5	0.0	0.0	1.0	28.8	1598.1	77.8	6.3	21.5	33.7	295.3	3.0	-19.8
5/19/2012	1983.5	0.7	0.0	0.0	1.0	28.8	1597.2	77.8	6.3	21.5	33.7	295.5	3.0	-21.1
5/20/2012	1983.5	1.1	0.0	0.0	1.0	28.8	1597.1	77.8	6.3	21.5	33.7	295.5	3.0	-20.6

Table F4-1: RGCP Channel Water Budget Equation Analysis Segment 1

Normal Single Pulse Hydrograph (S2)

(Units = Acre- (Units = Acre-Feet)

	Segment 1 - Caballo Dam to Leasburg Dam (Upper Reach)													
	Qcus	Pc	Qcin	Qirf	Qeff	Qgwrf	Qcds	Qcs	Qfpr	ET	ET	Qda	Qdu	Δsic
Date	Upstream Channel Inflow, River Below Caballo Dam	Precipitation Flows in River Channel	In-channel Stormwater/ Ungaged Return Inflow	Irrigation Return Flow (none in Segment 1)	Treated Effluent Return Flow	Groundwater Return Flow	Downstream Channel Outflow, below Leasburg Cable	Channel Seepage	Floodplain Recharge	Open Water Channel Evaporation	Riparian Evapo-transpiration	Diversions Authorized (Percha, Arrey, & Leasburg)	Diversions Unauthorized (1% of Authorized)	In-channel Change in Storage
5/21/2012	1983.5	0.5	0.0	0.0	1.0	28.8	1597.4	77.9	6.3	21.5	33.7	291.6	2.9	-17.5
5/22/2012	1983.5	1.4	0.0	0.0	1.0	28.8	1596.1	76.6	6.3	21.5	33.7	378.8	3.8	-102.2
5/23/2012	1983.5	1.6	0.0	0.0	1.0	28.8	1519.0	75.0	6.3	21.5	33.7	418.5	4.2	-63.3
5/24/2012	1983.5	1.5	0.0	0.0	1.0	28.8	1479.6	74.2	6.3	21.5	33.7	432.4	4.3	-37.2
5/25/2012	1983.5	2.0	0.0	0.0	1.0	28.8	1465.4	74.0	6.3	21.5	33.7	432.4	4.3	-22.4
5/26/2012	1983.5	0.5	0.0	0.0	1.0	28.8	1464.9	74.0	6.3	21.5	33.7	432.4	4.3	-23.3
5/27/2012	1983.5	2.8	0.0	0.0	1.0	28.8	1464.8	74.0	6.3	21.5	33.7	432.4	4.3	-20.9
5/28/2012	1983.5	1.7	0.0	0.0	1.0	28.8	1464.9	74.0	6.3	21.5	33.7	432.4	4.3	-22.2
5/29/2012	1983.5	0.7	0.0	0.0	1.0	28.8	1464.4	73.9	6.3	21.5	33.7	442.3	4.4	-32.5
5/30/2012	1983.5	1.0	0.0	0.0	1.0	28.8	1455.8	73.7	6.3	21.5	33.7	442.3	4.4	-23.4
5/31/2012	1983.5	0.7	0.0	0.0	1.0	28.8	1457.5	74.6	6.3	21.5	33.7	380.8	3.8	35.7
6/1/2012	1983.5	1.2	0.0	0.0	1.0	28.8	1511.8	75.5	6.3	22.1	33.7	380.8	3.8	-19.5
6/2/2012	1983.5	1.3	0.0	0.0	1.0	28.8	1289.6	75.4	6.3	22.1	33.7	618.8	6.2	-37.6
6/3/2012	1983.5	2.3	0.0	0.0	1.0	28.8	1200.8	75.4	6.3	22.1	33.7	700.8	7.0	-30.5
6/4/2012	1983.5	2.0	0.0	0.0	1.0	28.8	1224.8	78.0	6.3	22.1	33.7	503.2	5.0	142.1
6/5/2012	1983.5	0.1	105.5	0.0	1.0	28.8	1389.1	79.9	6.3	22.1	33.7	515.7	5.2	66.8
6/6/2012	1983.5	0.8	0.0	0.0	1.0	28.8	1362.6	77.5	6.3	22.1	33.7	670.3	6.7	-165.2
6/7/2012	1983.5	3.4	0.0	0.0	1.0	28.8	1223.3	75.5	6.3	22.1	33.7	689.0	6.9	-40.0
6/8/2012	1983.5	0.5	0.0	0.0	1.0	28.8	1046.5	75.6	6.3	22.1	33.7	842.1	8.4	-20.8
6/9/2012	1983.5	0.8	0.0	0.0	1.0	28.8	979.9	75.6	6.3	22.1	33.7	940.7	9.4	-53.5
6/10/2012	1983.5	0.7	0.0	0.0	1.0	28.8	1080.2	75.6	6.3	22.1	33.7	793.2	7.9	-5.1
6/11/2012	1983.5	2.1	172.5	0.0	1.0	28.8	1216.3	75.9	6.3	22.1	33.7	673.4	6.7	153.4
6/12/2012	1983.5	1.5	31.3	0.0	1.0	28.8	1222.5	75.4	6.3	22.1	33.7	706.5	7.1	-27.6
6/13/2012	1983.5	0.8	0.0	0.0	1.0	28.8	1148.7	74.0	6.3	22.1	33.7	816.6	8.2	-95.4
6/14/2012	1983.5	1.0	0.0	0.0	1.0	28.8	1113.3	73.4	6.3	22.1	33.7	771.9	7.7	-14.2
6/15/2012	1983.5	0.5	0.0	0.0	1.0	28.8	1098.3	76.4	6.3	22.1	33.7	622.2	6.2	148.6
6/16/2012	1983.5	1.5	53.2	0.0	1.0	28.8	1265.8	78.3	6.3	22.1	33.7	655.6	6.6	-0.4
6/17/2012	2975.2	2.2	0.0	0.0	1.0	28.8	1237.7	92.8	6.3	22.1	33.7	663.2	6.6	944.8
6/18/2012	2975.2	4.7	0.0	0.0	1.0	28.8	2207.5	104.3	6.3	22.1	33.7	632.9	6.3	-3.4
6/19/2012	2975.2	0.7	0.0	0.0	1.0	28.8	2254.6	104.3	6.3	22.1	33.7	598.4	6.0	-19.6
6/20/2012	2975.2	4.2	0.0	0.0	1.0	28.8	2241.4	103.1	6.3	22.1	33.7	689.4	6.9	-93.7
6/21/2012	2975.2	1.6	0.0	0.0	1.0	28.8	2191.4	101.6	6.3	22.1	33.7	705.8	7.1	-61.4
6/22/2012	2975.2	2.6	0.0	0.0	1.0	28.8	2132.1	101.1	6.3	22.1	33.7	734.4	7.3	-29.4
6/23/2012	2975.2	3.1	0.0	0.0	1.0	28.8	2140.1	100.8	6.3	22.1	33.7	728.1	7.3	-30.3
6/24/2012	2975.2	2.9	0.0	0.0	1.0	28.8	2070.8	100.7	6.3	22.1	33.7	791.2	7.9	-24.8
6/25/2012	2975.2	1.8	0.0	0.0	1.0	28.8	2017.5	101.0	6.3	22.1	33.7	827.2	8.3	-9.2
6/26/2012	2975.2	3.0	0.0	0.0	1.0	28.8	2084.8	101.0	6.3	22.1	33.7	783.3	7.8	-31.0
6/27/2012	2975.2	3.7	0.0	0.0	1.0	28.8	2104.2	100.8	6.3	22.1	33.7	758.6	7.6	-24.5
6/28/2012	2975.2	3.4	0.0	0.0	1.0	28.8	2105.9	100.7	6.3	22.1	33.7	752.8	7.5	-20.6
6/29/2012	2975.2	8.1	0.0	0.0	1.0	28.8	2111.4	100.7	6.3	22.1	33.7	747.3	7.5	-16.0
6/30/2012	2975.2	3.0	0.0	0.0	1.0	28.8	2107.4	100.8	6.3	22.1	33.7	746.6	7.5	-16.4
7/1/2012	3966.9	5.3	0.0	0.0	1.0	28.8	2246.5	114.9	6.3	16.4	33.7	727.4	7.3	849.4
7/2/2012	3966.9	6.4	0.0	0.0	1.0	28.8	3086.2	123.9	6.3	16.4	33.7	744.9	7.4	-15.7
7/3/2012	3966.9	4.0	0.0	0.0	1.0	28.8	3100.1	125.0	6.3	16.4	33.7	651.6	6.5	61.1
7/4/2012	3966.9	4.5	0.0	0.0	1.0	28.8	3219.2	126.6	6.3	16.4	33.7	541.4	5.4	52.2
7/5/2012	3966.9	8.8	0.0	0.0	1.0	28.8	3284.9	127.2	6.3	16.4	33.7	533.5	5.3	-1.9
7/6/2012	3966.9	4.8	0.0	0.0	1.0	28.8	3240.2	127.2	6.3	16.4	33.7	580.5	5.8	-8.5
7/7/2012	3966.9	7.4	0.0	0.0	1.0	28.8	3199.6	127.2	6.3	16.4	33.7	621.1	6.2	-6.4
7/8/2012	3966.9	6.1	0.0	0.0	1.0	28.8	3223.1	130.2	6.3	16.4	33.7	416.0	4.2	173.0
7/9/2012	3966.9	5.5	85.0	0.0	1.0	28.8	3431.9	131.9	6.3	16.4	33.7	379.7	3.8	83.5
7/10/2012	3966.9	4.4	0.0	0.0	1.0	28.8	3445.5	131.9	6.3	16.4	33.7	367.6	3.7	-4.1

Table F4-1: RGCP Channel Water Budget Equation Analysis Segment 1

Normal Single Pulse Hydrograph (S2)

(Units = Acre- (Units = Acre-Feet)

	Segment 1 - Caballo Dam to Leasburg Dam (Upper Reach)													
	Qcus	Pc	Qcin	Qirf	Qeff	Qgwrfl	Qcdfs	Qcs	Qfpr	ET	ET	Qda	Qdu	Δsic
Date	Upstream Channel Inflow, River Below Caballo Dam	Precipitation Flows in River Channel	In-channel Stormwater/ Ungaged Return Inflow	Irrigation Return Flow (none in Segment 1)	Treated Effluent Return Flow	Groundwater Return Flow	Downstream Channel Outflow, below Leasburg Cable	Channel Seepage	Floodplain Recharge	Open Water Channel Evaporation	Riparian Evapo-transpiration	Diversions Authorized (Percha, Arrey, & Leasburg)	Diversions Unauthorized (1% of Authorized)	In-channel Change in Storage
7/11/2012	3966.9	4.7	0.0	0.0	1.0	28.8	3487.8	131.9	6.3	16.4	33.7	323.9	3.2	-1.9
7/12/2012	3966.9	5.0	0.0	0.0	1.0	28.8	3504.1	131.8	6.3	16.4	33.7	319.6	3.2	-13.4
7/13/2012	3966.9	6.3	0.0	0.0	1.0	28.8	3482.2	131.6	6.3	16.4	33.7	333.5	3.3	-4.0
7/14/2012	3966.9	4.1	0.0	0.0	1.0	28.8	3442.6	131.8	6.3	16.4	33.7	359.6	3.6	6.9
7/15/2012	2975.2	12.9	647.5	0.0	1.0	28.8	3290.3	118.7	6.3	16.4	33.7	358.0	3.6	-161.5
7/16/2012	2975.2	3.2	0.0	0.0	1.0	28.8	2436.8	104.1	6.3	16.4	33.7	763.2	7.6	-359.9
7/17/2012	2975.2	3.6	0.0	0.0	1.0	28.8	2102.6	100.5	6.3	16.4	33.7	747.5	7.5	-5.9
7/18/2012	2975.2	6.2	0.0	0.0	1.0	28.8	2099.9	100.5	6.3	16.4	33.7	764.9	7.6	-18.2
7/19/2012	2975.2	5.9	0.0	0.0	1.0	28.8	2093.7	100.6	6.3	16.4	33.7	759.0	7.6	-6.4
7/20/2012	2975.2	6.6	0.0	0.0	1.0	28.8	2058.0	101.1	6.3	16.4	33.7	774.0	7.7	14.3
7/21/2012	2975.2	7.9	0.0	0.0	1.0	28.8	1998.0	101.3	6.3	16.4	33.7	874.7	8.7	-26.2
7/22/2012	2975.2	7.4	0.0	0.0	1.0	28.8	1989.5	101.3	6.3	16.4	33.7	861.0	8.6	-4.4
7/23/2012	2975.2	6.0	0.0	0.0	1.0	28.8	1998.3	101.3	6.3	16.4	33.7	867.2	8.7	-20.9
7/24/2012	2975.2	7.2	0.0	0.0	1.0	28.8	1985.4	101.3	6.3	16.4	33.7	867.2	8.7	-6.8
7/25/2012	1983.5	5.8	764.8	0.0	1.0	28.8	1882.1	87.3	6.3	16.4	33.7	875.3	8.8	-126.0
7/26/2012	1983.5	6.2	0.0	0.0	1.0	28.8	1063.6	73.6	6.3	16.4	33.7	1004.5	10.0	-188.7
7/27/2012	1983.5	5.4	0.0	0.0	1.0	28.8	907.9	71.7	6.3	16.4	33.7	1001.7	10.0	-29.1
7/28/2012	1983.5	5.6	0.0	0.0	1.0	28.8	902.7	72.4	6.3	16.4	33.7	953.7	9.5	24.1
7/29/2012	1983.5	7.2	0.0	0.0	1.0	28.8	946.1	74.4	6.3	16.4	33.7	865.9	8.7	69.0
7/30/2012	1983.5	8.2	0.0	0.0	1.0	28.8	1024.2	75.1	6.3	16.4	33.7	905.9	9.1	-49.1
7/31/2012	1983.5	6.4	0.0	0.0	1.0	28.8	980.0	73.9	6.3	16.4	33.7	962.5	9.6	-62.8
8/1/2012	1388.4	6.8	458.7	0.0	1.0	28.8	942.2	65.3	6.3	15.5	33.7	911.1	9.1	-99.5
8/2/2012	1388.4	8.2	217.9	0.0	1.0	28.8	644.8	56.0	6.3	15.5	33.7	942.4	9.4	-63.7
8/3/2012	1388.4	8.3	137.4	0.0	1.0	28.8	615.7	55.4	6.3	15.5	33.7	946.2	9.5	-118.3
8/4/2012	1388.4	6.4	173.4	0.0	1.0	28.8	620.5	55.4	6.3	15.5	33.7	896.9	9.0	-39.1
8/5/2012	1388.4	6.2	188.1	0.0	1.0	28.8	631.3	55.7	6.3	15.5	33.7	856.5	8.6	5.0
8/6/2012	1388.4	5.1	142.0	0.0	1.0	28.8	634.6	55.8	6.3	15.5	33.7	857.4	8.6	-46.5
8/7/2012	1388.4	6.4	100.4	0.0	1.0	28.8	633.4	55.9	6.3	15.5	33.7	846.6	8.5	-74.8
8/8/2012	1388.4	5.3	102.5	0.0	1.0	28.8	634.5	56.0	6.3	15.5	33.7	862.8	8.6	-91.4
8/9/2012	1388.4	7.4	195.4	0.0	1.0	28.8	738.2	56.0	6.3	15.5	33.7	923.1	9.2	-161.0
8/10/2012	1388.4	6.9	228.8	0.0	1.0	28.8	755.5	56.2	6.3	15.5	33.7	994.2	9.9	-217.3
8/11/2012	1388.4	8.3	145.0	0.0	1.0	28.8	611.3	56.3	6.3	15.5	33.7	956.2	9.6	-117.4
8/12/2012	1388.4	8.1	430.8	0.0	1.0	28.8	826.1	58.2	6.3	15.5	33.7	842.4	8.4	66.6
8/13/2012	1388.4	9.7	195.9	0.0	1.0	28.8	629.1	59.9	6.3	15.5	33.7	881.2	8.8	-10.7
8/14/2012	1388.4	7.1	370.9	0.0	1.0	28.8	918.0	64.0	6.3	15.5	33.7	558.5	5.6	194.7
8/15/2012	1388.4	7.1	490.3	0.0	1.0	28.8	998.5	69.0	6.3	15.5	33.7	264.9	2.6	525.1
8/16/2012	1388.4	8.9	453.2	0.0	1.0	28.8	1284.1	69.2	6.3	15.5	33.7	11.5	0.1	460.0
8/17/2012	1388.4	3.1	172.1	0.0	1.0	28.8	1296.6	69.2	6.3	15.5	33.7	11.5	0.1	160.5
8/18/2012	1388.4	7.9	0.0	0.0	1.0	28.8	1296.6	69.2	6.3	15.5	33.7	11.5	0.1	-6.7
8/19/2012	1388.4	5.6	0.0	0.0	1.0	28.8	1296.5	69.2	6.3	15.5	33.7	11.5	0.1	-8.8
8/20/2012	1388.4	6.6	0.0	0.0	1.0	28.8	1296.5	69.2	6.3	15.5	33.7	11.5	0.1	-7.9
8/21/2012	1388.4	11.1	0.0	0.0	1.0	28.8	1296.6	69.2	6.3	15.5	33.7	11.5	0.1	-3.5
8/22/2012	1388.4	5.4	0.0	0.0	1.0	28.8	1296.3	69.2	6.3	15.5	33.7	11.5	0.1	-8.9
8/23/2012	1388.4	14.2	0.0	0.0	1.0	28.8	1296.5	69.2	6.3	15.5	33.7	11.5	0.1	-0.3
8/24/2012	1388.4	9.4	0.0	0.0	1.0	28.8	1296.5	69.2	6.3	15.5	33.7	11.5	0.1	-5.1
8/25/2012	1388.4	4.8	0.0	0.0	1.0	28.8	1296.4	69.2	6.3	15.5	33.7	11.5	0.1	-9.6
8/26/2012	1388.4	5.2	0.0	0.0	1.0	28.8	1296.5	69.2	6.3	15.5	33.7	11.5	0.1	-9.4
8/27/2012	1388.4	4.4	0.0	0.0	1.0	28.8	1296.6	69.2	6.3	15.5	33.7	11.5	0.1	-10.2
8/28/2012	1388.4	2.0	0.0	0.0	1.0	28.8	1296.5	69.2	6.3	15.5	33.7	11.5	0.1	-12.5
8/29/2012	1388.4	6.3	0.0	0.0	1.0	28.8	1296.6	69.2	6.3	15.5	33.7	11.5	0.1	-8.4
8/30/2012	1388.4	6.9	0.0	0.0	1.0	28.8	1296.6	69.2	6.3	15.5	33.7	11.5	0.1	-7.7

Table F4-1: RGCP Channel Water Budget Equation Analysis Segment 1

Normal Single Pulse Hydrograph (S2)

(Units = Acre-| (Units = Acre-Feet)

	Segment 1 - Caballo Dam to Leasburg Dam (Upper Reach)													
	Qcus	Pc	Qcin	Qirf	Qeff	Qgwrf	Qcds	Qcs	Qfpr	ET	ET	Qda	Qdu	Δsic
Date	Upstream Channel Inflow, River Below Caballo Dam	Precipitation Flows in River Channel	In-channel Stormwater/ Ungaged Return Inflow	Irrigation Return Flow (none in Segment 1)	Treated Effluent Return Flow	Groundwater Return Flow	Downstream Channel Outflow, below Leasburg Cable	Channel Seepage	Floodplain Recharge	Open Water Channel Evaporation	Riparian Evapo-transpiration	Diversions Authorized (Percha, Arrey, & Leasburg)	Diversions Unauthorized (1% of Authorized)	In-channel Change in Storage
8/31/2012	1388.4	4.8	0.0	0.0	1.0	28.8	1296.5	69.2	6.3	15.5	33.7	11.5	0.1	-9.6
9/1/2012	1388.4	4.9	0.0	0.0	1.0	28.8	1296.5	69.2	6.3	12.4	33.7	11.5	0.1	-6.5
9/2/2012	1388.4	5.3	0.0	0.0	1.0	28.8	1296.4	69.2	6.3	12.4	33.7	11.5	0.1	-6.1
9/3/2012	1388.4	3.7	0.0	0.0	1.0	28.8	1296.4	69.2	6.3	12.4	33.7	11.5	0.1	-7.8
9/4/2012	1388.4	4.1	0.0	0.0	1.0	28.8	1296.5	69.2	6.3	12.4	33.7	11.5	0.1	-7.4
9/5/2012	1388.4	7.7	0.0	0.0	1.0	28.8	1296.3	69.2	6.3	12.4	33.7	11.5	0.1	-3.6
9/6/2012	1388.4	4.4	0.0	0.0	1.0	28.8	1296.5	69.2	6.3	12.4	33.7	11.5	0.1	-7.2
9/7/2012	1388.4	5.6	0.0	0.0	1.0	28.8	1296.5	69.2	6.3	12.4	33.7	11.5	0.1	-5.9
9/8/2012	1388.4	2.6	0.0	0.0	1.0	28.8	1296.5	69.2	6.3	12.4	33.7	11.5	0.1	-8.9
9/9/2012	1388.4	4.1	0.0	0.0	1.0	28.8	1296.5	69.2	6.3	12.4	33.7	11.5	0.1	-7.4
9/10/2012	1388.4	4.9	0.0	0.0	1.0	28.8	1296.6	69.2	6.3	12.4	33.7	11.5	0.1	-6.8
9/11/2012	1388.4	4.4	0.0	0.0	1.0	28.8	1296.6	69.2	6.3	12.4	33.7	11.5	0.1	-7.2
9/12/2012	1388.4	10.3	0.0	0.0	1.0	28.8	1296.6	69.2	6.3	12.4	33.7	11.5	0.1	-1.3
9/13/2012	1118.7	8.5	184.2	0.0	1.0	28.8	1292.5	65.3	6.3	12.4	33.7	11.5	0.1	-80.6
9/14/2012	0.0	6.6	1082.3	0.0	1.0	28.8	1071.8	45.3	6.3	12.4	33.7	11.5	0.1	-62.5

RGCP - Project Scale Water Budget - Segment 1 (Caballo Dam to Leasburg Dam)

Release Scenario S2 (Normal Single Pulse)

$\Delta Sic = (Qus + Pc + Qcin + Qirf + Qgwrf) - (Qcds + Qcs + Qfpr + ET + Qda + Qdu)$

- Sum of Inflow
- Sum of Outflow
- ΔSic - Change in Channel Storage

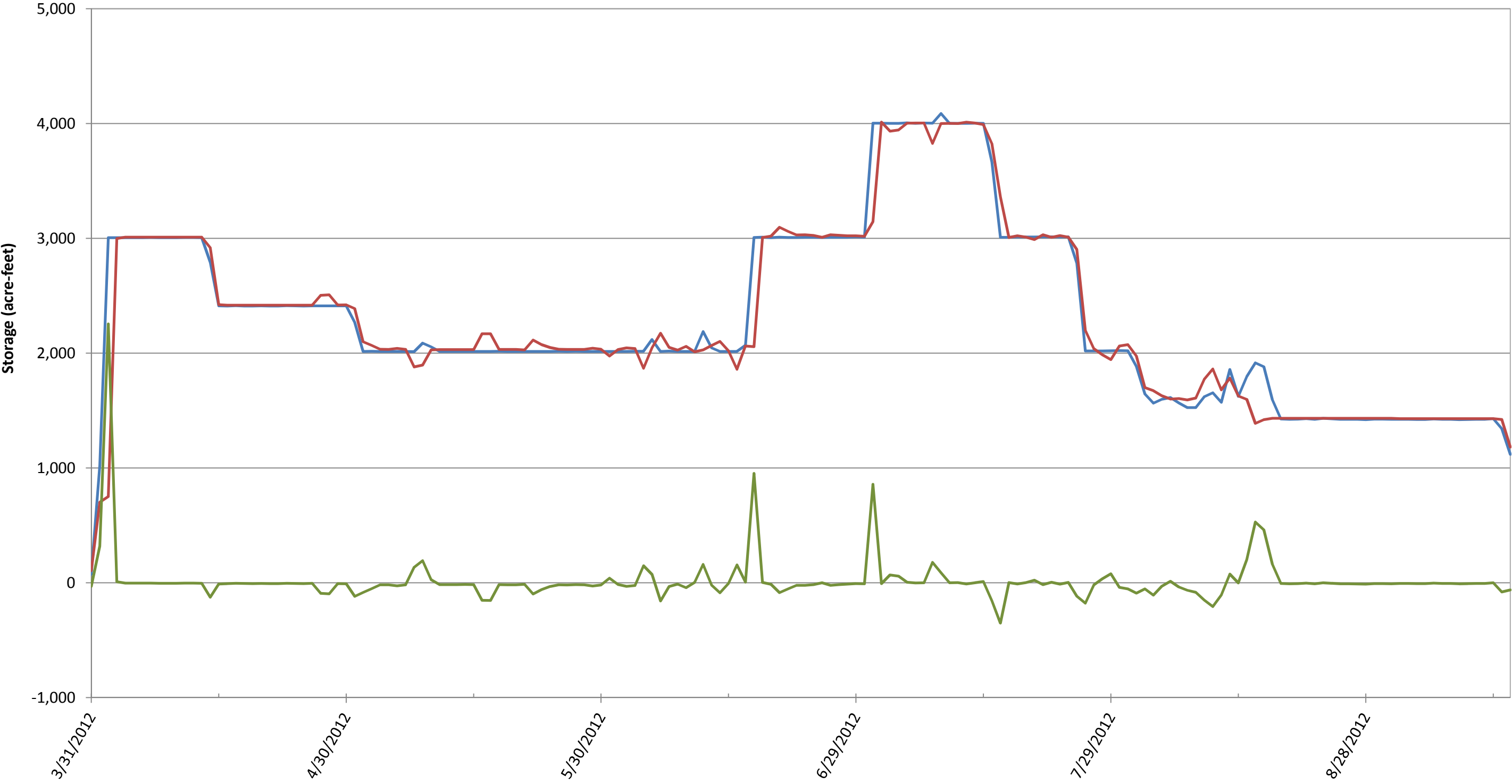


Table F4-2: RGCP Channel Water Budget Equation Analysis Segment 2

Normal Single Pulse Hydrograph (S2)

(Units = Acre- (Units = Acre-Feet)

	Segment 2 - Leasburg Dam to Mesilla Dam (Middle Reach)													
	Qcus	Pc	Qcin	Qirf	Qeff	Qgwrf	Qcds	Qcs	Qfpr	ET	ET	Qda	Qdu	Δsic
Date	Upstream Channel Inflow, below Leasburg Cable	Precipitation Flows in River Channel	In-channel Stormwater/ Ungaged Return Inflow	Irrigation Return Flow (La Mesa Drain)	Treated Effluent Return Flow	Groundwater Return Flow	Downstream Channel Outflow, below Mesilla Dam	Channel Seepage	Floodplain Recharge	Open Water Channel Evaporation	Riparian Evapo-transpiration	Diversions Authorized (Del Rio, Eastside, & Westside)	Diversions Unauthorized (1% of Authorized)	In-channel Change in Storage
3/31/2012	44.9	0.1	0.0	0.1	44.5	3.0	71.1	10.3	6.3	2.8	8.9	0.0	0.0	-6.7
4/1/2012	616.3	0.1	0.0	0.1	44.5	3.0	218.2	78.1	6.3	6.1	8.9	0.0	0.0	346.5
4/2/2012	614.0	0.7	0.0	0.1	44.5	3.0	533.1	82.4	6.3	6.1	8.9	0.0	0.0	25.6
4/3/2012	2834.4	0.6	0.0	0.1	44.5	3.0	1806.5	232.0	6.3	6.1	8.9	0.0	0.0	822.8
4/4/2012	2846.3	0.7	0.0	0.1	44.5	3.0	2603.2	243.7	6.3	6.1	8.9	0.0	0.0	26.5
4/5/2012	2846.2	1.1	0.0	0.1	44.5	3.0	2603.2	243.7	6.3	6.1	8.9	0.0	0.0	26.7
4/6/2012	2846.3	1.2	0.0	0.1	44.5	3.0	2603.3	243.7	6.3	6.1	8.9	0.0	0.0	26.9
4/7/2012	2846.5	0.2	0.0	0.1	44.5	3.0	2603.3	243.7	6.3	6.1	8.9	0.0	0.0	26.0
4/8/2012	2846.3	0.1	0.0	0.1	44.5	3.0	2603.3	243.7	6.3	6.1	8.9	0.0	0.0	25.8
4/9/2012	2846.4	0.0	0.0	0.1	44.5	3.0	2603.4	243.7	6.3	6.1	8.9	0.0	0.0	25.7
4/10/2012	2846.4	0.0	0.0	0.1	44.5	3.0	2603.3	243.7	6.3	6.1	8.9	0.0	0.0	25.7
4/11/2012	2846.2	0.9	0.0	0.1	44.5	3.0	2603.3	243.7	6.3	6.1	8.9	0.0	0.0	26.5
4/12/2012	2846.3	1.1	0.0	0.1	44.5	3.0	1938.8	243.7	6.3	6.1	8.9	694.2	6.9	-9.9
4/13/2012	2846.5	0.2	0.0	0.1	44.5	3.0	1870.7	243.7	6.3	6.1	8.9	737.1	7.4	14.3
4/14/2012	2762.5	0.1	0.0	0.1	44.5	3.0	1904.9	242.1	6.3	6.1	8.9	700.6	7.0	-65.6
4/15/2012	2272.8	1.4	0.0	0.1	44.5	3.0	1530.9	214.8	6.3	6.1	8.9	716.8	7.2	-169.2
4/16/2012	2268.2	0.3	0.0	0.1	44.5	3.0	1377.7	210.9	6.3	6.1	8.9	681.7	6.8	17.8
4/17/2012	2268.2	0.2	0.0	0.1	44.5	3.0	1390.5	210.9	6.3	6.1	8.9	670.4	6.7	16.3
4/18/2012	2268.0	0.2	0.0	0.1	44.5	3.0	1345.6	210.9	6.3	6.1	8.9	718.0	7.2	12.8
4/19/2012	2268.1	0.2	0.0	0.1	44.5	3.0	1324.7	210.9	6.3	6.1	8.9	737.9	7.4	13.8
4/20/2012	2268.1	0.1	0.0	0.1	44.5	3.0	1344.5	210.9	6.3	6.1	8.9	716.0	7.2	15.9
4/21/2012	2268.2	0.1	0.0	0.1	44.5	3.0	1347.4	210.9	6.3	6.1	8.9	714.0	7.1	15.1
4/22/2012	2268.3	1.0	0.0	0.1	44.5	3.0	1347.5	210.9	6.3	6.1	8.9	714.0	7.1	16.0
4/23/2012	2268.2	0.7	0.0	0.1	44.5	3.0	1345.7	210.9	6.3	6.1	8.9	716.0	7.2	15.5
4/24/2012	2268.2	0.7	0.0	0.1	44.5	3.0	1347.5	210.9	6.3	6.1	8.9	714.0	7.1	15.6
4/25/2012	2268.0	0.4	0.0	0.1	44.5	3.0	1302.3	210.9	6.3	6.1	8.9	761.7	7.6	12.2
4/26/2012	2268.0	0.3	0.0	0.1	44.5	3.0	1272.0	210.9	6.3	6.1	8.9	791.4	7.9	12.4
4/27/2012	2255.9	0.7	0.0	0.1	44.5	3.0	1270.5	210.7	6.3	6.1	8.9	791.4	7.9	2.5
4/28/2012	2161.9	0.1	0.0	0.1	44.5	3.0	1214.8	205.7	6.3	6.1	8.9	791.4	7.9	-31.5
4/29/2012	2075.5	0.1	0.0	0.1	44.5	3.0	1243.5	200.0	6.3	6.1	8.9	666.4	6.7	-14.6
4/30/2012	2075.3	0.4	0.0	0.1	44.5	3.0	1213.5	199.2	6.3	6.1	8.9	666.4	6.7	16.3
5/1/2012	2040.8	0.1	0.0	0.1	44.5	3.0	1390.5	198.6	6.3	9.6	8.9	480.0	4.8	-10.2
5/2/2012	1696.2	1.8	129.2	0.1	44.5	3.0	1203.6	179.1	6.3	9.6	8.9	480.0	4.8	-17.4
5/3/2012	1629.7	1.4	0.0	0.1	44.5	3.0	1011.1	171.0	6.3	9.6	8.9	480.0	4.8	-13.0
5/4/2012	1596.1	0.3	0.0	0.1	44.5	3.0	967.8	168.3	6.3	9.6	8.9	480.0	4.8	-1.7
5/5/2012	1595.0	0.5	0.0	0.1	44.5	3.0	950.5	167.8	6.3	9.6	8.9	480.0	4.8	15.3
5/6/2012	1594.3	0.4	0.0	0.1	44.5	3.0	950.6	167.7	6.3	9.6	8.9	480.0	4.8	14.4
5/7/2012	1585.4	1.2	0.0	0.1	44.5	3.0	946.3	167.2	6.3	9.6	8.9	480.0	4.8	11.0
5/8/2012	1593.8	0.0	0.0	0.1	44.5	3.0	941.3	167.2	6.3	9.6	8.9	480.0	4.8	23.3
5/9/2012	1749.7	0.0	156.7	0.1	44.5	3.0	1471.1	176.0	6.3	9.6	8.9	0.0	0.0	282.3
5/10/2012	1881.0	0.0	190.9	0.1	44.5	3.0	1636.6	185.6	6.3	9.6	8.9	0.0	0.0	272.7
5/11/2012	1883.4	0.6	0.0	0.1	44.5	3.0	1696.8	187.1	6.3	9.6	8.9	0.0	0.0	23.0
5/12/2012	1883.3	0.0	0.0	0.1	44.5	3.0	1696.8	187.1	6.3	9.6	8.9	0.0	0.0	22.3
5/13/2012	1883.3	0.1	0.0	0.1	44.5	3.0	1696.8	187.1	6.3	9.6	8.9	0.0	0.0	22.5
5/14/2012	1883.4	1.0	0.0	0.1	44.5	3.0	1696.8	187.1	6.3	9.6	8.9	0.0	0.0	23.4

Table F4-2: RGCP Channel Water Budget Equation Analysis Segment 2

Normal Single Pulse Hydrograph (S2)

(Units = Acre- (Units = Acre-Feet)

	Segment 2 - Leasburg Dam to Mesilla Dam (Middle Reach)													
	Qcus	Pc	Qcin	Qirf	Qeff	Qgwrf	Qcds	Qcs	Qfpr	ET	ET	Qda	Qdu	Δsic
Date	Upstream Channel Inflow, below Leasburg Cable	Precipitation Flows in River Channel	In-channel Stormwater/ Ungaged Return Inflow	Irrigation Return Flow (La Mesa Drain)	Treated Effluent Return Flow	Groundwater Return Flow	Downstream Channel Outflow, below Mesilla Dam	Channel Seepage	Floodplain Recharge	Open Water Channel Evaporation	Riparian Evapo-transpiration	Diversions Authorized (Del Rio, Eastside, & Westside)	Diversions Unauthorized (1% of Authorized)	In-channel Change in Storage
5/15/2012	1883.4	1.2	0.0	0.1	44.5	3.0	1696.6	187.1	6.3	9.6	8.9	0.0	0.0	23.7
5/16/2012	1870.4	1.8	0.0	0.1	44.5	3.0	1697.0	186.9	6.3	9.6	8.9	0.0	0.0	11.1
5/17/2012	1728.5	0.4	0.0	0.1	44.5	3.0	1622.5	179.0	6.3	9.6	8.9	0.0	0.0	-49.7
5/18/2012	1598.1	0.5	0.0	0.1	44.5	3.0	1492.2	169.7	6.3	9.6	8.9	0.0	0.0	-40.5
5/19/2012	1597.2	0.0	0.0	0.1	44.5	3.0	1427.9	167.9	6.3	9.6	8.9	0.0	0.0	24.3
5/20/2012	1597.1	0.4	0.0	0.1	44.5	3.0	1429.8	168.0	6.3	9.6	8.9	0.0	0.0	22.6
5/21/2012	1597.4	1.6	0.0	0.1	44.5	3.0	1429.8	168.0	6.3	9.6	8.9	0.0	0.0	24.1
5/22/2012	1596.1	0.2	0.0	0.1	44.5	3.0	1431.6	168.1	6.3	9.6	8.9	0.0	0.0	19.6
5/23/2012	1519.0	1.3	0.0	0.1	44.5	3.0	1397.3	163.7	6.3	9.6	8.9	0.0	0.0	-17.8
5/24/2012	1479.6	0.3	0.0	0.1	44.5	3.0	1340.1	160.2	6.3	9.6	8.9	0.0	0.0	2.6
5/25/2012	1465.4	1.6	0.0	0.1	44.5	3.0	1314.1	158.7	6.3	9.6	8.9	0.0	0.0	17.0
5/26/2012	1464.9	0.2	0.0	0.1	44.5	3.0	1306.9	158.5	6.3	9.6	8.9	0.0	0.0	22.5
5/27/2012	1464.8	0.9	0.0	0.1	44.5	3.0	1306.9	158.5	6.3	9.6	8.9	0.0	0.0	23.2
5/28/2012	1464.9	1.0	0.0	0.1	44.5	3.0	1306.8	158.5	6.3	9.6	8.9	0.0	0.0	23.5
5/29/2012	1464.4	0.5	0.0	0.1	44.5	3.0	1306.8	158.5	6.3	9.6	8.9	0.0	0.0	22.4
5/30/2012	1455.8	0.0	0.0	0.1	44.5	3.0	1303.5	158.0	6.3	9.6	8.9	0.0	0.0	17.2
5/31/2012	1457.5	1.2	0.0	0.1	44.5	3.0	1174.2	157.8	6.3	9.6	8.9	130.9	1.3	17.4
6/1/2012	1511.8	0.6	0.0	0.1	44.5	3.0	457.8	161.0	6.3	9.9	8.9	931.2	9.3	-24.3
6/2/2012	1289.6	0.4	0.0	0.1	44.5	3.0	298.3	149.8	6.3	9.9	8.9	991.7	9.9	-137.2
6/3/2012	1200.8	1.0	0.0	0.1	44.5	3.0	248.8	140.1	6.3	9.9	8.9	1081.0	10.8	-256.3
6/4/2012	1224.8	0.4	0.0	0.1	44.5	3.0	251.7	139.4	6.3	9.9	8.9	1023.5	10.2	-177.0
6/5/2012	1389.1	0.3	0.0	0.1	44.5	3.0	256.1	150.1	6.3	9.9	8.9	890.6	8.9	106.3
6/6/2012	1362.6	1.1	0.0	0.1	44.5	3.0	308.1	151.8	6.3	9.9	8.9	936.3	9.4	-19.2
6/7/2012	1223.3	2.5	0.0	0.1	44.5	3.0	250.6	142.7	6.3	9.9	8.9	917.6	9.2	-71.7
6/8/2012	1046.5	1.2	109.2	0.1	44.5	3.0	264.0	129.9	6.3	9.9	8.9	764.5	7.6	13.3
6/9/2012	979.9	0.3	134.9	0.1	44.5	3.0	241.9	121.5	6.3	9.9	8.9	666.0	6.7	101.7
6/10/2012	1080.2	3.5	0.0	0.1	44.5	3.0	237.0	125.7	6.3	9.9	8.9	813.4	8.1	-78.0
6/11/2012	1216.3	0.7	0.0	0.1	44.5	3.0	229.6	136.7	6.3	9.9	8.9	902.5	9.0	-38.2
6/12/2012	1222.5	0.9	7.9	0.1	44.5	3.0	461.6	140.2	6.3	9.9	8.9	601.0	6.0	45.1
6/13/2012	1148.7	0.2	0.0	0.1	44.5	3.0	266.5	135.9	6.3	9.9	8.9	1077.0	10.8	-318.7
6/14/2012	1113.3	1.9	0.0	0.1	44.5	3.0	274.7	132.0	6.3	9.9	8.9	1083.0	10.8	-362.6
6/15/2012	1098.3	3.2	245.4	0.1	44.5	3.0	311.3	130.2	6.3	9.9	8.9	1085.0	10.8	-167.8
6/16/2012	1265.8	1.8	110.0	0.1	44.5	3.0	337.4	140.4	6.3	9.9	8.9	1209.9	12.1	-299.6
6/17/2012	1237.7	2.5	104.2	0.1	44.5	3.0	301.5	139.7	6.3	9.9	8.9	1209.9	12.1	-296.3
6/18/2012	2207.5	4.5	0.0	0.1	44.5	3.0	367.0	199.3	6.3	9.9	8.9	1160.3	11.6	496.4
6/19/2012	2254.6	1.4	0.0	0.1	44.5	3.0	547.5	209.7	6.3	9.9	8.9	1513.4	15.1	-7.2
6/20/2012	2241.4	1.5	0.0	0.1	44.5	3.0	521.9	209.9	6.3	9.9	8.9	1535.2	15.4	-16.9
6/21/2012	2191.4	0.7	0.0	0.1	44.5	3.0	508.8	206.8	6.3	9.9	8.9	1505.5	15.1	-21.4
6/22/2012	2132.1	0.4	0.0	0.1	44.5	3.0	428.3	203.3	6.3	9.9	8.9	1545.1	15.5	-37.0
6/23/2012	2140.1	1.5	0.0	0.1	44.5	3.0	339.9	203.1	6.3	9.9	8.9	1608.6	16.1	-3.5
6/24/2012	2070.8	1.8	0.0	0.1	44.5	3.0	259.3	199.8	6.3	9.9	8.9	1661.2	16.6	-41.8
6/25/2012	2017.5	1.0	0.0	0.1	44.5	3.0	211.6	196.2	6.3	9.9	8.9	1670.1	16.7	-53.6
6/26/2012	2084.8	0.9	0.0	0.1	44.5	3.0	205.6	199.0	6.3	9.9	8.9	1676.0	16.8	10.8
6/27/2012	2104.2	3.7	0.0	0.1	44.5	3.0	201.3	200.8	6.3	9.9	8.9	1733.6	17.3	-22.5
6/28/2012	2105.9	2.6	0.0	0.1	44.5	3.0	228.2	201.1	6.3	9.9	8.9	1701.8	17.0	-17.0
6/29/2012	2111.4	4.7	0.0	0.1	44.5	3.0	207.2	201.4	6.3	9.9	8.9	1731.6	17.3	-18.7
6/30/2012	2107.4	2.8	0.0	0.1	44.5	3.0	205.0	201.3	6.3	9.9	8.9	1737.5	17.4	-28.3
7/1/2012	2246.5	1.5	0.0	0.1	44.5	3.0	232.5	203.7	6.3	7.3	8.9	1693.9	16.9	126.1
7/2/2012	3086.2	4.9	0.0	0.1	44.5	3.0	940.9	252.6	6.3	7.3	8.9	1632.4	16.3	274.0
7/3/2012	3100.1	1.2	0.0	0.1	44.5	3.0	1243.0	256.6	6.3	7.3	8.9	1594.7	15.9	16.1
7/4/2012	3219.2	2.1	0.0	0.1	44.5	3.0	1404.4	262.3	6.3	7.3	8.9	1509.4	15.1	55.3

Table F4-2: RGCP Channel Water Budget Equation Analysis Segment 2

Normal Single Pulse Hydrograph (S2)

(Units = Acre- (Units = Acre-Feet)

	Segment 2 - Leasburg Dam to Mesilla Dam (Middle Reach)													
	Qcus	Pc	Qcin	Qirf	Qeff	Qgwrfl	Qcds	Qcs	Qfpr	ET	ET	Qda	Qdu	Δsic
Date	Upstream Channel Inflow, below Leasburg Cable	Precipitation Flows in River Channel	In-channel Stormwater/ Ungaged Return Inflow	Irrigation Return Flow (La Mesa Drain)	Treated Effluent Return Flow	Groundwater Return Flow	Downstream Channel Outflow, below Mesilla Dam	Channel Seepage	Floodplain Recharge	Open Water Channel Evaporation	Riparian Evapo-transpiration	Diversions Authorized (Del Rio, Eastside, & Westside)	Diversions Unauthorized (1% of Authorized)	In-channel Change in Storage
7/5/2012	3284.9	4.9	0.0	0.1	44.5	3.0	1609.9	266.4	6.3	7.3	8.9	1392.4	13.9	32.4
7/6/2012	3240.2	1.3	0.0	0.1	44.5	3.0	1694.6	264.8	6.3	7.3	8.9	1303.1	13.0	-8.9
7/7/2012	3199.6	1.8	0.0	4.5	44.5	3.0	1750.1	262.6	6.3	7.3	8.9	1206.0	12.1	0.3
7/8/2012	3223.1	2.2	0.0	9.3	44.5	3.0	1812.1	262.4	6.3	7.3	8.9	1118.7	11.2	55.3
7/9/2012	3431.9	6.2	0.0	10.1	44.5	3.0	2097.1	273.2	6.3	7.3	8.9	1001.7	10.0	91.2
7/10/2012	3445.5	4.8	0.0	9.8	44.5	3.0	2164.1	274.7	6.3	7.3	8.9	1007.6	10.1	28.7
7/11/2012	3487.8	3.0	0.0	3.9	44.5	3.0	2208.9	276.6	6.3	7.3	8.9	989.8	9.9	34.5
7/12/2012	3504.1	1.8	0.0	10.1	44.5	3.0	2235.4	277.7	6.3	7.3	8.9	991.7	9.9	26.2
7/13/2012	3482.2	2.1	0.0	10.5	44.5	3.0	2209.6	276.8	6.3	7.3	8.9	1009.6	10.1	13.8
7/14/2012	3442.6	1.6	0.0	10.9	44.5	3.0	2175.7	274.9	6.3	7.3	8.9	1011.6	10.1	7.9
7/15/2012	3290.3	3.5	182.9	11.4	44.5	3.0	2519.5	272.1	6.3	7.3	8.9	646.6	6.5	68.4
7/16/2012	2436.8	2.0	401.1	11.0	44.5	3.0	1881.8	227.4	6.3	7.3	8.9	646.6	6.5	113.6
7/17/2012	2102.6	6.5	0.0	6.7	44.5	3.0	1238.1	203.2	6.3	7.3	8.9	797.4	8.0	-105.8
7/18/2012	2099.9	1.9	0.0	8.8	44.5	3.0	829.0	200.8	6.3	7.3	8.9	1094.9	10.9	0.0
7/19/2012	2093.7	2.7	0.0	10.3	44.5	3.0	702.0	200.4	6.3	7.3	8.9	1207.9	12.1	9.4
7/20/2012	2058.0	2.6	0.0	11.7	44.5	3.0	462.8	198.5	6.3	7.3	8.9	1442.0	14.4	-20.4
7/21/2012	1998.0	5.0	0.0	12.3	44.5	3.0	376.4	195.4	6.3	7.3	8.9	1475.7	14.8	-22.0
7/22/2012	1989.5	2.1	0.0	12.9	44.5	3.0	280.7	193.8	6.3	7.3	8.9	1531.2	15.3	8.4
7/23/2012	1998.3	4.7	0.0	13.5	44.5	3.0	304.9	194.4	6.3	7.3	8.9	1505.5	15.1	21.8
7/24/2012	1985.4	1.6	281.9	13.9	44.5	3.0	794.4	193.7	6.3	7.3	8.9	979.8	9.8	330.0
7/25/2012	1882.1	2.0	625.0	14.2	44.5	3.0	1060.4	192.2	6.3	7.3	8.9	731.3	7.3	557.2
7/26/2012	1063.6	4.7	615.4	14.6	44.5	3.0	758.3	142.1	6.3	7.3	8.9	602.1	6.0	214.9
7/27/2012	907.9	2.0	42.8	14.8	44.5	3.0	278.8	116.6	6.3	7.3	8.9	604.9	6.0	-13.7
7/28/2012	902.7	3.3	0.0	15.2	44.5	3.0	212.7	112.7	6.3	7.3	8.9	652.9	6.5	-38.6
7/29/2012	946.1	6.9	0.0	15.0	44.5	3.0	242.1	115.4	6.3	7.3	8.9	740.7	7.4	-112.6
7/30/2012	1024.2	2.9	0.0	15.1	44.5	3.0	209.8	121.8	6.3	7.3	8.9	700.7	7.0	27.9
7/31/2012	980.0	1.2	0.0	14.9	44.5	3.0	257.7	121.2	6.3	7.3	8.9	644.1	6.4	-8.4
8/1/2012	942.2	6.9	419.3	13.8	44.5	3.0	719.1	118.0	6.3	6.9	8.9	100.4	1.0	469.1
8/2/2012	644.8	6.6	619.5	14.3	44.5	3.0	679.0	95.5	6.3	6.9	8.9	69.2	0.7	466.3
8/3/2012	615.7	4.8	0.0	15.7	44.5	3.0	493.5	83.0	6.3	6.9	8.9	65.3	0.7	19.1
8/4/2012	620.5	1.9	0.0	15.8	44.5	3.0	425.4	82.8	6.3	6.9	8.9	114.7	1.1	39.6
8/5/2012	631.3	4.2	0.0	15.7	44.5	3.0	388.6	83.8	6.3	6.9	8.9	155.1	1.6	47.7
8/6/2012	634.6	3.7	0.0	15.8	44.5	3.0	393.8	84.7	6.3	6.9	8.9	154.2	1.5	45.4
8/7/2012	633.4	4.7	0.0	15.9	44.5	3.0	388.3	84.8	6.3	6.9	8.9	165.0	1.6	39.8
8/8/2012	634.5	1.4	0.0	16.1	44.5	3.0	400.9	84.8	6.3	6.9	8.9	148.8	1.5	41.5
8/9/2012	738.2	5.1	0.0	16.1	44.5	3.0	505.8	95.9	6.3	6.9	8.9	88.4	0.9	93.9
8/10/2012	755.5	3.6	0.0	114.8	44.5	3.0	620.8	97.7	6.3	6.9	8.9	17.4	0.2	163.3
8/11/2012	611.3	5.1	0.0	83.8	44.5	3.0	536.0	82.4	6.3	6.9	8.9	55.3	0.6	51.3
8/12/2012	826.1	6.6	0.0	199.3	44.5	3.0	492.4	105.3	6.3	6.9	8.9	169.2	1.7	288.8
8/13/2012	629.1	4.3	0.0	192.3	44.5	3.0	478.6	83.6	6.3	6.9	8.9	130.4	1.3	157.3
8/14/2012	918.0	10.7	0.0	163.5	44.5	3.0	326.0	113.9	6.3	6.9	8.9	453.0	4.5	220.3
8/15/2012	998.5	6.8	0.0	236.4	44.5	3.0	255.9	110.7	6.3	6.9	8.9	731.0	7.3	162.3
8/16/2012	1284.1	2.6	0.0	18.1	44.5	3.0	553.2	139.7	6.3	6.9	8.9	402.1	4.0	231.3
8/17/2012	1296.6	4.5	152.3	18.5	44.5	3.0	781.0	145.9	6.3	6.9	8.9	370.3	3.7	196.6
8/18/2012	1296.6	3.3	0.0	18.7	44.5	3.0	773.5	145.9	6.3	6.9	8.9	380.3	3.8	40.5
8/19/2012	1296.5	3.4	0.0	18.4	44.5	3.0	763.6	145.9	6.3	6.9	8.9	391.1	3.9	39.2
8/20/2012	1296.5	8.3	0.0	18.3	44.5	3.0	757.6	145.9	6.3	6.9	8.9	397.4	4.0	43.7
8/21/2012	1296.6	1.8	0.0	18.4	44.5	3.0	820.4	145.9	6.3	6.9	8.9	328.5	3.3	44.2
8/22/2012	1296.3	7.1	0.0	17.8	44.5	3.0	870.6	145.9	6.3	6.9	8.9	279.8	2.8	47.6
8/23/2012	1296.5	4.9	0.0	17.1	44.5	3.0	836.1	145.9	6.3	6.9	8.9	319.3	3.2	39.5
8/24/2012	1296.5	3.7	0.0	16.3	44.5	3.0	833.8	145.9	6.3	6.9	8.9	319.9	3.2	39.2

Table F4-2: RGCP Channel Water Budget Equation Analysis Segment 2

Normal Single Pulse Hydrograph (S2)

(Units = Acre-| (Units = Acre-Feet)

	Segment 2 - Leasburg Dam to Mesilla Dam (Middle Reach)													
	Qcus	Pc	Qcin	Qirf	Qeff	Qgwrf	Qcds	Qcs	Qfpr	ET	ET	Qda	Qdu	Δsic
Date	Upstream Channel Inflow, below Leasburg Cable	Precipitation Flows in River Channel	In-channel Stormwater/ Ungaged Return Inflow	Irrigation Return Flow (La Mesa Drain)	Treated Effluent Return Flow	Groundwater Return Flow	Downstream Channel Outflow, below Mesilla Dam	Channel Seepage	Floodplain Recharge	Open Water Channel Evaporation	Riparian Evapo-transpiration	Diversions Authorized (Del Rio, Eastside, & Westside)	Diversions Unauthorized (1% of Authorized)	In-channel Change in Storage
8/25/2012	1296.4	5.8	0.0	17.3	44.5	3.0	833.9	145.9	6.3	6.9	8.9	320.2	3.2	41.9
8/26/2012	1296.5	2.8	0.0	17.3	44.5	3.0	859.9	145.9	6.3	6.9	8.9	292.0	2.9	41.3
8/27/2012	1296.6	5.8	0.0	17.1	44.5	3.0	863.4	145.9	6.3	6.9	8.9	289.8	2.9	43.0
8/28/2012	1296.5	2.8	0.0	16.8	44.5	3.0	800.3	145.9	6.3	6.9	8.9	358.0	3.6	33.9
8/29/2012	1296.6	1.2	0.0	16.7	44.5	3.0	781.6	145.9	6.3	6.9	8.9	373.8	3.7	34.9
8/30/2012	1296.6	4.9	0.0	16.4	44.5	3.0	753.1	145.9	6.3	6.9	8.9	401.8	4.0	38.6
8/31/2012	1296.5	3.8	0.0	16.1	44.5	3.0	747.5	145.9	6.3	6.9	8.9	407.0	4.1	37.4
9/1/2012	1296.5	0.9	0.0	15.7	44.5	3.0	752.8	145.9	6.3	5.5	8.9	400.6	4.0	36.6
9/2/2012	1296.4	4.8	0.0	15.6	44.5	3.0	757.0	145.9	6.3	5.5	8.9	396.1	4.0	40.7
9/3/2012	1296.4	2.8	0.0	15.7	44.5	3.0	759.0	145.9	6.3	5.5	8.9	393.9	3.9	39.0
9/4/2012	1296.5	4.8	0.0	15.7	44.5	3.0	816.6	145.9	6.3	5.5	8.9	333.8	3.3	44.2
9/5/2012	1296.3	4.1	73.8	15.5	44.5	3.0	1036.1	145.9	6.3	5.5	8.9	105.2	1.1	128.1
9/6/2012	1296.5	5.3	119.2	14.2	44.5	3.0	1140.6	145.9	6.3	5.5	8.9	5.5	0.1	170.0
9/7/2012	1296.5	5.6	0.0	13.2	44.5	3.0	1128.3	145.9	6.3	5.5	8.9	24.0	0.2	43.7
9/8/2012	1296.5	2.0	0.0	14.1	44.5	3.0	918.3	145.9	6.3	5.5	8.9	246.9	2.5	25.9
9/9/2012	1296.5	2.1	0.0	14.2	44.5	3.0	753.1	145.9	6.3	5.5	8.9	410.8	4.1	25.7
9/10/2012	1296.6	2.4	0.0	13.8	44.5	3.0	541.7	145.9	6.3	5.5	8.9	631.5	6.3	14.3
9/11/2012	1296.6	3.2	0.0	12.8	44.5	3.0	483.6	145.9	6.3	5.5	8.9	675.5	6.8	27.7
9/12/2012	1296.6	5.8	116.3	10.5	44.5	3.0	836.3	145.9	6.3	5.5	8.9	295.7	3.0	175.1
9/13/2012	1292.5	3.0	467.2	8.5	44.5	3.0	1137.2	145.8	6.3	5.5	8.9	0.0	0.0	515.0
9/14/2012	1071.8	3.3	255.5	9.7	44.5	3.0	1085.8	133.4	6.3	5.5	8.9	0.0	0.0	147.9

RGCP - Project Scale Water Budget - Segment 2 (Leasburg Dam to Mesilla Dam)

Release Scenario S2 (Normal Single Pulse)

$\Delta Sic = (Qus + Pc + Qcin + Qirf + Qgwrf) - (Qc ds + Qcs + Qfpr + ET + Qda + Qdu)$

- Sum of Inflow
- Sum of Outflow
- ΔSic - Change in Channel Storage

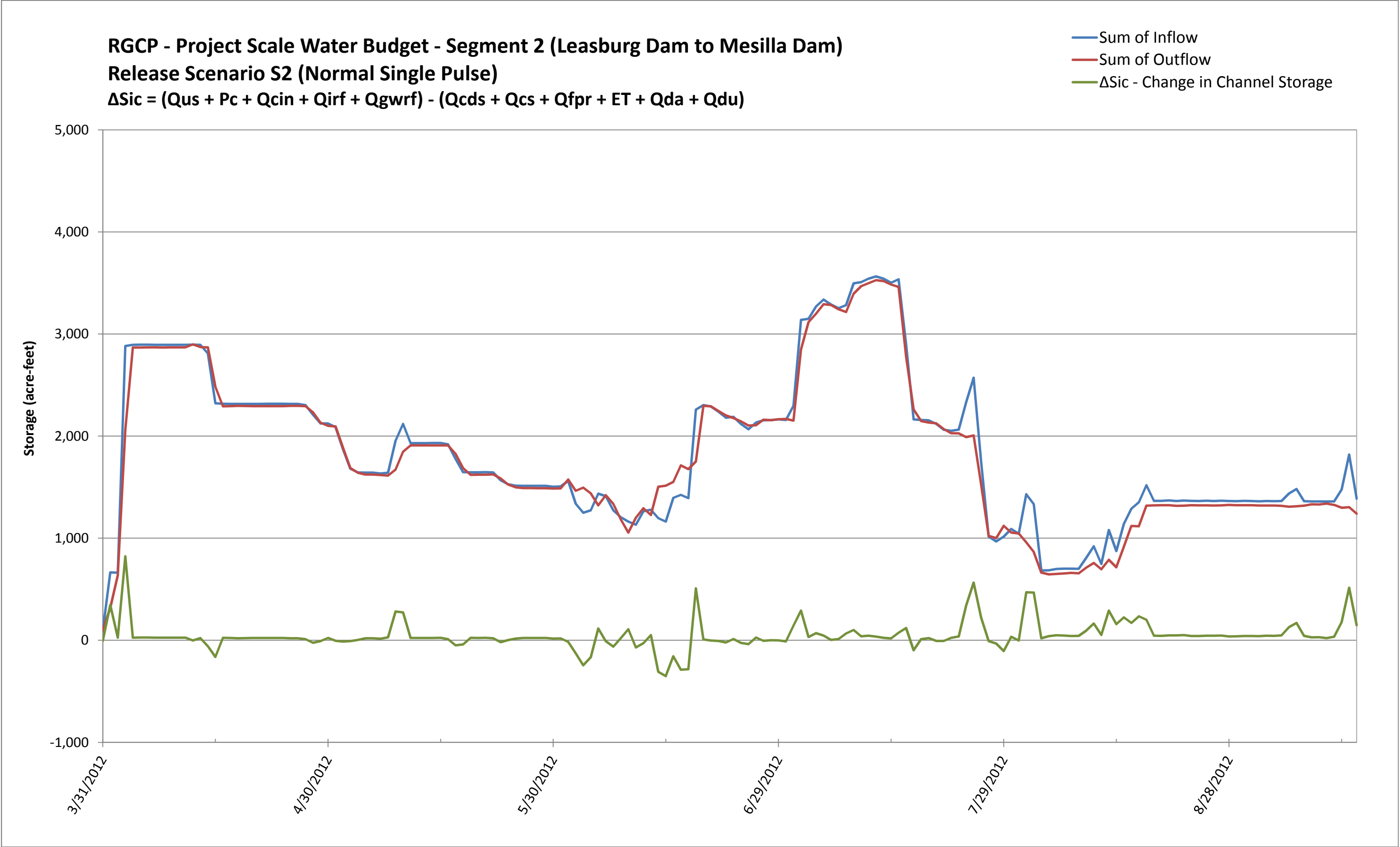


Table F4-3: RGCP Channel Water Budget Equation Analysis Segment 3

Normal Single Pulse Hydrograph (S2)

(Units = Acre-| (Units = Acre-Feet)

	Segment 3 - Mesilla Dam to Anthony Metering Station (Lower Reach A)													
	Qcus	Pc	Qcin	Qirf	Qeff	Qgwrf	Qcds	Qcs	Qfpr	ET	ET	Qda	Qdu	Δsic
Date	Upstream Channel Inflow, below Mesilla Dam	Precipitation Flows in River Channel	In-channel Stormwater/ Ungaged Return Inflow	Irrigation Return Flow (Del Rio Drain)	Treated Effluent Return Flow	Groundwater Return Flow	Downstream Channel Outflow, below Anthony Station	Channel Seepage	Floodplain Recharge	Open Water Channel Evaporation	Riparian Evapo-transpiration	Diversions Authorized (None)	Diversions Unauthorized (1% of Authorized)	In-channel Change in Storage
3/31/2012	71.1	0.1	0.0	0.8	2.9	0.0	46.8	10.4	11.8	2.7	8.4	0.0	0.0	-5.1
4/1/2012	218.2	0.1	0.0	0.8	2.9	0.0	171.1	29.0	11.8	5.9	8.4	0.0	0.0	-4.2
4/2/2012	533.1	0.5	0.0	0.8	2.9	0.0	366.6	62.2	11.8	5.9	8.4	0.0	0.0	82.4
4/3/2012	1806.5	0.4	0.0	0.9	2.9	0.0	474.0	83.4	11.8	5.9	8.4	0.0	0.0	1227.2
4/4/2012	2603.2	0.5	0.0	0.8	2.9	0.0	2435.2	186.2	11.8	5.9	8.4	0.0	0.0	-40.0
4/5/2012	2603.2	0.7	0.0	4.4	2.9	0.0	2435.7	186.2	11.8	5.9	8.4	0.0	0.0	-36.8
4/6/2012	2603.3	0.8	0.0	61.8	2.9	0.0	2435.8	186.2	11.8	5.9	8.4	0.0	0.0	20.8
4/7/2012	2603.3	0.1	0.0	85.5	2.9	0.0	2435.8	186.2	11.8	5.9	8.4	0.0	0.0	43.9
4/8/2012	2603.3	0.0	0.0	90.5	2.9	0.0	2435.5	186.2	11.8	5.9	8.4	0.0	0.0	49.0
4/9/2012	2603.4	0.0	0.0	101.5	2.9	0.0	2435.8	186.2	11.8	5.9	8.4	0.0	0.0	59.8
4/10/2012	2603.3	0.0	0.0	111.7	2.9	0.0	2435.4	186.2	11.8	5.9	8.4	0.0	0.0	70.3
4/11/2012	2603.3	0.6	0.0	110.7	2.9	0.0	2435.6	186.2	11.8	5.9	8.4	0.0	0.0	69.7
4/12/2012	1938.8	0.7	0.0	108.1	2.9	0.0	2017.9	160.0	11.8	5.9	8.4	0.0	0.0	-153.3
4/13/2012	1870.7	0.1	0.0	97.7	2.9	0.0	1748.8	151.8	11.8	5.9	8.4	0.0	0.0	44.8
4/14/2012	1904.9	0.1	0.0	99.5	2.9	0.0	1754.5	152.9	11.8	5.9	8.4	0.0	0.0	73.9
4/15/2012	1530.9	0.9	4.5	50.7	2.9	0.0	1589.0	138.1	11.8	5.9	8.4	0.0	0.0	-163.2
4/16/2012	1377.7	0.2	0.0	42.5	2.9	0.0	1253.8	124.6	11.8	5.9	8.4	0.0	0.0	18.9
4/17/2012	1390.5	0.1	0.0	50.7	2.9	0.0	1272.6	125.5	11.8	5.9	8.4	0.0	0.0	20.1
4/18/2012	1345.6	0.1	0.0	51.0	2.9	0.0	1252.7	123.6	11.8	5.9	8.4	0.0	0.0	-2.6
4/19/2012	1324.7	0.1	0.0	48.7	2.9	0.0	1222.4	122.1	11.8	5.9	8.4	0.0	0.0	6.0
4/20/2012	1344.5	0.0	0.0	48.3	2.9	0.0	1225.6	122.8	11.8	5.9	8.4	0.0	0.0	21.4
4/21/2012	1347.4	0.0	0.0	42.2	2.9	0.0	1235.5	123.1	11.8	5.9	8.4	0.0	0.0	7.9
4/22/2012	1347.5	0.6	0.0	33.3	2.9	0.0	1236.6	123.2	11.8	5.9	8.4	0.0	0.0	-1.5
4/23/2012	1345.7	0.5	0.0	29.6	2.9	0.0	1235.4	123.1	11.8	5.9	8.4	0.0	0.0	-5.8
4/24/2012	1347.5	0.4	0.0	29.5	2.9	0.0	1235.4	123.1	11.8	5.9	8.4	0.0	0.0	-4.2
4/25/2012	1302.3	0.3	0.0	27.1	2.9	0.0	1211.6	121.1	11.8	5.9	8.4	0.0	0.0	-26.0
4/26/2012	1272.0	0.2	0.0	25.8	2.9	0.0	1176.2	119.1	11.8	5.9	8.4	0.0	0.0	-20.4
4/27/2012	1270.5	0.5	0.0	34.6	2.9	0.0	1163.7	118.7	11.8	5.9	8.4	0.0	0.0	0.1
4/28/2012	1214.8	0.0	0.0	36.6	2.9	0.0	1144.4	116.4	11.8	5.9	8.4	0.0	0.0	-32.4
4/29/2012	1243.5	0.1	0.0	29.3	2.9	0.0	1124.2	116.7	11.8	5.9	8.4	0.0	0.0	8.8
4/30/2012	1213.5	0.3	0.0	33.7	2.9	0.0	1109.5	115.3	11.8	5.9	8.4	0.0	0.0	-0.6
5/1/2012	1390.5	0.0	0.0	30.2	2.9	0.0	1206.7	123.7	11.8	9.3	8.4	0.0	0.0	63.8
5/2/2012	1203.6	1.1	0.0	28.0	2.9	0.0	1226.6	118.3	11.8	9.3	8.4	0.0	0.0	-138.7
5/3/2012	1011.1	0.9	0.0	27.4	2.9	0.0	952.6	103.3	11.8	9.3	8.4	0.0	0.0	-43.1
5/4/2012	967.8	0.2	0.0	27.3	2.9	0.0	893.5	100.0	11.8	9.3	8.4	0.0	0.0	-24.7
5/5/2012	950.5	0.3	0.0	27.5	2.9	0.0	863.9	98.4	11.8	9.3	8.4	0.0	0.0	-10.6
5/6/2012	950.6	0.3	0.0	6.0	2.9	0.0	861.7	98.4	11.8	9.3	8.4	0.0	0.0	-29.8
5/7/2012	946.3	0.7	0.0	0.3	2.9	0.0	861.4	98.2	11.8	9.3	8.4	0.0	0.0	-38.8
5/8/2012	941.3	0.0	0.0	0.8	2.9	0.0	853.8	97.8	11.8	9.3	8.4	0.0	0.0	-35.9
5/9/2012	1471.1	0.0	0.0	0.9	2.9	0.0	1104.8	123.6	11.8	9.3	8.4	0.0	0.0	217.1
5/10/2012	1636.6	0.0	0.0	0.9	2.9	0.0	1462.4	138.0	11.8	9.3	8.4	0.0	0.0	10.5
5/11/2012	1696.8	0.4	0.0	0.8	2.9	0.0	1567.6	142.4	11.8	9.3	8.4	0.0	0.0	-38.5
5/12/2012	1696.8	0.0	0.0	0.8	2.9	0.0	1568.6	142.4	11.8	9.3	8.4	0.0	0.0	-39.9
5/13/2012	1696.8	0.1	0.0	0.8	2.9	0.0	1568.3	142.5	11.8	9.3	8.4	0.0	0.0	-39.6
5/14/2012	1696.8	0.6	0.0	0.8	2.9	0.0	1568.5	142.5	11.8	9.3	8.4	0.0	0.0	-39.2
5/15/2012	1696.6	0.7	0.0	0.8	2.9	0.0	1568.4	142.5	11.8	9.3	8.4	0.0	0.0	-39.1

Table F4-3: RGCP Channel Water Budget Equation Analysis Segment 3

Normal Single Pulse Hydrograph (S2)

(Units = Acre- (Units = Acre-Feet)

	Segment 3 - Mesilla Dam to Anthony Metering Station (Lower Reach A)													
	Qcus	Pc	Qcin	Qirf	Qeff	Qgwrf	Qcds	Qcs	Qfpr	ET	ET	Qda	Qdu	Δsic
Date	Upstream Channel Inflow, below Mesilla Dam	Precipitation Flows in River Channel	In-channel Stormwater/ Ungaged Return Inflow	Irrigation Return Flow (Del Rio Drain)	Treated Effluent Return Flow	Groundwater Return Flow	Downstream Channel Outflow, below Anthony Station	Channel Seepage	Floodplain Recharge	Open Water Channel Evaporation	Riparian Evapo-transpiration	Diversions Authorized (None)	Diversions Unauthorized (1% of Authorized)	In-channel Change in Storage
5/16/2012	1697.0	1.1	0.0	0.8	2.9	0.0	1568.4	142.5	11.8	9.3	8.4	0.0	0.0	-38.4
5/17/2012	1622.5	0.3	0.0	0.8	2.9	0.0	1543.5	139.7	11.8	9.3	8.4	0.0	0.0	-86.1
5/18/2012	1492.2	0.3	0.0	0.8	2.9	0.0	1420.1	132.5	11.8	9.3	8.4	0.0	0.0	-85.7
5/19/2012	1427.9	0.0	0.0	0.8	2.9	0.0	1314.5	127.8	11.8	9.3	8.4	0.0	0.0	-40.0
5/20/2012	1429.8	0.3	0.0	0.8	2.9	0.0	1314.5	127.9	11.8	9.3	8.4	0.0	0.0	-38.0
5/21/2012	1429.8	1.0	0.0	0.8	2.9	0.0	1314.4	127.9	11.8	9.3	8.4	0.0	0.0	-37.2
5/22/2012	1431.6	0.1	0.0	0.8	2.9	0.0	1315.0	127.9	11.8	9.3	8.4	0.0	0.0	-36.9
5/23/2012	1397.3	0.8	0.0	0.8	2.9	0.0	1310.4	126.8	11.8	9.3	8.4	0.0	0.0	-64.8
5/24/2012	1340.1	0.2	0.0	0.7	2.9	0.0	1244.6	123.1	11.8	9.3	8.4	0.0	0.0	-53.2
5/25/2012	1314.1	1.0	0.0	0.8	2.9	0.0	1210.6	121.3	11.8	9.3	8.4	0.0	0.0	-42.5
5/26/2012	1306.9	0.1	0.0	0.8	2.9	0.0	1198.6	120.8	11.8	9.3	8.4	0.0	0.0	-38.1
5/27/2012	1306.9	0.6	0.0	0.8	2.9	0.0	1197.9	120.8	11.8	9.3	8.4	0.0	0.0	-37.0
5/28/2012	1306.8	0.6	0.0	0.8	2.9	0.0	1198.0	120.8	11.8	9.3	8.4	0.0	0.0	-37.0
5/29/2012	1306.8	0.3	0.0	0.8	2.9	0.0	1197.9	120.8	11.8	9.3	8.4	0.0	0.0	-37.3
5/30/2012	1303.5	0.0	0.0	0.8	2.9	0.0	1197.4	120.7	11.8	9.3	8.4	0.0	0.0	-40.4
5/31/2012	1174.2	0.7	0.0	0.8	2.9	0.0	1124.1	114.4	11.8	9.3	8.4	0.0	0.0	-89.3
6/1/2012	457.8	0.4	296.4	0.8	2.9	0.0	757.8	73.5	11.8	9.5	8.4	0.0	0.0	-102.8
6/2/2012	298.3	0.3	57.9	0.8	2.9	0.0	359.9	46.2	11.8	9.5	8.4	0.0	0.0	-75.6
6/3/2012	248.8	0.6	0.0	0.8	2.9	0.0	226.3	31.0	11.8	9.5	8.4	0.0	0.0	-33.9
6/4/2012	251.7	0.3	0.0	0.8	2.9	0.0	224.9	33.9	11.8	9.5	8.4	0.0	0.0	-32.8
6/5/2012	256.1	0.2	0.0	0.8	2.9	0.0	215.9	30.9	11.8	9.5	8.4	0.0	0.0	-16.5
6/6/2012	308.1	0.7	0.0	1.2	2.9	0.0	250.5	40.3	11.8	9.5	8.4	0.0	0.0	-7.4
6/7/2012	250.6	1.6	0.2	14.5	2.9	0.0	268.1	37.0	11.8	9.5	8.4	0.0	0.0	-65.0
6/8/2012	264.0	0.7	0.0	20.3	2.9	0.0	219.2	34.2	11.8	9.5	8.4	0.0	0.0	5.0
6/9/2012	241.9	0.2	0.0	11.1	2.9	0.0	227.3	32.5	11.8	9.5	8.4	0.0	0.0	-33.4
6/10/2012	237.0	2.2	0.0	38.4	2.9	0.0	201.0	30.3	11.8	9.5	8.4	0.0	0.0	19.5
6/11/2012	229.6	0.4	0.0	60.7	2.9	0.0	210.5	31.5	11.8	9.5	8.4	0.0	0.0	22.0
6/12/2012	461.6	0.6	0.0	69.1	2.9	0.0	194.4	43.5	11.8	9.5	8.4	0.0	0.0	266.6
6/13/2012	266.5	0.1	32.2	74.9	2.9	0.0	376.6	37.0	11.8	9.5	8.4	0.0	0.0	-66.5
6/14/2012	274.7	1.2	0.0	74.0	2.9	0.0	227.8	35.1	11.8	9.5	8.4	0.0	0.0	60.2
6/15/2012	311.3	2.0	0.0	47.9	2.9	0.0	263.0	39.5	11.8	9.5	8.4	0.0	0.0	32.0
6/16/2012	337.4	1.2	0.0	34.4	2.9	0.0	280.0	42.5	11.8	9.5	8.4	0.0	0.0	23.8
6/17/2012	301.5	1.6	0.0	42.5	2.9	0.0	285.3	38.9	11.8	9.5	8.4	0.0	0.0	-5.3
6/18/2012	367.0	2.9	0.0	32.8	2.9	0.0	257.5	37.4	11.8	9.5	8.4	0.0	0.0	81.1
6/19/2012	547.5	0.9	28.9	31.7	2.9	0.0	611.0	72.8	11.8	9.5	8.4	0.0	0.0	-101.6
6/20/2012	521.9	1.0	0.0	30.3	2.9	0.0	471.5	64.0	11.8	9.5	8.4	0.0	0.0	-9.2
6/21/2012	508.8	0.4	0.0	34.1	2.9	0.0	466.1	62.9	11.8	9.5	8.4	0.0	0.0	-12.4
6/22/2012	428.3	0.3	0.0	29.8	2.9	0.0	438.3	56.6	11.8	9.5	8.4	0.0	0.0	-63.4
6/23/2012	339.9	1.0	0.0	32.5	2.9	0.0	356.6	45.9	11.8	9.5	8.4	0.0	0.0	-55.9
6/24/2012	259.3	1.1	2.9	28.3	2.9	0.0	293.4	38.7	11.8	9.5	8.4	0.0	0.0	-67.2
6/25/2012	211.6	0.6	0.0	29.3	2.9	0.0	219.0	30.5	11.8	9.5	8.4	0.0	0.0	-34.6
6/26/2012	205.6	0.6	0.0	27.4	2.9	0.0	179.8	28.1	11.8	9.5	8.4	0.0	0.0	-1.1
6/27/2012	201.3	2.4	0.0	31.6	2.9	0.0	186.6	28.5	11.8	9.5	8.4	0.0	0.0	-6.5
6/28/2012	228.2	1.7	0.0	29.8	2.9	0.0	177.9	29.3	11.8	9.5	8.4	0.0	0.0	25.7
6/29/2012	207.2	3.0	0.0	15.7	2.9	0.0	198.3	29.4	11.8	9.5	8.4	0.0	0.0	-28.5
6/30/2012	205.0	1.8	0.0	8.5	2.9	0.0	182.7	28.1	11.8	9.5	8.4	0.0	0.0	-22.2
7/1/2012	232.5	1.0	0.0	17.6	2.9	0.0	181.2	29.9	11.8	7.1	8.4	0.0	0.0	15.7
7/2/2012	940.9	3.1	0.0	20.1	2.9	0.0	214.8	66.6	11.8	7.1	8.4	0.0	0.0	658.4
7/3/2012	1243.0	0.8	0.0	25.1	2.9	0.0	1124.8	116.7	11.8	7.1	8.4	0.0	0.0	3.0
7/4/2012	1404.4	1.3	0.0	32.9	2.9	0.0	1212.6	124.3	11.8	7.1	8.4	0.0	0.0	77.4
7/5/2012	1609.9	3.2	0.0	36.4	2.9	0.0	1416.5	136.0	11.8	7.1	8.4	0.0	0.0	72.6

Table F4-3: RGCP Channel Water Budget Equation Analysis Segment 3

Normal Single Pulse Hydrograph (S2)

(Units = Acre- (Units = Acre-Feet)

	Segment 3 - Mesilla Dam to Anthony Metering Station (Lower Reach A)													
	Qcus	Pc	Qcin	Qirf	Qeff	Qgwrfl	Qcds	Qcs	Qfpr	ET	ET	Qda	Qdu	Δsic
Date	Upstream Channel Inflow, below Mesilla Dam	Precipitation Flows in River Channel	In-channel Stormwater/ Ungaged Return Inflow	Irrigation Return Flow (Del Rio Drain)	Treated Effluent Return Flow	Groundwater Return Flow	Downstream Channel Outflow, below Anthony Station	Channel Seepage	Floodplain Recharge	Open Water Channel Evaporation	Riparian Evapo-transpiration	Diversions Authorized (None)	Diversions Unauthorized (1% of Authorized)	In-channel Change in Storage
7/6/2012	1694.6	0.8	0.0	44.2	2.9	0.0	1550.5	141.9	11.8	7.1	8.4	0.0	0.0	22.9
7/7/2012	1750.1	1.2	0.0	34.3	2.9	0.0	1598.6	144.7	11.8	7.1	8.4	0.0	0.0	17.9
7/8/2012	1812.1	1.4	0.0	67.6	2.9	0.0	1653.5	147.9	11.8	7.1	8.4	0.0	0.0	55.5
7/9/2012	2097.1	4.0	0.0	53.5	2.9	0.0	1833.0	159.9	11.8	7.1	8.4	0.0	0.0	137.4
7/10/2012	2164.1	3.1	0.0	39.0	2.9	0.0	2012.7	165.8	11.8	7.1	8.4	0.0	0.0	3.3
7/11/2012	2208.9	1.9	0.0	33.6	2.9	0.0	2038.7	167.5	11.8	7.1	8.4	0.0	0.0	13.9
7/12/2012	2235.4	1.1	0.0	13.1	2.9	0.0	2078.2	169.1	11.8	7.1	8.4	0.0	0.0	-22.1
7/13/2012	2209.6	1.3	0.0	7.4	2.9	0.0	2071.4	168.3	11.8	7.1	8.4	0.0	0.0	-45.8
7/14/2012	2175.7	1.0	0.0	6.5	2.9	0.0	2039.4	166.7	11.8	7.1	8.4	0.0	0.0	-47.1
7/15/2012	2519.5	2.2	0.0	3.1	2.9	0.0	2239.3	179.9	11.8	7.1	8.4	0.0	0.0	81.3
7/16/2012	1881.8	1.3	127.6	6.6	2.9	0.0	2018.8	158.5	11.8	7.1	8.4	0.0	0.0	-184.5
7/17/2012	1238.1	4.2	68.0	10.2	2.9	0.0	1319.2	121.9	11.8	7.1	8.4	0.0	0.0	-145.0
7/18/2012	829.0	1.2	12.3	36.5	2.9	0.0	880.7	94.4	11.8	7.1	8.4	0.0	0.0	-120.3
7/19/2012	702.0	1.7	0.0	55.6	2.9	0.0	692.0	82.0	11.8	7.1	8.4	0.0	0.0	-38.9
7/20/2012	462.8	1.6	45.5	43.7	2.9	0.0	554.8	65.0	11.8	7.1	8.4	0.0	0.0	-90.5
7/21/2012	376.4	3.2	0.0	36.5	2.9	0.0	391.9	50.4	11.8	7.1	8.4	0.0	0.0	-50.7
7/22/2012	280.7	1.3	0.0	34.9	2.9	0.0	314.1	39.9	11.8	7.1	8.4	0.0	0.0	-61.4
7/23/2012	304.9	3.0	0.0	35.9	2.9	0.0	246.6	37.9	11.8	7.1	8.4	0.0	0.0	35.1
7/24/2012	794.4	1.0	0.0	41.3	2.9	0.0	337.2	72.2	11.8	7.1	8.4	0.0	0.0	403.1
7/25/2012	1060.4	1.3	0.0	63.2	2.9	0.0	844.1	102.0	11.8	7.1	8.4	0.0	0.0	154.5
7/26/2012	758.3	3.0	98.9	62.1	2.9	0.0	922.1	93.1	11.8	7.1	8.4	0.0	0.0	-117.3
7/27/2012	278.8	1.3	147.3	56.2	2.9	0.0	485.2	48.9	11.8	7.1	8.4	0.0	0.0	-74.8
7/28/2012	212.7	2.1	0.0	48.8	2.9	0.0	226.3	29.5	11.8	7.1	8.4	0.0	0.0	-16.5
7/29/2012	242.1	4.4	0.0	46.3	2.9	0.0	192.0	30.9	11.8	7.1	8.4	0.0	0.0	45.6
7/30/2012	209.8	1.9	0.0	38.1	2.9	0.0	203.2	29.6	11.8	7.1	8.4	0.0	0.0	-7.3
7/31/2012	257.7	0.8	0.0	32.6	2.9	0.0	182.0	31.5	11.8	7.1	8.4	0.0	0.0	53.2
8/1/2012	719.1	4.4	0.0	38.1	2.9	0.0	280.6	64.4	11.8	6.7	8.4	0.0	0.0	392.7
8/2/2012	679.0	4.2	0.0	50.1	2.9	0.0	679.1	81.6	11.8	6.7	8.4	0.0	0.0	-51.3
8/3/2012	493.5	3.1	4.7	35.5	2.9	0.0	536.6	65.0	11.8	6.7	8.4	0.0	0.0	-88.7
8/4/2012	425.4	1.2	0.0	18.0	2.9	0.0	420.9	55.0	11.8	6.7	8.4	0.0	0.0	-55.2
8/5/2012	388.6	2.7	0.0	14.8	2.9	0.0	368.7	49.9	11.8	6.7	8.4	0.0	0.0	-36.6
8/6/2012	393.8	2.4	0.0	12.9	2.9	0.0	343.0	48.9	11.8	6.7	8.4	0.0	0.0	-6.7
8/7/2012	388.3	3.0	0.0	13.0	2.9	0.0	349.1	48.9	11.8	6.7	8.4	0.0	0.0	-17.6
8/8/2012	400.9	0.9	0.0	28.5	2.9	0.0	345.5	49.5	11.8	6.7	8.4	0.0	0.0	11.5
8/9/2012	505.8	3.2	0.0	38.6	2.9	0.0	363.9	55.0	11.8	6.7	8.4	0.0	0.0	104.8
8/10/2012	620.8	2.3	0.0	26.2	2.9	0.0	502.4	70.5	11.8	6.7	8.4	0.0	0.0	52.5
8/11/2012	536.0	3.2	0.0	19.3	2.9	0.0	554.2	70.1	11.8	6.7	8.4	0.0	0.0	-89.6
8/12/2012	492.4	4.2	0.0	43.4	2.9	0.0	423.5	55.0	11.8	6.7	8.4	0.0	0.0	37.6
8/13/2012	478.6	2.8	0.0	43.0	2.9	0.0	492.8	65.5	11.8	6.7	8.4	0.0	0.0	-57.8
8/14/2012	326.0	6.8	30.3	41.5	2.9	0.0	400.6	39.2	11.8	6.7	8.4	0.0	0.0	-59.1
8/15/2012	255.9	4.3	0.0	38.7	2.9	0.0	274.6	32.8	11.8	6.7	8.4	0.0	0.0	-32.5
8/16/2012	553.2	1.6	0.0	61.8	2.9	0.0	222.4	43.8	11.8	6.7	8.4	0.0	0.0	326.4
8/17/2012	781.0	2.9	0.0	68.0	2.9	0.0	627.3	84.3	11.8	6.7	8.4	0.0	0.0	116.4
8/18/2012	773.5	2.1	0.0	61.3	2.9	0.0	701.4	85.5	11.8	6.7	8.4	0.0	0.0	26.1
8/19/2012	763.6	2.2	0.0	58.3	2.9	0.0	692.6	84.7	11.8	6.7	8.4	0.0	0.0	22.9
8/20/2012	757.6	5.3	0.0	61.7	2.9	0.0	684.8	84.2	11.8	6.7	8.4	0.0	0.0	31.8
8/21/2012	820.4	1.1	0.0	62.4	2.9	0.0	706.6	87.7	11.8	6.7	8.4	0.0	0.0	65.8
8/22/2012	870.6	4.5	0.0	65.1	2.9	0.0	762.4	91.8	11.8	6.7	8.4	0.0	0.0	62.2
8/23/2012	836.1	3.2	0.0	58.2	2.9	0.0	774.2	90.8	11.8	6.7	8.4	0.0	0.0	8.6
8/24/2012	833.8	2.3	0.0	64.9	2.9	0.0	752.7	89.9	11.8	6.7	8.4	0.0	0.0	34.6
8/25/2012	833.9	3.7	0.0	49.6	2.9	0.0	752.8	89.9	11.8	6.7	8.4	0.0	0.0	20.5

Table F4-3: RGCP Channel Water Budget Equation Analysis Segment 3

Normal Single Pulse Hydrograph (S2)

(Units = Acre-| (Units = Acre-Feet)

	Segment 3 - Mesilla Dam to Anthony Metering Station (Lower Reach A)													
	Qcus	Pc	Qcin	Qirf	Qeff	Qgwrf	Qcds	Qcs	Qfpr	ET	ET	Qda	Qdu	Δsic
Date	Upstream Channel Inflow, below Mesilla Dam	Precipitation Flows in River Channel	In-channel Stormwater/ Ungaged Return Inflow	Irrigation Return Flow (Del Rio Drain)	Treated Effluent Return Flow	Groundwater Return Flow	Downstream Channel Outflow, below Anthony Station	Channel Seepage	Floodplain Recharge	Open Water Channel Evaporation	Riparian Evapo-transpiration	Diversions Authorized (None)	Diversions Unauthorized (1% of Authorized)	In-channel Change in Storage
8/26/2012	859.9	1.8	0.0	32.4	2.9	0.0	763.1	91.4	11.8	6.7	8.4	0.0	0.0	15.7
8/27/2012	863.4	3.7	0.0	34.6	2.9	0.0	779.2	92.1	11.8	6.7	8.4	0.0	0.0	6.5
8/28/2012	800.3	1.8	0.0	29.3	2.9	0.0	755.0	88.6	11.8	6.7	8.4	0.0	0.0	-36.1
8/29/2012	781.6	0.8	0.0	28.2	2.9	0.0	712.0	86.2	11.8	6.7	8.4	0.0	0.0	-11.5
8/30/2012	753.1	3.1	0.0	20.9	2.9	0.0	692.8	84.3	11.8	6.7	8.4	0.0	0.0	-23.9
8/31/2012	747.5	2.4	0.0	17.2	2.9	0.0	674.4	83.4	11.8	6.7	8.4	0.0	0.0	-14.6
9/1/2012	752.8	0.6	0.0	17.2	2.9	0.0	674.3	83.5	11.8	5.4	8.4	0.0	0.0	-9.8
9/2/2012	757.0	3.1	0.0	16.6	2.9	0.0	679.0	84.0	11.8	5.4	8.4	0.0	0.0	-9.0
9/3/2012	759.0	1.8	0.0	16.7	2.9	0.0	682.0	84.2	11.8	5.4	8.4	0.0	0.0	-11.3
9/4/2012	816.6	3.1	0.0	17.1	2.9	0.0	706.2	87.5	11.8	5.4	8.4	0.0	0.0	20.5
9/5/2012	1036.1	2.6	0.0	20.6	2.9	0.0	835.6	100.8	11.8	5.4	8.4	0.0	0.0	100.2
9/6/2012	1140.6	3.4	0.0	24.8	2.9	0.0	998.5	109.5	11.8	5.4	8.4	0.0	0.0	38.2
9/7/2012	1128.3	3.6	0.0	23.6	2.9	0.0	1036.6	110.3	11.8	5.4	8.4	0.0	0.0	-13.9
9/8/2012	918.3	1.3	0.0	33.4	2.9	0.0	926.1	99.3	11.8	5.4	8.4	0.0	0.0	-94.9
9/9/2012	753.1	1.3	0.0	43.5	2.9	0.0	758.3	86.7	11.8	5.4	8.4	0.0	0.0	-69.7
9/10/2012	541.7	1.6	27.0	28.2	2.9	0.0	599.8	70.7	11.8	5.4	8.4	0.0	0.0	-94.6
9/11/2012	483.6	2.0	0.0	24.3	2.9	0.0	460.9	61.0	11.8	5.4	8.4	0.0	0.0	-34.6
9/12/2012	836.3	3.7	0.0	20.3	2.9	0.0	519.2	82.0	11.8	5.4	8.4	0.0	0.0	236.6
9/13/2012	1137.2	1.9	0.0	17.1	2.9	0.0	907.3	106.7	11.8	5.4	8.4	0.0	0.0	119.5
9/14/2012	1085.8	2.1	0.0	16.4	2.9	0.0	1047.3	109.4	11.8	5.4	8.4	0.0	0.0	-75.0

RGCP - Project Scale Water Budget - Segment 3 (Mesilla Dam to Anthony Metering Station)

Release Scenario S2 (Normal Single Pulse)

$$\Delta Sic = (Qus + Pc + Qcin + Qirf + Qgwrf) - (Qcds + Qcs + Qfpr + ET + Qda + Qdu)$$

- Sum of Inflow
- Sum of Outflow
- ΔSic - Change in Channel Storage

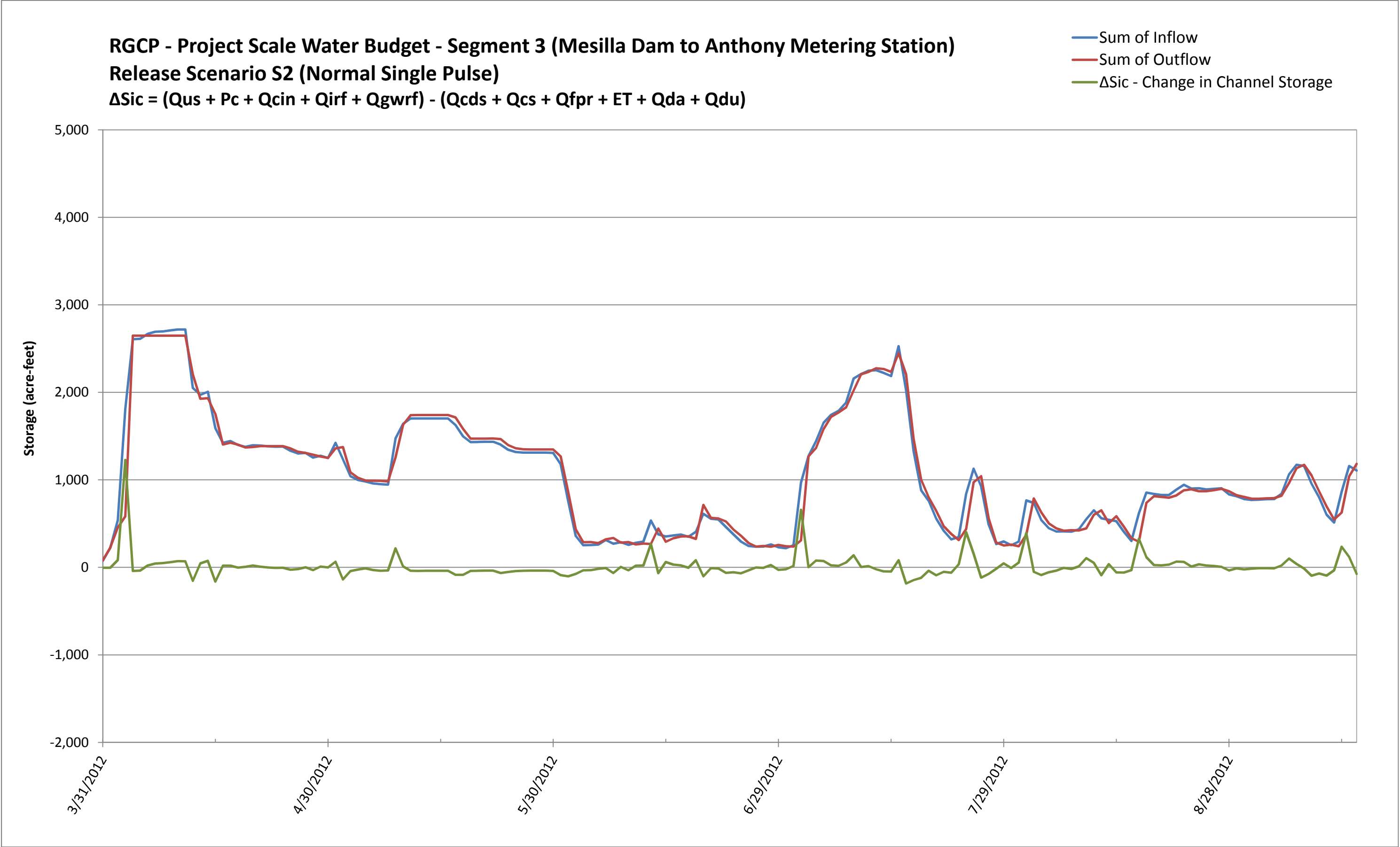


Table F4-4: RGCP Channel Water Budget Equation Analysis Segment 4

Normal Single Pulse Hydrograph (S2)

(Units = Acre-| (Units = Acre-Feet)

	Segment 4 - Anthony Metering Station to American Dam (Lower Reach B)													
	Qcus	Pc	Qcin	Qirf	Qeff	Qgwrf	Qcds	Qcs	Qfpr	ET	ET	Qda	Qdu	Δsic
Date	Upstream Channel Inflow, below Anthony Station	Precipitation Flows in River Channel	In-channel Stormwater/ Ungaged Return Inflow	Irrigation Return Flow (Nemexas Drain, East Drain, and West Drain)	Treated Effluent Return Flow	Groundwater Return Flow	Downstream Channel Outflow, at American Dam	Channel Seepage	Floodplain Recharge	Open Water Channel Evaporation	Riparian Evapo-transpiration	Diversions Authorized (None)	Diversions Unauthorized (1% of Authorized)	In-channel Change in Storage
3/31/2012	46.8	0.1	0.0	17.6	33.0	0.0	28.0	9.3	6.4	2.6	7.2	0.0	0.0	44.0
4/1/2012	171.1	0.2	0.0	17.8	33.0	0.0	45.0	15.1	6.4	5.6	7.2	0.0	0.0	142.8
4/2/2012	366.6	0.2	0.0	18.5	33.0	0.0	154.8	28.1	6.4	5.6	7.2	0.0	0.0	216.3
4/3/2012	474.0	0.1	0.0	18.5	33.0	0.0	366.3	54.7	6.4	5.6	7.2	0.0	0.0	85.4
4/4/2012	2435.2	0.3	0.0	18.9	33.0	0.0	2050.6	178.5	6.4	5.6	7.2	0.0	0.0	239.2
4/5/2012	2435.7	0.9	0.0	19.5	33.0	0.0	2255.3	180.5	6.4	5.6	7.2	0.0	0.0	34.1
4/6/2012	2435.8	0.6	0.0	19.6	33.0	0.0	2255.1	180.5	6.4	5.6	7.2	0.0	0.0	34.2
4/7/2012	2435.8	0.3	0.0	19.9	33.0	0.0	2255.3	180.5	6.4	5.6	7.2	0.0	0.0	34.0
4/8/2012	2435.5	0.0	0.0	20.2	33.0	0.0	2255.3	180.5	6.4	5.6	7.2	0.0	0.0	33.6
4/9/2012	2435.8	0.0	0.0	18.7	33.0	0.0	2255.3	180.5	6.4	5.6	7.2	0.0	0.0	32.4
4/10/2012	2435.4	0.4	0.0	16.2	33.0	0.0	2255.1	180.5	6.4	5.6	7.2	0.0	0.0	30.2
4/11/2012	2435.6	1.0	0.0	16.3	33.0	0.0	2255.4	180.5	6.4	5.6	7.2	0.0	0.0	30.8
4/12/2012	2017.9	0.3	46.5	16.1	33.0	0.0	2113.5	166.9	6.4	5.6	7.2	0.0	0.0	-185.8
4/13/2012	1748.8	0.2	0.0	16.3	33.0	0.0	1618.9	147.1	6.4	5.6	7.2	0.0	0.0	13.1
4/14/2012	1754.5	0.7	0.0	16.5	33.0	0.0	1593.7	146.5	6.4	5.6	7.2	0.0	0.0	45.2
4/15/2012	1589.0	0.2	0.0	15.9	33.0	0.0	1601.8	143.0	6.4	5.6	7.2	0.0	0.0	-125.8
4/16/2012	1253.8	0.1	0.0	15.9	33.0	0.0	1222.2	120.6	6.4	5.6	7.2	0.0	0.0	-59.3
4/17/2012	1272.6	0.2	0.0	16.2	33.0	0.0	1147.4	119.8	6.4	5.6	7.2	0.0	0.0	35.5
4/18/2012	1252.7	0.1	0.0	16.4	33.0	0.0	1153.5	119.4	6.4	5.6	7.2	0.0	0.0	9.9
4/19/2012	1222.4	0.2	0.0	16.7	33.0	0.0	1114.4	117.2	6.4	5.6	7.2	0.0	0.0	21.5
4/20/2012	1225.6	0.2	0.0	16.9	33.0	0.0	1099.5	116.8	6.4	5.6	7.2	0.0	0.0	40.1
4/21/2012	1235.5	0.6	0.0	16.7	33.0	0.0	1117.1	117.7	6.4	5.6	7.2	0.0	0.0	31.8
4/22/2012	1236.6	0.5	0.0	17.3	33.0	0.0	1118.7	117.8	6.4	5.6	7.2	0.0	0.0	31.7
4/23/2012	1235.4	1.1	0.0	18.9	33.0	0.0	1118.6	117.8	6.4	5.6	7.2	0.0	0.0	32.7
4/24/2012	1235.4	1.3	0.0	21.3	33.0	0.0	1117.3	117.7	6.4	5.6	7.2	0.0	0.0	36.7
4/25/2012	1211.6	0.1	0.0	17.6	33.0	0.0	1115.1	116.9	6.4	5.6	7.2	0.0	0.0	11.0
4/26/2012	1176.2	0.2	0.0	17.9	33.0	0.0	1075.4	114.5	6.4	5.6	7.2	0.0	0.0	18.2
4/27/2012	1163.7	0.1	0.0	21.3	33.0	0.0	1050.9	113.3	6.4	5.6	7.2	0.0	0.0	34.6
4/28/2012	1144.4	0.4	0.0	24.1	33.0	0.0	1050.4	112.9	6.4	5.6	7.2	0.0	0.0	19.3
4/29/2012	1124.2	0.2	0.0	19.5	33.0	0.0	1001.3	110.2	6.4	5.6	7.2	0.0	0.0	46.2
4/30/2012	1109.5	0.2	0.0	19.3	33.0	0.0	1022.5	110.4	6.4	5.6	7.2	0.0	0.0	9.9
5/1/2012	1206.7	0.6	0.0	18.4	33.0	0.0	1008.7	113.1	6.4	8.8	7.2	0.0	0.0	114.4
5/2/2012	1226.6	0.5	0.0	18.5	33.0	0.0	1162.1	119.7	6.4	8.8	7.2	0.0	0.0	-25.7
5/3/2012	952.6	0.2	0.0	18.9	33.0	0.0	975.3	103.5	6.4	8.8	7.2	0.0	0.0	-96.6
5/4/2012	893.5	0.4	0.0	18.9	33.0	0.0	825.0	95.5	6.4	8.8	7.2	0.0	0.0	2.8
5/5/2012	863.9	0.3	0.0	18.4	33.0	0.0	787.0	92.9	6.4	8.8	7.2	0.0	0.0	13.4
5/6/2012	861.7	0.9	0.0	17.8	33.0	0.0	769.9	92.1	6.4	8.8	7.2	0.0	0.0	29.0
5/7/2012	861.4	0.1	0.0	17.5	33.0	0.0	769.8	92.1	6.4	8.8	7.2	0.0	0.0	27.6
5/8/2012	853.8	0.5	0.0	17.8	33.0	0.0	767.1	91.6	6.4	8.8	7.2	0.0	0.0	23.9
5/9/2012	1104.8	0.6	0.0	18.6	33.0	0.0	762.9	98.7	6.4	8.8	7.2	0.0	0.0	272.9
5/10/2012	1462.4	0.4	0.0	18.6	33.0	0.0	1266.7	129.2	6.4	8.8	7.2	0.0	0.0	96.1
5/11/2012	1567.6	0.2	0.0	18.2	33.0	0.0	1400.4	136.3	6.4	8.8	7.2	0.0	0.0	59.8
5/12/2012	1568.6	0.1	0.0	18.1	33.0	0.0	1431.7	137.0	6.4	8.8	7.2	0.0	0.0	28.6
5/13/2012	1568.3	0.2	0.0	18.0	33.0	0.0	1431.6	137.0	6.4	8.8	7.2	0.0	0.0	28.5
5/14/2012	1568.5	0.8	0.0	18.0	33.0	0.0	1431.8	137.0	6.4	8.8	7.2	0.0	0.0	29.1
5/15/2012	1568.4	0.8	0.0	17.5	33.0	0.0	1431.5	137.0	6.4	8.8	7.2	0.0	0.0	28.8

Table F4-4: RGCP Channel Water Budget Equation Analysis Segment 4

Normal Single Pulse Hydrograph (S2)

(Units = Acre- (Units = Acre-Feet)

	Segment 4 - Anthony Metering Station to American Dam (Lower Reach B)													
	Qcus	Pc	Qcin	Qirf	Qeff	Qgwrf	Qcds	Qcs	Qfpr	ET	ET	Qda	Qdu	Δsic
Date	Upstream Channel Inflow, below Anthony Station	Precipitation Flows in River Channel	In-channel Stormwater/ Ungaged Return Inflow	Irrigation Return Flow (Nemexas Drain, East Drain, and West Drain)	Treated Effluent Return Flow	Groundwater Return Flow	Downstream Channel Outflow, at American Dam	Channel Seepage	Floodplain Recharge	Open Water Channel Evaporation	Riparian Evapo-transpiration	Diversions Authorized (None)	Diversions Unauthorized (1% of Authorized)	In-channel Change in Storage
5/16/2012	1568.4	0.7	0.0	17.0	33.0	0.0	1431.4	137.0	6.4	8.8	7.2	0.0	0.0	28.4
5/17/2012	1543.5	1.5	0.0	16.9	33.0	0.0	1431.2	136.5	6.4	8.8	7.2	0.0	0.0	4.7
5/18/2012	1420.1	1.0	0.0	16.7	33.0	0.0	1343.4	130.2	6.4	8.8	7.2	0.0	0.0	-25.3
5/19/2012	1314.5	0.5	0.0	16.7	33.0	0.0	1231.5	123.5	6.4	8.8	7.2	0.0	0.0	-12.8
5/20/2012	1314.5	1.2	0.0	16.7	33.0	0.0	1191.1	122.4	6.4	8.8	7.2	0.0	0.0	29.4
5/21/2012	1314.4	0.4	0.0	16.6	33.0	0.0	1192.2	122.5	6.4	8.8	7.2	0.0	0.0	27.2
5/22/2012	1315.0	1.5	0.0	16.6	33.0	0.0	1192.1	122.5	6.4	8.8	7.2	0.0	0.0	29.0
5/23/2012	1310.4	1.1	0.0	16.8	33.0	0.0	1193.9	122.5	6.4	8.8	7.2	0.0	0.0	22.4
5/24/2012	1244.6	0.4	0.0	17.1	33.0	0.0	1154.7	119.2	6.4	8.8	7.2	0.0	0.0	-1.3
5/25/2012	1210.6	0.1	0.0	16.8	33.0	0.0	1108.3	116.6	6.4	8.8	7.2	0.0	0.0	13.0
5/26/2012	1198.6	0.5	0.0	17.0	33.0	0.0	1088.0	115.6	6.4	8.8	7.2	0.0	0.0	23.1
5/27/2012	1197.9	1.3	0.0	17.4	33.0	0.0	1082.3	115.4	6.4	8.8	7.2	0.0	0.0	29.5
5/28/2012	1198.0	0.2	0.0	17.8	33.0	0.0	1082.5	115.4	6.4	8.8	7.2	0.0	0.0	28.6
5/29/2012	1197.9	0.4	0.0	17.0	33.0	0.0	1082.6	115.4	6.4	8.8	7.2	0.0	0.0	27.9
5/30/2012	1197.4	0.5	0.0	16.9	33.0	0.0	1082.6	115.4	6.4	8.8	7.2	0.0	0.0	27.3
5/31/2012	1124.1	0.5	0.0	16.7	33.0	0.0	1070.9	112.8	6.4	8.8	7.2	0.0	0.0	-31.8
6/1/2012	757.8	1.2	138.4	16.6	33.0	0.0	945.7	96.3	6.4	9.1	7.2	0.0	0.0	-117.8
6/2/2012	359.9	1.3	154.6	16.4	33.0	0.0	563.9	56.6	6.4	9.1	7.2	0.0	0.0	-78.1
6/3/2012	226.3	0.6	35.7	16.5	33.0	0.0	311.5	38.1	6.4	9.1	7.2	0.0	0.0	-60.2
6/4/2012	224.9	0.5	0.0	16.9	33.0	0.0	179.4	27.5	6.4	9.1	7.2	0.0	0.0	45.7
6/5/2012	215.9	0.4	0.0	16.6	33.0	0.0	197.1	29.4	6.4	9.1	7.2	0.0	0.0	16.8
6/6/2012	250.5	0.3	0.0	16.6	33.0	0.0	180.3	27.5	6.4	9.1	7.2	0.0	0.0	69.8
6/7/2012	268.1	0.8	0.0	19.3	33.0	0.0	227.7	34.9	6.4	9.1	7.2	0.0	0.0	35.9
6/8/2012	219.2	0.9	0.0	20.7	33.0	0.0	233.4	31.5	6.4	9.1	7.2	0.0	0.0	-13.9
6/9/2012	227.3	0.6	0.0	19.1	33.0	0.0	194.0	29.7	6.4	9.1	7.2	0.0	0.0	33.6
6/10/2012	201.0	1.7	0.0	17.1	33.0	0.0	193.6	28.1	6.4	9.1	7.2	0.0	0.0	8.4
6/11/2012	210.5	0.7	0.0	19.0	33.0	0.0	167.0	26.8	6.4	9.1	7.2	0.0	0.0	46.6
6/12/2012	194.4	0.9	0.0	16.8	33.0	0.0	182.3	27.3	6.4	9.1	7.2	0.0	0.0	12.9
6/13/2012	376.6	1.1	0.0	17.0	33.0	0.0	188.0	40.5	6.4	9.1	7.2	0.0	0.0	176.4
6/14/2012	227.8	1.0	0.0	17.6	33.0	0.0	276.9	30.7	6.4	9.1	7.2	0.0	0.0	-50.9
6/15/2012	263.0	1.1	0.0	17.8	33.0	0.0	199.9	31.1	6.4	9.1	7.2	0.0	0.0	61.2
6/16/2012	280.0	1.6	0.0	18.0	33.0	0.0	231.1	34.5	6.4	9.1	7.2	0.0	0.0	44.3
6/17/2012	285.3	1.8	0.0	18.4	33.0	0.0	248.6	37.0	6.4	9.1	7.2	0.0	0.0	30.0
6/18/2012	257.5	1.1	0.0	20.4	33.0	0.0	243.3	33.6	6.4	9.1	7.2	0.0	0.0	12.4
6/19/2012	611.0	0.9	0.0	18.1	33.0	0.0	224.2	38.6	6.4	9.1	7.2	0.0	0.0	377.6
6/20/2012	471.5	1.8	0.0	16.8	33.0	0.0	512.8	59.9	6.4	9.1	7.2	0.0	0.0	-72.2
6/21/2012	466.1	0.8	0.0	16.8	33.0	0.0	416.7	55.2	6.4	9.1	7.2	0.0	0.0	22.0
6/22/2012	438.3	0.5	0.0	16.8	33.0	0.0	409.4	53.8	6.4	9.1	7.2	0.0	0.0	2.7
6/23/2012	356.6	1.1	0.0	16.7	33.0	0.0	378.7	47.7	6.4	9.1	7.2	0.0	0.0	-41.7
6/24/2012	293.4	0.8	0.0	16.7	33.0	0.0	299.5	39.0	6.4	9.1	7.2	0.0	0.0	-17.3
6/25/2012	219.0	1.5	0.0	16.6	33.0	0.0	251.8	32.7	6.4	9.1	7.2	0.0	0.0	-37.1
6/26/2012	179.8	1.4	0.0	16.4	33.0	0.0	185.3	26.2	6.4	9.1	7.2	0.0	0.0	-3.5
6/27/2012	186.6	2.7	0.0	16.7	33.0	0.0	156.4	24.7	6.4	9.1	7.2	0.0	0.0	35.0
6/28/2012	177.9	4.2	0.0	17.6	33.0	0.0	161.8	24.7	6.4	9.1	7.2	0.0	0.0	23.5
6/29/2012	198.3	3.8	0.0	16.8	33.0	0.0	156.7	25.8	6.4	9.1	7.2	0.0	0.0	46.6
6/30/2012	182.7	1.8	0.0	16.4	33.0	0.0	169.9	25.4	6.4	9.1	7.2	0.0	0.0	15.8
7/1/2012	181.2	3.8	0.0	16.3	33.0	0.0	157.8	24.6	6.4	6.8	7.2	0.0	0.0	31.6
7/2/2012	214.8	2.0	0.0	16.0	33.0	0.0	160.0	26.5	6.4	6.8	7.2	0.0	0.0	58.9
7/3/2012	1124.8	1.5	0.0	15.7	33.0	0.0	246.0	92.1	6.4	6.8	7.2	0.0	0.0	816.6
7/4/2012	1212.6	4.4	0.0	15.9	33.0	0.0	1031.1	113.8	6.4	6.8	7.2	0.0	0.0	100.7
7/5/2012	1416.5	2.8	0.0	16.5	33.0	0.0	1198.0	125.7	6.4	6.8	7.2	0.0	0.0	124.7

Table F4-4: RGCP Channel Water Budget Equation Analysis Segment 4

Normal Single Pulse Hydrograph (S2)

(Units = Acre- (Units = Acre-Feet)

	Segment 4 - Anthony Metering Station to American Dam (Lower Reach B)													
	Qcus	Pc	Qcin	Qirf	Qeff	Qgwrf	Qcds	Qcs	Qfpr	ET	ET	Qda	Qdu	Δsic
Date	Upstream Channel Inflow, below Anthony Station	Precipitation Flows in River Channel	In-channel Stormwater/ Ungaged Return Inflow	Irrigation Return Flow (Nemexas Drain, East Drain, and West Drain)	Treated Effluent Return Flow	Groundwater Return Flow	Downstream Channel Outflow, at American Dam	Channel Seepage	Floodplain Recharge	Open Water Channel Evaporation	Riparian Evapo-transpiration	Diversions Authorized (None)	Diversions Unauthorized (1% of Authorized)	In-channel Change in Storage
7/6/2012	1550.5	3.8	0.0	16.9	33.0	0.0	1378.6	135.1	6.4	6.8	7.2	0.0	0.0	70.1
7/7/2012	1598.6	2.2	0.0	17.1	33.0	0.0	1438.6	138.0	6.4	6.8	7.2	0.0	0.0	54.1
7/8/2012	1653.5	3.6	0.0	17.3	33.0	0.0	1489.4	140.8	6.4	6.8	7.2	0.0	0.0	56.7
7/9/2012	1833.0	2.6	0.0	17.9	33.0	0.0	1566.4	147.4	6.4	6.8	7.2	0.0	0.0	152.3
7/10/2012	2012.7	2.4	0.0	17.4	33.0	0.0	1839.0	159.8	6.4	6.8	7.2	0.0	0.0	46.3
7/11/2012	2038.7	2.1	0.0	17.5	33.0	0.0	1860.7	160.8	6.4	6.8	7.2	0.0	0.0	49.5
7/12/2012	2078.2	2.4	0.0	17.5	33.0	0.0	1905.9	163.1	6.4	6.8	7.2	0.0	0.0	41.8
7/13/2012	2071.4	2.8	0.0	17.5	33.0	0.0	1918.9	163.3	6.4	6.8	7.2	0.0	0.0	22.1
7/14/2012	2039.4	3.3	0.0	17.5	33.0	0.0	1889.9	161.7	6.4	6.8	7.2	0.0	0.0	21.2
7/15/2012	2239.3	3.3	0.0	17.4	33.0	0.0	1932.6	167.5	6.4	6.8	7.2	0.0	0.0	172.6
7/16/2012	2018.8	1.9	63.4	17.4	33.0	0.0	2132.6	167.9	6.4	6.8	7.2	0.0	0.0	-186.3
7/17/2012	1319.2	2.7	64.8	16.4	33.0	0.0	1433.4	129.7	6.4	6.8	7.2	0.0	0.0	-147.3
7/18/2012	880.7	2.2	59.8	15.7	33.0	0.0	989.2	101.3	6.4	6.8	7.2	0.0	0.0	-119.5
7/19/2012	692.0	1.8	0.0	15.6	33.0	0.0	708.3	81.6	6.4	6.8	7.2	0.0	0.0	-67.9
7/20/2012	554.8	2.9	0.0	15.4	33.0	0.0	593.2	70.3	6.4	6.8	7.2	0.0	0.0	-77.7
7/21/2012	391.9	2.5	15.2	16.8	33.0	0.0	456.9	53.5	6.4	6.8	7.2	0.0	0.0	-71.4
7/22/2012	314.1	2.8	0.0	17.5	33.0	0.0	332.6	42.6	6.4	6.8	7.2	0.0	0.0	-28.1
7/23/2012	246.6	3.0	0.0	17.1	33.0	0.0	262.7	33.9	6.4	6.8	7.2	0.0	0.0	-17.3
7/24/2012	337.2	3.1	0.0	17.3	33.0	0.0	217.3	34.0	6.4	6.8	7.2	0.0	0.0	118.9
7/25/2012	844.1	1.4	0.0	17.1	33.0	0.0	387.4	77.8	6.4	6.8	7.2	0.0	0.0	409.9
7/26/2012	922.1	4.6	0.0	17.2	33.0	0.0	854.8	100.5	6.4	6.8	7.2	0.0	0.0	1.2
7/27/2012	485.2	3.2	158.5	17.0	33.0	0.0	693.7	72.9	6.4	6.8	7.2	0.0	0.0	-90.0
7/28/2012	226.3	3.4	112.3	17.3	33.0	0.0	388.9	38.8	6.4	6.8	7.2	0.0	0.0	-55.7
7/29/2012	192.0	3.2	0.0	16.8	33.0	0.0	183.1	25.6	6.4	6.8	7.2	0.0	0.0	16.0
7/30/2012	203.2	2.8	0.0	17.9	33.0	0.0	169.5	27.1	6.4	6.8	7.2	0.0	0.0	39.9
7/31/2012	182.0	2.1	0.0	17.3	33.0	0.0	173.3	25.7	6.4	6.8	7.2	0.0	0.0	15.1
8/1/2012	280.6	4.1	0.0	17.4	33.0	0.0	164.1	28.7	6.4	6.4	7.2	0.0	0.0	122.2
8/2/2012	679.1	3.3	0.0	17.3	33.0	0.0	311.3	66.4	6.4	6.4	7.2	0.0	0.0	335.0
8/3/2012	536.6	1.8	6.9	17.7	33.0	0.0	594.2	69.0	6.4	6.4	7.2	0.0	0.0	-87.2
8/4/2012	420.9	3.2	0.0	20.7	33.0	0.0	448.0	54.4	6.4	6.4	7.2	0.0	0.0	-44.6
8/5/2012	368.7	2.3	0.0	19.5	33.0	0.0	362.9	46.8	6.4	6.4	7.2	0.0	0.0	-6.1
8/6/2012	343.0	2.8	0.0	19.7	33.0	0.0	319.3	42.9	6.4	6.4	7.2	0.0	0.0	16.3
8/7/2012	349.1	3.1	0.0	18.9	33.0	0.0	301.9	42.5	6.4	6.4	7.2	0.0	0.0	39.7
8/8/2012	345.5	2.6	0.0	18.7	33.0	0.0	305.8	42.3	6.4	6.4	7.2	0.0	0.0	31.7
8/9/2012	363.9	2.0	0.0	18.2	33.0	0.0	305.3	43.1	6.4	6.4	7.2	0.0	0.0	48.7
8/10/2012	502.4	3.4	0.0	18.7	33.0	0.0	327.6	49.9	6.4	6.4	7.2	0.0	0.0	160.1
8/11/2012	554.2	3.2	0.0	19.3	33.0	0.0	458.6	63.2	6.4	6.4	7.2	0.0	0.0	67.9
8/12/2012	423.5	5.4	5.6	22.9	33.0	0.0	485.0	58.0	6.4	6.4	7.2	0.0	0.0	-72.6
8/13/2012	492.8	3.9	0.0	18.7	33.0	0.0	359.5	49.1	6.4	6.4	7.2	0.0	0.0	119.8
8/14/2012	400.6	3.7	0.0	18.7	33.0	0.0	444.2	54.7	6.4	6.4	7.2	0.0	0.0	-62.9
8/15/2012	274.6	2.1	0.0	18.5	33.0	0.0	289.2	33.1	6.4	6.4	7.2	0.0	0.0	-14.1
8/16/2012	222.4	3.4	0.0	19.5	33.0	0.0	218.7	28.3	6.4	6.4	7.2	0.0	0.0	11.3
8/17/2012	627.3	3.1	0.0	18.8	33.0	0.0	185.8	46.2	6.4	6.4	7.2	0.0	0.0	430.3
8/18/2012	701.4	2.7	0.0	21.8	33.0	0.0	601.2	78.0	6.4	6.4	7.2	0.0	0.0	59.8
8/19/2012	692.6	5.0	0.0	21.1	33.0	0.0	621.4	77.7	6.4	6.4	7.2	0.0	0.0	32.6
8/20/2012	684.8	1.9	0.0	22.0	33.0	0.0	613.1	76.9	6.4	6.4	7.2	0.0	0.0	31.7
8/21/2012	706.6	1.5	0.0	21.5	33.0	0.0	607.1	77.0	6.4	6.4	7.2	0.0	0.0	58.4
8/22/2012	762.4	1.8	0.0	20.0	33.0	0.0	642.1	82.2	6.4	6.4	7.2	0.0	0.0	72.8
8/23/2012	774.2	3.8	0.0	19.4	33.0	0.0	692.2	85.5	6.4	6.4	7.2	0.0	0.0	32.7
8/24/2012	752.7	2.3	0.0	19.6	33.0	0.0	679.2	83.2	6.4	6.4	7.2	0.0	0.0	25.2
8/25/2012	752.8	1.0	0.0	19.9	33.0	0.0	669.8	83.0	6.4	6.4	7.2	0.0	0.0	33.9

Table F4-4: RGCP Channel Water Budget Equation Analysis Segment 4

Normal Single Pulse Hydrograph (S2)

(Units = Acre-| (Units = Acre-Feet)

	Segment 4 - Anthony Metering Station to American Dam (Lower Reach B)													
	Qcus	Pc	Qcin	Qirf	Qeff	Qgwrf	Qcds	Qcs	Qfpr	ET	ET	Qda	Qdu	Δsic
Date	Upstream Channel Inflow, below Anthony Station	Precipitation Flows in River Channel	In-channel Stormwater/ Ungaged Return Inflow	Irrigation Return Flow (Nemexas Drain, East Drain, and West Drain)	Treated Effluent Return Flow	Groundwater Return Flow	Downstream Channel Outflow, at American Dam	Channel Seepage	Floodplain Recharge	Open Water Channel Evaporation	Riparian Evapo-transpiration	Diversions Authorized (None)	Diversions Unauthorized (1% of Authorized)	In-channel Change in Storage
8/26/2012	763.1	2.5	0.0	19.6	33.0	0.0	669.8	83.3	6.4	6.4	7.2	0.0	0.0	45.0
8/27/2012	779.2	0.9	0.0	19.8	33.0	0.0	687.0	85.1	6.4	6.4	7.2	0.0	0.0	40.8
8/28/2012	755.0	1.2	0.0	19.6	33.0	0.0	694.5	84.7	6.4	6.4	7.2	0.0	0.0	9.5
8/29/2012	712.0	2.2	0.0	19.5	33.0	0.0	656.3	80.2	6.4	6.4	7.2	0.0	0.0	10.3
8/30/2012	692.8	1.3	0.0	19.3	33.0	0.0	629.6	78.3	6.4	6.4	7.2	0.0	0.0	18.5
8/31/2012	674.4	3.0	0.0	19.6	33.0	0.0	609.5	76.1	6.4	6.4	7.2	0.0	0.0	24.5
9/1/2012	674.3	2.2	0.0	22.1	33.0	0.0	598.1	75.6	6.4	5.1	7.2	0.0	0.0	39.2
9/2/2012	679.0	3.4	0.0	23.7	33.0	0.0	599.8	75.9	6.4	5.1	7.2	0.0	0.0	44.7
9/3/2012	682.0	2.1	0.0	22.1	33.0	0.0	603.8	76.3	6.4	5.1	7.2	0.0	0.0	40.5
9/4/2012	706.2	2.5	0.0	22.8	33.0	0.0	606.1	77.1	6.4	5.1	7.2	0.0	0.0	62.4
9/5/2012	835.6	5.3	0.0	25.1	33.0	0.0	640.3	83.9	6.4	5.1	7.2	0.0	0.0	156.1
9/6/2012	998.5	3.6	0.0	23.3	33.0	0.0	832.9	100.1	6.4	5.1	7.2	0.0	0.0	106.7
9/7/2012	1036.6	3.0	0.0	22.5	33.0	0.0	933.3	105.1	6.4	5.1	7.2	0.0	0.0	37.8
9/8/2012	926.1	2.5	0.0	25.5	33.0	0.0	921.1	101.0	6.4	5.1	7.2	0.0	0.0	-53.7
9/9/2012	758.3	0.8	0.0	21.6	33.0	0.0	764.8	87.6	6.4	5.1	7.2	0.0	0.0	-57.5
9/10/2012	599.8	3.6	0.0	21.1	33.0	0.0	640.3	74.8	6.4	5.1	7.2	0.0	0.0	-76.4
9/11/2012	460.9	4.9	0.0	20.7	33.0	0.0	494.9	58.7	6.4	5.1	7.2	0.0	0.0	-52.8
9/12/2012	519.2	3.0	0.0	20.6	33.0	0.0	401.3	53.3	6.4	5.1	7.2	0.0	0.0	102.5
9/13/2012	907.3	1.9	0.0	20.4	33.0	0.0	552.7	85.3	6.4	5.1	7.2	0.0	0.0	305.9
9/14/2012	1047.3	2.2	0.0	20.3	33.0	0.0	926.9	105.7	6.4	5.1	7.2	0.0	0.0	51.5

RGCP - Project Scale Water Budget - Segment 4 (Anthony Metering Station to American Dam)
Release Scenario S2 (Normal Single Pulse)
 $\Delta Sic = (Qus + Pc + Qcin + Qirf + Qgwrf) - (Qcds + Qcs + Qfpr + ET + Qda + Qdu)$

- Sum of Inflow
- Sum of Outflow
- ΔSic - Change in Channel Storage

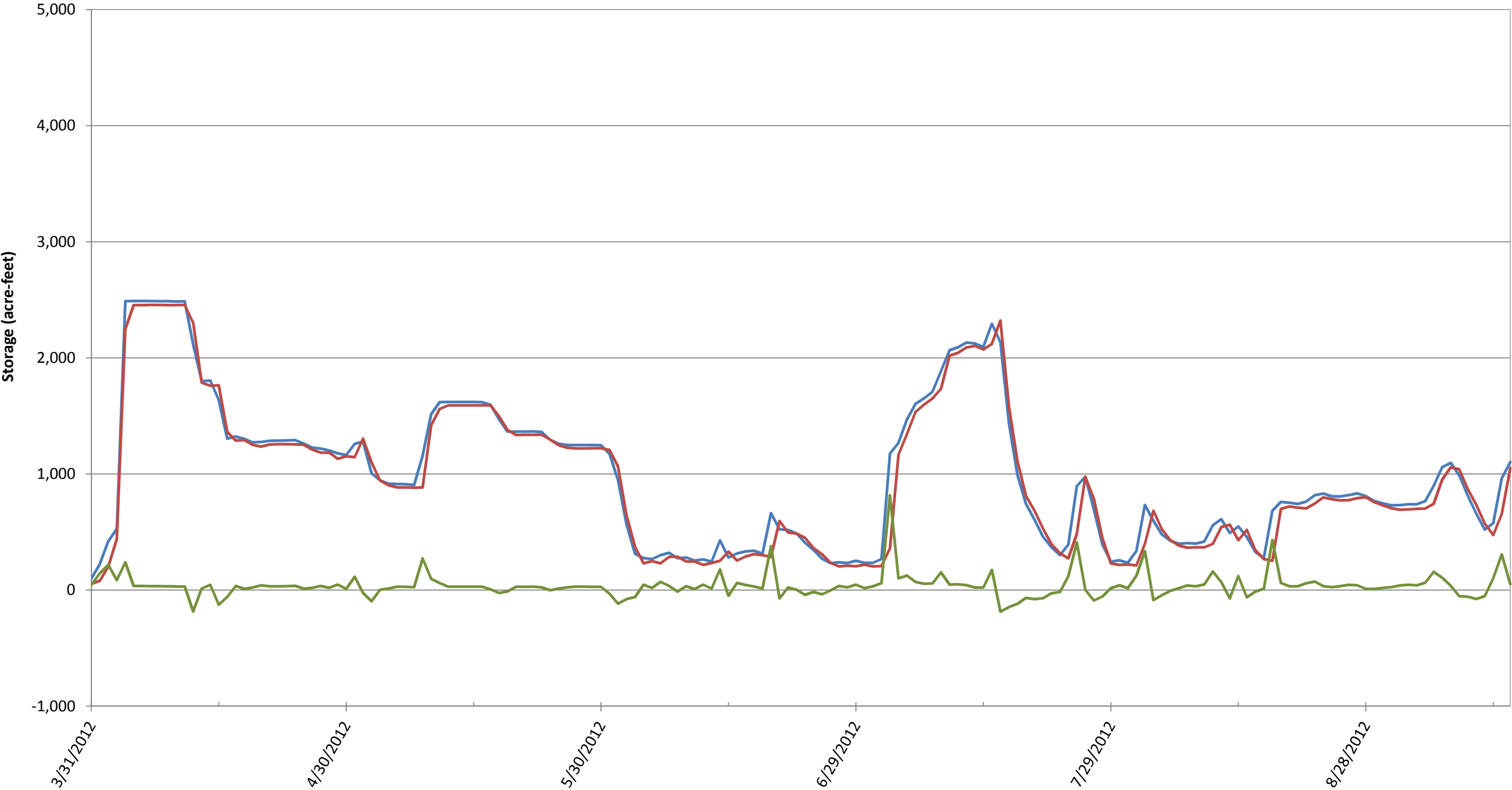


Table F4-5 - Local Basin Scale Water Budget Equation

Normal Single Pulse Hydrograph (S2)

Caballo Reservoir to Downstream of American Dam

(Units = Acre-Feet)

	Surface Water Budget															Groundwater Budget					
	Qus	P	Qp			Qgwr	Qds			Qgwr				ET	ΔSsw	Qgwus	Qgwr	Qp	Qgwr	Qgwds	ΔSgw
	Upstream Channel Inflow, River Below Caballo	Precipitation Flows In River Channel	Pumping	MODFLOW Groundwater Return Flow to Rio Grande	Measured Irrigation/ Drainage Return Flow	Groundwater Return Flow = Groundwater RF + Irrigation RRF	Downstream Channel Outflow, River Above American Dam	Channel Seepage (Qcs)	MODFLOW Floodplain/ Irrigation Based Recharge	Groundwater Recharge = Seepage + Irrigation Based Recharge	Riparian Evapo-transpiration	Crop Evapo-transpiration	Open Water Evaporation	Total ET = Riparian + Crop + Open Water Evaporation	Changes in Surface Water Storage	Upstream Groundwater Inflow	Groundwater Recharge = Seepage + Irrigation Based Recharge	Pumping	Groundwater Return Flow = Groundwater RF + Irrigation RRF	Downstream Groundwater Outflow	Change in Vadose Zone and Groundwater Storage
3/31/2012	0.0	0.3	517.8	31.8	18.5	50.3	28.0	43.6	354.0	397.6	58.1	307.5	25.8	391.4	-248.5	40.6	397.6	517.8	50.3	0.0	-130.0
4/1/2012	991.7	0.5	598.8	31.8	18.7	50.6	45.0	153.7	354.0	507.7	58.1	307.5	56.8	422.4	666.5	40.6	507.7	598.8	50.6	0.0	-101.1
4/2/2012	2975.2	2.1	704.1	31.8	19.5	51.3	154.8	255.7	354.0	609.7	58.1	307.5	56.8	422.4	2545.9	40.6	609.7	704.1	51.3	0.0	-105.1
4/3/2012	2975.2	1.6	747.3	31.8	19.5	51.3	366.3	479.9	354.0	833.9	58.1	307.5	56.8	422.4	2152.8	40.6	833.9	747.3	51.3	0.0	76.0
4/4/2012	2975.2	2.3	742.3	31.8	19.8	51.7	2050.6	718.1	354.0	1072.2	58.1	307.5	56.8	422.4	226.4	40.6	1072.2	742.3	51.7	0.0	318.8
4/5/2012	2975.2	3.9	750.9	31.8	23.9	55.8	2255.3	720.2	354.0	1074.2	58.1	307.5	56.8	422.4	33.9	40.6	1074.2	750.9	55.8	0.0	308.1
4/6/2012	2975.2	3.3	785.4	31.8	81.5	113.3	2255.1	720.2	354.0	1074.2	58.1	307.5	56.8	422.4	125.5	40.6	1074.2	785.4	113.3	0.0	216.1
4/7/2012	2975.2	1.9	781.9	31.8	105.6	137.4	2255.3	720.2	354.0	1074.2	58.1	307.5	56.8	422.4	144.5	40.6	1074.2	781.9	137.4	0.0	195.5
4/8/2012	2975.2	0.7	786.4	31.8	110.8	142.6	2255.3	720.2	354.0	1074.2	58.1	307.5	56.8	422.4	153.0	40.6	1074.2	786.4	142.6	0.0	185.8
4/9/2012	2975.2	0.1	795.0	31.8	120.3	152.1	2255.3	720.2	354.0	1074.2	58.1	307.5	56.8	422.4	170.5	40.6	1074.2	795.0	152.1	0.0	167.7
4/10/2012	2975.2	0.6	845.0	31.8	128.0	159.8	2255.1	720.2	354.0	1074.2	58.1	307.5	56.8	422.4	228.8	40.6	1074.2	845.0	159.8	0.0	110.0
4/11/2012	2975.2	3.8	856.3	31.8	127.1	159.0	2255.4	720.2	354.0	1074.2	58.1	307.5	56.8	422.4	242.3	40.6	1074.2	856.3	159.0	0.0	99.5
4/12/2012	2975.2	3.8	832.7	31.8	124.4	156.2	2113.5	680.4	354.0	1034.4	58.1	307.5	56.8	422.4	397.6	40.6	1034.4	832.7	156.2	0.0	86.1
4/13/2012	2975.2	0.7	823.4	31.8	114.1	146.0	1618.9	652.3	354.0	1006.3	58.1	307.5	56.8	422.4	897.6	40.6	1006.3	823.4	146.0	0.0	77.6
4/14/2012	2380.2	1.2	824.1	31.8	116.0	147.9	1593.7	643.1	354.0	997.1	58.1	307.5	56.8	422.4	340.1	40.6	997.1	824.1	147.9	0.0	65.8
4/15/2012	2380.2	3.4	824.2	31.8	66.8	98.6	1601.8	591.6	354.0	945.6	58.1	307.5	56.8	422.4	336.6	40.6	945.6	824.2	98.6	0.0	63.4
4/16/2012	2380.2	1.0	823.8	31.8	58.5	90.3	1222.2	551.8	354.0	905.8	58.1	307.5	56.8	422.4	744.9	40.6	905.8	823.8	90.3	0.0	32.3
4/17/2012	2380.2	3.0	829.2	31.8	67.0	98.8	1147.4	552.0	354.0	906.0	58.1	307.5	56.8	422.4	835.5	40.6	906.0	829.2	98.8	0.0	18.6
4/18/2012	2380.2	0.7	830.6	31.8	67.5	99.3	1153.5	549.7	354.0	903.7	58.1	307.5	56.8	422.4	831.3	40.6	903.7	830.6	99.3	0.0	14.4
4/19/2012	2380.2	0.8	837.4	31.8	65.5	97.4	1114.4	545.9	354.0	899.9	58.1	307.5	56.8	422.4	879.0	40.6	899.9	837.4	97.4	0.0	5.8
4/20/2012	2380.2	1.2	838.3	31.8	65.3	97.1	1099.5	546.2	354.0	900.2	58.1	307.5	56.8	422.4	894.7	40.6	900.2	838.3	97.1	0.0	5.4
4/21/2012	2380.2	0.8	854.9	31.8	59.0	90.8	1117.1	547.5	354.0	901.5	58.1	307.5	56.8	422.4	885.8	40.6	901.5	854.9	90.8	0.0	-3.6
4/22/2012	2380.2	2.5	854.9	31.8	50.7	82.5	1118.7	547.6	354.0	901.6	58.1	307.5	56.8	422.4	877.4	40.6	901.6	854.9	82.5	0.0	4.8
4/23/2012	2380.2	4.8	854.9	31.8	48.6	80.4	1118.6	547.5	354.0	901.5	58.1	307.5	56.8	422.4	877.8	40.6	901.5	854.9	80.4	0.0	6.8
4/24/2012	2380.2	3.3	855.1	31.8	50.9	82.7	1117.3	547.5	354.0	901.5	58.1	307.5	56.8	422.4	880.1	40.6	901.5	855.1	82.7	0.0	4.3
4/25/2012	2380.2	0.9	858.1	31.8	44.8	76.7	1115.1	544.6	354.0	898.6	58.1	307.5	56.8	422.4	879.7	40.6	898.6	858.1	76.7	0.0	4.5
4/26/2012	2380.2	2.6	856.6	31.8	43.7	75.6	1075.4	540.2	354.0	894.2	58.1	307.5	56.8	422.4	922.9	40.6	894.2	856.6	75.6	0.0	2.7
4/27/2012	2380.2	2.7	848.4	31.8	56.0	87.8	1050.9	537.0	354.0	891.0	58.1	307.5	56.8	422.4	954.8	40.6	891.0	848.4	87.8	0.0	-4.6
4/28/2012	2380.2	1.2	848.2	31.8	60.8	92.6	1050.4	526.8	354.0	880.8	58.1	307.5	56.8	422.4	968.7	40.6	880.8	848.2	92.6	0.0	-19.4
4/29/2012	2380.2	1.6	848.4	31.8	48.9	80.7	1001.3	517.7	354.0	871.7	58.1	307.5	56.8	422.4	1015.5	40.6	871.7	848.4	80.7	0.0	-16.8
4/30/2012	2380.2	2.2	848.6	31.8	53.1	84.9	1022.5	515.7	354.0	869.7	58.1	307.5	56.8	422.4	1001.3	40.6	869.7	848.6	84.9	0.0	-23.2
5/1/2012	1983.5	1.1	855.0	31.8	48.7	80.5	1008.7	520.5	354.0	874.5	58.1	307.5	89.2	454.8	582.1	40.6	874.5	855.0	80.5	0.0	-20.4
5/2/2012	1983.5	4.5	855.5	31.8	46.5	78.4	1162.1	496.6	354.0	850.6	58.1	307.5	89.2	454.8	454.4	40.6	850.6	855.5	78.4	0.0	-42.6
5/3/2012	1983.5	4.8	854.6	31.8	46.4	78.2	975.3	456.0	354.0	810.0	58.1	307.5	89.2	454.8	680.9	40.6	810.0	854.6	78.2	0.0	-82.1
5/4/2012	1983.5	2.2	865.5	31.8	46.3	78.1	825.0	441.6	354.0	795.7	58.1	307.5	89.2	454.8	853.9	40.6	795.7	865.5	78.1	0.0	-107.4
5/5/2012	1983.5	2.0	868.8	31.8	46.0																

Table F4-5 - Local Basin Scale Water Budget Equation

Normal Single Pulse Hydrograph (S2)

Caballo Reservoir to Downstream of American Dam

(Units = Acre-Feet)

	Surface Water Budget															Groundwater Budget					
	Qus	P	Qp			Qgwr	Qds			Qgwr				ET	ΔSsw	Qgwus	Qgwr	Qp	Qgwr	Qgwds	ΔSgw
	Upstream Channel Inflow, River Below Caballo Dam	Precipitation Flows in River Channel	Pumping	MODFLOW Groundwater Return Flow to Rio Grande	Measured Irrigation/ Drainage Return Flow	Groundwater Return Flow = Groundwater RF + Irrigation RRF	Downstream Channel Outflow, River Above American Dam	Channel Seepage (Qcs)	MODFLOW Floodplain/ Irrigation Based Recharge	Groundwater Recharge = Seepage + Irrigation Based Recharge	Riparian Evapo-transpiration	Crop Evapo-transpiration	Open Water Evaporation	Total ET = Riparian + Crop + Open Water Evaporation	Changes in Surface Water Storage	Upstream Groundwater Inflow	Groundwater Recharge = Seepage + Irrigation Based Recharge	Pumping	Groundwater Return Flow = Groundwater RF + Irrigation RRF	Downstream Groundwater Outflow	Change in Vadose Zone and Groundwater Storage
6/9/2012	1983.5	2.0	916.9	31.8	30.3	62.1	194.0	259.4	354.0	613.4	58.1	307.5	91.7	457.3	1699.8	40.6	613.4	916.9	62.1	0.0	-325.0
6/10/2012	1983.5	8.1	916.7	31.8	55.6	87.5	193.6	259.8	354.0	613.8	58.1	307.5	91.7	457.3	1731.0	40.6	613.8	916.7	87.5	0.0	-349.7
6/11/2012	1983.5	3.9	916.3	31.8	79.7	111.6	167.0	270.9	354.0	624.9	58.1	307.5	91.7	457.3	1766.0	40.6	624.9	916.3	111.6	0.0	-362.3
6/12/2012	1983.5	4.0	916.2	31.8	86.1	117.9	182.3	286.5	354.0	640.5	58.1	307.5	91.7	457.3	1741.4	40.6	640.5	916.2	117.9	0.0	-353.0
6/13/2012	1983.5	2.3	909.2	31.8	92.0	123.9	188.0	287.4	354.0	641.4	58.1	307.5	91.7	457.3	1732.0	40.6	641.4	909.2	123.9	0.0	-351.0
6/14/2012	1983.5	5.0	911.5	31.8	91.7	123.5	276.9	271.2	354.0	625.2	58.1	307.5	91.7	457.3	1664.1	40.6	625.2	911.5	123.5	0.0	-369.2
6/15/2012	1983.5	6.8	891.8	31.8	65.9	97.7	199.9	277.2	354.0	631.2	58.1	307.5	91.7	457.3	1691.5	40.6	631.2	891.8	97.7	0.0	-317.7
6/16/2012	1983.5	6.1	892.5	31.8	52.5	84.3	231.1	295.6	354.0	649.6	58.1	307.5	91.7	457.3	1628.4	40.6	649.6	892.5	84.3	0.0	-286.6
6/17/2012	2975.2	8.1	892.5	31.8	61.0	92.8	248.6	308.4	354.0	662.4	58.1	307.5	91.7	457.3	2600.2	40.6	662.4	892.5	92.8	0.0	-282.3
6/18/2012	2975.2	13.3	892.6	31.8	53.3	85.2	243.3	374.6	354.0	728.6	58.1	307.5	91.7	457.3	2537.0	40.6	728.6	892.6	85.2	0.0	-208.5
6/19/2012	2975.2	3.8	892.7	31.8	49.9	81.8	224.2	425.4	354.0	779.4	58.1	307.5	91.7	457.3	2492.6	40.6	779.4	892.7	81.8	0.0	-154.4
6/20/2012	2975.2	8.4	889.7	31.8	47.2	79.0	512.8	436.9	354.0	790.9	58.1	307.5	91.7	457.3	2191.3	40.6	790.9	889.7	79.0	0.0	-137.2
6/21/2012	2975.2	3.5	888.6	31.8	51.0	82.9	416.7	426.5	354.0	780.5	58.1	307.5	91.7	457.3	2295.7	40.6	780.5	888.6	82.9	0.0	-150.4
6/22/2012	2975.2	3.8	888.6	31.8	46.7	78.5	409.4	414.8	354.0	768.9	58.1	307.5	91.7	457.3	2310.5	40.6	768.9	888.6	78.5	0.0	-157.7
6/23/2012	2975.2	6.6	888.5	31.8	49.4	81.2	378.7	397.6	354.0	751.6	58.1	307.5	91.7	457.3	2363.9	40.6	751.6	888.5	81.2	0.0	-177.5
6/24/2012	2975.2	6.6	888.5	31.8	45.1	77.0	299.5	378.2	354.0	732.3	58.1	307.5	91.7	457.3	2458.2	40.6	732.3	888.5	77.0	0.0	-192.6
6/25/2012	2975.2	5.0	888.5	31.8	46.1	77.9	251.8	360.5	354.0	714.5	58.1	307.5	91.7	457.3	2523.0	40.6	714.5	888.5	77.9	0.0	-211.3
6/26/2012	2975.2	5.8	887.9	31.8	43.9	75.8	185.3	354.3	354.0	708.3	58.1	307.5	91.7	457.3	2593.8	40.6	708.3	887.9	75.8	0.0	-214.8
6/27/2012	2975.2	12.5	879.9	31.8	48.4	80.2	156.4	354.8	354.0	708.8	58.1	307.5	91.7	457.3	2625.3	40.6	708.8	879.9	80.2	0.0	-210.7
6/28/2012	2975.2	12.0	880.2	31.8	47.6	79.4	161.8	355.8	354.0	709.8	58.1	307.5	91.7	457.3	2617.8	40.6	709.8	880.2	79.4	0.0	-209.1
6/29/2012	2975.2	19.6	877.0	31.8	32.6	64.4	156.7	357.3	354.0	711.3	58.1	307.5	91.7	457.3	2610.9	40.6	711.3	877.0	64.4	0.0	-189.5
6/30/2012	2975.2	9.4	874.4	31.8	25.1	56.9	169.9	355.6	354.0	709.6	58.1	307.5	91.7	457.3	2579.0	40.6	709.6	874.4	56.9	0.0	-181.0
7/1/2012	3966.9	11.5	849.4	31.8	34.0	65.9	157.8	373.1	354.0	727.1	58.1	307.5	68.1	433.7	3575.1	40.6	727.1	849.4	65.9	0.0	-147.6
7/2/2012	3966.9	16.3	800.0	31.8	36.2	68.0	160.0	469.7	354.0	823.7	58.1	307.5	68.1	433.7	3433.9	40.6	823.7	800.0	68.0	0.0	-3.7
7/3/2012	3966.9	7.5	782.5	31.8	40.9	72.7	246.0	590.5	354.0	944.5	58.1	307.5	68.1	433.7	3205.5	40.6	944.5	782.5	72.7	0.0	129.9
7/4/2012	3966.9	12.4	780.3	31.8	49.0	80.8	1031.1	627.0	354.0	981.0	58.1	307.5	68.1	433.7	2394.6	40.6	981.0	780.3	80.8	0.0	160.5
7/5/2012	3966.9	19.7	779.0	31.8	53.0	84.9	1198.0	655.3	354.0	1009.3	58.1	307.5	68.1	433.7	2209.4	40.6	1009.3	779.0	84.9	0.0	186.1
7/6/2012	3966.9	10.7	781.5	31.8	61.3	93.1	1378.6	669.0	354.0	1023.0	58.1	307.5	68.1	433.7	2016.9	40.6	1023.0	781.5	93.1	0.0	189.0
7/7/2012	3966.9	12.6	766.3	31.8	56.0	87.8	1438.6	672.5	354.0	1026.6	58.1	307.5	68.1	433.7	1934.8	40.6	1026.6	766.3	87.8	0.0	213.1
7/8/2012	3966.9	13.3	766.1	31.8	94.2	126.0	1489.4	681.2	354.0	1035.3	58.1	307.5	68.1	433.7	1913.9	40.6	1035.3	766.1	126.0	0.0	183.8
7/9/2012	3966.9	18.3	764.3	31.8	81.6	113.4	1566.4	712.5	354.0	1066.5	58.1	307.5	68.1	433.7	1796.3	40.6	1066.5	764.3	113.4	0.0	229.5
7/10/2012	3966.9	14.6	766.2	31.8	66.1	97.9	1839.0	732.3	354.0	1086.3	58.1	307.5	68.1	433.7	1486.7	40.6	1086.3	766.2	97.9	0.0	262.8
7/11/2012	3966.9	11.7	758.4	31.8	55.0	86.8	1860.7	736.9	354.0	1090.9	58.1	307.5	68.1	433.7	1438.5	40.6	1090.9	758.4	86.8	0.0	286.3
7/12/2012	3966.9	10.3	757.9	31.8	40.6	72.5	1905.9	741.7	354.0	1095.7	58.1	307.5	68.1	433.7	1372.3	40.6	1095.7	757			

Table F4-5 - Local Basin Scale Water Budget Equation

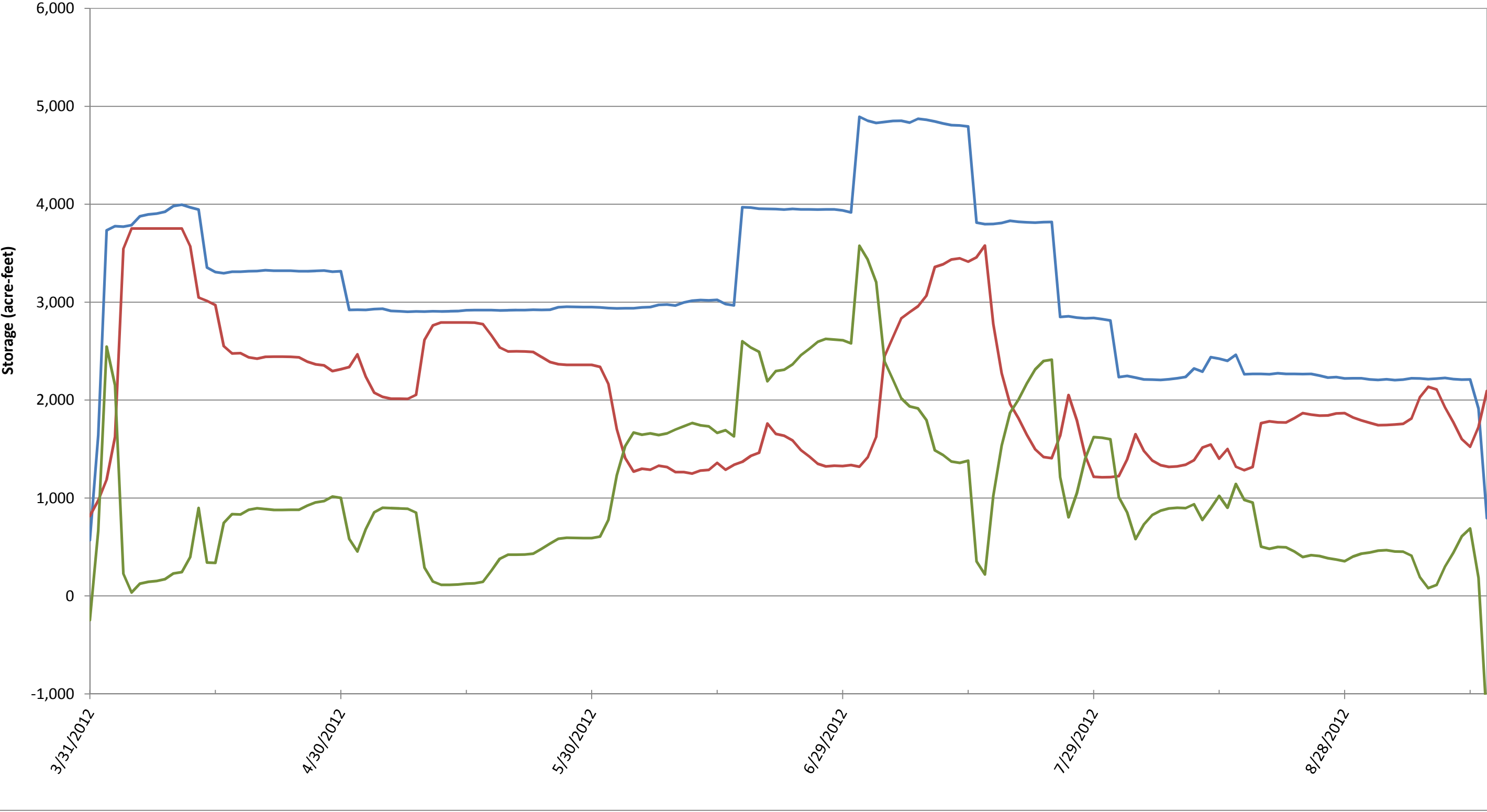
Normal Single Pulse Hydrograph (S2)

(Units = Acre-Feet)

	Surface Water Budget															Groundwater Budget					
	Qus	P	Qp			Qgwrf	Qds			Qgwrr				ET	ΔSsw	Qgwus	Qgwrr	Qp	Qgwrf	Qgwds	ΔSgw
	Upstream Channel Inflow, River Below Caballo Dam	Precipitation Flows in River Channel	Pumping	MODFLOW Groundwater Return Flow to Rio Grande	Measured Irrigation/ Drainage Return Flow	Groundwater Return Flow = Groundwater RRF + Irrigation RRF	Downstream Channel Outflow, River Above American Dam	Channel Seepage (Qcs)	MODFLOW Floodplain/ Irrigation Based Recharge	Groundwater Recharge = Seepage + Irrigation Based Recharge	Riparian Evapo- transpiration	Crop Evapo- transpiration	Open Water Evaporation	Total ET = Riparian + Crop + Open Water Evaporation	Changes in Surface Water Storage	Upstream Groundwater Inflow	Groundwater Recharge = Seepage + Irrigation Based Recharge	Pumping	Groundwater Return Flow = Groundwater RF + Irrigation RRF	Downstream Groundwater Outflow	Change in Vadose Zone and Groundwater Storage
8/24/2012	1388.4	17.7	727.7	31.8	100.8	132.6	679.2	388.2	354.0	742.3	58.1	307.5	64.1	429.7	415.4	40.6	742.3	727.7	132.6	0.0	-77.5
8/25/2012	1388.4	15.4	727.4	31.8	86.8	118.6	669.8	388.0	354.0	742.1	58.1	307.5	64.1	429.7	408.2	40.6	742.1	727.4	118.6	0.0	-63.3
8/26/2012	1388.4	12.2	727.3	31.8	69.3	101.1	669.8	389.8	354.0	743.8	58.1	307.5	64.1	429.7	385.7	40.6	743.8	727.3	101.1	0.0	-44.0
8/27/2012	1388.4	14.8	727.2	31.8	71.4	103.3	687.0	392.3	354.0	746.3	58.1	307.5	64.1	429.7	370.7	40.6	746.3	727.2	103.3	0.0	-43.5
8/28/2012	1388.4	7.9	727.1	31.8	65.7	97.5	694.5	388.4	354.0	742.4	58.1	307.5	64.1	429.7	354.2	40.6	742.4	727.1	97.5	0.0	-41.5
8/29/2012	1388.4	10.5	728.1	31.8	64.4	96.2	656.3	381.5	354.0	735.5	58.1	307.5	64.1	429.7	401.7	40.6	735.5	728.1	96.2	0.0	-48.2
8/30/2012	1388.4	16.2	729.4	31.8	56.6	88.4	629.6	377.7	354.0	731.7	58.1	307.5	64.1	429.7	431.4	40.6	731.7	729.4	88.4	0.0	-45.5
8/31/2012	1388.4	14.0	723.8	31.8	52.9	84.7	609.5	374.5	354.0	728.5	58.1	307.5	64.1	429.7	443.2	40.6	728.5	723.8	84.7	0.0	-39.4
9/1/2012	1388.4	8.6	721.1	31.8	55.0	86.8	598.1	374.2	354.0	728.2	58.1	307.5	51.6	417.2	461.5	40.6	728.2	721.1	86.8	0.0	-39.1
9/2/2012	1388.4	16.6	719.8	31.8	55.9	87.7	599.8	375.0	354.0	729.0	58.1	307.5	51.6	417.2	466.5	40.6	729.0	719.8	87.7	0.0	-37.8
9/3/2012	1388.4	10.3	718.6	31.8	54.5	86.3	603.8	375.6	354.0	729.6	58.1	307.5	51.6	417.2	453.1	40.6	729.6	718.6	86.3	0.0	-34.7
9/4/2012	1388.4	14.5	718.6	31.8	55.6	87.4	606.1	379.6	354.0	733.7	58.1	307.5	51.6	417.2	451.9	40.6	733.7	718.6	87.4	0.0	-31.7
9/5/2012	1388.4	19.7	721.1	31.8	61.1	93.0	640.3	399.8	354.0	753.8	58.1	307.5	51.6	417.2	410.8	40.6	753.8	721.1	93.0	0.0	-19.6
9/6/2012	1388.4	16.6	721.2	31.8	62.3	94.1	832.9	424.8	354.0	778.8	58.1	307.5	51.6	417.2	191.5	40.6	778.8	721.2	94.1	0.0	4.1
9/7/2012	1388.4	17.7	717.2	31.8	59.3	91.1	933.3	430.5	354.0	784.5	58.1	307.5	51.6	417.2	79.4	40.6	784.5	717.2	91.1	0.0	16.9
9/8/2012	1388.4	8.4	718.1	31.8	73.1	105.0	921.1	415.4	354.0	769.4	58.1	307.5	51.6	417.2	112.2	40.6	769.4	718.1	105.0	0.0	-13.1
9/9/2012	1388.4	8.3	718.0	31.8	79.2	111.0	764.8	389.4	354.0	743.4	58.1	307.5	51.6	417.2	300.4	40.6	743.4	718.0	111.0	0.0	-45.0
9/10/2012	1388.4	12.5	718.5	31.8	63.1	95.0	640.3	360.6	354.0	714.6	58.1	307.5	51.6	417.2	442.2	40.6	714.6	718.5	95.0	0.0	-58.2
9/11/2012	1388.4	14.5	715.6	31.8	57.8	89.7	494.9	334.8	354.0	688.8	58.1	307.5	51.6	417.2	607.2	40.6	688.8	715.6	89.7	0.0	-75.8
9/12/2012	1388.4	22.9	715.5	31.8	51.4	83.2	401.3	350.3	354.0	704.3	58.1	307.5	51.6	417.2	687.2	40.6	704.3	715.5	83.2	0.0	-53.8
9/13/2012	1118.7	15.3	700.9	31.8	46.0	77.8	552.7	403.1	354.0	757.1	58.1	307.5	51.6	417.2	185.6	40.6	757.1	700.9	77.8	0.0	19.0
9/14/2012	0.0	14.2	700.8	31.8	46.4	78.2	926.9	393.8	354.0	747.8	58.1	307.5	51.6	417.2	-1298.7	40.6	747.8	700.8	78.2	0.0	9.5

RGCP - Local Basin Scale Surface Water Budget - Caballo Dam to American Dam
Release Scenario S2 (Normal Single Pulse)
 $\Delta S_{sw} = (Q_{us} + P + Q_p + Q_{gwrf}) - (Q_{cds} + Q_{gwr} + ET)$

- Sum of Inflow
- Sum of Outflow
- ΔS_{sw} - Change in Surface Water Storage



RGCP - Local Basin Scale Ground Water Budget - Caballo Dam to American Dam
Release Scenario S2 (Normal Single Pulse)
 $\Delta S_{gw} = (Q_{gwus} + Q_{gwr}) - (Q_p + Q_{gwr}f + Q_{gwds})$

- Sum of Inflow
- Sum of Outflow
- ΔS_{gw} - Change in Ground Water Storage

