

# **RIO GRANDE CANALIZATION PROJECT**

## **WATER BUDGET STUDY**

### **Final Report**

## **Appendix F2 - Water Budget Analysis Summary**

### **2012 Baseline Analysis**

#### **(Based on HEC-RAS Model Results)**

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Table F2-1: RGCP Channel Water Budget Equation Analysis Segment 1 Baseline 2012 (Units = Acre-Feet)

	Segment 1 - Caballo Reservoir to Leasburg Metering Station (Upper Reach)													
	Qcus	Pc	Qcin	Qirf	Qeff	Qgwrfl	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
3/31/2012	0.0	0.1	490.9	0.0	1.0	28.8	492.0	13.8	6.3	6.2	33.7	0.0	0.0	-31.1
4/1/2012	868.8	0.1	0.0	0.0	1.0	28.8	492.0	19.3	6.3	13.7	33.7	0.0	0.0	333.7
4/2/2012	2320.7	0.7	0.0	0.0	1.0	28.8	493.0	29.2	6.3	13.7	33.7	0.0	0.0	1775.3
4/3/2012	2320.7	0.6	0.0	0.0	1.0	28.8	2189.9	70.1	6.3	13.7	33.7	0.0	0.0	37.4
4/4/2012	2538.8	0.8	0.0	0.0	1.0	28.8	2234.0	94.2	6.3	13.7	33.7	0.0	0.0	187.6
4/5/2012	2895.9	1.2	0.0	0.0	1.0	28.8	2464.8	97.3	6.3	13.7	33.7	0.0	0.0	311.2
4/6/2012	2856.2	0.7	0.0	0.0	1.0	28.8	2761.4	104.5	6.3	13.7	33.7	0.0	0.0	-32.9
4/7/2012	2757.0	1.3	0.0	0.0	1.0	28.8	2717.3	107.4	6.3	13.7	33.7	0.0	0.0	-90.2
4/8/2012	2757.0	0.6	0.0	0.0	1.0	28.8	2634.7	105.7	6.3	13.7	33.7	0.0	0.0	-6.6
4/9/2012	2737.2	0.1	0.0	0.0	1.0	28.8	2631.5	104.7	6.3	13.7	33.7	0.0	0.0	-22.8
4/10/2012	2717.4	0.2	0.0	0.0	1.0	28.8	2612.2	104.4	6.3	13.7	33.7	0.0	0.0	-23.0
4/11/2012	2717.4	1.3	0.0	0.0	1.0	28.8	2595.7	104.0	6.3	13.7	33.7	0.0	0.0	-5.0
4/12/2012	2717.4	1.7	0.0	0.0	1.0	28.8	2595.6	103.8	6.3	13.7	33.7	0.0	0.0	-4.1
4/13/2012	2320.7	0.1	221.3	0.0	1.0	28.8	2543.0	103.8	6.3	13.7	33.7	0.0	0.0	-128.6
4/14/2012	1904.1	0.3	268.3	0.0	1.0	28.8	2173.4	98.3	6.3	13.7	33.7	0.0	0.0	-122.8
4/15/2012	1884.3	1.0	0.0	0.0	1.0	28.8	1814.7	88.3	6.3	13.7	33.7	0.0	0.0	-41.6
4/16/2012	1884.3	0.4	0.0	0.0	1.0	28.8	1787.8	83.3	6.3	13.7	33.7	0.0	0.0	-10.3
4/17/2012	1884.3	2.6	0.0	0.0	1.0	28.8	1787.4	83.0	6.3	13.7	33.7	0.0	0.0	-7.4
4/18/2012	1884.3	0.3	0.0	0.0	1.0	28.8	1787.4	83.0	6.3	13.7	33.7	0.0	0.0	-9.7
4/19/2012	1810.9	0.3	0.0	0.0	1.0	28.8	1782.3	83.0	6.3	13.7	33.7	0.0	0.0	-78.0
4/20/2012	1640.3	0.9	66.6	0.0	1.0	28.8	1707.9	82.0	6.3	13.7	33.7	0.0	0.0	-106.0
4/21/2012	1578.8	0.1	0.0	0.0	1.0	28.8	1555.0	78.7	6.3	13.7	33.7	0.0	0.0	-78.6
4/22/2012	1578.8	0.3	0.0	0.0	1.0	28.8	1494.9	75.6	6.3	13.7	33.7	0.0	0.0	-15.1
4/23/2012	1586.8	2.6	0.0	0.0	1.0	28.8	1492.2	74.7	6.3	13.7	33.7	0.0	0.0	-1.4
4/24/2012	1604.6	1.0	0.0	0.0	1.0	28.8	1499.5	74.8	6.3	13.7	33.7	0.0	0.0	7.4
4/25/2012	1729.6	0.2	0.0	0.0	1.0	28.8	1520.3	75.2	6.3	13.7	33.7	0.0	0.0	110.4
4/26/2012	1828.8	1.9	0.0	0.0	1.0	28.8	1638.5	77.3	6.3	13.7	33.7	0.0	0.0	91.0
4/27/2012	2009.3	1.5	0.0	0.0	1.0	28.8	1735.3	78.9	6.3	13.7	33.7	99.2	1.0	72.5
4/28/2012	1826.8	0.8	0.0	0.0	1.0	28.8	1790.0	80.1	6.3	13.7	33.7	200.3	2.0	-268.7
4/29/2012	1602.6	1.2	36.9	0.0	1.0	28.8	1541.4	78.5	6.3	13.7	33.7	198.3	2.0	-203.4
4/30/2012	1600.7	1.5	0.0	0.0	1.0	28.8	1339.4	72.9	6.3	13.7	33.7	200.3	2.0	-36.4
5/1/2012	1612.6	0.4	0.0	0.0	1.0	28.8	1319.8	69.6	6.3	21.5	33.7	200.3	2.0	-10.4
5/2/2012	1646.3	1.2	0.0	0.0	1.0	28.8	1329.1	68.9	6.3	21.5	33.7	261.6	2.6	-46.4
5/3/2012	1660.2	2.5	0.0	0.0	1.0	28.8	1305.6	68.1	6.3	21.5	33.7	297.9	3.0	-43.5
5/4/2012	912.4	1.4	623.5	0.0	1.0	28.8	1275.4	68.3	6.3	21.5	33.7	297.9	3.0	-138.8
5/5/2012	317.4	1.0	768.4	0.0	1.0	28.8	788.8	57.6	6.3	21.5	33.7	297.9	3.0	-92.3
5/6/2012	307.4	0.8	550.1	0.0	1.0	28.8	560.7	35.2	6.3	21.5	33.7	308.2	3.1	-80.6
5/7/2012	299.5	1.6	491.0	0.0	1.0	28.8	493.6	21.6	6.3	21.5	33.7	308.2	3.1	-66.1
5/8/2012	188.4	0.3	1021.8	0.0	1.0	28.8	903.1	19.6	6.3	21.5	33.7	144.8	1.4	110.1
5/9/2012	0.0	0.9	1134.0	0.0	1.0	28.8	826.8	21.8	6.3	21.5	33.7	0.0	0.0	254.7
5/10/2012	0.0	0.3	635.2	0.0	1.0	28.8	491.5	21.0	6.3	21.5	33.7	0.0	0.0	91.4
5/11/2012	0.0	1.1	491.0	0.0	1.0	28.8	492.0	19.0	6.3	21.5	33.7	0.0	0.0	-50.6
5/12/2012	0.0	0.4	491.0	0.0	1.0	28.8	492.0	18.9	6.3	21.5	33.7	0.0	0.0	-51.2
5/13/2012	0.0	0.7	491.0	0.0	1.0	28.8	492.0	18.9	6.3	21.5	33.7	0.0	0.0	-51.0
5/14/2012	0.0	1.4	491.1	0.0	1.0	28.8	492.1	18.9	6.3	21.5	33.7	0.0	0.0	-50.2
5/15/2012	0.0	0.6	491.0	0.0	1.0	28.8	492.0	18.9	6.3	21.5	33.7	0.0	0.0	-51.1
5/16/2012	216.2	1.6	274.7	0.0	1.0	28.8	491.9	18.9	6.3	21.5	33.7	152.7	1.5	-204.3
5/17/2012	448.3	1.8	42.6	0.0	1.0	28.8	491.9	20.8	6.3	21.5	33.7	299.5	3.0	-354.2
5/18/2012	303.5	2.6	726.8	0.0	1.0	28.8	878.5	24.1	6.3	21.5	33.7	295.3	3.0	-199.8
5/19/2012	287.6	0.7	761.6	0.0	1.0	28.8	750.7	23.6	6.3	21.5	33.7	295.5	3.0	-54.5
5/20/2012	285.6	1.1	506.7	0.0	1.0	28.8	498.0	19.6	6.3	21.5	33.7	295.5	3.0	-54.4

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	Segment 1 - Caballo Reservoir to Leasburg Metering Station (Upper Reach)													
	Qcus	Pc	Qcin	Qirf	Qeff	Qgwrfl	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	317.4	0.5	469.1	0.0	1.0	28.8	492.0	18.4	6.3	21.5	33.7	291.6	2.9	-49.6
5/22/2012	440.3	1.5	346.4	0.0	1.0	28.8	492.2	18.5	6.3	21.5	33.7	378.8	3.8	-136.8
5/23/2012	442.3	1.7	340.5	0.0	1.0	28.8	492.3	19.4	6.3	21.5	33.7	418.5	4.2	-181.6
5/24/2012	448.3	1.6	639.1	0.0	1.0	28.8	709.5	19.8	6.3	21.5	33.7	432.4	4.3	-108.8
5/25/2012	438.3	2.1	471.3	0.0	1.0	28.8	492.1	18.7	6.3	21.5	33.7	432.4	4.3	-67.6
5/26/2012	426.4	0.5	496.5	0.0	1.0	28.8	491.5	18.9	6.3	21.5	33.7	432.4	4.3	-55.4
5/27/2012	426.4	3.0	496.9	0.0	1.0	28.8	492.0	18.8	6.3	21.5	33.7	432.4	4.3	-52.9
5/28/2012	426.4	1.8	497.1	0.0	1.0	28.8	492.2	18.6	6.3	21.5	33.7	432.4	4.3	-53.8
5/29/2012	2070.7	0.8	0.0	0.0	1.0	28.8	492.1	18.4	6.3	21.5	33.7	442.3	4.4	1082.6
5/30/2012	2525.0	1.1	0.0	0.0	1.0	28.8	1407.5	39.2	6.3	21.5	33.7	442.3	4.4	600.9
5/31/2012	2271.1	0.8	129.2	0.0	1.0	28.8	1959.0	82.7	6.3	21.5	33.7	380.8	3.8	-57.0
6/1/2012	2584.5	1.3	0.0	0.0	1.0	28.8	1760.6	84.6	6.3	22.1	33.7	380.8	3.8	323.6
6/2/2012	2993.1	1.3	0.0	0.0	1.0	28.8	1846.7	87.0	6.3	22.1	33.7	618.8	6.2	403.4
6/3/2012	2989.1	2.4	0.0	0.0	1.0	28.8	2174.3	97.1	6.3	22.1	33.7	700.8	7.0	-20.0
6/4/2012	3026.8	2.1	0.0	0.0	1.0	28.8	2198.0	101.2	6.3	22.1	33.7	503.2	5.0	189.0
6/5/2012	3383.8	0.1	0.0	0.0	1.0	28.8	2285.4	101.7	6.3	22.1	33.7	515.7	5.2	443.5
6/6/2012	3645.6	0.8	0.0	0.0	1.0	28.8	2647.5	109.5	6.3	22.1	33.7	670.3	6.7	180.1
6/7/2012	3665.5	3.7	0.0	0.0	1.0	28.8	2991.0	117.8	6.3	22.1	33.7	689.0	6.9	-167.8
6/8/2012	3961.0	0.6	0.0	0.0	1.0	28.8	2847.8	118.1	6.3	22.1	33.7	842.1	8.4	112.8
6/9/2012	4153.4	0.9	0.0	0.0	1.0	28.8	2915.6	120.9	6.3	22.1	33.7	940.7	9.4	135.4
6/10/2012	4143.5	0.7	0.0	0.0	1.0	28.8	3188.6	126.4	6.3	22.1	33.7	793.2	7.9	-4.3
6/11/2012	3984.8	2.2	240.8	0.0	1.0	28.8	3286.0	127.8	6.3	22.1	33.7	673.4	6.7	101.6
6/12/2012	3887.6	1.6	41.8	0.0	1.0	28.8	3137.2	125.7	6.3	22.1	33.7	706.5	7.1	-77.8
6/13/2012	3689.3	0.8	0.0	0.0	1.0	28.8	3001.0	123.2	6.3	22.1	33.7	816.6	8.2	-291.1
6/14/2012	3391.7	1.0	122.9	0.0	1.0	28.8	2809.2	119.1	6.3	22.1	33.7	771.9	7.7	-224.5
6/15/2012	3369.9	0.6	0.0	0.0	1.0	28.8	2492.8	112.1	6.3	22.1	33.7	622.2	6.2	104.9
6/16/2012	3459.2	1.6	0.0	0.0	1.0	28.8	2435.9	108.7	6.3	22.1	33.7	655.6	6.6	221.6
6/17/2012	3465.1	2.4	0.0	0.0	1.0	28.8	2496.7	112.5	6.3	22.1	33.7	663.2	6.6	156.1
6/18/2012	3292.6	5.0	1.4	0.0	1.0	28.8	2639.4	114.6	6.3	22.1	33.7	632.9	6.3	-126.6
6/19/2012	3272.7	0.8	0.0	0.0	1.0	28.8	2510.1	112.7	6.3	22.1	33.7	598.4	6.0	14.0
6/20/2012	3312.4	4.4	0.0	0.0	1.0	28.8	2542.9	111.4	6.3	22.1	33.7	689.4	6.9	-66.1
6/21/2012	3362.0	1.7	0.0	0.0	1.0	28.8	2619.8	111.9	6.3	22.1	33.7	705.8	7.1	-113.2
6/22/2012	3371.9	2.8	0.0	0.0	1.0	28.8	2628.2	111.7	6.3	22.1	33.7	734.4	7.3	-139.2
6/23/2012	3350.1	3.3	0.0	0.0	1.0	28.8	2570.4	110.8	6.3	22.1	33.7	728.1	7.3	-95.6
6/24/2012	3354.0	3.0	0.0	0.0	1.0	28.8	2454.1	110.1	6.3	22.1	33.7	791.2	7.9	-38.5
6/25/2012	3437.4	1.9	0.0	0.0	1.0	28.8	2404.8	109.7	6.3	22.1	33.7	827.2	8.3	57.1
6/26/2012	3504.8	3.1	0.0	0.0	1.0	28.8	2527.0	110.8	6.3	22.1	33.7	783.3	7.8	46.7
6/27/2012	3340.2	3.9	77.1	0.0	1.0	28.8	2591.1	112.7	6.3	22.1	33.7	758.6	7.6	-81.2
6/28/2012	3159.7	3.7	76.7	0.0	1.0	28.8	2454.0	111.1	6.3	22.1	33.7	752.8	7.5	-117.8
6/29/2012	3221.2	8.5	0.0	0.0	1.0	28.8	2305.2	106.8	6.3	22.1	33.7	747.3	7.5	30.5
6/30/2012	3276.7	3.1	0.0	0.0	1.0	28.8	2353.1	105.9	6.3	22.1	33.7	746.6	7.5	34.5
7/1/2012	3290.6	5.6	0.0	0.0	1.0	28.8	2396.6	107.3	6.3	16.4	33.7	727.4	7.3	31.0
7/2/2012	3296.5	6.7	0.0	0.0	1.0	28.8	2410.3	108.1	6.3	16.4	33.7	744.9	7.4	6.0
7/3/2012	3106.1	4.3	25.5	0.0	1.0	28.8	2405.3	108.7	6.3	16.4	33.7	651.6	6.5	-62.8
7/4/2012	2989.1	4.8	40.9	0.0	1.0	28.8	2286.1	106.1	6.3	16.4	33.7	541.4	5.4	69.1
7/5/2012	2802.6	9.3	18.7	0.0	1.0	28.8	2170.7	103.7	6.3	16.4	33.7	533.5	5.3	-9.2
7/6/2012	2651.9	5.1	0.0	0.0	1.0	28.8	2031.2	101.7	6.3	16.4	33.7	580.5	5.8	-88.8
7/7/2012	2441.7	7.8	0.0	0.0	1.0	28.8	1897.0	98.5	6.3	16.4	33.7	621.1	6.2	-199.9
7/8/2012	2217.5	6.5	46.5	0.0	1.0	28.8	1684.6	94.0	6.3	16.4	33.7	416.0	4.2	45.1
7/9/2012	2231.4	5.8	0.0	0.0	1.0	28.8	1522.8	88.5	6.3	16.4	33.7	379.7	3.8	215.7
7/10/2012	1933.9	4.6	20.7	0.0	1.0	28.8	1539.6	89.3	6.3	16.4	33.7	367.6	3.7	-67.6

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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	1691.9	4.9	183.7	0.0	1.0	28.8	1496.9	87.7	6.3	16.4	33.7	323.9	3.2	-57.9
7/12/2012	1763.3	5.3	0.0	0.0	1.0	28.8	1307.6	80.7	6.3	16.4	33.7	319.6	3.2	30.9
7/13/2012	1892.2	6.7	0.0	0.0	1.0	28.8	1346.1	78.4	6.3	16.4	33.7	333.5	3.3	111.0
7/14/2012	2001.3	4.4	0.0	0.0	1.0	28.8	1429.3	81.4	6.3	16.4	33.7	359.6	3.6	105.2
7/15/2012	2086.6	13.7	0.0	0.0	1.0	28.8	1548.9	84.8	6.3	16.4	33.7	358.0	3.6	78.5
7/16/2012	2804.6	3.4	0.0	0.0	1.0	28.8	1648.7	81.4	6.3	16.4	33.7	763.2	7.6	280.5
7/17/2012	3481.0	3.8	0.0	0.0	1.0	28.8	2012.0	88.1	6.3	16.4	33.7	747.5	7.5	603.1
7/18/2012	3770.6	6.5	0.0	0.0	1.0	28.8	2633.3	105.8	6.3	16.4	33.7	764.9	7.6	238.8
7/19/2012	3873.7	6.3	0.0	0.0	1.0	28.8	2881.7	116.4	6.3	16.4	33.7	759.0	7.6	88.8
7/20/2012	3865.8	7.0	0.0	0.0	1.0	28.8	2930.3	120.9	6.3	16.4	33.7	774.0	7.7	13.3
7/21/2012	3834.0	8.3	0.0	0.0	1.0	28.8	2858.5	121.9	6.3	16.4	33.7	874.7	8.7	-48.0
7/22/2012	3814.2	7.8	0.0	0.0	1.0	28.8	2822.1	121.4	6.3	16.4	33.7	861.0	8.6	-17.7
7/23/2012	3849.9	6.4	0.0	0.0	1.0	28.8	2819.4	120.8	6.3	16.4	33.7	867.2	8.7	13.6
7/24/2012	3891.6	7.6	0.0	0.0	1.0	28.8	2842.0	121.2	6.3	16.4	33.7	867.2	8.7	33.5
7/25/2012	3814.2	6.2	0.0	0.0	1.0	28.8	2877.5	121.9	6.3	16.4	33.7	875.3	8.8	-89.7
7/26/2012	3683.3	6.5	0.0	0.0	1.0	28.8	2763.4	119.2	6.3	16.4	33.7	1004.5	10.0	-233.9
7/27/2012	3627.8	5.7	0.0	0.0	1.0	28.8	2540.8	115.6	6.3	16.4	33.7	1001.7	10.0	-61.2
7/28/2012	3536.5	6.0	0.0	0.0	1.0	28.8	2489.9	114.3	6.3	16.4	33.7	953.7	9.5	-51.6
7/29/2012	3465.1	7.6	0.0	0.0	1.0	28.8	2456.0	114.2	6.3	16.4	33.7	865.9	8.7	1.3
7/30/2012	3562.3	8.7	0.0	0.0	1.0	28.8	2476.2	112.6	6.3	16.4	33.7	905.9	9.1	40.6
7/31/2012	3750.7	6.7	0.0	0.0	1.0	28.8	2532.1	112.4	6.3	16.4	33.7	962.5	9.6	114.2
8/1/2012	3768.6	7.2	0.0	0.0	1.0	28.8	2675.2	116.0	6.3	15.5	33.7	911.1	9.1	38.7
8/2/2012	3554.4	8.7	73.4	0.0	1.0	28.8	2666.3	118.1	6.3	15.5	33.7	942.4	9.4	-125.3
8/3/2012	3377.9	8.8	0.0	0.0	1.0	28.8	2457.5	115.1	6.3	15.5	33.7	946.2	9.5	-167.3
8/4/2012	3322.3	6.8	0.0	0.0	1.0	28.8	2336.7	110.9	6.3	15.5	33.7	896.9	9.0	-50.0
8/5/2012	3302.5	6.6	0.0	0.0	1.0	28.8	2333.0	108.7	6.3	15.5	33.7	856.5	8.6	-23.3
8/6/2012	3385.8	5.4	0.0	0.0	1.0	28.8	2334.8	107.8	6.3	15.5	33.7	857.4	8.6	56.9
8/7/2012	3564.3	6.8	0.0	0.0	1.0	28.8	2426.8	109.0	6.3	15.5	33.7	846.6	8.5	154.6
8/8/2012	3697.2	5.6	0.0	0.0	1.0	28.8	2597.8	112.2	6.3	15.5	33.7	862.8	8.6	95.8
8/9/2012	3744.8	7.8	0.0	0.0	1.0	28.8	2640.5	115.7	6.3	15.5	33.7	923.1	9.2	38.5
8/10/2012	3875.7	7.3	0.0	0.0	1.0	28.8	2635.9	117.6	6.3	15.5	33.7	994.2	9.9	99.6
8/11/2012	4036.4	8.8	0.0	0.0	1.0	28.8	2794.9	120.0	6.3	15.5	33.7	956.2	9.6	138.8
8/12/2012	3994.7	8.6	0.0	0.0	1.0	28.8	2942.2	125.1	6.3	15.5	33.7	842.4	8.4	59.6
8/13/2012	3978.8	10.2	0.0	0.0	1.0	28.8	2991.3	126.5	6.3	15.5	33.7	881.2	8.8	-44.4
8/14/2012	2703.5	7.5	961.8	0.0	1.0	28.8	2823.9	129.8	6.3	15.5	33.7	558.5	5.6	129.3
8/15/2012	1967.6	7.5	1133.6	0.0	1.0	28.8	2221.0	115.1	6.3	15.5	33.7	264.9	2.6	479.4
8/16/2012	1884.3	9.4	526.6	0.0	1.0	28.8	1853.4	93.2	6.3	15.5	33.7	11.5	0.1	436.5
8/17/2012	1884.3	3.3	157.6	0.0	1.0	28.8	1778.0	84.0	6.3	15.5	33.7	11.5	0.1	145.9
8/18/2012	1884.3	8.4	0.0	0.0	1.0	28.8	1776.0	83.0	6.3	15.5	33.7	11.5	0.1	-3.5
8/19/2012	1884.3	6.0	0.0	0.0	1.0	28.8	1776.0	83.0	6.3	15.5	33.7	11.5	0.1	-6.0
8/20/2012	1874.4	7.0	0.0	0.0	1.0	28.8	1775.2	83.0	6.3	15.5	33.7	11.5	0.1	-14.1
8/21/2012	1874.4	11.8	0.0	0.0	1.0	28.8	1766.5	82.9	6.3	15.5	33.7	11.5	0.1	-0.4
8/22/2012	1866.4	5.7	0.0	0.0	1.0	28.8	1765.9	82.8	6.3	15.5	33.7	11.5	0.1	-13.7
8/23/2012	1691.9	15.0	65.8	0.0	1.0	28.8	1747.2	82.6	6.3	15.5	33.7	11.5	0.1	-94.4
8/24/2012	1467.8	10.0	127.3	0.0	1.0	28.8	1584.7	80.1	6.3	15.5	33.7	11.5	0.1	-96.9
8/25/2012	1477.7	5.1	0.0	0.0	1.0	28.8	1388.0	74.6	6.3	15.5	33.7	11.5	0.1	-17.0
8/26/2012	1477.7	5.5	0.0	0.0	1.0	28.8	1382.0	71.7	6.3	15.5	33.7	11.5	0.1	-7.7
8/27/2012	1477.7	4.6	0.0	0.0	1.0	28.8	1382.6	71.8	6.3	15.5	33.7	11.5	0.1	-9.3
8/28/2012	1418.2	2.1	0.0	0.0	1.0	28.8	1381.1	71.8	6.3	15.5	33.7	11.5	0.1	-69.8
8/29/2012	1378.5	6.6	0.0	0.0	1.0	28.8	1328.8	71.0	6.3	15.5	33.7	11.5	0.1	-51.8
8/30/2012	1394.4	7.3	0.0	0.0	1.0	28.8	1290.7	69.5	6.3	15.5	33.7	11.5	0.1	4.3

Table F2-1: RGCP Channel Water Budget Equation Analysis Segment 1 Baseline 2012 (Units = Acre-Feet)

	Segment 1 - Caballo Reservoir to Leasburg Metering Station (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	1402.3	5.1	0.0	0.0	1.0	28.8	1301.2	69.1	6.3	15.5	33.7	11.5	0.1	-0.1
9/1/2012	1410.2	5.2	0.0	0.0	1.0	28.8	1309.4	69.5	6.3	12.4	33.7	11.5	0.1	2.4
9/2/2012	1418.2	5.6	0.0	0.0	1.0	28.8	1317.1	69.7	6.3	12.4	33.7	11.5	0.1	2.8
9/3/2012	1243.6	3.9	87.8	0.0	1.0	28.8	1321.0	70.0	6.3	12.4	33.7	11.5	0.1	-89.9
9/4/2012	1108.8	4.4	77.8	0.0	1.0	28.8	1176.1	67.5	6.3	12.4	33.7	11.5	0.1	-86.9
9/5/2012	1108.8	8.2	0.0	0.0	1.0	28.8	1048.3	62.9	6.3	12.4	33.7	11.5	0.1	-28.5
9/6/2012	1100.8	4.6	0.0	0.0	1.0	28.8	1027.0	60.6	6.3	12.4	33.7	11.5	0.1	-16.4
9/7/2012	1092.9	5.9	0.0	0.0	1.0	28.8	1020.7	60.3	6.3	12.4	33.7	11.5	0.1	-16.4
9/8/2012	1079.0	2.8	0.0	0.0	1.0	28.8	1013.1	60.1	6.3	12.4	33.7	11.5	0.1	-25.7
9/9/2012	1065.1	4.3	0.0	0.0	1.0	28.8	1000.9	59.8	6.3	12.4	33.7	11.5	0.1	-25.4
9/10/2012	1049.3	5.2	0.0	0.0	1.0	28.8	987.7	59.3	6.3	12.4	33.7	11.5	0.1	-26.8
9/11/2012	1035.4	4.7	0.0	0.0	1.0	28.8	973.0	58.8	6.3	12.4	33.7	11.5	0.1	-25.9
9/12/2012	1015.5	11.0	0.0	0.0	1.0	28.8	959.8	58.3	6.3	12.4	33.7	11.5	0.1	-25.8
9/13/2012	533.6	9.0	417.6	0.0	1.0	28.8	940.8	57.8	6.3	12.4	33.7	11.5	0.1	-72.6
9/14/2012	0.0	7.0	718.9	0.0	1.0	28.8	708.5	50.3	6.3	12.4	33.7	11.5	0.1	-67.1

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

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

- Sum of Inflow
- Sum of Outflow
- $\Delta Sic$  - Change in Channel Storage

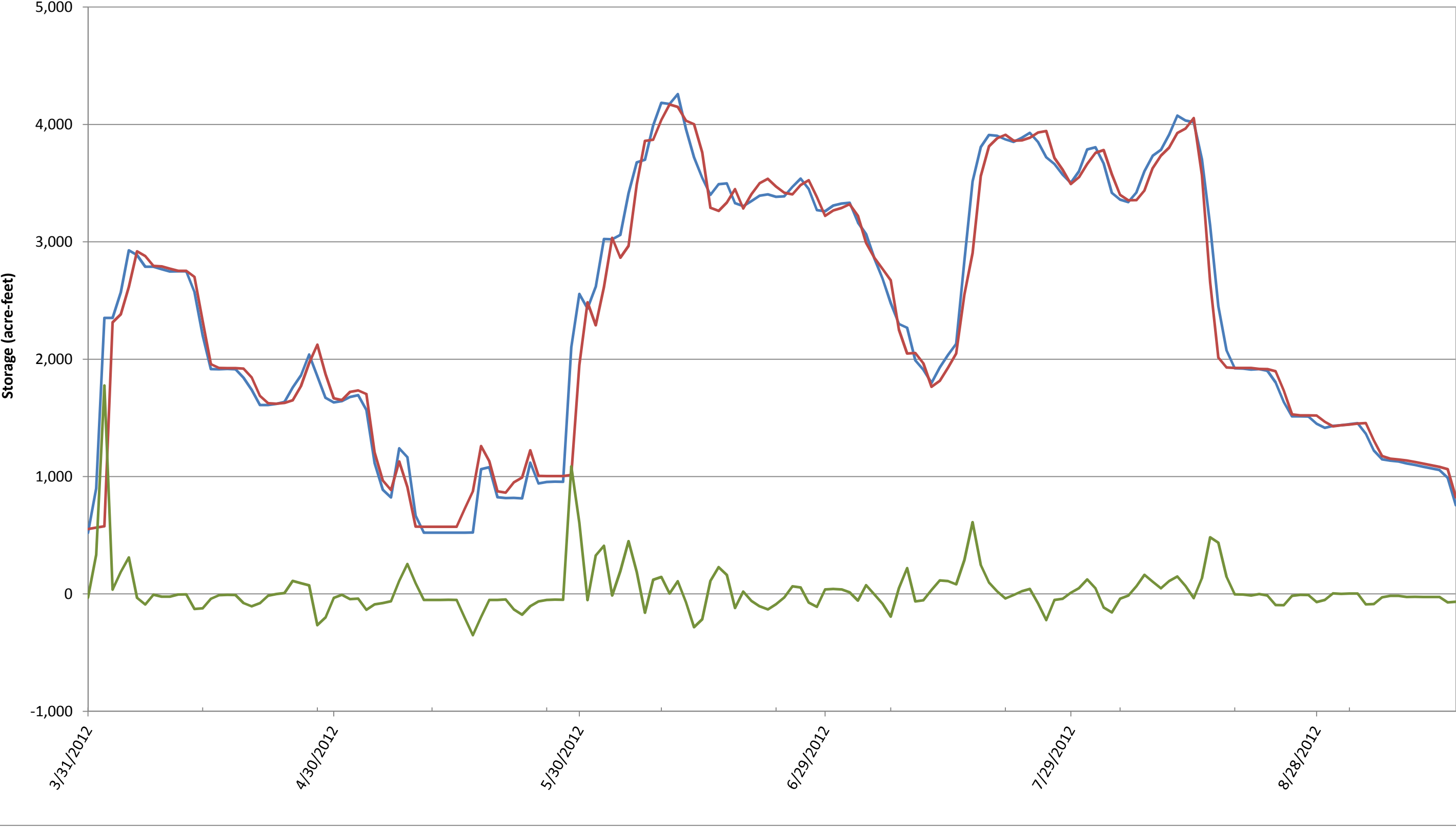




Table F2-2: RGCP Channel Water Budget Equation Analysis Segment 2 Baseline 2012 (Units = Acre-Feet)

	Segment 2 - Leasburg Metering Station 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	492.0	0.1	0.0	0.1	44.5	3.0	425.5	10.4	6.3	2.8	8.9	0.0	0.0	85.9
4/1/2012	492.0	0.1	0.0	0.1	44.5	3.0	425.4	59.7	6.3	6.1	8.9	0.0	0.0	33.4
4/2/2012	493.0	0.7	0.0	0.1	44.5	3.0	425.4	67.7	6.3	6.1	8.9	0.0	0.0	27.0
4/3/2012	2189.9	0.6	0.0	0.1	44.5	3.0	442.5	67.6	6.3	6.1	8.9	0.0	0.0	1706.8
4/4/2012	2234.0	0.7	0.0	0.1	44.5	3.0	2003.6	185.9	6.3	6.1	8.9	0.0	0.0	71.6
4/5/2012	2464.8	1.1	0.0	0.1	44.5	3.0	2133.9	207.9	6.3	6.1	8.9	0.0	0.0	150.4
4/6/2012	2761.4	1.2	0.0	0.1	44.5	3.0	2431.4	219.4	6.3	6.1	8.9	0.0	0.0	138.2
4/7/2012	2717.3	0.2	0.0	0.1	44.5	3.0	2505.0	237.7	6.3	6.1	8.9	0.0	0.0	1.2
4/8/2012	2634.7	0.1	0.0	0.1	44.5	3.0	2430.5	237.4	6.3	6.1	8.9	0.0	0.0	-6.7
4/9/2012	2631.5	0.0	0.0	0.1	44.5	3.0	2402.7	232.6	6.3	6.1	8.9	0.0	0.0	22.5
4/10/2012	2612.2	0.0	0.0	0.1	44.5	3.0	2390.3	232.0	6.3	6.1	8.9	0.0	0.0	16.2
4/11/2012	2595.7	0.9	0.0	0.1	44.5	3.0	2372.2	231.1	6.3	6.1	8.9	0.0	0.0	19.8
4/12/2012	2595.6	1.1	0.0	0.1	44.5	3.0	2161.1	230.0	6.3	6.1	8.9	214.2	2.1	15.5
4/13/2012	2543.0	0.2	0.0	0.1	44.5	3.0	2112.1	229.9	6.3	6.1	8.9	257.1	2.6	-32.1
4/14/2012	2173.4	0.1	0.0	0.1	44.5	3.0	1909.7	229.0	6.3	6.1	8.9	220.6	2.2	-161.5
4/15/2012	1814.7	1.4	0.0	0.1	44.5	3.0	1555.2	209.6	6.3	6.1	8.9	236.8	2.4	-161.6
4/16/2012	1787.8	0.3	0.0	0.1	44.5	3.0	1413.6	186.6	6.3	6.1	8.9	201.7	2.0	10.5
4/17/2012	1787.4	0.2	0.0	0.1	44.5	3.0	1417.4	181.0	6.3	6.1	8.9	190.4	1.9	23.2
4/18/2012	1787.4	0.2	0.0	0.1	44.5	3.0	1372.6	180.8	6.3	6.1	8.9	238.0	2.4	20.2
4/19/2012	1782.3	0.2	0.0	0.1	44.5	3.0	1351.5	180.8	6.3	6.1	8.9	257.9	2.6	16.2
4/20/2012	1707.9	0.1	0.0	0.1	44.5	3.0	1337.5	180.7	6.3	6.1	8.9	236.0	2.4	-22.2
4/21/2012	1555.0	0.1	0.0	0.1	44.5	3.0	1235.2	176.9	6.3	6.1	8.9	234.0	2.3	-67.1
4/22/2012	1494.9	1.0	0.0	0.1	44.5	3.0	1131.7	167.3	6.3	6.1	8.9	234.0	2.3	-13.2
4/23/2012	1492.2	0.7	0.0	0.1	44.5	3.0	1097.4	161.5	6.3	6.1	8.9	236.0	2.4	21.9
4/24/2012	1499.5	0.7	0.0	0.1	44.5	3.0	1102.1	160.4	6.3	6.1	8.9	234.0	2.3	27.7
4/25/2012	1520.3	0.4	0.0	0.1	44.5	3.0	1067.9	160.8	6.3	6.1	8.9	281.7	2.8	33.8
4/26/2012	1638.5	0.3	0.0	0.1	44.5	3.0	1096.7	162.0	6.3	6.1	8.9	311.4	3.1	92.0
4/27/2012	1735.3	0.7	0.0	0.1	44.5	3.0	1201.6	168.8	6.3	6.1	8.9	311.4	3.1	77.4
4/28/2012	1790.0	0.1	0.0	0.1	44.5	3.0	1284.3	170.7	6.3	6.1	8.9	311.4	3.1	46.9
4/29/2012	1541.4	0.1	8.2	0.1	44.5	3.0	1312.5	174.6	6.3	6.1	8.9	186.4	1.9	-99.4
4/30/2012	1339.4	0.4	39.6	0.1	44.5	3.0	1112.2	166.6	6.3	6.1	8.9	186.4	1.9	-61.4
5/1/2012	1319.8	0.1	112.9	0.1	44.5	3.0	1165.9	152.6	6.3	9.6	8.9	0.0	0.0	137.1
5/2/2012	1329.1	1.8	113.4	0.1	44.5	3.0	1175.8	147.6	6.3	9.6	8.9	0.0	0.0	143.8
5/3/2012	1305.6	1.4	10.3	0.1	44.5	3.0	1174.0	145.2	6.3	9.6	8.9	0.0	0.0	20.9
5/4/2012	1275.4	0.3	18.2	0.1	44.5	3.0	1151.7	143.8	6.3	9.6	8.9	0.0	0.0	21.2
5/5/2012	788.8	0.5	158.1	0.1	44.5	3.0	991.6	144.3	6.3	9.6	8.9	0.0	0.0	-165.6
5/6/2012	560.7	0.4	53.1	0.1	44.5	3.0	658.4	115.5	6.3	9.6	8.9	0.0	0.0	-136.8
5/7/2012	493.6	1.2	0.0	0.1	44.5	3.0	482.6	84.6	6.3	9.6	8.9	0.0	0.0	-49.6
5/8/2012	903.1	0.0	0.0	0.1	44.5	3.0	676.2	109.5	6.3	9.6	8.9	0.0	0.0	140.2
5/9/2012	826.8	0.0	0.0	0.1	44.5	3.0	723.6	105.7	6.3	9.6	8.9	0.0	0.0	20.4
5/10/2012	491.5	0.0	36.6	0.1	44.5	3.0	572.7	68.7	6.3	9.6	8.9	0.0	0.0	-90.5
5/11/2012	492.0	0.6	0.0	0.1	44.5	3.0	425.3	68.1	6.3	9.6	8.9	0.0	0.0	22.2
5/12/2012	492.0	0.0	0.0	0.1	44.5	3.0	425.4	67.7	6.3	9.6	8.9	0.0	0.0	21.8
5/13/2012	492.0	0.1	0.0	0.1	44.5	3.0	425.4	67.6	6.3	9.6	8.9	0.0	0.0	22.1
5/14/2012	492.1	1.0	0.0	0.1	44.5	3.0	425.5	67.6	6.3	9.6	8.9	0.0	0.0	22.9
5/15/2012	492.0	1.2	0.0	0.1	44.5	3.0	425.4	67.6	6.3	9.6	8.9	0.0	0.0	23.0

Table F2-2: RGCP Channel Water Budget Equation Analysis Segment 2 Baseline 2012 (Units = Acre-Feet)

	Segment 2 - Leasburg Metering Station 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
5/16/2012	491.9	1.8	0.0	0.1	44.5	3.0	425.5	67.6	6.3	9.6	8.9	0.0	0.0	23.5
5/17/2012	491.9	0.4	0.0	0.1	44.5	3.0	425.4	67.6	6.3	9.6	8.9	0.0	0.0	22.3
5/18/2012	878.5	0.5	0.0	0.1	44.5	3.0	673.6	112.5	6.3	9.6	8.9	0.0	0.0	115.8
5/19/2012	750.7	0.0	0.0	0.1	44.5	3.0	692.4	105.2	6.3	9.6	8.9	0.0	0.0	-24.0
5/20/2012	498.0	0.4	18.9	0.1	44.5	3.0	561.5	71.0	6.3	9.6	8.9	0.0	0.0	-92.3
5/21/2012	492.0	1.6	0.0	0.1	44.5	3.0	431.9	68.5	6.3	9.6	8.9	0.0	0.0	16.0
5/22/2012	492.2	0.2	0.0	0.1	44.5	3.0	425.3	67.6	6.3	9.6	8.9	0.0	0.0	22.3
5/23/2012	492.3	1.3	0.0	0.1	44.5	3.0	425.5	67.6	6.3	9.6	8.9	0.0	0.0	23.3
5/24/2012	709.5	0.3	0.0	0.1	44.5	3.0	501.7	92.5	6.3	9.6	8.9	0.0	0.0	138.5
5/25/2012	492.1	1.6	3.1	0.1	44.5	3.0	539.8	68.5	6.3	9.6	8.9	0.0	0.0	-88.6
5/26/2012	491.5	0.2	0.0	0.1	44.5	3.0	425.5	67.3	6.3	9.6	8.9	0.0	0.0	21.8
5/27/2012	492.0	0.9	0.0	0.1	44.5	3.0	424.8	67.6	6.3	9.6	8.9	0.0	0.0	23.4
5/28/2012	492.2	1.0	0.0	0.1	44.5	3.0	425.3	67.6	6.3	9.6	8.9	0.0	0.0	23.2
5/29/2012	492.1	0.5	0.0	0.1	44.5	3.0	425.5	67.6	6.3	9.6	8.9	0.0	0.0	22.4
5/30/2012	1407.5	0.0	0.0	0.1	44.5	3.0	425.4	67.6	6.3	9.6	8.9	0.0	0.0	937.3
5/31/2012	1959.0	1.2	0.0	0.1	44.5	3.0	1473.8	111.6	6.3	9.6	8.9	130.9	1.3	265.5
6/1/2012	1760.6	0.6	0.0	0.1	44.5	3.0	789.9	188.0	6.3	9.9	8.9	931.2	9.3	-134.6
6/2/2012	1846.7	0.4	0.0	0.1	44.5	3.0	630.9	169.2	6.3	9.9	8.9	991.7	9.9	68.0
6/3/2012	2174.3	1.0	0.0	0.1	44.5	3.0	772.2	178.0	6.3	9.9	8.9	1081.0	10.8	155.9
6/4/2012	2198.0	0.4	0.0	0.1	44.5	3.0	957.5	203.3	6.3	9.9	8.9	1023.5	10.2	26.5
6/5/2012	2285.4	0.3	0.0	0.1	44.5	3.0	767.0	206.9	6.3	9.9	8.9	1267.4	12.7	54.3
6/6/2012	2647.5	1.1	0.0	0.1	44.5	3.0	865.9	210.0	6.3	9.9	8.9	1392.4	13.9	189.1
6/7/2012	2991.0	2.5	0.0	0.1	44.5	3.0	1247.2	236.3	6.3	9.9	8.9	1396.4	14.0	122.2
6/8/2012	2847.8	1.2	0.0	0.1	44.5	3.0	1289.3	241.8	6.3	9.9	8.9	1372.6	13.7	-45.8
6/9/2012	2915.6	0.3	0.0	0.1	44.5	3.0	1280.5	232.4	6.3	9.9	8.9	1360.7	13.6	51.4
6/10/2012	3188.6	3.5	0.0	0.1	44.5	3.0	1533.2	250.0	6.3	9.9	8.9	1303.1	13.0	115.2
6/11/2012	3286.0	0.7	0.0	0.1	44.5	3.0	1726.3	266.9	6.3	9.9	8.9	1279.3	12.8	23.9
6/12/2012	3137.2	0.9	135.6	0.1	44.5	3.0	1944.8	267.2	6.3	9.9	8.9	977.9	9.8	96.7
6/13/2012	3001.0	0.2	61.5	0.1	44.5	3.0	1746.5	258.9	6.3	9.9	8.9	1077.0	10.8	-7.9
6/14/2012	2809.2	1.9	28.9	0.1	44.5	3.0	1579.6	254.2	6.3	9.9	8.9	1083.0	10.8	-65.0
6/15/2012	2492.8	3.2	47.6	0.1	44.5	3.0	1305.6	241.0	6.3	9.9	8.9	1085.0	10.8	-76.3
6/16/2012	2435.9	1.8	0.0	0.1	44.5	3.0	1028.3	222.9	6.3	9.9	8.9	1209.9	12.1	-12.8
6/17/2012	2496.7	2.5	0.0	0.1	44.5	3.0	1036.0	219.0	6.3	9.9	8.9	1209.9	12.1	44.8
6/18/2012	2639.4	4.5	0.0	0.1	44.5	3.0	1222.2	232.3	6.3	9.9	8.9	1160.3	11.6	40.1
6/19/2012	2510.1	1.4	0.0	0.1	44.5	3.0	1288.4	233.5	6.3	9.9	8.9	1033.4	10.3	-31.6
6/20/2012	2542.9	1.5	0.0	0.1	44.5	3.0	1253.4	228.2	6.3	9.9	8.9	1055.2	10.6	19.7
6/21/2012	2619.8	0.7	0.0	0.1	44.5	3.0	1334.4	228.5	6.3	9.9	8.9	1025.5	10.3	44.5
6/22/2012	2628.2	0.4	0.0	0.1	44.5	3.0	1347.5	229.6	6.3	9.9	8.9	1065.1	10.7	-1.7
6/23/2012	2570.4	1.5	0.0	0.1	44.5	3.0	1246.0	228.4	6.3	9.9	8.9	1128.6	11.3	-19.7
6/24/2012	2454.1	1.8	0.0	0.1	44.5	3.0	1107.1	223.8	6.3	9.9	8.9	1181.2	11.8	-45.4
6/25/2012	2404.8	1.0	0.0	0.1	44.5	3.0	1019.4	218.9	6.3	9.9	8.9	1190.1	11.9	-11.9
6/26/2012	2527.0	0.9	0.0	0.1	44.5	3.0	1057.1	220.4	6.3	9.9	8.9	1196.0	12.0	65.0
6/27/2012	2591.1	3.7	0.0	0.1	44.5	3.0	1108.0	226.8	6.3	9.9	8.9	1253.6	12.5	16.5
6/28/2012	2454.0	2.6	0.0	0.1	44.5	3.0	1079.3	231.4	6.3	9.9	8.9	1221.8	12.2	-65.4
6/29/2012	2305.2	4.7	0.0	0.1	44.5	3.0	900.0	223.3	6.3	9.9	8.9	1251.6	12.5	-54.8
6/30/2012	2353.1	2.8	0.0	0.1	44.5	3.0	865.4	213.3	6.3	9.9	8.9	1257.5	12.6	29.7
7/1/2012	2396.6	1.5	0.0	0.1	44.5	3.0	952.6	215.1	6.3	7.3	8.9	1213.9	12.1	29.5
7/2/2012	2410.3	4.9	0.0	0.1	44.5	3.0	1036.8	218.2	6.3	7.3	8.9	1152.4	11.5	21.4
7/3/2012	2405.3	1.2	0.0	0.1	44.5	3.0	1090.8	219.9	6.3	7.3	8.9	1114.7	11.1	-4.9
7/4/2012	2286.1	2.1	24.4	0.1	44.5	3.0	1097.6	222.7	6.3	7.3	8.9	1029.4	10.3	-22.3
7/5/2012	2170.7	4.9	102.4	0.1	44.5	3.0	1103.9	213.6	6.3	7.3	8.9	912.4	9.1	64.2



Table F2-2: RGCP Channel Water Budget Equation Analysis Segment 2 Baseline 2012 (Units = Acre-Feet)

	Segment 2 - Leasburg Metering Station 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
7/6/2012	2031.2	1.3	153.9	0.1	44.5	3.0	1077.4	208.5	6.3	7.3	8.9	823.1	8.2	94.3
7/7/2012	1897.0	1.8	225.9	4.5	44.5	3.0	1057.2	199.8	6.3	7.3	8.9	726.0	7.3	164.1
7/8/2012	1684.6	2.2	276.5	9.3	44.5	3.0	985.4	189.4	6.3	7.3	8.9	638.7	6.4	177.6
7/9/2012	1522.8	6.2	257.0	10.1	44.5	3.0	922.1	178.6	6.3	7.3	8.9	521.7	5.2	193.7
7/10/2012	1539.6	4.8	82.2	9.8	44.5	3.0	853.0	166.3	6.3	7.3	8.9	527.6	5.3	109.3
7/11/2012	1496.9	3.0	44.0	3.9	44.5	3.0	863.3	178.0	6.3	7.3	8.9	509.8	5.1	16.6
7/12/2012	1307.6	1.8	39.5	10.1	44.5	3.0	763.0	166.5	6.3	7.3	8.9	511.7	5.1	-62.4
7/13/2012	1346.1	2.1	0.0	10.5	44.5	3.0	653.2	148.8	6.3	7.3	8.9	529.6	5.3	46.7
7/14/2012	1429.3	1.6	0.0	10.9	44.5	3.0	709.0	145.7	6.3	7.3	8.9	531.6	5.3	75.3
7/15/2012	1548.9	3.5	0.0	11.4	44.5	3.0	695.0	154.3	6.3	7.3	8.9	646.6	6.5	86.4
7/16/2012	1648.7	2.0	0.0	11.0	44.5	3.0	787.4	162.3	6.3	7.3	8.9	646.6	6.5	83.9
7/17/2012	2012.0	6.5	0.0	6.7	44.5	3.0	833.6	147.2	6.3	7.3	8.9	797.4	8.0	264.1
7/18/2012	2633.3	1.9	0.0	8.8	44.5	3.0	1088.5	184.5	6.3	7.3	8.9	1094.9	10.9	290.3
7/19/2012	2881.7	2.7	0.0	10.3	44.5	3.0	1361.1	226.7	6.3	7.3	8.9	1207.9	12.1	111.9
7/20/2012	2930.3	2.6	0.0	11.7	44.5	3.0	1257.4	242.2	6.3	7.3	8.9	1442.0	14.4	13.5
7/21/2012	2858.5	5.0	0.0	12.3	44.5	3.0	1196.4	245.3	6.3	7.3	8.9	1475.7	14.8	-31.3
7/22/2012	2822.1	2.1	0.0	12.9	44.5	3.0	1083.1	244.0	6.3	7.3	8.9	1531.2	15.3	-11.6
7/23/2012	2819.4	4.7	0.0	13.5	44.5	3.0	1090.0	243.0	6.3	7.3	8.9	1505.5	15.1	9.1
7/24/2012	2842.0	1.6	0.0	13.9	44.5	3.0	1244.9	241.5	6.3	7.3	8.9	1356.7	13.6	25.8
7/25/2012	2877.5	2.0	0.0	14.2	44.5	3.0	1370.7	243.7	6.3	7.3	8.9	1275.4	12.8	16.3
7/26/2012	2763.4	4.7	48.7	14.6	44.5	3.0	1339.9	244.7	6.3	7.3	8.9	1267.4	12.7	-8.3
7/27/2012	2540.8	2.0	84.9	14.8	44.5	3.0	1179.5	234.8	6.3	7.3	8.9	1231.7	12.3	9.1
7/28/2012	2489.9	3.3	0.0	15.2	44.5	3.0	1057.7	227.9	6.3	7.3	8.9	1251.6	12.5	-16.3
7/29/2012	2456.0	6.9	0.0	15.0	44.5	3.0	1004.6	226.9	6.3	7.3	8.9	1261.5	12.6	-2.6
7/30/2012	2476.2	2.9	0.0	15.1	44.5	3.0	1007.7	226.3	6.3	7.3	8.9	1255.5	12.6	17.1
7/31/2012	2532.1	1.2	0.0	14.9	44.5	3.0	1048.9	220.5	6.3	7.3	8.9	1247.6	12.5	43.8
8/1/2012	2675.2	6.9	0.0	13.8	44.5	3.0	1143.0	223.8	6.3	6.9	8.9	1309.3	13.1	32.1
8/2/2012	2666.3	6.6	0.0	14.3	44.5	3.0	1204.6	234.0	6.3	6.9	8.9	1278.5	12.8	-17.2
8/3/2012	2457.5	4.8	0.0	15.7	44.5	3.0	1042.2	234.6	6.3	6.9	8.9	1304.6	13.0	-91.0
8/4/2012	2336.7	1.9	0.0	15.8	44.5	3.0	871.3	225.4	6.3	6.9	8.9	1318.2	13.2	-48.1
8/5/2012	2333.0	4.2	0.0	15.7	44.5	3.0	787.8	218.4	6.3	6.9	8.9	1355.4	13.6	3.2
8/6/2012	2334.8	3.7	0.0	15.8	44.5	3.0	808.5	215.6	6.3	6.9	8.9	1349.3	13.5	-7.0
8/7/2012	2426.8	4.7	0.0	15.9	44.5	3.0	920.1	214.3	6.3	6.9	8.9	1294.4	12.9	31.2
8/8/2012	2597.8	1.4	0.0	16.1	44.5	3.0	1085.9	219.1	6.3	6.9	8.9	1275.9	12.8	47.1
8/9/2012	2640.5	5.1	0.0	16.1	44.5	3.0	1131.5	225.0	6.3	6.9	8.9	1290.1	12.9	27.7
8/10/2012	2635.9	3.6	0.0	114.8	44.5	3.0	1104.2	228.6	6.3	6.9	8.9	1391.1	13.9	41.9
8/11/2012	2794.9	5.1	0.0	83.8	44.5	3.0	1205.9	232.4	6.3	6.9	8.9	1396.9	14.0	60.1
8/12/2012	2942.2	6.6	0.0	199.3	44.5	3.0	1447.4	239.9	6.3	6.9	8.9	1360.7	13.6	112.0
8/13/2012	2991.3	4.3	0.0	192.3	44.5	3.0	1522.0	252.8	6.3	6.9	8.9	1408.4	14.1	16.2
8/14/2012	2823.9	10.7	0.0	163.5	44.5	3.0	1459.9	252.1	6.3	6.9	8.9	1450.1	14.5	-152.9
8/15/2012	2221.0	6.8	229.7	236.4	44.5	3.0	1334.7	272.6	6.3	6.9	8.9	1131.2	11.3	-30.5
8/16/2012	1853.4	2.6	916.4	18.1	44.5	3.0	1471.7	229.9	6.3	6.9	8.9	402.1	4.0	708.2
8/17/2012	1778.0	4.5	847.4	18.5	44.5	3.0	1280.1	192.5	6.3	6.9	8.9	370.3	3.7	827.3
8/18/2012	1776.0	3.3	847.3	18.7	44.5	3.0	1236.4	181.1	6.3	6.9	8.9	380.3	3.8	869.1
8/19/2012	1776.0	3.4	518.1	18.4	44.5	3.0	1225.8	180.0	6.3	6.9	8.9	391.1	3.9	540.5
8/20/2012	1775.2	8.3	0.0	18.3	44.5	3.0	1219.2	180.0	6.3	6.9	8.9	397.4	4.0	26.7
8/21/2012	1766.5	1.8	0.0	18.4	44.5	3.0	1279.6	180.0	6.3	6.9	8.9	328.5	3.3	20.7
8/22/2012	1765.9	7.1	0.0	17.8	44.5	3.0	1324.2	179.5	6.3	6.9	8.9	279.8	2.8	29.9
8/23/2012	1747.2	4.9	0.0	17.1	44.5	3.0	1284.6	179.4	6.3	6.9	8.9	319.3	3.2	8.3
8/24/2012	1584.7	3.7	0.0	16.3	44.5	3.0	1200.6	178.8	6.3	6.9	8.9	319.9	3.2	-72.3
8/25/2012	1388.0	5.8	0.0	17.3	44.5	3.0	1038.0	169.8	6.3	6.9	8.9	320.2	3.2	-94.6

Table F2-2: RGCP Channel Water Budget Equation Analysis Segment 2 Baseline 2012 (Units = Acre-Feet)

	Segment 2 - Leasburg Metering Station 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
8/26/2012	1382.0	2.8	0.0	17.3	44.5	3.0	950.0	156.2	6.3	6.9	8.9	292.0	2.9	26.4
8/27/2012	1382.6	5.8	0.0	17.1	44.5	3.0	959.0	152.2	6.3	6.9	8.9	289.8	2.9	27.1
8/28/2012	1381.1	2.8	0.0	16.8	44.5	3.0	895.0	152.4	6.3	6.9	8.9	358.0	3.6	17.4
8/29/2012	1328.8	1.2	0.0	16.7	44.5	3.0	857.9	152.3	6.3	6.9	8.9	373.8	3.7	-15.6
8/30/2012	1290.7	4.9	0.0	16.4	44.5	3.0	784.3	149.4	6.3	6.9	8.9	401.8	4.0	-2.0
8/31/2012	1301.2	3.8	0.0	16.1	44.5	3.0	758.2	146.1	6.3	6.9	8.9	407.0	4.1	31.1
9/1/2012	1309.4	0.9	0.0	15.7	44.5	3.0	775.5	145.9	6.3	5.5	8.9	400.6	4.0	26.7
9/2/2012	1317.1	4.8	0.0	15.6	44.5	3.0	787.0	146.7	6.3	5.5	8.9	396.1	4.0	30.5
9/3/2012	1321.0	2.8	0.0	15.7	44.5	3.0	796.3	147.3	6.3	5.5	8.9	393.9	3.9	24.8
9/4/2012	1176.1	4.8	0.0	15.7	44.5	3.0	810.5	147.7	6.3	5.5	8.9	333.8	3.3	-71.9
9/5/2012	1048.3	4.1	185.2	15.5	44.5	3.0	892.9	139.8	6.3	5.5	8.9	105.2	1.1	140.9
9/6/2012	1027.0	5.3	219.5	14.2	44.5	3.0	909.1	128.8	6.3	5.5	8.9	5.5	0.1	249.4
9/7/2012	1020.7	5.6	208.2	13.2	44.5	3.0	892.7	124.0	6.3	5.5	8.9	24.0	0.2	233.6
9/8/2012	1013.1	2.0	0.0	14.1	44.5	3.0	677.6	123.7	6.3	5.5	8.9	246.9	2.5	5.4
9/9/2012	1000.9	2.1	0.0	14.2	44.5	3.0	507.5	123.0	6.3	5.5	8.9	410.8	4.1	-1.4
9/10/2012	987.7	2.4	0.0	13.8	44.5	3.0	278.3	122.1	6.3	5.5	8.9	631.5	6.3	-7.4
9/11/2012	973.0	3.2	0.0	12.8	44.5	3.0	225.1	120.9	6.3	5.5	8.9	675.5	6.8	-12.6
9/12/2012	959.8	5.8	0.0	10.5	44.5	3.0	538.8	119.6	6.3	5.5	8.9	295.7	3.0	45.7
9/13/2012	940.8	3.0	246.9	8.5	44.5	3.0	829.9	118.4	6.3	5.5	8.9	0.0	0.0	277.7
9/14/2012	708.5	3.3	667.7	9.7	44.5	3.0	798.9	116.9	6.3	5.5	8.9	0.0	0.0	500.2

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

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

- Sum of Inflow
- Sum of Outflow
- $\Delta Sic$  - Change in Channel Storage

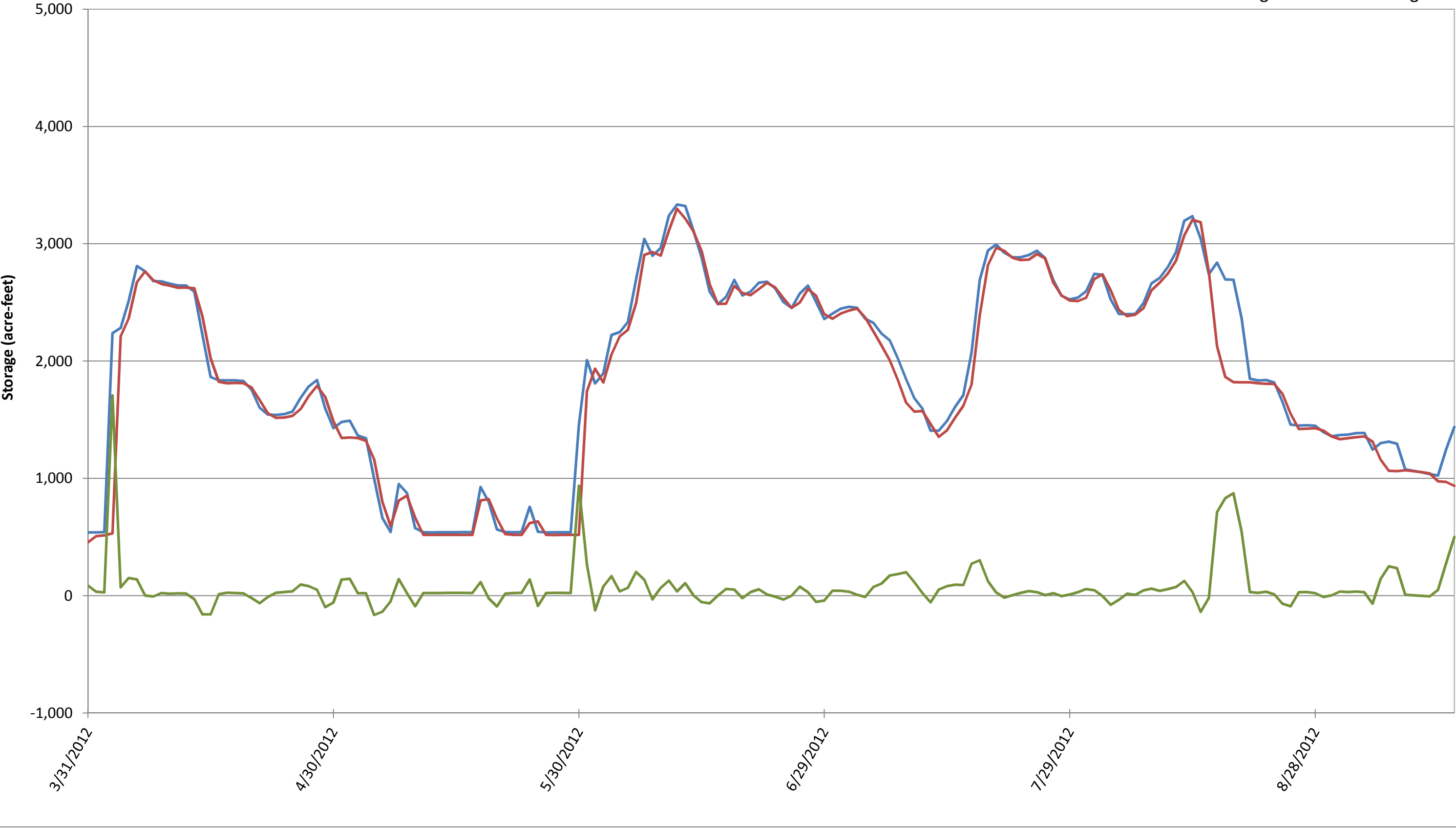


Table F2-3: RGCP Channel Water Budget Equation Analysis Segment 3 Baseline 2012 (Units = Acre-Feet)

	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	425.5	0.1	0.0	0.8	2.9	0.0	383.2	10.9	11.8	2.7	8.4	0.0	0.0	12.3
4/1/2012	425.4	0.1	0.0	0.8	2.9	0.0	383.1	28.4	11.8	5.9	8.4	0.0	0.0	-8.3
4/2/2012	425.4	0.5	0.0	0.8	2.9	0.0	383.1	47.8	11.8	5.9	8.4	0.0	0.0	-27.4
4/3/2012	442.5	0.4	0.0	0.9	2.9	0.0	383.2	52.9	11.8	5.9	8.4	0.0	0.0	-15.5
4/4/2012	2003.6	0.5	0.0	0.8	2.9	0.0	1873.9	53.8	11.8	5.9	8.4	0.0	0.0	54.2
4/5/2012	2133.9	0.7	0.0	4.4	2.9	0.0	1937.3	158.0	11.8	5.9	8.4	0.0	0.0	20.6
4/6/2012	2431.4	0.8	0.0	61.8	2.9	0.0	2232.9	162.9	11.8	5.9	8.4	0.0	0.0	75.1
4/7/2012	2505.0	0.1	0.0	85.5	2.9	0.0	2449.6	176.0	11.8	5.9	8.4	0.0	0.0	-58.1
4/8/2012	2430.5	0.0	0.0	90.5	2.9	0.0	2401.9	181.9	11.8	5.9	8.4	0.0	0.0	-85.9
4/9/2012	2402.7	0.0	0.0	101.5	2.9	0.0	2358.0	178.9	11.8	5.9	8.4	0.0	0.0	-55.7
4/10/2012	2390.3	0.0	0.0	111.7	2.9	0.0	2361.5	177.1	11.8	5.9	8.4	0.0	0.0	-59.8
4/11/2012	2372.2	0.6	0.0	110.7	2.9	0.0	2344.6	176.6	11.8	5.9	8.4	0.0	0.0	-60.8
4/12/2012	2161.1	0.7	0.0	108.1	2.9	0.0	2200.7	167.6	11.8	5.9	8.4	0.0	0.0	-121.5
4/13/2012	2112.1	0.1	0.0	97.7	2.9	0.0	2091.4	163.6	11.8	5.9	8.4	0.0	0.0	-68.2
4/14/2012	1909.7	0.1	0.0	99.5	2.9	0.0	1983.0	164.7	11.8	5.9	8.4	0.0	0.0	-161.5
4/15/2012	1555.2	0.9	21.6	50.7	2.9	0.0	1630.5	155.5	11.8	5.9	8.4	0.0	0.0	-180.7
4/16/2012	1413.6	0.2	0.0	42.5	2.9	0.0	1351.8	139.5	11.8	5.9	8.4	0.0	0.0	-58.1
4/17/2012	1417.4	0.1	0.0	50.7	2.9	0.0	1358.7	127.7	11.8	5.9	8.4	0.0	0.0	-41.3
4/18/2012	1372.6	0.1	0.0	51.0	2.9	0.0	1339.3	125.1	11.8	5.9	8.4	0.0	0.0	-63.8
4/19/2012	1351.5	0.1	0.0	48.7	2.9	0.0	1307.2	123.6	11.8	5.9	8.4	0.0	0.0	-53.7
4/20/2012	1337.5	0.0	0.0	48.3	2.9	0.0	1301.1	124.3	11.8	5.9	8.4	0.0	0.0	-62.7
4/21/2012	1235.2	0.0	0.0	42.2	2.9	0.0	1236.1	123.4	11.8	5.9	8.4	0.0	0.0	-105.1
4/22/2012	1131.7	0.6	0.0	33.3	2.9	0.0	1101.9	118.1	11.8	5.9	8.4	0.0	0.0	-77.5
4/23/2012	1097.4	0.5	0.0	29.6	2.9	0.0	1044.6	110.9	11.8	5.9	8.4	0.0	0.0	-51.1
4/24/2012	1102.1	0.4	0.0	29.5	2.9	0.0	1039.9	108.2	11.8	5.9	8.4	0.0	0.0	-39.2
4/25/2012	1067.9	0.3	0.0	27.1	2.9	0.0	1022.8	106.0	11.8	5.9	8.4	0.0	0.0	-56.7
4/26/2012	1096.7	0.2	0.0	25.8	2.9	0.0	1002.8	104.4	11.8	5.9	8.4	0.0	0.0	-7.6
4/27/2012	1201.6	0.5	0.0	34.6	2.9	0.0	1102.5	106.4	11.8	5.9	8.4	0.0	0.0	4.6
4/28/2012	1284.3	0.0	0.0	36.6	2.9	0.0	1193.5	111.8	11.8	5.9	8.4	0.0	0.0	-7.4
4/29/2012	1312.5	0.1	0.0	29.3	2.9	0.0	1283.6	118.8	11.8	5.9	8.4	0.0	0.0	-83.7
4/30/2012	1112.2	0.3	0.0	33.7	2.9	0.0	1130.8	120.6	11.8	5.9	8.4	0.0	0.0	-128.4
5/1/2012	1165.9	0.0	0.0	30.2	2.9	0.0	1049.8	119.7	11.8	9.3	8.4	0.0	0.0	0.2
5/2/2012	1175.8	1.1	0.0	28.0	2.9	0.0	1109.4	113.2	11.8	9.3	8.4	0.0	0.0	-44.2
5/3/2012	1174.0	0.9	0.0	27.4	2.9	0.0	1115.8	112.3	11.8	9.3	8.4	0.0	0.0	-52.4
5/4/2012	1151.7	0.2	0.0	27.3	2.9	0.0	1096.1	110.1	11.8	9.3	8.4	0.0	0.0	-53.5
5/5/2012	991.6	0.3	47.4	27.5	2.9	0.0	1069.3	110.0	11.8	9.3	8.4	0.0	0.0	-139.1
5/6/2012	658.4	0.3	76.9	6.0	2.9	0.0	744.2	106.1	11.8	9.3	8.4	0.0	0.0	-135.2
5/7/2012	482.6	0.7	39.0	0.3	2.9	0.0	524.8	80.6	11.8	9.3	8.4	0.0	0.0	-109.2
5/8/2012	676.2	0.0	0.0	0.8	2.9	0.0	422.0	67.0	11.8	9.3	8.4	0.0	0.0	161.5
5/9/2012	723.6	0.0	0.0	0.9	2.9	0.0	721.8	83.9	11.8	9.3	8.4	0.0	0.0	-107.8
5/10/2012	572.7	0.0	79.7	0.9	2.9	0.0	656.1	77.1	11.8	9.3	8.4	0.0	0.0	-106.5
5/11/2012	425.3	0.4	0.0	0.8	2.9	0.0	418.5	53.5	11.8	9.3	8.4	0.0	0.0	-72.0
5/12/2012	425.4	0.0	0.0	0.8	2.9	0.0	382.9	53.1	11.8	9.3	8.4	0.0	0.0	-36.3
5/13/2012	425.4	0.1	0.0	0.8	2.9	0.0	383.1	52.8	11.8	9.3	8.4	0.0	0.0	-36.1
5/14/2012	425.5	0.6	0.0	0.8	2.9	0.0	383.1	52.7	11.8	9.3	8.4	0.0	0.0	-35.4
5/15/2012	425.4	0.7	0.0	0.8	2.9	0.0	383.2	52.7	11.8	9.3	8.4	0.0	0.0	-35.4

Table F2-3: RGCP Channel Water Budget Equation Analysis Segment 3 Baseline 2012 (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	425.5	1.1	0.0	0.8	2.9	0.0	383.2	52.7	11.8	9.3	8.4	0.0	0.0	-34.9
5/17/2012	425.4	0.3	0.0	0.8	2.9	0.0	383.2	52.7	11.8	9.3	8.4	0.0	0.0	-36.0
5/18/2012	673.6	0.3	0.0	0.8	2.9	0.0	388.1	58.7	11.8	9.3	8.4	0.0	0.0	201.5
5/19/2012	692.4	0.0	22.1	0.8	2.9	0.0	718.2	84.4	11.8	9.3	8.4	0.0	0.0	-113.8
5/20/2012	561.5	0.3	32.8	0.8	2.9	0.0	597.9	76.8	11.8	9.3	8.4	0.0	0.0	-105.9
5/21/2012	431.9	1.0	0.0	0.8	2.9	0.0	430.0	55.3	11.8	9.3	8.4	0.0	0.0	-78.2
5/22/2012	425.3	0.1	0.0	0.8	2.9	0.0	386.3	53.4	11.8	9.3	8.4	0.0	0.0	-40.0
5/23/2012	425.5	0.8	0.0	0.8	2.9	0.0	383.1	52.7	11.8	9.3	8.4	0.0	0.0	-35.2
5/24/2012	501.7	0.2	0.0	0.7	2.9	0.0	383.2	54.4	11.8	9.3	8.4	0.0	0.0	38.5
5/25/2012	539.8	1.0	10.6	0.8	2.9	0.0	554.1	70.2	11.8	9.3	8.4	0.0	0.0	-98.5
5/26/2012	425.5	0.1	0.0	0.8	2.9	0.0	413.8	53.4	11.8	9.3	8.4	0.0	0.0	-67.4
5/27/2012	424.8	0.6	0.0	0.8	2.9	0.0	382.6	52.5	11.8	9.3	8.4	0.0	0.0	-35.5
5/28/2012	425.3	0.6	0.0	0.8	2.9	0.0	382.8	52.7	11.8	9.3	8.4	0.0	0.0	-35.3
5/29/2012	425.5	0.3	0.0	0.8	2.9	0.0	383.2	52.7	11.8	9.3	8.4	0.0	0.0	-35.9
5/30/2012	425.4	0.0	0.0	0.8	2.9	0.0	383.2	52.7	11.8	9.3	8.4	0.0	0.0	-36.2
5/31/2012	1473.8	0.7	0.0	0.8	2.9	0.0	366.8	48.7	11.8	9.3	8.4	0.0	0.0	1033.3
6/1/2012	789.9	0.4	315.0	0.8	2.9	0.0	1108.5	64.6	11.8	9.5	8.4	0.0	0.0	-93.9
6/2/2012	630.9	0.3	0.0	0.8	2.9	0.0	587.0	79.9	11.8	9.5	8.4	0.0	0.0	-61.8
6/3/2012	772.2	0.6	0.0	0.8	2.9	0.0	568.9	49.7	11.8	9.5	8.4	0.0	0.0	128.3
6/4/2012	957.5	0.3	0.0	0.8	2.9	0.0	842.1	76.0	11.8	9.5	8.4	0.0	0.0	13.6
6/5/2012	767.0	0.2	26.0	0.8	2.9	0.0	796.7	87.5	11.8	9.5	8.4	0.0	0.0	-117.0
6/6/2012	865.9	0.7	0.0	1.2	2.9	0.0	687.5	76.3	11.8	9.5	8.4	0.0	0.0	77.3
6/7/2012	1247.2	1.6	0.0	14.5	2.9	0.0	991.4	90.2	11.8	9.5	8.4	0.0	0.0	155.0
6/8/2012	1289.3	0.7	0.0	20.3	2.9	0.0	1263.2	114.0	11.8	9.5	8.4	0.0	0.0	-93.7
6/9/2012	1280.5	0.2	0.0	11.1	2.9	0.0	1168.0	109.5	11.8	9.5	8.4	0.0	0.0	-12.5
6/10/2012	1533.2	2.2	0.0	38.4	2.9	0.0	1323.5	116.5	11.8	9.5	8.4	0.0	0.0	107.1
6/11/2012	1726.3	0.4	0.0	60.7	2.9	0.0	1613.7	139.0	11.8	9.5	8.4	0.0	0.0	8.0
6/12/2012	1944.8	0.6	0.0	69.1	2.9	0.0	1839.7	158.6	11.8	9.5	8.4	0.0	0.0	-10.5
6/13/2012	1746.5	0.1	0.0	74.9	2.9	0.0	1772.8	152.4	11.8	9.5	8.4	0.0	0.0	-130.4
6/14/2012	1579.6	1.2	0.0	74.0	2.9	0.0	1600.5	145.2	11.8	9.5	8.4	0.0	0.0	-117.6
6/15/2012	1305.6	2.0	27.5	47.9	2.9	0.0	1383.9	136.8	11.8	9.5	8.4	0.0	0.0	-164.4
6/16/2012	1028.3	1.2	0.0	34.4	2.9	0.0	1063.5	114.8	11.8	9.5	8.4	0.0	0.0	-141.2
6/17/2012	1036.0	1.6	0.0	42.5	2.9	0.0	972.7	101.8	11.8	9.5	8.4	0.0	0.0	-21.1
6/18/2012	1222.2	2.9	0.0	32.8	2.9	0.0	1057.3	109.9	11.8	9.5	8.4	0.0	0.0	64.0
6/19/2012	1288.4	0.9	0.0	31.7	2.9	0.0	1233.9	124.7	11.8	9.5	8.4	0.0	0.0	-64.4
6/20/2012	1253.4	1.0	0.0	30.3	2.9	0.0	1184.8	122.5	11.8	9.5	8.4	0.0	0.0	-49.5
6/21/2012	1334.4	0.4	0.0	34.1	2.9	0.0	1228.5	120.7	11.8	9.5	8.4	0.0	0.0	-7.0
6/22/2012	1347.5	0.3	0.0	29.8	2.9	0.0	1282.8	120.9	11.8	9.5	8.4	0.0	0.0	-52.9
6/23/2012	1246.0	1.0	0.0	32.5	2.9	0.0	1227.7	117.0	11.8	9.5	8.4	0.0	0.0	-91.9
6/24/2012	1107.1	1.1	0.0	28.3	2.9	0.0	1116.8	111.2	11.8	9.5	8.4	0.0	0.0	-118.2
6/25/2012	1019.4	0.6	0.0	29.3	2.9	0.0	992.5	104.5	11.8	9.5	8.4	0.0	0.0	-74.3
6/26/2012	1057.1	0.6	0.0	27.4	2.9	0.0	950.4	101.4	11.8	9.5	8.4	0.0	0.0	6.4
6/27/2012	1108.0	2.4	0.0	31.6	2.9	0.0	1034.8	103.7	11.8	9.5	8.4	0.0	0.0	-23.2
6/28/2012	1079.3	1.7	0.0	29.8	2.9	0.0	1060.1	111.0	11.8	9.5	8.4	0.0	0.0	-87.0
6/29/2012	900.0	3.0	9.5	15.7	2.9	0.0	928.1	107.7	11.8	9.5	8.4	0.0	0.0	-134.3
6/30/2012	865.4	1.8	0.0	8.5	2.9	0.0	783.5	96.6	11.8	9.5	8.4	0.0	0.0	-31.1
7/1/2012	952.6	1.0	0.0	17.6	2.9	0.0	845.7	93.2	11.8	7.1	8.4	0.0	0.0	7.8
7/2/2012	1036.8	3.1	0.0	20.1	2.9	0.0	938.8	100.9	11.8	7.1	8.4	0.0	0.0	-4.0
7/3/2012	1090.8	0.8	0.0	25.1	2.9	0.0	1002.8	106.3	11.8	7.1	8.4	0.0	0.0	-16.8
7/4/2012	1097.6	1.3	0.0	32.9	2.9	0.0	1053.7	113.4	11.8	7.1	8.4	0.0	0.0	-59.5
7/5/2012	1103.9	3.2	0.0	36.4	2.9	0.0	1049.1	117.0	11.8	7.1	8.4	0.0	0.0	-46.9



Table F2-3: RGCP Channel Water Budget Equation Analysis Segment 3 Baseline 2012 (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
7/6/2012	1077.4	0.8	0.0	44.2	2.9	0.0	1050.3	115.6	11.8	7.1	8.4	0.0	0.0	-67.8
7/7/2012	1057.2	1.2	0.0	34.3	2.9	0.0	1011.4	115.0	11.8	7.1	8.4	0.0	0.0	-58.1
7/8/2012	985.4	1.4	0.0	67.6	2.9	0.0	1005.5	111.6	11.8	7.1	8.4	0.0	0.0	-87.0
7/9/2012	922.1	4.0	0.0	53.5	2.9	0.0	920.0	108.6	11.8	7.1	8.4	0.0	0.0	-73.4
7/10/2012	853.0	3.1	0.0	39.0	2.9	0.0	822.9	100.1	11.8	7.1	8.4	0.0	0.0	-52.3
7/11/2012	863.3	1.9	0.0	33.6	2.9	0.0	827.4	96.8	11.8	7.1	8.4	0.0	0.0	-49.7
7/12/2012	763.0	1.1	8.5	13.1	2.9	0.0	787.4	103.5	11.8	7.1	8.4	0.0	0.0	-129.5
7/13/2012	653.2	1.3	0.0	7.4	2.9	0.0	629.5	87.1	11.8	7.1	8.4	0.0	0.0	-78.9
7/14/2012	709.0	1.0	0.0	6.5	2.9	0.0	612.7	72.5	11.8	7.1	8.4	0.0	0.0	6.9
7/15/2012	695.0	2.2	0.0	3.1	2.9	0.0	640.1	68.3	11.8	7.1	8.4	0.0	0.0	-32.4
7/16/2012	787.4	1.3	0.0	6.6	2.9	0.0	676.6	75.7	11.8	7.1	8.4	0.0	0.0	18.6
7/17/2012	833.6	4.2	0.0	10.2	2.9	0.0	709.9	68.7	11.8	7.1	8.4	0.0	0.0	45.0
7/18/2012	1088.5	1.2	0.0	36.5	2.9	0.0	848.4	36.3	11.8	7.1	8.4	0.0	0.0	217.2
7/19/2012	1361.1	1.7	0.0	55.6	2.9	0.0	1252.4	86.1	11.8	7.1	8.4	0.0	0.0	55.6
7/20/2012	1257.4	1.6	0.0	43.7	2.9	0.0	1273.6	108.4	11.8	7.1	8.4	0.0	0.0	-103.6
7/21/2012	1196.4	3.2	0.0	36.5	2.9	0.0	1177.1	112.1	11.8	7.1	8.4	0.0	0.0	-77.5
7/22/2012	1083.1	1.3	0.0	34.9	2.9	0.0	1068.1	108.8	11.8	7.1	8.4	0.0	0.0	-81.8
7/23/2012	1090.0	3.0	0.0	35.9	2.9	0.0	1030.0	108.1	11.8	7.1	8.4	0.0	0.0	-33.5
7/24/2012	1244.9	1.0	0.0	41.3	2.9	0.0	1122.6	114.0	11.8	7.1	8.4	0.0	0.0	26.2
7/25/2012	1370.7	1.3	0.0	63.2	2.9	0.0	1275.7	120.2	11.8	7.1	8.4	0.0	0.0	15.0
7/26/2012	1339.9	3.0	0.0	62.1	2.9	0.0	1329.5	123.8	11.8	7.1	8.4	0.0	0.0	-72.6
7/27/2012	1179.5	1.3	0.0	56.2	2.9	0.0	1222.6	120.3	11.8	7.1	8.4	0.0	0.0	-130.3
7/28/2012	1057.7	2.1	0.0	48.8	2.9	0.0	1050.9	110.9	11.8	7.1	8.4	0.0	0.0	-77.5
7/29/2012	1004.6	4.4	0.0	46.3	2.9	0.0	989.8	106.2	11.8	7.1	8.4	0.0	0.0	-65.1
7/30/2012	1007.7	1.9	0.0	38.1	2.9	0.0	954.9	105.9	11.8	7.1	8.4	0.0	0.0	-37.4
7/31/2012	1048.9	0.8	0.0	32.6	2.9	0.0	975.8	102.8	11.8	7.1	8.4	0.0	0.0	-20.6
8/1/2012	1143.0	4.4	0.0	38.1	2.9	0.0	1032.9	99.8	11.8	6.7	8.4	0.0	0.0	29.0
8/2/2012	1204.6	4.2	0.0	50.1	2.9	0.0	1150.3	107.7	11.8	6.7	8.4	0.0	0.0	-22.9
8/3/2012	1042.2	3.1	4.6	35.5	2.9	0.0	1085.1	112.2	11.8	6.7	8.4	0.0	0.0	-135.9
8/4/2012	871.3	1.2	0.0	18.0	2.9	0.0	883.1	105.8	11.8	6.7	8.4	0.0	0.0	-122.3
8/5/2012	787.8	2.7	0.0	14.8	2.9	0.0	756.9	94.3	11.8	6.7	8.4	0.0	0.0	-69.9
8/6/2012	808.5	2.4	0.0	12.9	2.9	0.0	739.7	89.4	11.8	6.7	8.4	0.0	0.0	-29.2
8/7/2012	920.1	3.0	0.0	13.0	2.9	0.0	785.2	91.2	11.8	6.7	8.4	0.0	0.0	35.8
8/8/2012	1085.9	0.9	0.0	28.5	2.9	0.0	937.5	95.3	11.8	6.7	8.4	0.0	0.0	58.7
8/9/2012	1131.5	3.2	0.0	38.6	2.9	0.0	1080.1	99.9	11.8	6.7	8.4	0.0	0.0	-30.6
8/10/2012	1104.2	2.3	0.0	26.2	2.9	0.0	1053.2	99.2	11.8	6.7	8.4	0.0	0.0	-43.6
8/11/2012	1205.9	3.2	0.0	19.3	2.9	0.0	1077.7	101.7	11.8	6.7	8.4	0.0	0.0	25.1
8/12/2012	1447.4	4.2	0.0	43.4	2.9	0.0	1275.6	109.3	11.8	6.7	8.4	0.0	0.0	86.1
8/13/2012	1522.0	2.8	0.0	43.0	2.9	0.0	1451.3	119.3	11.8	6.7	8.4	0.0	0.0	-26.8
8/14/2012	1459.9	6.8	0.0	41.5	2.9	0.0	1428.1	122.2	11.8	6.7	8.4	0.0	0.0	-66.0
8/15/2012	1334.7	4.3	0.0	38.7	2.9	0.0	1344.7	149.5	11.8	6.7	8.4	0.0	0.0	-140.3
8/16/2012	1471.7	1.6	0.0	61.8	2.9	0.0	1372.9	165.7	11.8	6.7	8.4	0.0	0.0	-27.5
8/17/2012	1280.1	2.9	0.0	68.0	2.9	0.0	1267.0	140.4	11.8	6.7	8.4	0.0	0.0	-80.3
8/18/2012	1236.4	2.1	0.0	61.3	2.9	0.0	1208.5	118.7	11.8	6.7	8.4	0.0	0.0	-51.4
8/19/2012	1225.8	2.2	0.0	58.3	2.9	0.0	1193.6	115.1	11.8	6.7	8.4	0.0	0.0	-46.4
8/20/2012	1219.2	5.3	0.0	61.7	2.9	0.0	1187.7	114.7	11.8	6.7	8.4	0.0	0.0	-40.1
8/21/2012	1279.6	1.1	0.0	62.4	2.9	0.0	1220.6	117.7	11.8	6.7	8.4	0.0	0.0	-19.0
8/22/2012	1324.2	4.5	0.0	65.1	2.9	0.0	1270.7	120.7	11.8	6.7	8.4	0.0	0.0	-21.4
8/23/2012	1284.6	3.2	0.0	58.2	2.9	0.0	1263.9	119.2	11.8	6.7	8.4	0.0	0.0	-61.1
8/24/2012	1200.6	2.3	0.0	64.9	2.9	0.0	1226.5	118.5	11.8	6.7	8.4	0.0	0.0	-101.0
8/25/2012	1038.0	3.7	0.0	49.6	2.9	0.0	1076.0	115.2	11.8	6.7	8.4	0.0	0.0	-123.9



Table F2-3: RGCP Channel Water Budget Equation Analysis Segment 3 Baseline 2012 (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	950.0	1.8	0.0	32.4	2.9	0.0	914.3	106.9	11.8	6.7	8.4	0.0	0.0	-60.9
8/27/2012	959.0	3.7	0.0	34.6	2.9	0.0	910.0	97.8	11.8	6.7	8.4	0.0	0.0	-34.4
8/28/2012	895.0	1.8	0.0	29.3	2.9	0.0	879.2	94.4	11.8	6.7	8.4	0.0	0.0	-71.5
8/29/2012	857.9	0.8	0.0	28.2	2.9	0.0	835.3	92.2	11.8	6.7	8.4	0.0	0.0	-64.5
8/30/2012	784.3	3.1	0.0	20.9	2.9	0.0	771.4	89.7	11.8	6.7	8.4	0.0	0.0	-76.8
8/31/2012	758.2	2.4	0.0	17.2	2.9	0.0	713.9	85.3	11.8	6.7	8.4	0.0	0.0	-45.2
9/1/2012	775.5	0.6	0.0	17.2	2.9	0.0	714.6	83.2	11.8	5.4	8.4	0.0	0.0	-27.0
9/2/2012	787.0	3.1	0.0	16.6	2.9	0.0	727.4	84.4	11.8	5.4	8.4	0.0	0.0	-27.8
9/3/2012	796.3	1.8	0.0	16.7	2.9	0.0	737.4	85.2	11.8	5.4	8.4	0.0	0.0	-30.4
9/4/2012	810.5	3.1	0.0	17.1	2.9	0.0	767.5	89.1	11.8	5.4	8.4	0.0	0.0	-48.5
9/5/2012	892.9	2.6	0.0	20.6	2.9	0.0	788.2	101.0	11.8	5.4	8.4	0.0	0.0	4.3
9/6/2012	909.1	3.4	0.0	24.8	2.9	0.0	842.9	101.1	11.8	5.4	8.4	0.0	0.0	-29.2
9/7/2012	892.7	3.6	0.0	23.6	2.9	0.0	849.3	94.9	11.8	5.4	8.4	0.0	0.0	-46.9
9/8/2012	677.6	1.3	43.9	33.4	2.9	0.0	757.8	81.5	11.8	5.4	8.4	0.0	0.0	-105.7
9/9/2012	507.5	1.3	37.7	43.5	2.9	0.0	591.5	66.1	11.8	5.4	8.4	0.0	0.0	-90.2
9/10/2012	278.3	1.6	138.6	28.2	2.9	0.0	448.0	45.8	11.8	5.4	8.4	0.0	0.0	-69.8
9/11/2012	225.1	2.0	3.8	24.3	2.9	0.0	256.1	31.8	11.8	5.4	8.4	0.0	0.0	-55.3
9/12/2012	538.8	3.7	0.0	20.3	2.9	0.0	247.8	51.0	11.8	5.4	8.4	0.0	0.0	241.5
9/13/2012	829.9	1.9	0.0	17.1	2.9	0.0	616.7	84.3	11.8	5.4	8.4	0.0	0.0	125.3
9/14/2012	798.9	2.1	0.0	16.4	2.9	0.0	780.8	90.5	11.8	5.4	8.4	0.0	0.0	-76.5

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

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

- Sum of Inflow
- Sum of Outflow
- $\Delta Sic$  - Change in Channel Storage

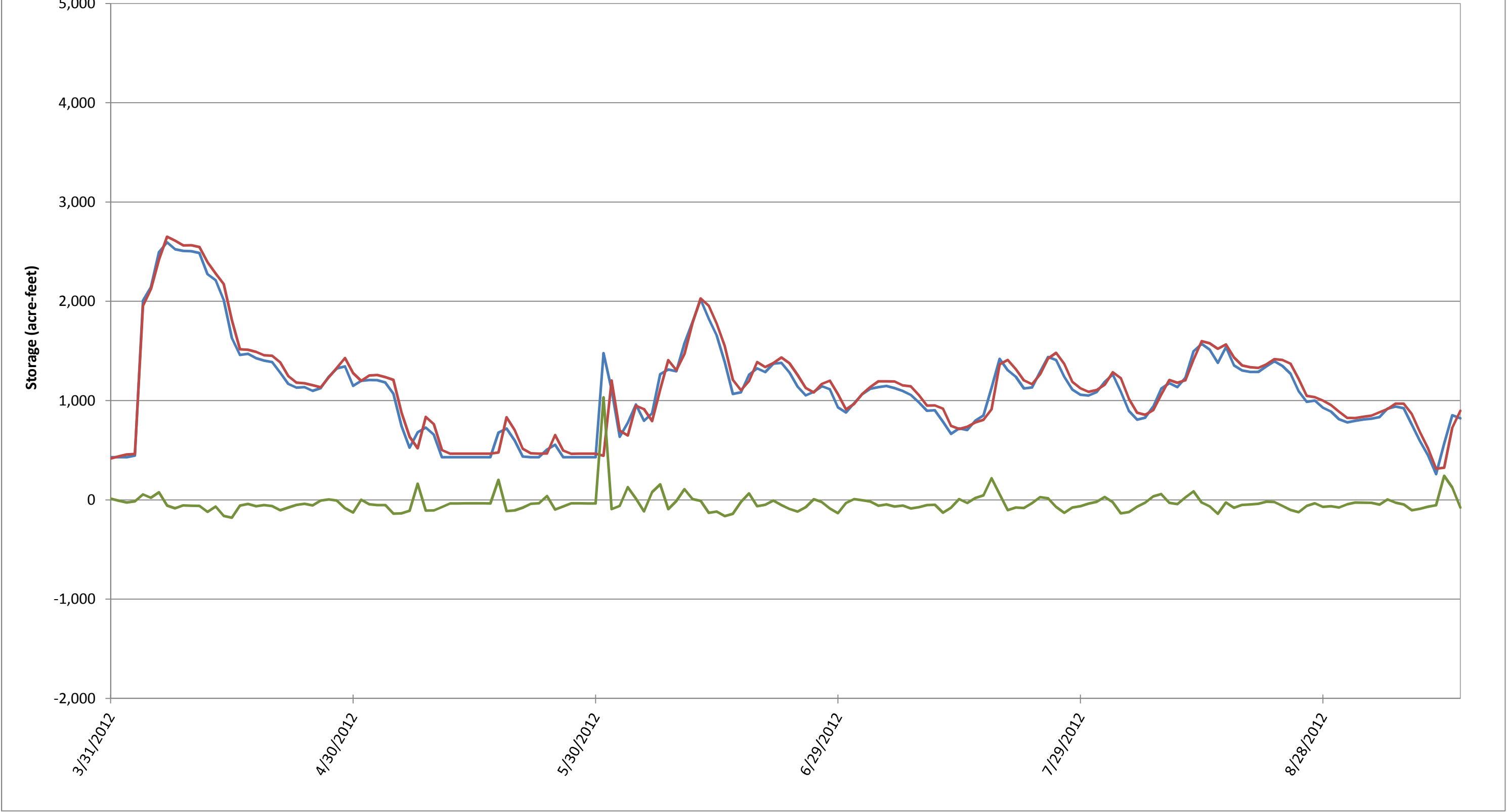


Table F2-4: RGCP Channel Water Budget Equation Analysis Segment 4 Baseline 2012 (Units = Acre-Feet)

	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, Above 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	383.2	0.1	0.0	17.6	33.0	0.0	353.9	9.4	6.4	2.6	7.2	0.0	0.0	54.4
4/1/2012	383.1	0.2	0.0	17.8	33.0	0.0	354.1	15.1	6.4	5.6	7.2	0.0	0.0	45.7
4/2/2012	383.1	0.2	0.0	18.5	33.0	0.0	354.7	25.8	6.4	5.6	7.2	0.0	0.0	35.1
4/3/2012	383.2	0.1	0.0	18.5	33.0	0.0	354.9	42.6	6.4	5.6	7.2	0.0	0.0	18.1
4/4/2012	1873.9	0.3	0.0	18.9	33.0	0.0	355.0	45.6	6.4	5.6	7.2	0.0	0.0	1506.1
4/5/2012	1937.3	0.9	0.0	19.5	33.0	0.0	1746.1	117.5	6.4	5.6	7.2	0.0	0.0	107.7
4/6/2012	2232.9	0.6	0.0	19.6	33.0	0.0	1939.6	153.6	6.4	5.6	7.2	0.0	0.0	173.7
4/7/2012	2449.6	0.3	0.0	19.9	33.0	0.0	2265.1	164.1	6.4	5.6	7.2	0.0	0.0	54.2
4/8/2012	2401.9	0.0	0.0	20.2	33.0	0.0	2272.8	176.5	6.4	5.6	7.2	0.0	0.0	-13.5
4/9/2012	2358.0	0.0	0.0	18.7	33.0	0.0	2203.0	174.7	6.4	5.6	7.2	0.0	0.0	12.6
4/10/2012	2361.5	0.4	0.0	16.2	33.0	0.0	2202.8	171.4	6.4	5.6	7.2	0.0	0.0	17.8
4/11/2012	2344.6	1.0	0.0	16.3	33.0	0.0	2192.2	171.2	6.4	5.6	7.2	0.0	0.0	12.4
4/12/2012	2200.7	0.3	0.0	16.1	33.0	0.0	2131.2	166.1	6.4	5.6	7.2	0.0	0.0	-66.4
4/13/2012	2091.4	0.2	0.0	16.3	33.0	0.0	1963.4	158.8	6.4	5.6	7.2	0.0	0.0	-0.5
4/14/2012	1983.0	0.7	0.0	16.5	33.0	0.0	1924.3	158.3	6.4	5.6	7.2	0.0	0.0	-68.7
4/15/2012	1630.5	0.2	0.0	15.9	33.0	0.0	1650.9	156.3	6.4	5.6	7.2	0.0	0.0	-146.9
4/16/2012	1351.8	0.1	0.0	15.9	33.0	0.0	1326.3	140.5	6.4	5.6	7.2	0.0	0.0	-85.4
4/17/2012	1358.7	0.2	0.0	16.2	33.0	0.0	1246.1	124.9	6.4	5.6	7.2	0.0	0.0	17.8
4/18/2012	1339.3	0.1	0.0	16.4	33.0	0.0	1250.4	121.1	6.4	5.6	7.2	0.0	0.0	-2.0
4/19/2012	1307.2	0.2	0.0	16.7	33.0	0.0	1211.0	118.8	6.4	5.6	7.2	0.0	0.0	8.2
4/20/2012	1301.1	0.2	0.0	16.9	33.0	0.0	1195.4	118.4	6.4	5.6	7.2	0.0	0.0	18.1
4/21/2012	1236.1	0.6	0.0	16.7	33.0	0.0	1172.4	119.1	6.4	5.6	7.2	0.0	0.0	-24.4
4/22/2012	1101.9	0.5	0.0	17.3	33.0	0.0	1071.3	115.9	6.4	5.6	7.2	0.0	0.0	-53.8
4/23/2012	1044.6	1.1	0.0	18.9	33.0	0.0	982.1	108.3	6.4	5.6	7.2	0.0	0.0	-12.1
4/24/2012	1039.9	1.3	0.0	21.3	33.0	0.0	954.1	103.5	6.4	5.6	7.2	0.0	0.0	18.5
4/25/2012	1022.8	0.1	0.0	17.6	33.0	0.0	954.2	101.7	6.4	5.6	7.2	0.0	0.0	-1.6
4/26/2012	1002.8	0.2	0.0	17.9	33.0	0.0	923.0	99.2	6.4	5.6	7.2	0.0	0.0	12.5
4/27/2012	1102.5	0.1	0.0	21.3	33.0	0.0	951.9	98.5	6.4	5.6	7.2	0.0	0.0	87.2
4/28/2012	1193.5	0.4	0.0	24.1	33.0	0.0	1060.8	104.2	6.4	5.6	7.2	0.0	0.0	66.6
4/29/2012	1283.6	0.2	0.0	19.5	33.0	0.0	1141.3	108.4	6.4	5.6	7.2	0.0	0.0	67.4
4/30/2012	1130.8	0.2	0.0	19.3	33.0	0.0	1125.5	117.1	6.4	5.6	7.2	0.0	0.0	-78.5
5/1/2012	1049.8	0.6	0.0	18.4	33.0	0.0	968.1	113.8	6.4	8.8	7.2	0.0	0.0	-2.6
5/2/2012	1109.4	0.5	0.0	18.5	33.0	0.0	1014.6	111.2	6.4	8.8	7.2	0.0	0.0	13.1
5/3/2012	1115.8	0.2	0.0	18.9	33.0	0.0	1020.8	107.2	6.4	8.8	7.2	0.0	0.0	17.5
5/4/2012	1096.1	0.4	0.0	18.9	33.0	0.0	1016.6	105.5	6.4	8.8	7.2	0.0	0.0	3.9
5/5/2012	1069.3	0.3	0.0	18.4	33.0	0.0	997.1	104.3	6.4	8.8	7.2	0.0	0.0	-2.7
5/6/2012	744.2	0.9	72.7	17.8	33.0	0.0	867.8	104.6	6.4	8.8	7.2	0.0	0.0	-126.2
5/7/2012	524.8	0.1	40.8	17.5	33.0	0.0	616.1	89.5	6.4	8.8	7.2	0.0	0.0	-111.9
5/8/2012	422.0	0.5	0.0	17.8	33.0	0.0	460.3	67.3	6.4	8.8	7.2	0.0	0.0	-76.8
5/9/2012	721.8	0.6	0.0	18.6	33.0	0.0	386.8	64.9	6.4	8.8	7.2	0.0	0.0	299.8
5/10/2012	656.1	0.4	0.0	18.6	33.0	0.0	643.7	74.3	6.4	8.8	7.2	0.0	0.0	-32.3
5/11/2012	418.5	0.2	119.8	18.2	33.0	0.0	589.5	61.4	6.4	8.8	7.2	0.0	0.0	-83.7
5/12/2012	382.9	0.1	0.0	18.1	33.0	0.0	374.2	45.9	6.4	8.8	7.2	0.0	0.0	-8.5
5/13/2012	383.1	0.2	0.0	18.0	33.0	0.0	354.2	45.9	6.4	8.8	7.2	0.0	0.0	11.7
5/14/2012	383.1	0.8	0.0	18.0	33.0	0.0	354.4	45.6	6.4	8.8	7.2	0.0	0.0	12.5
5/15/2012	383.2	0.8	0.0	17.5	33.0	0.0	354.1	45.6	6.4	8.8	7.2	0.0	0.0	12.5

Table F2-4: RGCP Channel Water Budget Equation Analysis Segment 4 Baseline 2012 (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, Above 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	383.2	0.7	0.0	17.0	33.0	0.0	353.5	45.6	6.4	8.8	7.2	0.0	0.0	12.4
5/17/2012	383.2	1.5	0.0	16.9	33.0	0.0	353.3	45.6	6.4	8.8	7.2	0.0	0.0	13.3
5/18/2012	388.1	1.0	0.0	16.7	33.0	0.0	353.2	45.7	6.4	8.8	7.2	0.0	0.0	17.4
5/19/2012	718.2	0.5	0.0	16.7	33.0	0.0	358.1	62.2	6.4	8.8	7.2	0.0	0.0	325.7
5/20/2012	597.9	1.2	0.0	16.7	33.0	0.0	631.6	74.4	6.4	8.8	7.2	0.0	0.0	-79.6
5/21/2012	430.0	0.4	58.1	16.6	33.0	0.0	537.7	61.3	6.4	8.8	7.2	0.0	0.0	-83.3
5/22/2012	386.3	1.5	0.0	16.6	33.0	0.0	384.4	47.5	6.4	8.8	7.2	0.0	0.0	-16.9
5/23/2012	383.1	1.1	0.0	16.8	33.0	0.0	354.7	46.0	6.4	8.8	7.2	0.0	0.0	10.9
5/24/2012	383.2	0.4	0.0	17.1	33.0	0.0	353.3	45.6	6.4	8.8	7.2	0.0	0.0	12.3
5/25/2012	554.1	0.1	0.0	16.8	33.0	0.0	353.4	50.8	6.4	8.8	7.2	0.0	0.0	177.3
5/26/2012	413.8	0.5	42.9	17.0	33.0	0.0	506.7	57.7	6.4	8.8	7.2	0.0	0.0	-79.6
5/27/2012	382.6	1.3	0.0	17.4	33.0	0.0	370.0	45.9	6.4	8.8	7.2	0.0	0.0	-4.1
5/28/2012	382.8	0.2	0.0	17.8	33.0	0.0	353.4	45.4	6.4	8.8	7.2	0.0	0.0	12.5
5/29/2012	383.2	0.4	0.0	17.0	33.0	0.0	353.3	45.6	6.4	8.8	7.2	0.0	0.0	12.3
5/30/2012	383.2	0.5	0.0	16.9	33.0	0.0	353.4	45.6	6.4	8.8	7.2	0.0	0.0	12.2
5/31/2012	366.8	0.5	0.0	16.7	33.0	0.0	353.2	45.4	6.4	8.8	7.2	0.0	0.0	-4.1
6/1/2012	1108.5	1.2	66.4	16.6	33.0	0.0	1224.6	43.4	6.4	9.1	7.2	0.0	0.0	-64.9
6/2/2012	587.0	1.3	127.1	16.4	33.0	0.0	763.5	66.8	6.4	9.1	7.2	0.0	0.0	-88.2
6/3/2012	568.9	0.6	0.0	16.5	33.0	0.0	522.9	63.4	6.4	9.1	7.2	0.0	0.0	10.0
6/4/2012	842.1	0.5	0.0	16.9	33.0	0.0	551.6	43.2	6.4	9.1	7.2	0.0	0.0	275.1
6/5/2012	796.7	0.4	0.0	16.6	33.0	0.0	793.9	79.2	6.4	9.1	7.2	0.0	0.0	-49.0
6/6/2012	687.5	0.3	0.0	16.6	33.0	0.0	677.6	75.3	6.4	9.1	7.2	0.0	0.0	-38.2
6/7/2012	991.4	0.8	0.0	19.3	33.0	0.0	679.8	66.7	6.4	9.1	7.2	0.0	0.0	275.2
6/8/2012	1263.2	0.9	0.0	20.7	33.0	0.0	1109.8	100.0	6.4	9.1	7.2	0.0	0.0	85.3
6/9/2012	1168.0	0.6	0.0	19.1	33.0	0.0	1099.5	108.8	6.4	9.1	7.2	0.0	0.0	-10.3
6/10/2012	1323.5	1.7	0.0	17.1	33.0	0.0	1115.8	101.0	6.4	9.1	7.2	0.0	0.0	135.8
6/11/2012	1613.7	0.7	0.0	19.0	33.0	0.0	1406.7	124.6	6.4	9.1	7.2	0.0	0.0	112.2
6/12/2012	1839.7	0.9	0.0	16.8	33.0	0.0	1617.5	146.9	6.4	9.1	7.2	0.0	0.0	103.3
6/13/2012	1772.8	1.1	0.0	17.0	33.0	0.0	1714.3	151.8	6.4	9.1	7.2	0.0	0.0	-64.9
6/14/2012	1600.5	1.0	0.0	17.6	33.0	0.0	1545.2	141.3	6.4	9.1	7.2	0.0	0.0	-57.2
6/15/2012	1383.9	1.1	0.0	17.8	33.0	0.0	1387.0	136.5	6.4	9.1	7.2	0.0	0.0	-110.3
6/16/2012	1063.5	1.6	0.0	18.0	33.0	0.0	1111.6	121.0	6.4	9.1	7.2	0.0	0.0	-139.2
6/17/2012	972.7	1.8	0.0	18.4	33.0	0.0	902.2	99.6	6.4	9.1	7.2	0.0	0.0	1.3
6/18/2012	1057.3	1.1	0.0	20.4	33.0	0.0	909.1	95.5	6.4	9.1	7.2	0.0	0.0	84.5
6/19/2012	1233.9	0.9	0.0	18.1	33.0	0.0	1087.7	114.6	6.4	9.1	7.2	0.0	0.0	60.9
6/20/2012	1184.8	1.8	0.0	16.8	33.0	0.0	1110.1	120.1	6.4	9.1	7.2	0.0	0.0	-16.5
6/21/2012	1228.5	0.8	0.0	16.8	33.0	0.0	1094.1	114.7	6.4	9.1	7.2	0.0	0.0	47.5
6/22/2012	1282.8	0.5	0.0	16.8	33.0	0.0	1170.0	115.9	6.4	9.1	7.2	0.0	0.0	24.5
6/23/2012	1227.7	1.1	0.0	16.7	33.0	0.0	1169.2	114.0	6.4	9.1	7.2	0.0	0.0	-27.4
6/24/2012	1116.8	0.8	0.0	16.7	33.0	0.0	1075.5	109.1	6.4	9.1	7.2	0.0	0.0	-39.9
6/25/2012	992.5	1.5	0.0	16.6	33.0	0.0	956.3	101.8	6.4	9.1	7.2	0.0	0.0	-37.2
6/26/2012	950.4	1.4	0.0	16.4	33.0	0.0	881.9	96.0	6.4	9.1	7.2	0.0	0.0	0.7
6/27/2012	1034.8	2.7	0.0	16.7	33.0	0.0	911.0	96.1	6.4	9.1	7.2	0.0	0.0	57.3
6/28/2012	1060.1	4.2	0.0	17.6	33.0	0.0	963.9	100.7	6.4	9.1	7.2	0.0	0.0	27.6
6/29/2012	928.1	3.8	0.0	16.8	33.0	0.0	930.9	106.6	6.4	9.1	7.2	0.0	0.0	-78.6
6/30/2012	783.5	1.8	0.0	16.4	33.0	0.0	781.9	96.7	6.4	9.1	7.2	0.0	0.0	-66.6
7/1/2012	845.7	3.8	0.0	16.3	33.0	0.0	723.0	86.0	6.4	6.8	7.2	0.0	0.0	69.4
7/2/2012	938.8	2.0	0.0	16.0	33.0	0.0	805.1	89.7	6.4	6.8	7.2	0.0	0.0	74.6
7/3/2012	1002.8	1.5	0.0	15.7	33.0	0.0	886.1	97.8	6.4	6.8	7.2	0.0	0.0	48.7
7/4/2012	1053.7	4.4	0.0	15.9	33.0	0.0	941.5	103.3	6.4	6.8	7.2	0.0	0.0	41.9
7/5/2012	1049.1	2.8	0.0	16.5	33.0	0.0	954.3	112.0	6.4	6.8	7.2	0.0	0.0	14.7

Table F2-4: RGCP Channel Water Budget Equation Analysis Segment 4 Baseline 2012 (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, Above 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	1050.3	3.8	0.0	16.9	33.0	0.0	963.3	109.8	6.4	6.8	7.2	0.0	0.0	10.6
7/7/2012	1011.4	2.2	0.0	17.1	33.0	0.0	944.2	110.4	6.4	6.8	7.2	0.0	0.0	-11.2
7/8/2012	1005.5	3.6	0.0	17.3	33.0	0.0	926.6	107.9	6.4	6.8	7.2	0.0	0.0	4.6
7/9/2012	920.0	2.6	0.0	17.9	33.0	0.0	887.0	104.3	6.4	6.8	7.2	0.0	0.0	-38.1
7/10/2012	822.9	2.4	0.0	17.4	33.0	0.0	818.6	100.0	6.4	6.8	7.2	0.0	0.0	-63.2
7/11/2012	827.4	2.1	0.0	17.5	33.0	0.0	743.0	89.0	6.4	6.8	7.2	0.0	0.0	27.7
7/12/2012	787.4	2.4	0.0	17.5	33.0	0.0	749.5	98.6	6.4	6.8	7.2	0.0	0.0	-28.2
7/13/2012	629.5	2.8	0.1	17.5	33.0	0.0	680.1	90.6	6.4	6.8	7.2	0.0	0.0	-108.2
7/14/2012	612.7	3.3	0.0	17.5	33.0	0.0	554.9	74.0	6.4	6.8	7.2	0.0	0.0	17.3
7/15/2012	640.1	3.3	0.0	17.4	33.0	0.0	571.1	62.9	6.4	6.8	7.2	0.0	0.0	39.5
7/16/2012	676.6	1.9	0.0	17.4	33.0	0.0	579.7	60.3	6.4	6.8	7.2	0.0	0.0	68.5
7/17/2012	709.9	2.7	0.0	16.4	33.0	0.0	637.0	68.8	6.4	6.8	7.2	0.0	0.0	35.9
7/18/2012	848.4	2.2	0.0	15.7	33.0	0.0	671.3	54.9	6.4	6.8	7.2	0.0	0.0	152.7
7/19/2012	1252.4	1.8	0.0	15.6	33.0	0.0	963.6	33.8	6.4	6.8	7.2	0.0	0.0	285.1
7/20/2012	1273.6	2.9	0.0	15.4	33.0	0.0	1210.1	96.3	6.4	6.8	7.2	0.0	0.0	-1.8
7/21/2012	1177.1	2.5	0.0	16.8	33.0	0.0	1099.4	104.9	6.4	6.8	7.2	0.0	0.0	4.7
7/22/2012	1068.1	2.8	0.0	17.5	33.0	0.0	1037.2	105.6	6.4	6.8	7.2	0.0	0.0	-41.7
7/23/2012	1030.0	3.0	0.0	17.1	33.0	0.0	944.7	102.1	6.4	6.8	7.2	0.0	0.0	16.0
7/24/2012	1122.6	3.1	0.0	17.3	33.0	0.0	953.4	104.4	6.4	6.8	7.2	0.0	0.0	97.8
7/25/2012	1275.7	1.4	0.0	17.1	33.0	0.0	1109.8	111.4	6.4	6.8	7.2	0.0	0.0	85.6
7/26/2012	1329.5	4.6	0.0	17.2	33.0	0.0	1233.4	117.4	6.4	6.8	7.2	0.0	0.0	13.1
7/27/2012	1222.6	3.2	0.0	17.0	33.0	0.0	1186.5	118.5	6.4	6.8	7.2	0.0	0.0	-49.5
7/28/2012	1050.9	3.4	0.0	17.3	33.0	0.0	1031.6	109.6	6.4	6.8	7.2	0.0	0.0	-57.0
7/29/2012	989.8	3.2	0.0	16.8	33.0	0.0	932.8	101.8	6.4	6.8	7.2	0.0	0.0	-12.0
7/30/2012	954.9	2.8	0.0	17.9	33.0	0.0	884.4	100.0	6.4	6.8	7.2	0.0	0.0	3.8
7/31/2012	975.8	2.1	0.0	17.3	33.0	0.0	877.9	99.6	6.4	6.8	7.2	0.0	0.0	30.3
8/1/2012	1032.9	4.1	0.0	17.4	33.0	0.0	910.8	93.7	6.4	6.4	7.2	0.0	0.0	62.8
8/2/2012	1150.3	3.3	0.0	17.3	33.0	0.0	1008.9	95.8	6.4	6.4	7.2	0.0	0.0	79.2
8/3/2012	1085.1	1.8	0.0	17.7	33.0	0.0	1060.2	106.3	6.4	6.4	7.2	0.0	0.0	-48.9
8/4/2012	883.1	3.2	0.0	20.7	33.0	0.0	909.6	105.2	6.4	6.4	7.2	0.0	0.0	-94.8
8/5/2012	756.9	2.3	0.0	19.5	33.0	0.0	762.2	94.3	6.4	6.4	7.2	0.0	0.0	-64.8
8/6/2012	739.7	2.8	0.0	19.7	33.0	0.0	679.3	84.4	6.4	6.4	7.2	0.0	0.0	11.6
8/7/2012	785.2	3.1	0.0	18.9	33.0	0.0	681.8	82.5	6.4	6.4	7.2	0.0	0.0	55.9
8/8/2012	937.5	2.6	0.0	18.7	33.0	0.0	765.6	85.3	6.4	6.4	7.2	0.0	0.0	120.8
8/9/2012	1080.1	2.0	0.0	18.2	33.0	0.0	940.5	91.2	6.4	6.4	7.2	0.0	0.0	81.5
8/10/2012	1053.2	3.4	0.0	18.7	33.0	0.0	985.1	94.1	6.4	6.4	7.2	0.0	0.0	9.1
8/11/2012	1077.7	3.2	0.0	19.3	33.0	0.0	956.3	93.1	6.4	6.4	7.2	0.0	0.0	63.9
8/12/2012	1275.6	5.4	0.0	22.9	33.0	0.0	1058.5	98.8	6.4	6.4	7.2	0.0	0.0	159.6
8/13/2012	1451.3	3.9	0.0	18.7	33.0	0.0	1309.6	107.8	6.4	6.4	7.2	0.0	0.0	69.5
8/14/2012	1428.1	3.7	0.0	18.7	33.0	0.0	1344.7	118.4	6.4	6.4	7.2	0.0	0.0	0.4
8/15/2012	1344.7	2.1	0.0	18.5	33.0	0.0	1298.3	124.4	6.4	6.4	7.2	0.0	0.0	-44.5
8/16/2012	1372.9	3.4	0.0	19.5	33.0	0.0	1195.4	162.3	6.4	6.4	7.2	0.0	0.0	51.1
8/17/2012	1267.0	3.1	0.0	18.8	33.0	0.0	1270.5	146.0	6.4	6.4	7.2	0.0	0.0	-114.5
8/18/2012	1208.5	2.7	0.0	21.8	33.0	0.0	1143.1	119.4	6.4	6.4	7.2	0.0	0.0	-16.4
8/19/2012	1193.6	5.0	0.0	21.1	33.0	0.0	1105.5	110.7	6.4	6.4	7.2	0.0	0.0	16.5
8/20/2012	1187.7	1.9	0.0	22.0	33.0	0.0	1095.9	109.3	6.4	6.4	7.2	0.0	0.0	19.4
8/21/2012	1220.6	1.5	0.0	21.5	33.0	0.0	1096.3	110.2	6.4	6.4	7.2	0.0	0.0	50.1
8/22/2012	1270.7	1.8	0.0	20.0	33.0	0.0	1151.4	114.0	6.4	6.4	7.2	0.0	0.0	40.0
8/23/2012	1263.9	3.8	0.0	19.4	33.0	0.0	1183.4	114.9	6.4	6.4	7.2	0.0	0.0	1.8
8/24/2012	1226.5	2.3	0.0	19.6	33.0	0.0	1145.8	113.2	6.4	6.4	7.2	0.0	0.0	2.4
8/25/2012	1076.0	1.0	0.0	19.9	33.0	0.0	1062.5	112.6	6.4	6.4	7.2	0.0	0.0	-65.2

Table F2-4: RGCP Channel Water Budget Equation Analysis Segment 4 Baseline 2012 (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, Above 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	914.3	2.5	0.0	19.6	33.0	0.0	917.5	105.7	6.4	6.4	7.2	0.0	0.0	-73.8
8/27/2012	910.0	0.9	0.0	19.8	33.0	0.0	824.7	96.1	6.4	6.4	7.2	0.0	0.0	22.8
8/28/2012	879.2	1.2	0.0	19.6	33.0	0.0	834.1	90.3	6.4	6.4	7.2	0.0	0.0	-11.4
8/29/2012	835.3	2.2	0.0	19.5	33.0	0.0	781.4	86.4	6.4	6.4	7.2	0.0	0.0	2.2
8/30/2012	771.4	1.3	0.0	19.3	33.0	0.0	750.0	84.9	6.4	6.4	7.2	0.0	0.0	-29.9
8/31/2012	713.9	3.0	0.0	19.6	33.0	0.0	684.7	80.9	6.4	6.4	7.2	0.0	0.0	-16.1
9/1/2012	714.6	2.2	0.0	22.1	33.0	0.0	649.7	76.7	6.4	5.1	7.2	0.0	0.0	26.7
9/2/2012	727.4	3.4	0.0	23.7	33.0	0.0	661.8	75.7	6.4	5.1	7.2	0.0	0.0	31.4
9/3/2012	737.4	2.1	0.0	22.1	33.0	0.0	671.1	77.1	6.4	5.1	7.2	0.0	0.0	27.7
9/4/2012	767.5	2.5	0.0	22.8	33.0	0.0	679.9	78.5	6.4	5.1	7.2	0.0	0.0	48.6
9/5/2012	788.2	5.3	0.0	25.1	33.0	0.0	707.1	86.0	6.4	5.1	7.2	0.0	0.0	39.8
9/6/2012	842.9	3.6	0.0	23.3	33.0	0.0	755.0	96.2	6.4	5.1	7.2	0.0	0.0	32.8
9/7/2012	849.3	3.0	0.0	22.5	33.0	0.0	780.0	92.9	6.4	5.1	7.2	0.0	0.0	16.1
9/8/2012	757.8	2.5	0.0	25.5	33.0	0.0	776.8	84.6	6.4	5.1	7.2	0.0	0.0	-61.2
9/9/2012	591.5	0.8	6.0	21.6	33.0	0.0	652.1	68.7	6.4	5.1	7.2	0.0	0.0	-86.7
9/10/2012	448.0	3.6	14.9	21.1	33.0	0.0	517.0	55.0	6.4	5.1	7.2	0.0	0.0	-70.1
9/11/2012	256.1	4.9	82.1	20.7	33.0	0.0	391.9	37.2	6.4	5.1	7.2	0.0	0.0	-51.0
9/12/2012	247.8	3.0	0.0	20.6	33.0	0.0	239.9	27.8	6.4	5.1	7.2	0.0	0.0	18.0
9/13/2012	616.7	1.9	0.0	20.4	33.0	0.0	275.0	50.6	6.4	5.1	7.2	0.0	0.0	327.7
9/14/2012	780.8	2.2	0.0	20.3	33.0	0.0	629.9	81.9	6.4	5.1	7.2	0.0	0.0	105.8



**RGCP - Project Scale Water Budget - Segment 4 (Anthony Metering Station to American Dam)**

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

- Sum of Inflow
- Sum of Outflow
- $\Delta Sic$  - Change in Channel Storage

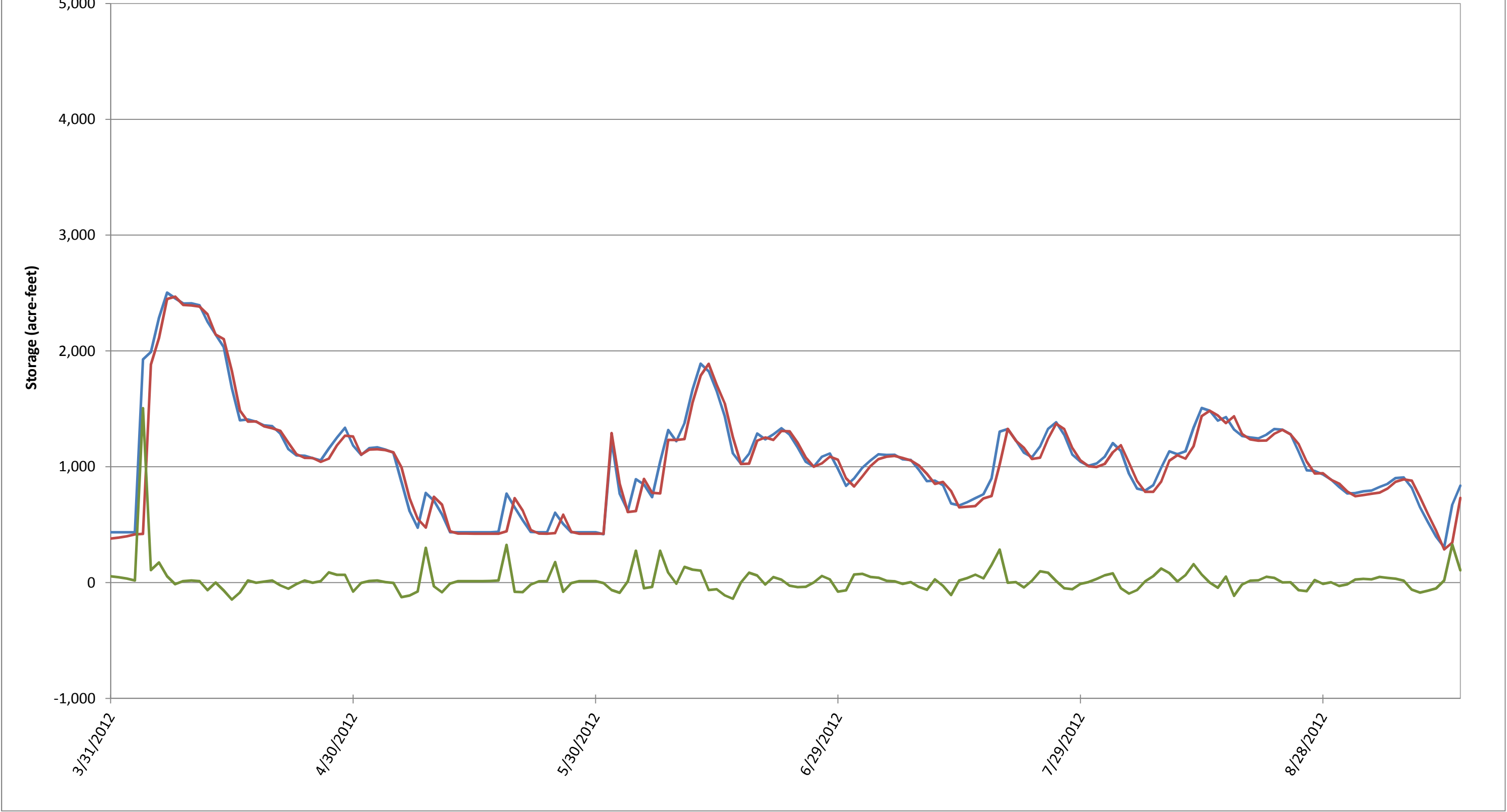


Table F2-5: Local Basin Scale Water Budget Equation

Baseline 2012

(Units = Acre-Feet)

Caballo Reservoir to Downstream of American Dam																						
	Surface Water Budget																Groundwater Budget					
	Qus	P	Qp			Qgwr	Qds			Qgwr				ET	ΔSsw		Qgwus	Qgwr	Qp	Qgwr	Qgws	ΔSgw
	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	
3/31/2012	0.0	0.3	517.8	31.8	18.5	50.3	353.9	44.5	354.0	398.5	58.1	307.5	25.8	391.4	-575.3	40.6	398.5	517.8	50.3	0.0	-129.0	
4/1/2012	868.8	0.5	598.8	31.8	18.7	50.6	354.1	122.4	354.0	476.5	58.1	307.5	56.8	422.4	265.7	40.6	476.5	598.8	50.6	0.0	-132.3	
4/2/2012	2320.7	2.2	704.1	31.8	19.5	51.3	354.7	170.6	354.0	524.6	58.1	307.5	56.8	422.4	1776.6	40.6	524.6	704.1	51.3	0.0	-190.2	
4/3/2012	2320.7	1.7	747.3	31.8	19.5	51.3	354.9	233.1	354.0	587.2	58.1	307.5	56.8	422.4	1756.4	40.6	587.2	747.3	51.3	0.0	-170.8	
4/4/2012	2538.8	2.4	742.3	31.8	19.8	51.7	355.0	379.5	354.0	733.5	58.1	307.5	56.8	422.4	1824.3	40.6	733.5	742.3	51.7	0.0	-19.8	
4/5/2012	2895.9	3.9	750.9	31.8	23.9	55.8	1746.1	580.7	354.0	934.7	58.1	307.5	56.8	422.4	603.2	40.6	934.7	750.9	55.8	0.0	168.7	
4/6/2012	2856.2	3.3	785.4	31.8	81.5	113.3	1939.6	640.3	354.0	994.3	58.1	307.5	56.8	422.4	401.9	40.6	994.3	785.4	113.3	0.0	136.2	
4/7/2012	2757.0	2.0	781.9	31.8	105.6	137.4	2265.1	685.3	354.0	1039.3	58.1	307.5	56.8	422.4	-48.5	40.6	1039.3	781.9	137.4	0.0	160.6	
4/8/2012	2757.0	0.7	786.4	31.8	110.8	142.6	2272.8	701.5	354.0	1055.5	58.1	307.5	56.8	422.4	-63.9	40.6	1055.5	786.4	142.6	0.0	167.1	
4/9/2012	2737.2	0.1	795.0	31.8	120.3	152.1	2203.0	690.9	354.0	1044.9	58.1	307.5	56.8	422.4	14.0	40.6	1044.9	795.0	152.1	0.0	138.4	
4/10/2012	2717.4	0.6	845.0	31.8	128.0	159.8	2202.8	685.0	354.0	1039.0	58.1	307.5	56.8	422.4	58.6	40.6	1039.0	845.0	159.8	0.0	74.8	
4/11/2012	2717.4	3.9	856.3	31.8	127.1	159.0	2192.2	682.8	354.0	1036.8	58.1	307.5	56.8	422.4	85.2	40.6	1036.8	856.3	159.0	0.0	62.1	
4/12/2012	2717.4	3.8	832.7	31.8	124.4	156.2	2131.2	667.5	354.0	1021.5	58.1	307.5	56.8	422.4	135.0	40.6	1021.5	832.7	156.2	0.0	73.2	
4/13/2012	2320.7	0.7	823.4	31.8	114.1	146.0	1963.4	656.1	354.0	1010.1	58.1	307.5	56.8	422.4	-105.2	40.6	1010.1	823.4	146.0	0.0	81.4	
4/14/2012	1904.1	1.2	824.1	31.8	116.0	147.9	1924.3	650.2	354.0	1004.2	58.1	307.5	56.8	422.4	-473.6	40.6	1004.2	824.1	147.9	0.0	72.9	
4/15/2012	1884.3	3.5	824.2	31.8	66.8	98.6	1650.9	609.8	354.0	963.8	58.1	307.5	56.8	422.4	-226.6	40.6	963.8	824.2	98.6	0.0	81.6	
4/16/2012	1884.3	1.0	823.8	31.8	58.5	90.3	1326.3	549.9	354.0	903.9	58.1	307.5	56.8	422.4	146.7	40.6	903.9	823.8	90.3	0.0	30.5	
4/17/2012	1884.3	3.1	829.2	31.8	67.0	98.8	1246.1	516.7	354.0	870.7	58.1	307.5	56.8	422.4	276.3	40.6	870.7	829.2	98.8	0.0	-16.7	
4/18/2012	1884.3	0.7	830.6	31.8	67.5	99.3	1250.4	510.0	354.0	864.0	58.1	307.5	56.8	422.4	278.2	40.6	864.0	830.6	99.3	0.0	-25.3	
4/19/2012	1810.9	0.8	837.4	31.8	65.5	97.4	1211.0	506.1	354.0	860.2	58.1	307.5	56.8	422.4	252.9	40.6	860.2	837.4	97.4	0.0	-34.0	
4/20/2012	1640.3	1.2	838.3	31.8	65.3	97.1	1195.4	505.4	354.0	859.4	58.1	307.5	56.8	422.4	99.8	40.6	859.4	838.3	97.1	0.0	-35.4	
4/21/2012	1578.8	0.8	854.9	31.8	59.0	90.8	1172.4	498.0	354.0	852.0	58.1	307.5	56.8	422.4	78.6	40.6	852.0	854.9	90.8	0.0	-53.1	
4/22/2012	1578.8	2.5	854.9	31.8	50.7	82.5	1071.3	476.9	354.0	830.9	58.1	307.5	56.8	422.4	194.1	40.6	830.9	854.9	82.5	0.0	-65.9	
4/23/2012	1586.8	4.9	854.9	31.8	48.6	80.4	982.1	455.5	354.0	809.5	58.1	307.5	56.8	422.4	313.0	40.6	809.5	854.9	80.4	0.0	-85.3	
4/24/2012	1604.6	3.4	855.1	31.8	50.9	82.7	954.1	447.0	354.0	801.0	58.1	307.5	56.8	422.4	368.3	40.6	801.0	855.1	82.7	0.0	-96.2	
4/25/2012	1729.6	0.9	858.1	31.8	44.8	76.7	954.2	443.7	354.0	797.8	58.1	307.5	56.8	422.4	491.0	40.6	797.8	858.1	76.7	0.0	-96.4	
4/26/2012	1828.8	2.7	856.6	31.8	43.7	75.6	923.0	442.8	354.0	796.8	58.1	307.5	56.8	422.4	621.4	40.6	796.8	856.6	75.6	0.0	-94.7	
4/27/2012	2009.3	2.7	848.4	31.8	56.0	87.8	951.9	452.6	354.0	806.6	58.1	307.5	56.8	422.4	767.3	40.6	806.6	848.4	87.8	0.0	-89.0	
4/28/2012	1826.8	1.3	848.2	31.8	60.8	92.6	1060.8	466.8	354.0	820.8	58.1	307.5	56.8	422.4	464.9	40.6	820.8	848.2	92.6	0.0	-79.4	
4/29/2012	1602.6	1.6	848.4	31.8	48.9	80.7	1141.3	480.4	354.0	834.4	58.1	307.5	56.8	422.4	135.4	40.6	834.4	848.4	80.7	0.0	-54.2	
4/30/2012	1600.7	2.3	848.6	31.8	53.1	84.9	1125.5	477.2	354.0	831.3	58.1	307.5	56.8	422.4	157.3	40.6	831.3	848.6	84.9	0.0	-61.6	
5/1/2012	1612.6	1.2	855.0	31.8	48.7	80.5	968.1	455.8	354.0	809.8	58.1	307.5	89.2	454.8	316.5	40.6	809.8	855.0	80.5	0.0	-85.0	
5/2/2012	1646.3	4.6	855.5	31.8	46.5	78.4	1014.6	440.9	354.0	794.9	58.1	307.5	89.2	454.8	320.4	40.6	794.9	855.5	78.4	0.0	-98.3	
5/3/2012	1660.2	4.9	854.6	31.8	46.4	78.2	1020.8	432.8	354.0	786.8	58.1	307.5	89.2	454.8	335.5	40.6	786.8	854.6	78.2	0.0	-105.3	
5/4/2012	912.4	2.3	865.5	31.8	46.3	78.1	1016.6	427.7	354.0	781.7	58.1	307.5	89.2	454.8	-394.7	40.6	781.7	865.5	78.1	0.0	-121.4	
5/5/2012	317.4	2.0	<																			

Table F2-5: Local Basin Scale Water Budget Equation

Baseline 2012

(Units = Acre-Feet)

Caballo Reservoir to Downstream of American Dam

	Surface Water Budget															Groundwater Budget					
	Qus	P	Qp			Qgwrf	Qds			Qgwr				ET	ΔSsw	Qgwus	Qgwr	Qp	Qgwrf	Qgwds	ΔSgw
	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 RRF + Irrigation RRF	Downstream Groundwater Outflow	Change in Vadose Zone and Groundwater Storage
6/10/2012	4143.5	8.1	916.7	31.8	55.6	87.5	1115.8	594.0	354.0	948.0	58.1	307.5	91.7	457.3	2634.6	40.6	948.0	916.7	87.5	0.0	-15.5
6/11/2012	3984.8	4.0	916.3	31.8	79.7	111.6	1406.7	658.3	354.0	1012.3	58.1	307.5	91.7	457.3	2140.3	40.6	1012.3	916.3	111.6	0.0	25.0
6/12/2012	3887.6	4.1	916.2	31.8	86.1	117.9	1617.5	698.3	354.0	1052.3	58.1	307.5	91.7	457.3	1798.6	40.6	1052.3	916.2	117.9	0.0	58.9
6/13/2012	3689.3	2.3	909.2	31.8	92.0	123.9	1714.3	686.3	354.0	1040.3	58.1	307.5	91.7	457.3	1512.7	40.6	1040.3	909.2	123.9	0.0	47.9
6/14/2012	3391.7	5.1	911.5	31.8	91.7	123.5	1545.2	659.8	354.0	1013.9	58.1	307.5	91.7	457.3	1415.5	40.6	1013.9	911.5	123.5	0.0	19.4
6/15/2012	3369.9	6.9	891.8	31.8	65.9	97.7	1387.0	626.4	354.0	980.4	58.1	307.5	91.7	457.3	1541.7	40.6	980.4	891.8	97.7	0.0	31.5
6/16/2012	3459.2	6.2	892.5	31.8	52.5	84.3	1111.6	567.5	354.0	921.5	58.1	307.5	91.7	457.3	1951.8	40.6	921.5	892.5	84.3	0.0	-14.7
6/17/2012	3465.1	8.2	892.5	31.8	61.0	92.8	902.2	532.9	354.0	886.9	58.1	307.5	91.7	457.3	2212.3	40.6	886.9	892.5	92.8	0.0	-57.8
6/18/2012	3292.6	13.5	892.6	31.8	53.3	85.2	909.1	552.2	354.0	906.2	58.1	307.5	91.7	457.3	2011.2	40.6	906.2	892.6	85.2	0.0	-30.9
6/19/2012	3272.7	3.9	892.7	31.8	49.9	81.8	1087.7	585.5	354.0	939.6	58.1	307.5	91.7	457.3	1766.5	40.6	939.6	892.7	81.8	0.0	5.7
6/20/2012	3312.4	8.6	889.7	31.8	47.2	79.0	1110.1	582.2	354.0	936.2	58.1	307.5	91.7	457.3	1786.1	40.6	936.2	889.7	79.0	0.0	8.1
6/21/2012	3362.0	3.6	888.6	31.8	51.0	82.9	1094.1	575.7	354.0	929.8	58.1	307.5	91.7	457.3	1855.8	40.6	929.8	888.6	82.9	0.0	-1.1
6/22/2012	3371.9	3.9	888.6	31.8	46.7	78.5	1170.0	578.1	354.0	932.1	58.1	307.5	91.7	457.3	1783.5	40.6	932.1	888.6	78.5	0.0	5.5
6/23/2012	3350.1	6.8	888.5	31.8	49.4	81.2	1169.2	570.1	354.0	924.1	58.1	307.5	91.7	457.3	1775.9	40.6	924.1	888.5	81.2	0.0	-4.9
6/24/2012	3354.0	6.7	888.5	31.8	45.1	77.0	1075.5	554.1	354.0	908.1	58.1	307.5	91.7	457.3	1885.4	40.6	908.1	888.5	77.0	0.0	-16.7
6/25/2012	3437.4	5.1	888.5	31.8	46.1	77.9	956.3	534.9	354.0	888.9	58.1	307.5	91.7	457.3	2106.3	40.6	888.9	888.5	77.9	0.0	-36.8
6/26/2012	3504.8	6.0	887.9	31.8	43.9	75.8	881.9	528.5	354.0	882.6	58.1	307.5	91.7	457.3	2252.7	40.6	882.6	887.9	75.8	0.0	-40.5
6/27/2012	3340.2	12.7	879.9	31.8	48.4	80.2	911.0	539.3	354.0	893.3	58.1	307.5	91.7	457.3	2051.3	40.6	893.3	879.9	80.2	0.0	-26.2
6/28/2012	3159.7	12.2	880.2	31.8	47.6	79.4	963.9	554.1	354.0	908.1	58.1	307.5	91.7	457.3	1802.1	40.6	908.1	880.2	79.4	0.0	-10.8
6/29/2012	3221.2	20.1	877.0	31.8	32.6	64.4	930.9	544.4	354.0	898.5	58.1	307.5	91.7	457.3	1896.0	40.6	898.5	877.0	64.4	0.0	-2.3
6/30/2012	3276.7	9.6	874.4	31.8	25.1	56.9	781.9	512.5	354.0	866.5	58.1	307.5	91.7	457.3	2111.8	40.6	866.5	874.4	56.9	0.0	-24.1
7/1/2012	3290.6	11.8	849.4	31.8	34.0	65.9	723.0	501.6	354.0	855.6	58.1	307.5	68.1	433.7	2205.3	40.6	855.6	849.4	65.9	0.0	-19.0
7/2/2012	3296.5	16.7	800.0	31.8	36.2	68.0	805.1	516.8	354.0	870.8	58.1	307.5	68.1	433.7	2071.6	40.6	870.8	800.0	68.0	0.0	43.4
7/3/2012	3106.1	7.7	782.5	31.8	40.9	72.7	886.1	532.7	354.0	886.8	58.1	307.5	68.1	433.7	1762.5	40.6	886.8	782.5	72.7	0.0	72.2
7/4/2012	2989.1	12.7	780.3	31.8	49.0	80.8	941.5	545.5	354.0	899.5	58.1	307.5	68.1	433.7	1588.1	40.6	899.5	780.3	80.8	0.0	79.1
7/5/2012	2802.6	20.2	779.0	31.8	53.0	84.9	954.3	546.3	354.0	900.4	58.1	307.5	68.1	433.7	1398.3	40.6	900.4	779.0	84.9	0.0	77.1
7/6/2012	2651.9	11.0	781.5	31.8	61.3	93.1	963.3	535.7	354.0	889.7	58.1	307.5	68.1	433.7	1250.9	40.6	889.7	781.5	93.1	0.0	55.7
7/7/2012	2441.7	13.1	766.3	31.8	56.0	87.8	944.2	523.7	354.0	877.7	58.1	307.5	68.1	433.7	1053.2	40.6	877.7	766.3	87.8	0.0	64.2
7/8/2012	2217.5	13.6	766.1	31.8	94.2	126.0	926.6	502.8	354.0	856.9	58.1	307.5	68.1	433.7	906.1	40.6	856.9	766.1	126.0	0.0	5.4
7/9/2012	2231.4	18.6	764.3	31.8	81.6	113.4	887.0	480.0	354.0	834.0	58.1	307.5	68.1	433.7	972.9	40.6	834.0	764.3	113.4	0.0	-3.0
7/10/2012	1933.9	14.9	766.2	31.8	66.1	97.9	818.6	455.7	354.0	809.7	58.1	307.5	68.1	433.7	750.9	40.6	809.7	766.2	97.9	0.0	-13.8
7/11/2012	1691.9	12.0	758.4	31.8	55.0	86.8	743.0	451.6	354.0	805.6	58.1	307.5	68.1	433.7	566.7	40.6	805.6	758.4	86.8	0.0	1.0
7/12/2012	1763.3	10.6	757.9	31.8	40.6	72.5	749.5	449.3	354.0	803.3	58.1	307.5	68.1	433.7	617.7	40.6	803.3	757.9	72.5	0.0	13.5
7/13/2012	1892.2	12.9	758.0	31.8	35.4	67.2	680.1	405.0	354.0	759.0	58.1	307.5	68.1	433.7	857.6	40.6	759.0	758.0	6		

Table F2-5: Local Basin Scale Water Budget Equation

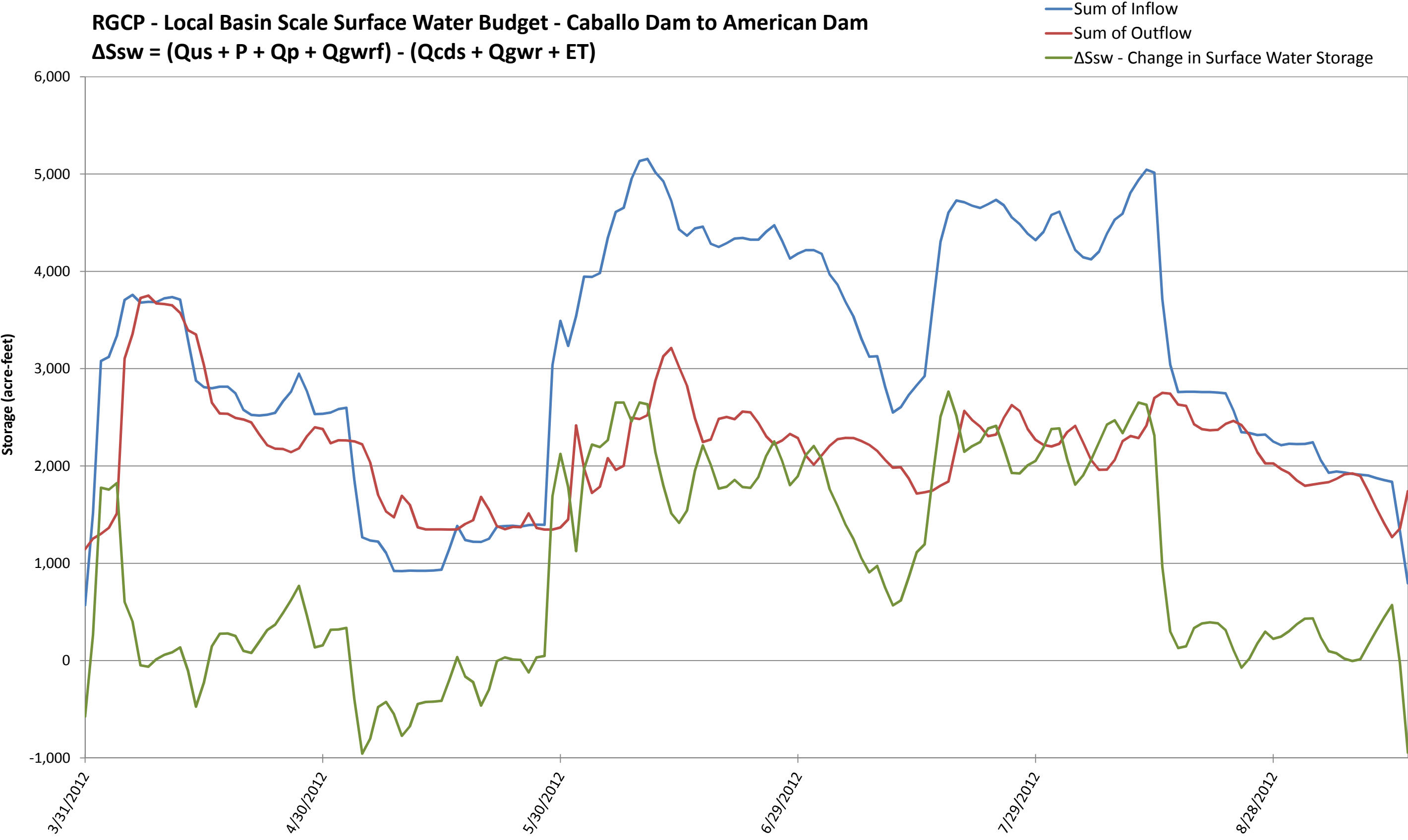
Baseline 2012

(Units = Acre-Feet)

	Surface Water Budget															Groundwater Budget					
	Qus	P	Qp			Qgwrf	Qds			Qgwr				ET	ΔSsw	Qgwus	Qgwr	Qp	Qgwrf	Qgwds	ΔSgw
	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
8/25/2012	1477.7	15.7	727.4	31.8	86.8	118.6	1062.5	472.2	354.0	826.2	58.1	307.5	64.1	429.7	20.8	40.6	826.2	727.4	118.6	0.0	20.9
8/26/2012	1477.7	12.5	727.3	31.8	69.3	101.1	917.5	440.5	354.0	794.5	58.1	307.5	64.1	429.7	176.9	40.6	794.5	727.3	101.1	0.0	6.7
8/27/2012	1477.7	15.1	727.2	31.8	71.4	103.3	824.7	417.9	354.0	771.9	58.1	307.5	64.1	429.7	296.9	40.6	771.9	727.2	103.3	0.0	-18.0
8/28/2012	1418.2	8.0	727.1	31.8	65.7	97.5	834.1	408.9	354.0	762.9	58.1	307.5	64.1	429.7	224.1	40.6	762.9	727.1	97.5	0.0	-21.1
8/29/2012	1378.5	10.9	728.1	31.8	64.4	96.2	781.4	401.9	354.0	755.9	58.1	307.5	64.1	429.7	246.6	40.6	755.9	728.1	96.2	0.0	-27.8
8/30/2012	1394.4	16.6	729.4	31.8	56.6	88.4	750.0	393.4	354.0	747.4	58.1	307.5	64.1	429.7	301.6	40.6	747.4	729.4	88.4	0.0	-29.8
8/31/2012	1402.3	14.3	723.8	31.8	52.9	84.7	684.7	381.4	354.0	735.4	58.1	307.5	64.1	429.7	375.3	40.6	735.4	723.8	84.7	0.0	-32.5
9/1/2012	1410.2	8.9	721.1	31.8	55.0	86.8	649.7	375.3	354.0	729.3	58.1	307.5	51.6	417.2	430.8	40.6	729.3	721.1	86.8	0.0	-38.0
9/2/2012	1418.2	16.9	719.8	31.8	55.9	87.7	661.8	376.4	354.0	730.5	58.1	307.5	51.6	417.2	433.1	40.6	730.5	719.8	87.7	0.0	-36.4
9/3/2012	1243.6	10.6	718.6	31.8	54.5	86.3	671.1	379.5	354.0	733.5	58.1	307.5	51.6	417.2	237.2	40.6	733.5	718.6	86.3	0.0	-30.8
9/4/2012	1108.8	14.7	718.6	31.8	55.6	87.4	679.9	382.8	354.0	736.8	58.1	307.5	51.6	417.2	95.5	40.6	736.8	718.6	87.4	0.0	-28.5
9/5/2012	1108.8	20.1	721.1	31.8	61.1	93.0	707.1	389.6	354.0	743.7	58.1	307.5	51.6	417.2	75.0	40.6	743.7	721.1	93.0	0.0	-29.8
9/6/2012	1100.8	16.9	721.2	31.8	62.3	94.1	755.0	386.6	354.0	740.6	58.1	307.5	51.6	417.2	20.1	40.6	740.6	721.2	94.1	0.0	-34.0
9/7/2012	1092.9	18.1	717.2	31.8	59.3	91.1	780.0	372.1	354.0	726.2	58.1	307.5	51.6	417.2	-4.1	40.6	726.2	717.2	91.1	0.0	-41.5
9/8/2012	1079.0	8.6	718.1	31.8	73.1	105.0	776.8	349.9	354.0	703.9	58.1	307.5	51.6	417.2	12.7	40.6	703.9	718.1	105.0	0.0	-78.5
9/9/2012	1065.1	8.5	718.0	31.8	79.2	111.0	652.1	317.6	354.0	671.6	58.1	307.5	51.6	417.2	161.8	40.6	671.6	718.0	111.0	0.0	-116.8
9/10/2012	1049.3	12.8	718.5	31.8	63.1	95.0	517.0	282.2	354.0	636.2	58.1	307.5	51.6	417.2	305.1	40.6	636.2	718.5	95.0	0.0	-136.6
9/11/2012	1035.4	14.8	715.6	31.8	57.8	89.7	391.9	248.7	354.0	602.7	58.1	307.5	51.6	417.2	443.5	40.6	602.7	715.6	89.7	0.0	-161.9
9/12/2012	1015.5	23.5	715.5	31.8	51.4	83.2	239.9	256.8	354.0	610.8	58.1	307.5	51.6	417.2	569.9	40.6	610.8	715.5	83.2	0.0	-147.3
9/13/2012	533.6	15.8	700.9	31.8	46.0	77.8	275.0	311.0	354.0	665.0	58.1	307.5	51.6	417.2	-29.2	40.6	665.0	700.9	77.8	0.0	-73.1
9/14/2012	0.0	14.6	700.8	31.8	46.4	78.2	629.9	339.6	354.0	693.6	58.1	307.5	51.6	417.2	-947.1	40.6	693.6	700.8	78.2	0.0	-44.7

**RGCP - Local Basin Scale Surface Water Budget - Caballo Dam to American Dam**

**$\Delta S_{sw} = (Q_{us} + P + Q_p + Q_{gwrf}) - (Q_{cds} + Q_{gwr} + ET)$**



**RGCP - Local Basin Scale Ground Water Budget - Caballo Dam to American Dam**

**$\Delta S_{gw} = (Q_{gwus} + Q_{gwr}) - (Q_p + Q_{gwr}f + Q_{gwds})$**

