ATTACHMENT E
Water Balance Capacity Analysis Spreadsheets

Attachment E - Table 1
Water Balance as Received (highlighted and annotated by RB staff)

TABLE 1

100-YR Precipitation Return - Current Flow Conditions

Rancho Murieta Community Services District

100-YR MODIFIERS	
100-year Return Ration	1.84 unitless
100-YR modifier - Pan Evaporation	0.8 unitless
Normalized I&I	61.74 mg/MGD/yr
100-YR I/I Volume	31.3 mg

WWRP INFLUENT FLOWS & SITE INFO			
Projected Annual Flow 05-06	182.56 mg	Pan Evap Coefficient	0.75 unitless
Projected Influent Flow 05-06	560.29 ac-ft	WWRP Site Area	7.50 acres
Projected Annual Flow 06-07	187.28 mg	Run-off Coefficient	0.9 unitless
Projected Influent Flow 06-07	574.79 ac-ft	WWRP Pond Area Total	10.70 acres

WWRP SECONDARY STORAGE RESERVOIRS (#1 & #2)			
Reservoir Watershed Area	39.97 acres	Maximum Storage of Reserovirs	859.87 ac-ft
Run-off Coefficient for Reservoirs	0.9 unitless	Storage Volume of Reservoirs w/ 2ft of Freeboard	746.98 ac-ft
Storage Proportion in Reservoir #1	0.83 %	Volume Stored in Reservoirs by Sept 2005	277.2 ac-ft
Storage Proportion in Reservoir #2	0.17 %		

RANCHO MURIATE COUNTRY CLUB SITE INFO	
RMCC Lake Surface Water Area	14.97 acres
RMCC Contributing Water Shed	152.21 acres
RMCC Weighed Run-off Coefficient	0.32 unitless

New calculations added by A. Olson:

AF to MG conversion		**0.3258288**
Average daily dry weather flow	**mgd**	**0.56**
Average daily flow	**mgd**	**0.59**
Peak month average daily flow	**mgd**	**0.63**
Total annual flow with I/I	**MG**	**214**

0.58 mgd	**Average daily dry weather flow**
0.60 mgd	**Average daily flow**
217 MG	**Total annual flow**

		100-YEAR ANNUAL PRECIPITATION RETURN PERIOD												
	Units	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**	**May-06**	**Jun-06**	**Jul-06**	**Aug-06**	**Sep-06**	**Season Total**
Climate Inputs														
Precipitation (Average)	in	1.32	3.47	3.39	4.46	4.34	4.30	1.84	0.52	0.31	0.11	0.10	0.45	24.61
Precipitation (100-YR)	in	2.44	6.40	6.25	8.23	8.01	7.93	3.39	0.96	0.57	0.20	0.18	0.83	45.40
Pan Evaporation	in	4.89	2.06	1.25	0.92	1.90	3.47	5.21	8.07	9.91	11.12	9.93	7.45	66.18
Effective Lake Evaporation	in	3.67	1.55	0.94	0.69	1.43	2.60	3.91	6.05	7.43	8.34	7.45	5.59	49.64
Lake Evap - 100YR Effective	in	3.67	1.55	0.75	0.55	1.14	2.08	3.13	6.05	7.43	8.34	7.45	5.59	47.72
Percolation	in	0	0	0	0	0	0	0	0	0	0	0	0	0.00
RMCSD WWRP														
WW Influent - Monthly-Daily Flow	%	7.93	8.00	8.61	8.83	9.47	8.94	8.24	8.30	7.87	7.83	8.03	7.94	100
# Days in Month	days	31	30	31	31	28	31	30	31	30	31	31	30	365
Wastewater Influent	MG	14.75	14.40	16.03	16.43	16.06	16.64	14.85	15.45	14.17	14.57	14.94	14.30	182.57
Wastewater Influent	ac-ft	45.26	44.20	49.19	50.43	49.29	51.06	45.56	47.41	43.48	44.73	45.85	43.88	560.34
WW Influent + 100-YR I/I	ac-ft	52.87	51.88	57.46	58.90	58.38	59.64	53.48	55.38	51.03	52.25	53.55	51.50	656.34
Site Run-off	ac-ft	1.37	3.60	3.52	4.63	4.50	4.46	1.91	0.54	0.32	0.11	0.10	0.47	25.54
Pond Precipitation (direct)	ac-ft	2.17	5.71	5.58	7.34	7.14	7.08	3.03	0.86	0.51	0.18	0.16	0.74	40.49
Pond Evaporation	ac-ft	-3.27	-1.38	-0.67	-0.49	-1.02	-1.86	-2.79	-5.40	-6.63	-7.44	-6.64	-4.98	-42.56
RMCSD Secondary Storage Reservoirs														
Reservoir # 1 Vol	ac-ft	229.99	266.90	330.71	400.67	480.09	556.51	630.78	678.76	633.20	539.85	431.86	349.40	NA
Reservoir # 1 Depth	ft	16.2	18.1	21.1	24.1	27.1	29.7	31.9	33.1	32.0	29.2	25.3	21.9	NA
Reservoir # 1 Surface Area	acre	22.2	22.8	23.9	24.9	25.9	26.8	27.5	28.0	27.6	26.6	25.3	24.1	NA
Reservoir #2 Vol	ac-ft	47.25	54.83	67.94	82.31	98.62	114.32	129.58	139.43	130.07	110.90	88.72	71.78	NA
Reservoir # 2 Depth	ft	13.5	15.3	18.1	21.0	23.9	26.5	28.6	29.9	28.7	25.9	22.2	18.9	NA
Reservoir # 2 Surface Area	acre	4.7	4.9	5.3	5.7	6.1	6.5	6.8	6.9	6.8	6.4	5.9	5.4	NA
Total Water Surface Area	acre	26.9	27.7	29.1	30.6	32.0	33.3	34.3	34.9	34.3	33.0	31.2	29.5	NA
Contributing Water Shed Area	acre	13.1	12.2	10.8	9.4	8.0	6.7	5.7	5.1	5.6	7.0	8.8	10.4	NA
Reservoir Run-off	ac-ft	2.39	5.88	5.08	5.80	4.78	4.00	1.44	0.37	0.24	0.11	0.12	0.65	30.86
Reservoir Precip (direct)	ac-ft	5.45	14.79	15.19	20.96	21.37	21.98	9.70	2.79	1.64	0.56	0.48	2.04	116.95
Reservoir Evaporation	ac-ft	-8.21	-3.57	-1.82	-1.41	-3.04	-5.77	-8.94	-17.60	-21.27	-22.94	-19.34	-13.75	-127.65
RMCC Irrigation Lakes														
Lake Water Shed Run-off	ac-ft	2.45	0	0	0	0	0	0	3.86	2.30	0.82	0.74	3.34	13.52
Lake Precipitation (direct)	ac-ft	0.76	0	0	0	0	0	0	1.20	0.71	0.25	0.23	1.04	4.19
Irrig. Lake Evaporation	ac-ft	-1.14	0	0	0	0	0	0	-7.55	-9.27	-10.40	-9.29	-6.97	-44.62
Disposal														
250 acres Golf Course Turf														
RMCC Golf Course Demand	ac-ft	-10.35	0	0	0	0	0	0	-89.4	-132.1	-143.7	-119.5	-82.7	-577.72
Effluent Storage														
Beginning Water Volume in Res.	ac-ft	277.2	321.7	398.6	483.0	578.7	670.8	760.4	818.2	763.3	650.8	520.6	421.2	NA
Change in Water Volume	ac-ft	44.5	76.9	84.3	95.7	92.1	89.5	57.8	-54.9	-112.5	-130.2	-99.4	-48.6	95.34
Final Water Volume in Reservoirs	ac-ft	321.7	398.6	483.0	578.7	670.8	760.4	818.2	763.3	650.8	520.6	421.2	372.6	NA

		AVERAGE YEAR ANNUAL PRECIPITATION												
	Units	**Oct-06**	**Nov-06**	**Dec-06**	**Jan-07**	**Feb-07**	**Mar-07**	**Apr-07**	**May-07**	**Jun-07**	**Jul-07**	**Aug-07**	**Sep-07**	**Season Total**
Climate Inputs														
Precipitation (Average)	in	1.32	3.47	3.39	4.46	4.34	4.30	1.84	0.52	0.31	0.11	0.10	0.45	24.61
Precipitation (100-YR)	in	2.44	6.40	6.25	8.23	8.01	7.93	3.39	0.96	0.57	0.20	0.18	0.83	45.40
Pan Evaporation	in	4.89	2.06	1.25	0.92	1.90	3.47	5.21	8.07	9.91	11.12	9.93	7.45	66.18
Effective Lake Evaporation	in	3.67	1.55	0.94	0.69	1.43	2.60	3.91	6.05	7.43	8.34	7.45	5.59	49.64
Lake Evap - 100YR Effective	in	3.67	1.55	0.75	0.55	1.14	2.08	3.13	6.05	7.43	8.34	7.45	5.59	47.72
Percolation	in	0	0	0	0	0	0	0	0	0	0	0	0	0
RMCSD WWRP														
WW Influent - Monthly-Daily Flow	%	8.83	9.47	8.94	8.24	8.30	7.87	7.83	8.03	7.94	7.93	8.00	8.61	100
# Days in Month	days	31	30	31	31	28	31	30	31	30	31	31	30	365
Wastewater Influent	MG	16.86	17.50	17.07	15.74	14.44	15.02	14.47	15.32	14.67	15.13	15.27	15.91	187.38
Wastewater Influent	ac-ft	47.43	53.70	52.38	48.30	44.32	46.09	44.41	47.03	45.02	46.43	46.86	48.84	570.80
WW Influent + 100-YR I/I	ac-ft	55.91	62.79	60.96	56.21	52.29	53.64	51.93	54.74	52.64	54.04	54.54	57.11	666.80
Site Run-off	ac-ft	0.74	1.95	1.91	2.51	2.44	2.42	1.04	0.29	0.17	0.06	0.06	0.25	13.85
Pond Precipitation (direct)	ac-ft	1.18	3.09	3.02	3.98	3.87	3.84	1.64	0.46	0.28	0.10	0.09	0.40	21.95
Pond Evaporation	ac-ft	-3.27	-1.38	-0.84	-0.62	-1.27	-2.32	-3.49	-5.40	-6.63	-7.44	-6.64	-4.98	-44.27
RMCSD Secondary Storage Reservoirs														
Reservoir # 1 Vol	ac-ft	309.08	328.39	382.20	436.23	491.73	541.27	588.50	606.71	550.96	451.04	338.31	250.54	NA
Reservoir # 1 Depth	ft	20.1	21.0	23.3	25.5	27.6	29.2	30.7	31.2	29.5	26.1	21.4	17.2	NA
Reservoir # 1 Surface Area	acre	23.5	23.8	24.6	25.4	26.1	26.6	27.1	27.3	26.7	25.6	24.0	22.6	NA
Reservoir #2 Vol	ac-ft	63.49	67.46	78.51	89.61	101.01	111.19	120.89	124.63	113.18	92.65	69.50	51.47	NA
Reservoir # 2 Depth	ft	17.2	18.0	20.2	22.3	24.3	26.0	27.4	28.0	26.3	22.9	18.4	14.5	NA
Reservoir # 2 Surface Area	acre	5.2	5.3	5.6	5.9	6.2	6.4	6.6	6.7	6.4	6.0	5.3	4.8	NA
Total Water Surface Area	acre	28.7	29.1	30.2	31.2	32.2	33.0	33.7	34.0	33.2	31.5	29.3	27.4	NA
Contributing Water Shed Area	acre	11.3	10.9	9.8	8.7	7.8	7.0	6.2	6.0	6.8	8.5	10.7	12.6	NA
Reservoir Run-off	ac-ft	1.12	2.83	2.48	2.92	2.52	2.24	0.86	0.23	0.16	0.07	0.08	0.43	15.93
Reservoir Precip (direct)	ac-ft	3.15	8.41	8.53	11.61	11.65	11.83	5.17	1.47	0.86	0.29	0.24	1.03	64.28
Reservoir Evaporation	ac-ft	-8.77	-3.75	-2.36	-1.80	-3.83	-7.16	-10.98	-17.14	-20.55	-21.90	-18.19	-12.73	-130.53
RMCC Irrigation Lakes														
Lake Water Shed Run-off	ac-ft	5.32	0	0	0	0	0	7.41	2.09	1.25	0.44	0.40	1.81	18.73
Lake Precipitation (direct)	ac-ft	1.65	0	0	0	0	0	2.29	0.65	0.39	0.14	0.12	0.56	5.80
Irrig. Lake Evaporation	ac-ft	-4.57	0	0	0	0	0	-4.87	-7.55	-9.27	-10.40	-9.29	-6.97	-52.92
Disposal														
250 acres Golf Course Turf														
RMCC Golf Course Demand	ac-ft	-20.71	0	0	0	0	0	-21.53	-89.36	-132.12	-143.67	-119.53	-82.68	-609.60
Effluent Storage														
Beginning Water Volume in Res.	ac-ft	372.57	395.84	460.71	525.84	592.75	652.46	709.39	731.34	664.14	543.69	407.81	302.01	NA
Change in Water Volume	ac-ft	23.3	64.9	65.1	66.9	59.7	56.9	22.0	-67.2	-120.4	-135.9	-105.8	-54.0	-89.19
Final Water Volume in Reservoirs	ac-ft	395.8	460.7	525.8	592.7	652.5	709.4	731.3	664.1	543.7	407.8	302.0	248.0	NA

Difference between Year 1 and Year 2 6.15

excess stored effluent from 2003 (as of June 2005)

projected freeboard violation at 746 AF; no projected overflow at 860 AF

Attachment E - Table 2
Revised to Calculate Actual Current Capacity
(with no freeboard violations and with current storage excess)

TABLE 1

100-YR Precipitation Return - Current Flow Conditions

Rancho Murieta Community Services District

100-YR MODIFIERS	
100-year Return Ration	1.84 unitless
100-YR modifier - Pan Evaporation	0.8 unitless
Normalized I&I	61.74 mg/MGD/yr
100-YR I/I Volume	26.6 mg

WWRP INFLUENT FLOWS & SITE INFO			
Projected Annual Flow 05-06	155 mg	Pan Evap Coefficient	0.75 unitless
Projected Influent Flow 05-06	475.71 ac-ft	WWRP Site Area	7.50 acres
Projected Annual Flow 06-07	159.72 mg	Run-off Coefficient	0.9 unitless
Projected Influent Flow 06-07	490.20 ac-ft	WWRP Pond Area Total	10.70 acres

WWRP SECONDARY STORAGE RESERVOIRS (#1 & #2)			
Reservoir Watershed Area	39.97 acres	Maximum Storage of Reserovirs	859.87 ac-ft
Run-off Coefficient for Reservoirs	0.9 unitless	Storage Volume of Reservoirs w/ 2ft of Freeboard	746.98 ac-ft
Storage Proportion in Reservoir #1	0.83 %	Volume Stored in Reservoirs by Sept 2005	277.0 ac-ft
Storage Proportion in Reservoir #2	0.17 %		

RANCHO MURIATE COUNTRY CLUB SITE INFO	
RMCC Lake Surface Water Area	14.97 acres
RMCC Contributing Water Shed	152.21 acres
RMCC Weighed Run-off Coefficient	0.32 unitless

value adjusted through trial and error to obtain maximum stored volume of 746 AF

New calculations added by A. Olson:

AF to MG conversion		**0.3258288**
Average daily dry weather flow	**mgd**	**0.47**
Average daily flow	**mgd**	**0.50**
Peak month average daily flow	**mgd**	**0.53**
Total annual flow	**MG**	**182**

0.50 mgd	**Average daily dry weather flow**
0.51 mgd	**Average daily flow**
188 MG	**Total annual flow**

		100-YEAR ANNUAL PRECIPITATION RETURN PERIOD												
	Units	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**	**May-06**	**Jun-06**	**Jul-06**	**Aug-06**	**Sep-06**	**Season Total**
Climate Inputs														
Precipitation (Average)	in	1.32	3.47	3.39	4.46	4.34	4.30	1.84	0.52	0.31	0.11	0.10	0.45	24.61
Precipitation (100-YR)	in	2.44	6.40	6.25	8.23	8.01	7.93	3.39	0.96	0.57	0.20	0.18	0.83	45.40
Pan Evaporation	in	4.89	2.06	1.25	0.92	1.90	3.47	5.21	8.07	9.91	11.12	9.93	7.45	66.18
Effective Lake Evaporation	in	3.67	1.55	0.94	0.69	1.43	2.60	3.91	6.05	7.43	8.34	7.45	5.59	49.64
Lake Evap - 100YR Effective	in	3.67	1.55	0.75	0.55	1.14	2.08	3.13	6.05	7.43	8.34	7.45	5.59	47.72
Percolation	in	0	0	0	0	0	0	0	0	0	0	0	0	0.00
RMCSD WWRP														
WW Influent - Monthly-Daily Flow	%	7.93	8.00	8.61	8.83	9.47	8.94	8.24	8.30	7.87	7.83	8.03	7.94	100
# Days in Month	days	31	30	31	31	28	31	30	31	30	31	31	30	365
Wastewater Influent	MG	12.52	12.23	13.61	13.95	13.64	14.12	12.60	13.11	12.03	12.37	12.68	12.14	155.01
Wastewater Influent	ac-ft	38.43	37.53	41.77	42.81	41.85	43.35	38.68	40.25	36.92	37.98	38.93	37.26	475.75
WW Influent + 100-YR I/I	ac-ft	44.90	44.06	48.80	50.03	49.59	50.65	45.42	47.03	43.34	44.38	45.48	43.74	557.44
Site Run-off	ac-ft	1.37	3.60	3.52	4.63	4.50	4.46	1.91	0.54	0.32	0.11	0.10	0.47	25.54
Pond Precipitation (direct)	ac-ft	2.17	5.71	5.58	7.34	7.14	7.08	3.03	0.86	0.51	0.18	0.16	0.74	40.49
Pond Evaporation	ac-ft	-3.27	-1.38	-0.67	-0.49	-1.02	-1.86	-2.79	-5.40	-6.63	-7.44	-6.64	-4.98	-42.56
RMCSD Secondary Storage Reservoirs														
Reservoir # 1 Vol	ac-ft	208.01	260.22	317.55	380.34	452.39	521.52	588.38	629.79	577.56	478.22	364.28	275.80	NA
Reservoir # 1 Depth	ft	15.1	17.7	20.5	23.2	26.1	28.6	30.7	31.9	30.4	27.1	22.5	18.5	NA
Reservoir # 1 Surface Area	acre	21.8	22.7	23.7	24.6	25.6	26.4	27.1	27.5	27.0	25.9	24.4	23.0	NA
Reservoir #2 Vol	ac-ft	42.73	53.46	65.23	78.13	92.93	107.13	120.87	129.37	118.64	98.24	74.83	56.66	NA
Reservoir # 2 Depth	ft	12.5	15.0	17.5	20.2	22.9	25.3	27.4	28.6	27.1	23.9	19.5	15.7	NA
Reservoir # 2 Surface Area	acre	4.5	4.9	5.2	5.6	6.0	6.3	6.6	6.8	6.5	6.1	5.5	5.0	NA
Total Water Surface Area	acre	26.3	27.6	28.9	30.2	31.5	32.7	33.7	34.3	33.6	32.0	29.8	27.9	NA
Contributing Water Shed Area	acre	13.6	12.4	11.1	9.8	8.4	7.3	6.3	5.7	6.4	8.0	10.1	12.0	NA
Reservoir Run-off	ac-ft	2.49	5.95	5.21	6.05	5.07	4.32	1.59	0.41	0.27	0.12	0.14	0.75	32.38
Reservoir Precip (direct)	ac-ft	5.34	14.71	15.04	20.69	21.04	21.62	9.54	2.74	1.60	0.54	0.46	1.93	115.26
Reservoir Evaporation	ac-ft	-8.05	-3.55	-1.80	-1.39	-3.00	-5.68	-8.79	-17.30	-20.79	-22.23	-18.52	-13.01	-124.09
RMCC Irrigation Lakes														
Lake Water Shed Run-off	ac-ft	2.45	0	0	0	0	0	0	3.86	2.30	0.82	0.74	3.34	13.52
Lake Precipitation (direct)	ac-ft	0.76	0	0	0	0	0	0	1.20	0.71	0.25	0.23	1.04	4.19
Irrig. Lake Evaporation	ac-ft	-1.14	0	0	0	0	0	0	-7.55	-9.27	-10.40	-9.29	-6.97	-44.62
Disposal														
250 acres Golf Course Turf														
RMCC Golf Course Demand	ac-ft	-10.35	0	0	0	0	0	0	-89.4	-132.1	-143.7	-119.5	-82.7	-577.72
Effluent Storage														
Beginning Water Volume in Res.	ac-ft	277.0	313.7	382.8	458.5	545.3	628.6	709.3	759.2	696.2	576.5	439.1	332.5	NA
Change in Water Volume	ac-ft	36.7	69.1	75.7	86.9	83.3	80.6	49.9	-63.0	-119.7	-137.3	-106.7	-55.6	-0.17
Final Water Volume in Reservoirs	ac-ft	313.7	382.8	458.5	545.3	628.6	709.3	759.2	696.2	576.5	439.1	332.5	276.8	NA

		AVERAGE YEAR ANNUAL PRECIPITATION												
	Units	**Oct-06**	**Nov-06**	**Dec-06**	**Jan-07**	**Feb-07**	**Mar-07**	**Apr-07**	**May-07**	**Jun-07**	**Jul-07**	**Aug-07**	**Sep-07**	**Season Total**
Climate Inputs														
Precipitation (Average)	in	1.32	3.47	3.39	4.46	4.34	4.30	1.84	0.52	0.31	0.11	0.10	0.45	24.61
Precipitation (100-YR)	in	2.44	6.40	6.25	8.23	8.01	7.93	3.39	0.96	0.57	0.20	0.18	0.83	45.40
Pan Evaporation	in	4.89	2.06	1.25	0.92	1.90	3.47	5.21	8.07	9.91	11.12	9.93	7.45	66.18
Effective Lake Evaporation	in	3.67	1.55	0.94	0.69	1.43	2.60	3.91	6.05	7.43	8.34	7.45	5.59	49.64
Lake Evap - 100YR Effective	in	3.67	1.55	0.75	0.55	1.14	2.08	3.13	6.05	7.43	8.34	7.45	5.59	47.72
Percolation	in	0	0	0	0	0	0	0	0	0	0	0	0	0
RMCSD WWRP														
WW Influent - Monthly-Daily Flow	%	8.83	9.47	8.94	8.24	8.30	7.87	7.83	8.03	7.94	7.93	8.00	8.61	100
# Days in Month	days	31	30	31	31	28	31	30	31	30	31	31	30	365
Wastewater Influent	MG	14.37	14.92	14.55	13.42	12.32	12.81	12.34	13.07	12.51	12.90	13.02	13.57	159.81
Wastewater Influent	ac-ft	47.43	45.80	44.67	41.19	37.80	39.31	37.87	40.11	38.39	39.60	39.96	41.65	493.78
WW Influent + 100-YR I/I	ac-ft	54.65	53.53	51.97	47.93	44.58	45.74	44.27	46.67	44.88	46.08	46.50	48.69	575.47
Site Run-off	ac-ft	0.74	1.95	1.91	2.51	2.44	2.42	1.04	0.29	0.17	0.06	0.06	0.25	13.85
Pond Precipitation (direct)	ac-ft	1.18	3.09	3.02	3.98	3.87	3.84	1.64	0.46	0.28	0.10	0.09	0.40	21.95
Pond Evaporation	ac-ft	-3.27	-1.38	-0.84	-0.62	-1.27	-2.32	-3.49	-5.40	-6.63	-7.44	-6.64	-4.98	-44.27
RMCSD Secondary Storage Reservoirs														
Reservoir # 1 Vol	ac-ft	229.65	249.40	296.81	344.52	394.16	438.40	480.27	493.50	432.72	328.32	211.32	119.32	NA
Reservoir # 1 Depth	ft	16.2	17.2	19.5	21.7	23.8	25.6	27.1	27.6	25.4	21.0	15.2	10.2	NA
Reservoir # 1 Surface Area	acre	22.2	22.5	23.3	24.1	24.8	25.4	25.9	26.1	25.3	23.8	21.9	20.2	NA
Reservoir #2 Vol	ac-ft	47.18	51.23	60.97	70.77	80.97	90.06	98.66	101.38	88.89	67.45	43.41	24.51	NA
Reservoir # 2 Depth	ft	13.5	14.5	16.6	18.7	20.7	22.4	23.9	24.4	22.2	18.0	12.6	7.9	NA
Reservoir # 2 Surface Area	acre	4.6	4.8	5.1	5.4	5.7	5.9	6.1	6.2	5.9	5.3	4.5	3.9	NA
Total Water Surface Area	acre	26.9	27.3	28.4	29.4	30.4	31.3	32.0	32.3	31.2	29.1	26.4	24.0	NA
Contributing Water Shed Area	acre	13.1	12.7	11.6	10.5	9.5	8.7	7.9	7.7	8.8	10.9	13.6	15.9	NA
Reservoir Run-off	ac-ft	1.30	3.29	2.94	3.52	3.10	2.80	1.10	0.30	0.20	0.09	0.10	0.54	15.93
Reservoir Precip (direct)	ac-ft	2.95	7.90	8.03	10.94	11.01	11.21	4.91	1.40	0.81	0.27	0.22	0.90	64.28
Reservoir Evaporation	ac-ft	-8.21	-3.52	-2.22	-1.69	-3.62	-6.78	-10.43	-16.27	-19.31	-20.22	-16.39	-11.19	-130.53
RMCC Irrigation Lakes														
Lake Water Shed Run-off	ac-ft	5.32	0	0	0	0	0	7.41	2.09	1.25	0.44	0.40	1.81	18.73
Lake Precipitation (direct)	ac-ft	1.65	0	0	0	0	0	2.29	0.65	0.39	0.14	0.12	0.56	5.80
Irrig. Lake Evaporation	ac-ft	-4.57	0	0	0	0	0	-4.87	-7.55	-9.27	-10.40	-9.29	-6.97	-52.92
Disposal														
250 acres Golf Course Turf														
RMCC Golf Course Demand	ac-ft	-20.71	0	0	0	0	0	-21.53	-89.36	-132.12	-143.67	-119.53	-82.68	-609.60
Effluent Storage														
Beginning Water Volume in Res.	ac-ft	276.83	300.64	357.78	415.29	475.12	528.46	578.93	594.87	521.61	395.77	254.73	143.84	NA
Change in Water Volume	ac-ft	23.8	57.1	57.5	59.8	53.3	50.5	15.9	-73.3	-125.8	-141.0	-110.9	-59.7	-89.19
Final Water Volume in Reservoirs	ac-ft	300.6	357.8	415.3	475.1	528.5	578.9	594.9	521.6	395.8	254.7	143.8	84.1	NA

Difference between Year 1 and Year 2 -89.36

excess stored effluent from 2003 (projected from actual value as of June 1, 2005)

projected freeboard violation at 746AF

Attachment E -Table 3
Revised to Calculate Design Capacity
(no freeboard violation; after excess stored volume is reclaimed)

TABLE 1

100-YR Precipitation Return - Current Flow Conditions

Rancho Murieta Community Services District

100-YR MODIFIERS	
100-year Return Ration	1.84 unitless
100-YR modifier - Pan Evaporation	0.8 unitless
Normalized I&I	61.74 mg/MGD/yr
100-YR I/I Volume	37.4 mg

WWRP INFLUENT FLOWS & SITE INFO			
Projected Annual Flow 05-06	219 mg	Pan Evap Coefficient	0.75 unitless
Projected Influent Flow 05-06	672.13 ac-ft	WWRP Site Area	7.50 acres
Projected Annual Flow 06-07	223.72 mg	Run-off Coefficient	0.9 unitless
Projected Influent Flow 06-07	686.62 ac-ft	WWRP Pond Area Total	10.70 acres

WWRP SECONDARY STORAGE RESERVOIRS (#1 & #2)			
Reservoir Watershed Area	39.97 acres	Maximum Storage of Reserovirs	859.87 ac-ft
Run-off Coefficient for Reservoirs	0.9 unitless	Storage Volume of Reservoirs w/ 2ft of Freeboard	746.98 ac-ft
Storage Proportion in Reservoir #1	0.83 %	Volume Stored in Reservoirs by Sept 2005	100.0 ac-ft
Storage Proportion in Reservoir #2	0.17 %		

RANCHO MURIATE COUNTRY CLUB SITE INFO	
RMCC Lake Surface Water Area	14.97 acres
RMCC Contributing Water Shed	152.21 acres
RMCC Weighed Run-off Coefficient	0.32 unitless

value adjusted through trial and error to obtain maximum stored volume of 746 AF

New calculations added by A. Olson:

AF to MG conversion		**0.3258288**
Average daily dry weather flow	**mgd**	**0.67**
Average daily flow	**mgd**	**0.70**
Peak month average daily flow	**mgd**	**0.75**
Total annual flow	**MG**	**256**

0.70 mgd	**Average daily dry weather flow**
0.70 mgd	**Average daily flow**
257 MG	**Total annual flow**

		100-YEAR ANNUAL PRECIPITATION RETURN PERIOD												
	Units	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**	**May-06**	**Jun-06**	**Jul-06**	**Aug-06**	**Sep-06**	**Season Total**
Climate Inputs														
Precipitation (Average)	in	1.32	3.47	3.39	4.46	4.34	4.30	1.84	0.52	0.31	0.11	0.10	0.45	24.61
Precipitation (100-YR)	in	2.44	6.40	6.25	8.23	8.01	7.93	3.39	0.96	0.57	0.20	0.18	0.83	45.40
Pan Evaporation	in	4.89	2.06	1.25	0.92	1.90	3.47	5.21	8.07	9.91	11.12	9.93	7.45	66.18
Effective Lake Evaporation	in	3.67	1.55	0.94	0.69	1.43	2.60	3.91	6.05	7.43	8.34	7.45	5.59	49.64
Lake Evap - 100YR Effective	in	3.67	1.55	0.75	0.55	1.14	2.08	3.13	6.05	7.43	8.34	7.45	5.59	47.72
Percolation	in	0	0	0	0	0	0	0	0	0	0	0	0	0.00
RMCSD WWRP														
WW Influent - Monthly-Daily Flow	%	7.93	8.00	8.61	8.83	9.47	8.94	8.24	8.30	7.87	7.83	8.03	7.94	100
# Days in Month	days	31	30	31	31	28	31	30	31	30	31	31	30	365
Wastewater Influent	MG	17.69	17.28	19.23	19.71	19.27	19.96	17.81	18.53	16.99	17.48	17.92	17.15	219.02
Wastewater Influent	ac-ft	54.30	53.02	59.01	60.49	59.13	61.25	54.66	56.87	52.16	53.66	55.00	52.64	672.18
WW Influent + 100-YR I/I	ac-ft	63.41	62.22	68.91	70.64	70.01	71.52	64.13	66.41	61.20	62.66	64.22	61.77	787.10
Site Run-off	ac-ft	1.37	3.60	3.52	4.63	4.50	4.46	1.91	0.54	0.32	0.11	0.10	0.47	25.54
Pond Precipitation (direct)	ac-ft	2.17	5.71	5.58	7.34	7.14	7.08	3.03	0.86	0.51	0.18	0.16	0.74	40.49
Pond Evaporation	ac-ft	-3.27	-1.38	-0.67	-0.49	-1.02	-1.86	-2.79	-5.40	-6.63	-7.44	-6.64	-4.98	-42.56
RMCSD Secondary Storage Reservoirs														
Reservoir # 1 Vol	ac-ft	259.06	128.45	201.04	280.53	369.64	455.75	540.03	597.10	561.13	476.72	377.97	304.89	NA
Reservoir # 1 Depth	ft	17.7	10.7	14.7	18.7	22.8	26.2	29.2	31.0	29.9	27.0	23.1	19.9	NA
Reservoir # 1 Surface Area	acre	22.7	20.3	21.7	23.1	24.4	25.6	26.6	27.2	26.9	25.9	24.6	23.5	NA
Reservoir #2 Vol	ac-ft	53.22	26.39	41.30	57.63	75.93	93.62	110.94	122.66	115.27	97.93	77.64	62.63	NA
Reservoir # 2 Depth	ft	14.9	8.4	12.1	15.9	19.7	23.0	25.9	27.7	26.6	23.8	20.1	17.0	NA
Reservoir # 2 Surface Area	acre	4.8	3.9	4.5	5.0	5.5	6.0	6.4	6.6	6.5	6.1	5.6	5.1	NA
Total Water Surface Area	acre	27.5	24.3	26.2	28.0	30.0	31.6	33.0	33.8	33.3	32.0	30.1	28.6	NA
Contributing Water Shed Area	acre	12.4	15.7	13.8	11.9	10.0	8.4	7.0	6.1	6.6	8.0	9.9	11.4	NA
Reservoir Run-off	ac-ft	2.27	7.54	6.48	7.36	6.02	4.99	1.77	0.44	0.29	0.12	0.14	0.71	38.12
Reservoir Precip (direct)	ac-ft	5.59	12.95	13.63	19.23	19.99	20.89	9.34	2.71	1.59	0.54	0.46	1.98	108.88
Reservoir Evaporation	ac-ft	-8.42	-3.13	-1.63	-1.29	-2.85	-5.48	-8.60	-17.07	-20.64	-22.22	-18.69	-13.31	-123.33
RMCC Irrigation Lakes														
Lake Water Shed Run-off	ac-ft	2.45	0	0	0	0	0	0	3.86	2.30	0.82	0.74	3.34	13.52
Lake Precipitation (direct)	ac-ft	0.76	0	0	0	0	0	0	1.20	0.71	0.25	0.23	1.04	4.19
Irrig. Lake Evaporation	ac-ft	-1.14	0	0	0	0	0	0	-7.55	-9.27	-10.40	-9.29	-6.97	-44.62
Disposal														
250 acres Golf Course Turf														
RMCC Golf Course Demand	ac-ft	-10.35	0	0	0	0	0	0	-89.4	-132.1	-143.7	-119.5	-82.7	-577.72
Effluent Storage														
Beginning Water Volume in Res.	ac-ft	100.0	154.8	242.3	338.2	445.6	549.4	651.0	719.8	676.4	574.7	455.6	367.5	NA
Change in Water Volume	ac-ft	54.8	87.5	95.8	107.4	103.8	101.6	68.8	-43.4	-101.7	-119.0	-88.1	-37.9	229.62
Final Water Volume in Reservoirs	ac-ft	154.8	242.3	338.2	445.6	549.4	651.0	719.8	676.4	574.7	455.6	367.5	329.6	NA

		AVERAGE YEAR ANNUAL PRECIPITATION												
	Units	**Oct-06**	**Nov-06**	**Dec-06**	**Jan-07**	**Feb-07**	**Mar-07**	**Apr-07**	**May-07**	**Jun-07**	**Jul-07**	**Aug-07**	**Sep-07**	**Season Total**
Climate Inputs														
Precipitation (Average)	in	1.32	3.47	3.39	4.46	4.34	4.30	1.84	0.52	0.31	0.11	0.10	0.45	24.61
Precipitation (100-YR)	in	2.44	6.40	6.25	8.23	8.01	7.93	3.39	0.96	0.57	0.20	0.18	0.83	45.40
Pan Evaporation	in	4.89	2.06	1.25	0.92	1.90	3.47	5.21	8.07	9.91	11.12	9.93	7.45	66.18
Effective Lake Evaporation	in	3.67	1.55	0.94	0.69	1.43	2.60	3.91	6.05	7.43	8.34	7.45	5.59	49.64
Lake Evap - 100YR Effective	in	3.67	1.55	0.75	0.55	1.14	2.08	3.13	6.05	7.43	8.34	7.45	5.59	47.72
Percolation	in	0	0	0	0	0	0	0	0	0	0	0	0	0
RMCSD WWRP														
WW Influent - Monthly-Daily Flow	%	8.83	9.47	8.94	8.24	8.30	7.87	7.83	8.03	7.94	7.93	8.00	8.61	100
# Days in Month	days	31	30	31	31	28	31	30	31	30	31	31	30	365
Wastewater Influent	MG	20.13	20.90	20.39	18.80	17.25	17.94	17.28	18.31	17.52	18.07	18.24	19.01	223.84
Wastewater Influent	ac-ft	47.43	64.15	62.57	57.70	52.94	55.06	53.05	56.18	53.77	55.47	55.97	58.34	672.63
WW Influent + 100-YR I/I	ac-ft	57.58	75.03	72.84	67.17	62.48	64.10	62.05	65.41	62.90	64.58	65.17	68.24	787.55
Site Run-off	ac-ft	0.74	1.95	1.91	2.51	2.44	2.42	1.04	0.29	0.17	0.06	0.06	0.25	13.85
Pond Precipitation (direct)	ac-ft	1.18	3.09	3.02	3.98	3.87	3.84	1.64	0.46	0.28	0.10	0.09	0.40	21.95
Pond Evaporation	ac-ft	-3.27	-1.38	-0.84	-0.62	-1.27	-2.32	-3.49	-5.40	-6.63	-7.44	-6.64	-4.98	-44.27
RMCSD Secondary Storage Reservoirs														
Reservoir # 1 Vol	ac-ft	273.45	292.95	355.49	418.00	481.30	538.00	592.69	618.05	569.82	477.02	371.53	290.97	NA
Reservoir # 1 Depth	ft	18.4	19.3	22.2	24.8	27.2	29.1	30.8	31.6	30.1	27.0	22.9	19.2	NA
Reservoir # 1 Surface Area	acre	22.9	23.3	24.2	25.1	25.9	26.6	27.2	27.4	26.9	25.9	24.5	23.2	NA
Reservoir #2 Vol	ac-ft	56.17	60.18	73.03	85.87	98.87	110.52	121.75	126.96	117.06	97.99	76.32	59.77	NA
Reservoir # 2 Depth	ft	15.6	16.5	19.1	21.6	24.0	25.9	27.6	28.3	26.9	23.8	19.8	16.4	NA
Reservoir # 2 Surface Area	acre	4.9	5.1	5.4	5.8	6.1	6.4	6.6	6.7	6.5	6.1	5.5	5.0	NA
Total Water Surface Area	acre	27.9	28.3	29.7	30.9	32.0	33.0	33.8	34.1	33.5	32.0	30.0	28.3	NA
Contributing Water Shed Area	acre	12.1	11.7	10.3	9.1	7.9	7.0	6.2	5.8	6.5	8.0	10.0	11.7	NA
Reservoir Run-off	ac-ft	1.20	3.03	2.62	3.04	2.58	2.26	0.85	0.23	0.15	0.07	0.07	0.39	15.93
Reservoir Precip (direct)	ac-ft	3.07	8.19	8.38	11.48	11.59	11.82	5.18	1.48	0.86	0.29	0.25	1.06	64.28
Reservoir Evaporation	ac-ft	-8.52	-3.65	-2.32	-1.78	-3.81	-7.15	-11.00	-17.22	-20.72	-22.22	-18.61	-13.17	-130.53
RMCC Irrigation Lakes														
Lake Water Shed Run-off	ac-ft	5.32	0	0	0	0	0	7.41	2.09	1.25	0.44	0.40	1.81	18.73
Lake Precipitation (direct)	ac-ft	1.65	0	0	0	0	0	2.29	0.65	0.39	0.14	0.12	0.56	5.80
Irrig. Lake Evaporation	ac-ft	-4.57	0	0	0	0	0	-4.87	-7.55	-9.27	-10.40	-9.29	-6.97	-52.92
Disposal														
250 acres Golf Course Turf														
RMCC Golf Course Demand	ac-ft	-20.71	0	0	0	0	0	-21.53	-89.36	-132.12	-143.67	-119.53	-82.68	-609.60
Effluent Storage														
Beginning Water Volume in Res.	ac-ft	329.62	353.12	428.51	503.86	580.17	648.52	714.44	745.01	686.88	575.01	447.85	350.74	NA
Change in Water Volume	ac-ft	23.5	75.4	75.3	76.3	68.3	65.9	30.6	-58.1	-111.9	-127.2	-97.1	-45.0	-89.19
Final Water Volume in Reservoirs	ac-ft	353.1	428.5	503.9	580.2	648.5	714.4	745.0	686.9	575.0	447.8	350.7	305.8	NA

Difference between Year 1 and Year 2 140.43

stored effluent reduced to 100 AF

projected no freeboard violation at 746AF