

APPENDIX B - WATER CONSUMPTION/WELL PRODUCTION RECORDS

Comparison to sunriver

		Sunriver 2007	CRRWC 2011	CRRWC/SR
	Observed EDUS	4869 EDU	1579 Services (ave.)	32%
Average Day Demand	Observed ADD	1.431 MGD	0.5803 MGD	41%
	Observed ADD	994 gpm	403 gpm	41%
	ADD/EDU	294 gpd/EDU	367 gpd/meter ⁽¹⁾	125%
Maximum Month Demand	Observed MMD	2.661 MGD	0.982 MGD	37%
	Observed MMD	1848 gpm	682 gpm	37%
	MMD/EDU	546 gpd/EDU	641 gpd/meter	117%
	Observed MMD/ADD PF	1.86	1.75 ⁽²⁾	94%
Maximum Day Demand	Design MMD/ADD PF			
	Calculated or Observed MDD	4.080 MGD	1.489 MGD	36%
	Observed MDD	2833 gpm	1034 gpm	36%
	Observed MDD/EDU	838 gpd/EDU	943 gpd/meter	113%
Peak Hour Demand	Observed MDD/ADD PF	2.85	2.57 ⁽³⁾	90%
	Design MDD/ADD PF for Projections			
	Calculated or Observed PHD	5666 gpm	1775 gpm ⁽⁴⁾	31%
	Calculated or Observed PHD/EDU	1676 gpd/EDU	1619 gpd/meter	97%
	Calculated or Observed PHD/EDU	1.164 gpm/EDU	1.124 gpm/meter	97%
	Calculated or Design PHD/MDD PF	2.00	1.72	86%
	Effective PHD/ADD PF	5.703	4.405	77%

CRRWC Design for Existing

Conditions ⁽⁵⁾	CRRWC Design for Buildout ⁽⁵⁾	Sunriver Design	CRRWC 1997 MP	
1600 services	1660 services	5903	368	gpd/meter
0.6000 MGD	0.6225 MGD			
417 gpm	432 gpm			
375 gpd/meter	375 gpd/meter			
1.360 MGD	1.411 MGD	750	846	gpd/meter
944 gpm	980 gpm			
850 gpd/meter ⁽⁶⁾	850 gpd/meter ⁽⁶⁾			
2.27 Peaking Factor	2.27 Peaking Factor			
1.600 MGD	1.660 MGD	966	846	gpd/meter
1111 gpm	1153 gpm			
1000 gpd/meter	1000 gpd/meter			
2.67 Peaking Factor	2.67 Peaking Factor			
2222 gpm	2306 gpm	1932	NA	Peaking Factor
2000 gpd/meter	2000 gpd/meter			
1.389 gpm/meter	1.389 gpm/meter			
2.00 ⁽⁷⁾	2.00 ⁽⁷⁾			
5.33 Peaking Factor	5.33 Peaking Factor	6.44	NA	

1 ADD calculated by weighting by both days/month and #services/month, and includes assumed 13% system loss

2 MMD/ADD peaking factor calculated by comparing observed maximum gpd/meter/month to observed ADD. MMD (gpd/meter) calculated by multiplying PF by ADD (gpd/meter)

3 MDD/ADD peaking factor obtained by examining Well #4 production records. MDD/ADD peaking factor obtained by multiplying MDD/MMD PF by MMD/ADD PF.

4 PHD demand calculated based on Peak Summer drawdowns observed by CRRWC

5 Design values for ADD and MDD are based on providing a factor of safety in calculations used for planning purposes.

6 Design value for MMD based on peak month demand from 1997 Crooked River Ranch Water Master Plan

7 Design value for PHD based on using rule of thumb PHD/MDD peaking factor (PF=2), and provides factor of safety for planning purposes as observed PHD occurred over 5 hour period.

2011Water Year

start date	end date	number of days	Well #2	Well #4 monthly	total	monthly usage	Difference	% Difference	average daily usage	average daily usage (gal/day)	# of accounts	gpd/edu	gpm/edu
			monthly production (ft3/mo.)	production (ft3/mo.)	monthly production (ft3/mo.)		Between Production & Use	Between Production & Use					
1/3/2011	1/22/2011	20	539,174	4,516	543,690	1,499,300	-955,610	-175.76%	48,365	361,792	1591	227.4	0.2
1/23/2011	2/22/2011	31	987,167	2,077	989,244	2,687,900	-1,698,656	-171.71%	86,706	648,609	1591	407.7	0.3
2/23/2011	3/22/2011	28	931,483	0	931,483	576,200	355,283	38.14%	20,579	153,938	1595	96.5	0.1
3/23/2011	4/22/2011	31	1,044,178	0	1,044,178	1,718,400	-674,222	-64.57%	55,432	414,662	1604	258.5	0.2
4/23/2011	5/22/2011	30	150,435	1,331,800	1,482,235	1,398,700	83,535	5.64%	46,623	348,767	1601	217.8	0.2
5/23/2011	6/22/2011	31	312,063	1,657,600	1,969,663	2,639,700	-670,037	-34.02%	85,152	636,978	1521	418.8	0.3
6/23/2011	7/22/2011	30	572,200	2,582,300	3,154,500	2,900,800	253,700	8.04%	96,693	723,316	1525	474.3	0.3
7/23/2011	8/22/2011	31	1,068,100	2,615,600	3,683,700	3,601,800	81,900	2.22%	116,187	869,140	1531	567.7	0.4
8/23/2011	9/22/2011	31	871,100	2,390,000	3,261,100	2,864,100	397,000	12.17%	92,390	691,128	1605	430.6	0.3
9/23/2011	10/22/2011	30	195,000	1,473,400	1,668,400	2,335,100	-666,700	-39.96%	77,837	582,259	1608	362.1	0.3
10/23/2011	11/22/2011	31	151,800	787,300	939,100	636,300	302,800	32.24%	20,526	153,544	1600	96.0	0.1
Σ=		324	6,822,700	12,844,593	19,667,293	22,858,300	-3,191,007	-16.22%	68,234	510,424	1579.143	325.2	0.2
					gpm=	170,991,958.44						367	580265
												1.75	1.76
												641	

2010 Water Year

start date	end date	number of days	Well #2	Well #4 monthly	total	monthly usage	Difference	% Difference	average daily usage	average daily usage (gal/day)	# of accounts		
			monthly production (ft3/mo.)	production (ft3/mo.)	monthly production (ft3/mo.)		Between Production & Use	Between Production & Use					
12/23/2009	1/22/2010	31	0	850,700	850,700	806,100	44,600	5.24%	26,003	194,518	1579	123.2	
1/23/2010	2/22/2010	31	0	797,400	797,400	549,000	248,400	31.15%	17,710	132,478	1579	83.9	
2/23/2010	3/22/2010	28	0	792,900	792,900	767,500	25,400	3.20%	27,411	205,046	1584	129.4	
3/23/2010	4/22/2010	31	0	972,800	972,800	804,900	167,900	17.26%	25,965	194,228	1584	122.6	
4/23/2010	5/22/2010	30	0	1,458,700	1,458,700	1,303,900	154,800	10.61%	43,463	325,128	1585	205.1	
5/23/2010	6/22/2010	31	381,200	1,437,900	1,819,100	1,675,200	143,900	7.91%	54,039	404,238	1587	254.7	
6/23/2010	7/22/2010	30	2,030,300	1,765,000	3,795,300	3,368,700	426,600	11.24%	112,290	839,988	1587	529.3	
7/23/2010	8/22/2010	31	2,050,600	2,092,000	4,142,600	4,111,700	30,900	0.75%	132,635	992,182	1587	625.2	
8/23/2010	9/22/2010	31	1,695,800	1,039,100	2,734,900	2,210,800	524,100	19.16%	71,316	533,482	1589	335.7	
9/23/2010	10/22/2010	30	820,600	836,700	1,657,300	1,319,300	338,000	20.39%	43,977	328,968	1590	206.9	
10/23/2010	11/22/2010					353,900					1590		
11/23/2010	12/22/2010					354,000					1590		
Σ=		304	6,978,500	12,043,200	19,021,700	17,625,000	2,104,600	11.06%	57,977	433,698		262.4	
					0								
			36.69%	63.31%	% loss=	7.34%							

2009 Water Year

start date	end date	number of days	Well #2	Well #4 monthly	total	monthly usage	Difference	% Difference	average daily usage	average daily usage (gal/day)	# of accounts		
			monthly production (ft3/mo.)	production (ft3/mo.)	monthly production (ft3/mo.)		Between Production & Use	Between Production & Use					
12/23/2008	1/22/2009	31	0	1,171,400	1,171,400	1,166,500	4,900	0.42%	37,629	281,485	1577	178.5	
1/23/2009	2/22/2009	31	0	919,100	919,100	676,100	243,000	26.44%	21,810	163,148	1577	103.5	
2/23/2009	3/22/2009	28	0	742,800	742,800	666,900	75,900	10.22%	23,818	178,170	1577	113.0	
3/23/2009	4/22/2009	31	0	1,161,700	1,161,700	1,143,200	18,500	1.59%	36,877	275,862	1578	174.8	
4/23/2009	5/22/2009	30	0	1,192,000	1,192,000	1,750,200	-558,200	-46.83%	58,340	436,414	1578	276.6	
5/23/2009	6/22/2009	31	1,759,500	1,329,100	3,088,600	2,094,200	994,400	32.20%	67,555	505,345	1580	319.8	
6/23/2009	7/22/2009	30	1,754,400	2,485,500	4,239,900	3,966,700	273,200	6.44%	132,223	989,099	1581	625.6	
7/23/2009	8/22/2009	31	1,939,900	2,032,500	3,972,400	3,569,900	402,500	10.13%	115,158	861,442	1579	545.6	
8/23/2009	9/22/2009	31	1,644,400	1,446,300	3,090,700	2,783,900	306,800	9.93%	89,803	671,775	1578	425.7	
9/23/2009	10/22/2009	30	1,283,800	414,900	1,698,700	1,237,800	460,900	27.13%	41,260	308,646	1579	195.5	
10/23/2009	11/22/2009	31	0	867,700	867,700	694,300	173,400	19.98%	22,397	167,540	1579	106.1	
11/23/2009	12/22/2009	30	0	1,019,400	1,019,400	668,500	350,900	34.42%	22,283	166,691	1582	105.4	
Σ=		365	8,382,000	14,782,400	23,164,400	20,418,200	2,746,200	11.86%	55,940	418,462		265.0	
					0								
			36.18%	63.82%	% loss=	11.86%							

2008 Water Year

start date	end date	number of days	Well #2	Well #4 monthly	total	monthly usage	Difference	% Difference	average daily usage	average daily usage (gal/day)	# of accounts		
			monthly production (ft3/mo.)	production (ft3/mo.)	monthly production (ft3/mo.)		Between Production & Use	Between Production & Use					
12/23/2007	1/22/2008	31	0	952,400	952,400	685,300	267,100	28.04%	22,106	165,368	1571	105.3	
1/23/2008	2/22/2008	31	0	1,012,400	1,012,400	805,300	207,100	20.46%	25,977	194,325	1569	123.9	
2/23/2008	3/22/2008	29	0	901,600	901,600	785,100	116,500	12.92%	27,072	202,516	1569	129.1	
3/23/2008	4/22/2008	31	0	1,107,800	1,107,800	881,500	226,300	20.43%	28,435	212,712	1576	135.0	
4/23/2008	5/22/2008	30	0	2,005,600	2,005,600	1,872,000	133,600	6.66%	62,400	466,784	1573	296.7	
5/23/2008	6/22/2008	31	0	2,499,000	2,499,000	2,398,200	100,800	4.03%	77,361	578,703	1578	366.7	
6/23/2008	7/22/2008	30	1,322,400	2,857,200	4,179,600	3,659,400	520,200	12.45%	121,980	912,474	1575	579.3	
7/23/2008	8/22/2008	31	2,014,700	1,871,600	3,886,300	3,351,600	534,700	13.76%	108,116	808,765	1580	511.9	
8/23/2008	9/22/2008	31	1,837,700	1,357,200	3,194,900	2,778,100	416,800	13.05%	89,616	670,375	1577	425.1	
9/23/2008	10/22/2008	30	1,524,500	173,800	1,698,300	1,389,900	308,400	18.16%	46,330	346,572	1577	219.8	
10/23/2008	11/22/2008	31	395,400	565,900	961,300	636,200	325,100	33.82%	20,523	153,520	1576	97.4	
11/23/2008	12/22/2008	30	0	751,900	751,900	636,800	115,100	15.31%	21,227	158,786	1577	100.7	
Σ=		366	7,094,700	16,056,400	23,151,100	19,879,400	3,271,700	14.13%	54,315	406,307		257.8	
					0								
			30.65%	69.35%	% loss=	14.13%							

2007 Water Year

		Well #2		total		Difference		% Difference				
		monthly	Well #4 monthly	monthly			Between	Between	average daily			
start date	end date	number of days	production (ft3/mo.)	production (ft3/mo.)	production (ft3/mo.)	monthly usage (ft³/mo.)	Production & Use	Production & Use	usage (ft³/day)	average daily usage (gal/day)	# of accounts	
12/23/2006	1/22/2007	31	0	957,700	957,700	801,600	156,100	16.30%	25,858	193,432	1570	123.2
1/23/2007	2/22/2007	31	0	1,011,200	1,011,200	657,100	354,100	35.02%	21,197	158,563	1572	100.9
2/23/2007	3/22/2007	28	0	920,900	920,900	814,700	106,200	11.53%	29,096	217,656	1573	138.4
3/23/2007	4/22/2007	31	0	1,323,600	1,323,600	1,208,400	115,200	8.70%	38,981	291,595	1569	185.8
4/23/2007	5/22/2007	30	832,100	1,479,900	2,312,000	1,721,000	591,000	25.56%	57,367	429,132	1570	273.3
5/23/2007	6/22/2007	31	2,010,000	1,258,900	3,268,900	3,399,000	-130,100	-3.98%	109,645	820,203	1570	522.4
6/23/2007	7/22/2007	30	2,043,600	1,565,800	3,609,400	3,331,700	277,700	7.69%	111,057	830,762	1571	528.8
7/23/2007	8/22/2007	31	2,052,900	1,555,400	3,608,300	3,345,100	263,200	7.29%	107,906	807,196	1508	535.3
8/23/2007	9/22/2007	31	2,003,300	831,200	2,834,500	2,405,600	428,900	15.13%	77,600	580,488	1572	369.3
9/23/2007	10/22/2007	30	774,800	689,900	1,464,700	1,035,800	428,900	29.28%	34,527	258,277	1571	164.4
10/23/2007	11/22/2007	31	0	990,100	990,100	775,800	214,300	21.64%	25,026	187,206	1571	119.2
11/23/2007	12/22/2007	30	0	783,300	783,300	788,300	-5,000	-0.64%	26,277	196,563	1571	125.1
Σ=		365	9,716,700	13,367,900	23,084,600	20,284,100	2,800,500	12.13%	55,573	415,714		266.5
			9,716,700	13,367,900	23,084,600							
			42.09%	57.91%	% loss=	12.13%						