SAN GABRIEL VALLEY BASIN SNMP TABLES

TABLE III.1
WATER QUALITY OBJECTIVES FOR THE MAIN SAN GABRIEL BASIN

CONSTITUENT	BASIN PLAN OBJECTIVES
BACTERIA (Objective in coliforms per 100 mL)	
COLIFORM	1.1
INORGANIC CHEMICALS (MCLs in mg/L) (TABLE 64431-A) [1]	
ALUMINUM	1
ANTIMONY	0.006
ARSENIC	0.01
ASBESTOS [2] (in MFL)	7
BARIUM	1
BERYLLIUM	0.004
CADMIUM	0.005
CHROMIUM	0.05
CYANIDE	0.15
FLUORIDE	2
MERCURY	0.002
NICKEL	0.1
NITRATE (as NO_3)	45
NITRATE + NITRITE (as N)	10
NITRITE (as N)	1
PERCHLORATE	0.006
SELENIUM	0.05
THALLIUM	0.002
RADIOACTIVITY (MCLs in pCi/L) (TABLES 64442 AND 64443) [1]	
RADIUM 226 + RADIUM 228	5
GROSS ALPHA	15
URANIUM	20
BETA/PHOTON EMITTERS (in millirem/year)	4
STRONTIUM 90	8
TRITIUM	20,000

TABLE III.1
WATER QUALITY OBJECTIVES FOR THE MAIN SAN GABRIEL BASIN

CONSTITUENT	BASIN PLAN OBJECTIVES
ORGANIC CHEMICALS (MCLs in mg/L)	
VOLATILE ORGANIC CHEMICALS (TABLE 64444-A) [1]	
BENZENE	0.001
CARBON TETRACHLORIDE	0.0005
1,2-DICHLOROBENZENE	0.6
1,4-DICHLOROBENZENE	0.005
1,1-DICHLOROETHANE	0.005
1,2-DICHLOROETHANE	0.0005
1,1-DICHLOROETHYLENE	0.006
cis-1,2-DICHLOROETHYLENE	0.006
trans-1,2-DICHLOROETHYLENE	0.01
DICHLOROMETHANE	0.005
1,2-DICHLOROPROPANE	0.005
1,3-DICHLOROPROPENE	0.0005
ETHYLBENZENE	0.3
METHYL-TERT-BUTYL ETHER (MTBE)	0.013
MONOCHLOROBENZENE	0.07
STYRENE	0.1
1,1,2,2-TETRACHLOROETHANE	0.001
TETRACHLOROETHYLENE	0.005
TOLUENE	0.15
1,2,4-TRICHLOROBENZENE	0.005
1,1,1-TRICHLOROETHANE	0.2
1,1,2-TRICHLOROETHANE	0.005
TRICHLOROETHYLENE	0.005
TRICHLOROFLUOROMETHANE	0.15
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON 113)	1.2
VINYL CHLORIDE	0.0005
XYLENES	1.75 [3]

TABLE III.1
WATER QUALITY OBJECTIVES FOR THE MAIN SAN GABRIEL BASIN

CONSTITUENT	BASIN PLAN OBJECTIVES
NON-VOLATILE SYNTHETIC ORGANIC CHEMICALS (TABLE 64444-A) [1]	
ALACHLOR	0.002
ATRAZINE	0.001
BENTAZON	0.018
BENZO (A) PYRENE	0.0002
CARBOFURAN	0.018
CHLORDANE	0.0001
2,4-D	0.07
DALAPON	0.2
DIBROMOCHLOROPROPANE	0.0002
DI (2-ETHYLHEXYL) ADIPATE	0.4
DI (2-ETHYLHEXYL) PHTHALATE	0.004
DINOSEB	0.007
DIQUAT	0.02
ENDOTHALL	0.1
ENDRIN	0.002
ETHYLENE DIBROMIDE (EDB)	0.00005
GLYPHOSATE	0.7
HEPTACHLOR	0.00001
HEPTACHLOR EPOXIDE	0.00001
HEXACHLOROBENZENE	0.001
HEXACHLOROCYCLOPENTADIENE	0.05
LINDANE	0.0002
METHOXYCHLOR	0.03
MOLINATE	0.02
OXAMYL	0.05
PENTACHLOROPHENOL	0.001
PICLORAM	0.5
POLYCHLORINATED BIPHENOLS (Total PCBs)	0.0005
SIMAZINE	0.004
THIOBENCARB	0.07
TOXAPHENE	0.003
2,3,7,8-TCDD (DIOXIN)	3×10^{-8}
2,4,5-TP (SILVEX)	0.05

TABLE III.1
WATER QUALITY OBJECTIVES FOR THE MAIN SAN GABRIEL BASIN

CONSTITUENT	BASIN PLAN OBJECTIVES
MINERALS (Objectives in mg/L)	
TOTAL DISSOLVED SOLIDS [4]	450/600
SULFATE	100
CHLORIDE	100
BORON	0.5

NOTES :

[1] Title 22, Division 4, Chapter 15 - California Code of Regulations - Updated June 21, 2012

[2] For fibers exceeding 10 micrometers in length

[3] MCL for either a single isomer or the sum of isomers

[4] 450 mg/L for Western Area west of Walnut Creek, Big Dalton Wash, and Little Dalton Wash
600 mg/L for Eastern Area east of Walnut Creek, Big Dalton Wash, and Little Dalton Wash

MCL : Maximum contaminant level
mL : Milliliter
MFL : Million fibers per liter
pCi/L : Picocuries per liter
mg/L : Milligrams per liter

TABLE III.2
PRECIPITATION AND RUNOFF IN THE SAN GABRIEL RIVER AND RIO HONDO WATERSHEDS

column (1)	(2)	(3)	(4) = (2) * (3) / 12	(5)	(6)	(7) = (5) * (6) / 12	(8)	(9)	(10) = (8) * (9) /12	(11) = (4) + (7) + (10)	(12)	(13) = (12) / (11)
	Precipitation volume										Runoff	Runoff
Water Year	Valley Floor			San Gabriel Mountains Watershed			Southern Low Hills Watershed				Volume	Coefficient†
(Oct-Sept)	in/yr	acres	af/yr	in/yr	acres	af/yr	in/yr	acres	af/yr	total	af/yr	%
1924/25	12.85	106,880	114,500		167,584		10.61	39,136	34,600	149,100	n	
1925/26	22.42	106,880	199,700		167,584		18.61	39,136	60,700	260,400	n	
1926/27	25.13	106,880	223,800	30.04	167,584	419,500	22.43	39,136	73,200	716,500	n	
1927/28	13.66	106,880	121,700	15.52	167,584	216,700	15.44	39,136	50,400	388,800	n	
1928/29	15.43	106,880	137,400	20.46	167,584	285,700	13.70	39,136	44,700	467,800	n	
1929/30	15.39	106,880	137,000	20.33	167,584	283,900	13.57	39,136	44,300	465,200	n	
1930/31	16.75	106,880	149,200	19.77	167,584	276,100	13.39	39,136	43,700	469,000	n	
1931/32	22.10	106,880	196,800	28.66	167,584	400,300	19.72	39,136	64,300	661,400	n	
1932/33	13.68	106,880	121,800	17.81	167,584	248,800	11.17	39,136	36,400	407,000	n	
1933/34	20.68	106,880	184,200	25.40	167,584	354,700	16.47	39,136	53,700	592,600	n	
1934/35	23.12	106,880	205,900	32.97	167,584	460,500	22.19	39,136	72,400	738,800	n	
1935/36	15.28	106,880	136,100	22.61	167,584	315,700	13.37	39,136	43,600	495,400	n	
1936/37	28.31	106,880	252,200	40.89	167,584	571,100	26.77	39,136	87,300	910,600	n	
1937/38	28.53	106,880	254,100	43.49	167,584	607,300	25.99	39,136	84,800	946,200	n	
1938/39	19.91	106,880	177,300	26.11	167,584	364,700	18.11	39,136	59,100	601,100	n	
1939/40	15.12	106,880	134,700	21.39	167,584	298,700	13.86	39,136	45,200	478,600	n	
1940/41	39.18	106,880	349,000	53.05	167,584	740,800	35.29	39,136	115,100	1,204,900	n	
1941/42	13.62	106,880	121,300	17.93	167,584	250,400	12.83	39,136	41,800	413,500	n	
1942/43	27.60	106,880	245,800	47.34	167,584	661,200	23.29	39,136	75,900	982,900	n	
1943/44	22.34	106,880	199,000	32.33	167,584	451,500	16.29	39,136	53,100	703,600	n	
1944/45	16.27	106,880	144,900	25.21	167,584	352,100	16.28	39,136	53,100	550,100	n	
1945/46	14.99	106,880	133,500	24.72	167,584	345,300	15.17	39,136	49,500	528,300	n	
1946/47	17.43	106,880	155,200	28.24	167,584	394,400	14.27	39,136	46,600	596,200	n	
1947/48	10.32	106,880	91,900	13.82	167,584	193,000	9.74	39,136	31,800	316,700	n	
1948/49	11.51	106,880	102,500	16.82	167,584	234,900	11.02	39,136	36,000	373,400	n	
1949/50	14.12	106,880	125,800	20.32	167,584	283,800	12.93	39,136	42,200	451,800	n	
1950/51	9.79	106,880	87,200	13.02	167,584	181,800	9.39	39,136	30,600	299,600	n	
1951/52	31.51	106,880	280,700	43.80	167,584	611,600	28.88	39,136	94,200	986,500	n	
1952/53	12.12	106,880	107,900	16.11	167,584	225,000	11.84	39,136	38,600	371,500	n	
1953/54	15.62	106,880	139,100	23.05	167,584	321,900	16.50	39,136	53,800	514,800	n	
1954/55	13.79	106,880	122,800	19.68	167,584	274,900	12.66	39,136	41,300	439,000	n	
1955/56	17.79	106,880	158,500	22.49	167,584	314,000	16.06	39,136	52,400	524,900	n	
1956/57	14.36	106,880	127,900	20.08	167,584	280,400	10.85	39,136	35,400	443,700	n	
1957/58	30.19	106,880	268,900	41.77	167,584	583,400	28.54	39,136	93,100	945,400	n	
1958/59	9.51	106,880	84,700	13.74	167,584	191,900	7.78	39,136	25,400	302,000	n	
1959/60	10.47	106,880	93,200	13.75	167,584	192,000	10.16	39,136	33,100	318,300	n	
1960/61	6.11	106,880	54,400	9.91	167,584	138,400	5.75	39,136	18,800	211,600	18,750	8.9%
1961/62	23.20	106,880	206,600	31.68	167,584	442,400	20.17	39,136	65,800	714,800	133,660	18.7%
1962/63	11.88	106,880	105,800	17.60	167,584	245,800	11.68	39,136	38,100	389,700	24,740	6.3%
1963/64	10.63	106,880	94,600	15.61	167,584	218,000	8.98	39,136	29,300	341,900	21,910	6.4%
1964/65	15.93	106,880	141,900	23.61	167,584	329,800	14.81	39,136	48,300	520,000	47,810	9.2%
1965/66	21.53	106,880	191,700	36.18	167,584	505,300	17.39	39,136	56,700	753,700	235,210	31.2%
1966/67	26.04	106,880	231,900	41.59	167,584	580,800	23.09	39,136	75,300	888,000	274,260	30.9%
1967/68	14.19	106,880	126,400	19.03	167,584	265,800	13.51	39,136	44,100	436,300	n	
1968/69	33.22	106,880	295,900	58.82	167,584	821,500	29.06	39,136	94,800	1,212,200	n	
1969/70	12.23	106,880	108,900	18.49	167,584	258,300	10.88	39,136	35,500	402,700	n	
1970/71	14.07	106,880	125,300	21.71	167,584	303,200	12.34	39,136	40,300	468,800	n	
1971/72	8.53	106,880	76,000	11.94	167,584	166,800	8.22	39,136	26,800	269,600	n	
1972/73	23.26	106,880	207,200	32.97	167,584	460,500	20.81	39,136	67,900	735,600	n	
1973/74	16.84	106,880	150,000	25.34	167,584	353,800	14.88	39,136	48,500	552,300	n	
1974/75	14.73	106,880	131,200	21.76	167,584	303,900	13.56	39,136	44,200	479,300	125,360	26.2%
1975/76	12.98	106,880	115,600	21.64	167,584	302,300	11.39	39,136	37,200	455,100	96,570	21.2%
1976/77	14.35	106,880	127,800	19.57	167,584	273,300	12.97	39,136	42,300	443,400	62,360	14.1%
1977/78	39.78	106,880	354,300	60.18	167,584	840,400	36.68	39,136	119,600	1,314,300	714,220	54.3%
1978/79	22.42	106,880	199,700	30.50	167,584	426,000	22.57	39,136	73,600	699,300	258,610	37.0%
1979/80	35.12	106,880	312,800	50.43	167,584	704,300	30.76	39,136	100,300	1,117,400	620,480	55.5%
1980/81	10.61	106,880	94,500	15.91	167,584	222,200	9.38	39,136	30,600	347,300	139,830	40.3%
1981/82	18.58	106,880	165,500	30.93	167,584	431,900	16.51	39,136	53,800	651,200	153,430	23.6%
1982/83	40.35	106,880	359,400	60.50	167,584	844,900	35.26	39,136	115,000	1,319,300	580,390	44.0%
1983/84	9.94	106,880	88,500	17.03	167,584	237,900	9.89	39,136	32,200	358,600	125,300	34.9%
1984/85	14.38	106,880	128,100	21.57	167,584	301,300	14.48	39,136	47,200	476,600	121,420	25.5%
1985/86	23.37	106,880	208,100	33.26	167,584	464,600	21.61	39,136	70,500	743,200	205,610	27.7%
1986/87	8.72	106,880	77,700	11.62	167,584	162,300	8.38	39,136	27,300	267,300	132,170	49.4%
1987/88	16.27	106,880	144,900	28.72	167,584	401,100	14.17	39,136	46,200	592,200	135,020	22.8%
1988/89	11.71	106,880	104,300	21.00	167,584	293,300	10.69	39,136	34,900	432,500	158,490	36.6%
1989/90	11.25	106,880	100,200	15.72	167,584	219,500	10.63	39,136	34,700	354,400	153,030	43.2%
1990/91	16.33	106,880	145,400	24.23	167,584	338,400	15.54	39,136	50,700	534,500	195,490	36.6%
1991/92	22.47	106,880	200,100	37.58	167,584	524,800	21.16	39,136	69,000	793,900	310,420	39.1%
1992/93	36.92	106,880	328,800	58.40	167,584	815,500	36.20	39,136	118,100	1,262,400	752,490	59.6%
1993/94	11.66	106,880	103,900	17.12	167,584	239,100	11.23	39,136	36,600	379,600	76,080	20.0%
1994/95	31.19	106,880	277,800	48.67	167,584	679,600	28.77	39,136	93,800	1,051,200	340,500	32.4%
1995/96	17.02	106,880	151,600	26.59	167,584	371,300	14.86	39,136	48,500	571,400	199,600	34.9%
1996/97	17.72	106,880	157,800	27.13	167,584	378,900	18.34	39,136	59,800	596,500	164,510	27.6%
1997/98	36.81	106,880	327,900	50.84	167,584	710,000	36.24	39,136	118,200	1,156,100	444,060	38.4%
1998/99	8.77	106,880	78,100	14.37	167,584	200,700	7.76	39,136	25,300	304,100	66,940	22.0%
1999/00	15.06	106,880	134,100	21.49	167,584	300,100	12.99	39,136	42,400	476,600	n	
2000/01	16.12	106,880	143,500	23.15	167,584	323,300	15.35	39,136	50,100	516,900	157,540	30.5%
2001/02	6.85	106,880	61,000	10.31	167,584	143,900	5.66	39,136	18,400	223,300	137,430	61.5%
2002/03	19.49	106,880	173,600	29.22	167,584	408,000	19.32	39,136	63,000	644,600	196,230	30.4%
2003/04	12.86	106,880	114,500	16.64	167,584	232,400	12.43	39,136	40,500	387,400	150,380	38.8%
2004/05	45.42	106,880	404,500	67.41	167,584	941,400	38.91	39,136	126,900	1,472,800	852,940	57.9%
2005/06	16.61	106,880	147,900	26.07	167,584	364,100	14.20	39,136	46,300	558,300	290,230	52.0%
2006/07	5.72	106,880	51,000	9.77	167,584	136,500	5.06	39,136	16,500	204,000	109,290	53.6%
2007/08	17.20	106,880	153,200	27.10	167,584	378,500	13.95	39,136	45,500	577,200	171,320	29.7%
2008/09	12.90	106,880	114,900	17.68	167,584	246,900	13.64	39,136	44,500	406,300	92,750	22.8%
2009/10	20.13	106,880	179,300	29.16	167,584	407,300	17.97	39,136	58,600	645,200	260,560	40.4%
2010/11	25.40	106,880	226,200	38.16	167,584	532,900	23.12	39,136	75,400	834,500	223,450	26.8%
max	45.42		404,500	67.41		941,400	38.91		126,900	1,472,800	852,900	61.5%
min	5.72		51,000	9.77		136,500	5.06		16,500	149,100	18,800	6.3%
mean	18.57		165,400	27.28		381,000	16.88		55,000	592,700	226,300	33.1%
2006-2011	16.27		144,900	24.37		340,400	14.75		48,100	533,400	171,500	34.6%
2001-2011	18.26		162,600	27.15		379,200	16.43		53,600	595,400	248,500	41.4%

Data Source App.C (10) App.C (22) App.C (28) App D (12)

† The runoff coefficient indicates the long-term effects of development in impervious surfaces, limiting infiltration and increasing runoff.

TABLE III.3
SUMMARY OF AQUIFER PERFORMANCE TESTS CONDUCTED BY CALIFORNIA DEPARTMENT OF WATER RESOURCES

PRODUCER NAME	AQUIFER PERFORMANCE TEST SETTING				ESTIMATED AQUIFER CHARACTERISTICS				
					TRANSMISSIVITY		HYDRAULIC CONDUCTIVITY		STORAGE COEFFICIENT
	PUMPING WELL	MONITORING WELL	TEST TYPE	TESTING DATE	(GPD/FT)	(FT^2/D)	(GPD/FT^2)	(FT/D)	
AZUSA AGRICULTURAL WATER COMPANY	01N/10W-22P01 (NO. 1)	01N/10W-22P02 (NO. 2)	DRAWDOWN	12/22/1960	124,000	16,578	NA	NA	0.00006
AZUSA VALLEY WATER COMPANY	01N/10W-27K02 (NO. 4)	01N/10W-27K01 (NO. 5)	DRAWDOWN	12/19/1960	595,000	79,545	4,900	655	0.018
ARCADIA, CITY OF	01N/11W-34N03 (C. REAL 1)	01N/11W-34N05 (C. REAL 2)	DRAWDOWN	12/7/1960	377,000	50,401	696	93	0.0036
UNKNOW	01S/09W-08D01	NONE	RECOVERY	12/16/1961	49,000	6,551	NA	NA	NA
AZUSA, CITY OF	01S/10W-03A01 (NO. 4)	01S/10W-03H01 (NO. 6)	DRAWDOWN	12/16/1960	875,000	116,979	2,182	292	0.00028
GLENDORA, CITY OF	01S/10W-10C01 (4-E)	01S/10W-10C02 (3-G)	DRAWDOWN	12/21/1960	263,000	35,160	954	128	0.011
COVINA, CITY OF	01S/10W-12R01 (GRAND)	NONE	RECOVERY	11/6/1961	203,000	27,139	NA	NA	NA
COVINA, CITY OF	01S/10W-14B01 (NO. 1)	NONE	RECOVERY	11/7/1960	42,000	5,615	NA	NA	NA
SUBURBAN WATER SYSTEMS	01S/10W-28K03 (102W-1)	01S/10W-28K04 (102W-2)	DRAWDOWN	11/16/1960	83,000	11,096	512	68	0.00022
SUBURBAN WATER SYSTEMS	01S/10W-30G01 (140W-1)	01S/10W-30G03 (140W-2)	DRAWDOWN	11/30/1960	559,000	74,733	NA	NA	0.0025
ARCADIA, CITY OF	01S/11W-02F01 (LON 1)	01S/11W-02F02 (LON 2)	DRAWDOWN	12/8/1960	750,000	100,267	1,769	236	0.00029
SAN GABRIEL VALLEY WATER COMPANY	01S/11W-10N06 (2C)	NONE	RECOVERY	11/14/1961	260,000	34,759	NA	NA	NA
SAN GABRIEL VALLEY WATER COMPANY	01S/11W-26K01 (B5A)	01S/11W-26G01 (B5B)	DRAWDOWN	11/14/1961	477,000	63,770	NA	NA	0.0006
SAN GABRIEL VALLEY WATER COMPANY	01S/11W-30B01 (8A)	NONE	RECOVERY	11/15/1960	110,000	14,706	NA	NA	NA
SAN GABRIEL COUNTY WATER DISTRICT	01S/12W-11D01 (NO. 8)	NONE	RECOVERY	11/17/1961	134,000	17,914	NA	NA	NA
SAN GABRIEL COUNTY WATER DISTRICT	01S/12W-13B01 (NO. 5 BRA)	01S/12W-13B02 (NO. 6 BRA)	DRAWDOWN	11/16/1961	33,000	4,412	NA	NA	NA

Notes

Data from Table 9-2, Planned Utilization of Ground Water Basins, San Gabriel Valley, Appendix A: Geohydrology. Bulletin No. 104-2. CDWR. March 1966.
GPD/FT: Gallons per day per foot
FT^2/D: Square feet per day
GPD/FT^2: Gallons per day per square foot
FT/D: Feet per day
NA: Not available

TABLE III.4
SUMMARY OF AQUIFER PERFORMANCE TESTS CONDUCTED BY MAIN SAN GABRIEL BASIN WATERMASTER

PRODUCER NAME	AQUIFER PERFORMANCE TEST SETTING			ESTIMATED AQUIFER CHARACTERISTICS					
				TRANSMISSIVITY		HYDRAULIC CONDUCTIVITY		STORAGE COEFFICIENT	AQUIFER TYPE
	PUMPING WELL	MONITORING WELL(S)	TESTING DATE(S)	(GPD/FT)	(FT^2/D)	(GPD/FT^2)	(FT/D)		
SOUTHERN CALIFORNIA WATER COMPANY	SAX 1	SAX 3	12/13/1991	119,000	15,909	330	44	0.0008	Semi-Confined
MONROVIA, CITY OF	No. 2	No. 1 and 3	04/15-16/1992	625,000	83,556	2,080	278	0.0026	Semi-Confined
CALIFORNIA AMERICAN WATER COMPANY	ROSEMEAD	GRAND	07/16-17/1992	539,000	72,059	2,840	380	0.0013	Semi-Confined
COVINA IRRIGATING COMPANY	3 BAL	1 BAL	07/27-28/1992	1,100,000	147,059	3,100	414	0.0026	Semi-Confined
ALHAMBRA, CITY OF	No. 8	No. 7 and 12	08/13-14/1992	429,000	57,353	2,600	348	0.0035	Semi-Confined
SAN GABRIEL VALLEY WATER COMPANY	B6B	B6C	09/24/1992	529,000	70,722	1,970	263	0.000082	Semi-Confined
INDUSTRY, CITY OF	No. 2	No. 1	10/01/1992	412,000	55,080	1,650	221	0.0073	Semi-Confined
SUBURBAN WATER SYSTEMS	140W-4	140W-5 and W-3	06/03/1993	573,000	76,604	1,110	148	0.0037	Semi-Confined
SOUTHERN CALIFORNIA WATER COMPANY	2 GID	1 GID	09/13/1993	93,000	12,433	1,760	235	0.00103	Confined
SUBURBAN WATER SYSTEMS	155W-2	155W-1	09/28/1993	39,000	5,214	1,020	136	0.000574	Confined
SAN GABRIEL VALLEY WATER COMPANY	11B	11C	05/05/1994	93,000	12,433	540	72	0.00069	Semi-Confined
MONTEREY PARK, CITY OF	No. 12	No. 9	07/20/1995	282,000	37,701	600	80	0.0015	Semi-Confined
SUBURBAN WATER SYSTEMS	139W-2	139W-1	11/02/1995	752,000	100,535	3,200	428	0.0013	Semi-Confined
SUNNY SLOPE WATER COMPANY	No. 8	No. 9	11/15/1995	236,000	31,551	670	90	0.00087	Semi-Confined
CALIFORNIA DOMESTIC WATER COMPANY	No. 8	No. 2	12/27/1995	271,000	36,230	1,100	147	0.0002	Semi-Confined
SAN GABRIEL VALLEY WATER COMPANY	B5A	B5B	05/03/1996	226,000	30,214	1,510	202	0.00019	Semi-Confined
SAN GABRIEL VALLEY WATER COMPANY	B4B	B4C	7/24/1996	583,600	78,021	2,690	360	0.000025	Confined
SUBURBAN WATER SYSTEMS	201W6	201W-1 and W-2	12/19/1996	505,000	67,513	2,940	393	0.00051	Confined
AZUSA LIGHT AND WATER	GEN 3	GEN 1	3/20/1997	539,600	72,139	2,202	294	0.00058	Semi-Confined
SUBURBAN WATER SYSTEMS	148W-1	133W-1	4/4/1997	94,460	12,628	3,150	421	0.00039	Confined
EL MONTE, CITY OF	No. 12	No. 13	4/9/1997	358,900	47,981	1,100	147	0.00089	Semi-Confined
SOUTHERN CALIFORNIA WATER COMPANY	ENC 3	ENC 1 and ENC 2	11/20/1997	272,000	36,364	1,127	151	0.00021	Confined
SAN GABRIEL VALLEY WATER COMPANY	8E	8D	04/17/1998	1,167,300	156,056	2,245	300	0.0042	Confined
WHITTIER, CITY OF *	No. 17	No. 18	04/28-29/1998	803,007	107,354	1,123	150	0.00164	Semi-Confined
SAN GABRIEL VALLEY WATER COMPANY	8B	8A	05/07/1998	140,100	18,730	2,800	374	0.000073	Semi-Confined
VALENCIA HEIGHT WATER COMPANY	No. 2	No. 1	9/29/1998	60,900	8,142	858	115	0.0006	Semi-Confined
SUBURBAN WATER SYSTEMS	139W-5	139W-6	03/23/1999	545,000	72,861	3,400	455	0.0001	Semi-Confined
SOUTHERN CALIFORNIA WATER COMPANY	ART 2	BAS 3	1/29/2004	13,400	1,791	91	12	0.00056	Semi-Confined
SAN GABRIEL VALLEY WATER COMPANY	2D	2E	7/30/2004	380,000	50,802	930	124	0.00043	Semi-Confined
SOUTH PASADENA, CITY OF	WIL 3	WIL 2	1/19/2005	347,000	46,390	960	128	0.012	Unconfined
VALLEY COUNTY WATER DISTRICT	LANTE	ARROW	3/28-31/2005	649,400	86,818	1,746	233	0.36	Unconfined
ALHAMBRA, CITY OF	No. 13	No. 14	3/8/2006	82,200	10,989	375	50	0.00015	Semi-Confined
INDUSTRY, CITY OF	No. 5	No. 4	6/26-7/2/2007	506,000	67,647	1,270	170	0.00047	Confined
VALENCIA HEIGHT WATER COMPANY	No. 5	No. 7	5/22/2008	28,650	3,830	251	34	0.00025	Confined
EAST PASADENA WATER COMPANY	No. 9	No. 11	12/3/2011	136,590	18,261	1,200	160	0.00031	Semi-Confined

Notes

GPD/FT: Gallons per day per foot
FT^2/D: Square feet per day
GPD/FT^2: Gallons per day per square foot
FT/D: Feet per day
* Analyzed from pump test data provided by EPA

average S 0.021271

TABLE III.5

CALIBRATED COEFFICIENTS FOR RECHARGE FROM PRECIPITATION, CATEGORIZED BY PRECIPITATION QUANTITY CLASSES

PRECIPITATION QUANTITY CLASSES	Precipitation	VALLEY FLOOR RECHARGE COEFFICIENTS			Precipitation	MOUNTAIN WATERSHEDS RECHARGE COEFFICIENTS			Precipitation	LOW HILLS WATERSHEDS RECHARGE COEFFICIENTS		
	- in -	PRIOR TO 1981-82	1981-82 TO 1996-97	SINCE 1997-98	- in -	PRIOR TO 1981-82	1981-82 TO 1996-97	SINCE 1997-98	- in -	PRIOR TO 1981-82	1981-82 TO 1996-97	SINCE 1997-98
<Average/2 or <Average/3		0	0	0		0	0	0		0	0	0
Average/3 to Average	6.44				9.71				5.93			
			0.08				0.1				0.08	
Average/2 to average	9.66				14.56				8.90			
		0.2		0.05		0.2		0.08		0.2		0.06
Average to (Average+Maximum)/2	19.32				29.13				17.80			
		0.23	0.08	0.06		0.23	0.12	0.1		0.22	0.1	0.08
>(Average+Maximum)/2	32.37				48.27				28.36			
		0.26	0.11	0.07		0.26	0.14	0.13		0.26	0.11	0.1

TABLE III.6

SAN GABRIEL GROUNDWATER BASIN MODEL

WATER YEAR	GROUNDWATER RECHARGE																						GROUNDWATER BALANCE				CALIBRATION		BASIN SAFE YIELD	
	PERCOLATION OF PRECIPITATION													PERCOLATION OF RETURN FLOW FROM WATER USAGE								DIRECT SPREADING				Removal/Outflow					
	FROM VALLEY FLOOR				FROM WATERSHED									MUNICIPAL WATER					RECYCLED WATER													
					SAN GABRIEL MOUNTAINS				SOUTHERN LOW HILLS					Net Water USE				COEFF.														
	PRECIP. INCHES	AREA ACRES	COEFF.	VOLUME ACRE-FEET	PRECIP. INCHES	AREA ACRES	COEFF.	VOLUME ACRE-FEET	PRECIP. INCHES	AREA ACRES	COEFFI.	VOLUME ACRE-FEET	TOTAL FROM WATERSHED ACRE-FEET	TOTAL PERCOLATION OF PRECIPITATION ACRE-FEET	SUBSURFACE FLOW FROM PUENTE BASIN ACRE-FEET	INCIDENTAL PERCOLATION IN SAN GABRIEL RIVER AND SAN JOSE CREEK ACRE-FEET	SAN GABRIEL PRODUCT. ACRE-FEET	IMPORT WATER ACRE-FEET	EXPORT WATER ACRE-FEET		RETURN FLOW ACRE-FEET	DIRECT USE ACRE-FEET	COEFF.	RETURN FLOW ACRE-FEET	TOTAL PERCOLATION OF RETURN FLOW ACRE-FEET	LOCAL RUNOFF ACRE-FEET	IMPORT WATER ACRE-FEET	TOTAL RECHARGE FROM SPREADING ACRE-FEET	TOTAL RECHARGE TO MAIN BASIN ACRE-FEET	GROUND WATER EXTRACTION ACRE-FEET	SUBSURFACE FLOW TO CENTRAL BASIN ACRE-FEET	ANNUAL CHANGE ACRE-FEET	GROUNDWATER IN STORAGE ACRE-FEET	WATER LEVEL ELEVATION BALDWIN PARK KEY WELL SIMULATED FEET MSL	WATER LEVEL ELEVATION BALDWIN PARK KEY WELL MEASURED FEET MSL	NATURAL ACRE-FEET	MANAGED ACRE-FEET
(1)	(2)	(3)	(4)	(5) = (2)*(3)*(4)/12	(6)	(7)	(8)	(9) = (6)*(7)*(8) /12	(10)	(11)	(12)	(13) = (10)*(11)* (12) /12	(14) = (9)+(13)	(15) = (5)+(14)	(16)	(17)	(18)	(19)	(20)	(21) = (18)+(19)-(20)	(22)	(23) = (21)*(22)	(24)	(25)	(26) = (24)*(25)	(27) = (23)+(26)	(28)	(29)	(31) = (28)+(29)+(30)	(32) = (15)+(16)+(17)+(27)+(31)	(33)	(34)	(35) = (32)-(33)-(34)	(36) = (36)i + (35)i+1	(37) = (37)i + ((35)i+1)/8000	(38)	(39) = (15)+(16) - (34)	(40) = (32)-(34)
1973-74	16.84	106,880	0.20	30,000	25.34	167,584	0.20	70,760	14.88	39,136	0.20	9,700	80,460	110,460	796		235,440	5,280	35,800	204,920	0.09	18,440	0	0.09	0	18,440	56,830	8,840	65,670	195,370	221,090	23,400	-49,120	7,932,100	236.9	236.9	87,860	171,970
1974-75	14.73	106,880	0.20	26,240	21.76	167,584	0.20	60,780	13.56	39,136	0.20	8,840	69,620	95,860	710		223,130	6,960	33,280	196,810	0.09	17,710	0	0.09	0	17,710	11,000	34,800	45,800	160,080	207,650	26,600	-74,170	7,857,930	227.7	230.4	69,970	133,480
1975-76	12.98	106,880	0.20	23,120	21.64	167,584	0.20	60,450	11.39	39,136	0.20	7,430	67,880	91,000	732		240,010	7,800	35,090	212,720	0.09	19,140	0	0.09	0	19,140	6,570	29,060	35,630	146,500	226,020	28,050	-107,570	7,750,360	214.2	222.2	63,680	118,450
1976-77	14.35	106,880	0.20	25,560	19.57	167,584	0.20	54,650	12.97	39,136	0.20	8,460	63,110	88,670	658	2,660	210,230	12,550	33,390	189,390	0.09	17,050	0	0.09	0	17,050	10,020	18,340	28,360	137,400	196,030	37,600	-96,230	7,654,130	202.2	212.1	51,730	99,800
1977-78	39.78	106,880	0.26	92,110	60.18	167,584	0.26	218,510	36.68	39,136	0.26	31,100	249,610	341,720	730	0	195,410	16,400	33,710	178,100	0.09	16,030	0	0.09	0	16,030	129,630	20,550	150,180	508,660	181,240	27,050	300,370	7,954,500	239.7	237.1	315,400	481,610
1978-79	22.42	106,880	0.23	45,940	30.50	167,584	0.23	97,970	22.57	39,136	0.22	16,190	114,160	160,100	850	0	214,970	16,390	31,680	199,680	0.09	17,970	0	0.09	0	17,970	68,060	30,970	99,030	277,950	198,530	23,850	55,570	8,010,070	246.7	260.0	137,100	254,100
1979-80	35.12	106,880	0.26	81,340	50.43	167,584	0.26	183,110	30.76	39,136	0.26	26,080	209,190	290,530	930	0	222,920	18,060	30,740	210,240	0.09	18,920	0	0.09	0	18,920	97,430	5,800	103,230	413,610	207,490	23,750	182,370	8,192,440	269.5	264.8	267,710	389,860
1980-81	10.61	106,880	0.20	18,900	15.91	167,584	0.20	44,440	9.38	39,136	0.20	6,120	50,560	69,460	820	0	230,840	21,900	31,390	221,350	0.09	19,920	0	0.09	0	19,920	49,690	0	49,690	139,890	213,550	31,950	-105,610	8,086,830	256.3	257.3	38,330	107,940
1981-82	18.58	106,880	0.08	13,240	30.93	167,584	0.12	51,830	16.51	39,136	0.08	4,310	56,140	69,380	845	0	219,540	19,710	25,970	213,280	0.09	19,200	0	0.09	0	19,200	86,280	42,620	128,900	218,330	203,540	28,850	-14,060	8,072,770	254.5	244.5	41,380	189,480
1982-83	40.35	106,880	0.11	39,540	60.50	167,584	0.14	118,280	35.26	39,136	0.11	12,650	130,930	170,470	850	0	209,950	19,410	25,510	203,850	0.09	18,350	0	0.09	0	18,350	263,900	28,340	292,240	481,910	192,390	29,250	260,270	8,333,040	287.0	269.2	142,070	452,660
1983-84	9.94	106,880	0.08	7,080	17.03	167,584	0.10	23,790	9.89	39,136	0.08	2,580	26,370	33,450	798	19,750	236,750	24,000	32,260	228,490	0.09	20,560	0	0.09	0	20,560	65,710	3,330	69,040	143,600	218,030	26,750	-101,180	8,231,860	274.4	273.8	7,500	116,850
1984-85	14.38	106,880	0.08	10,250	21.57	167,584	0.10	30,130	14.48	39,136	0.08	3,780	33,910	44,160	820	19,680	242,290	27,690	33,830	236,150	0.09	21,250	0	0.09	0	21,250	59,330	70	59,400	145,310	224,500	30,300	-109,490	8,122,370	260.7	249.3	14,680	115,010
1985-86	23.37	106,880	0.08	16,650	33.26	167,584	0.12	55,750	21.61	39,136	0.10	7,050	62,800	79,450	840	21,250	246,200	25,810	32,180	239,830	0.09	21,580	0	0.09	0	21,580	73,310	55,860	129,170	252,290	229,080	30,950	-7,740	8,114,630	259.7	246.7	49,340	221,340
1986-87	8.72	106,880	0.08	6,220	11.62	167,584	0.10	16,230	8.38	39,136	0.08	2,190	18,420	24,640	850	24,270	253,660	27,870	33,580	247,950	0.09	22,320	0	0.09	0	22,320	19,520	55,940	75,460	147,540	235,370	33,100	-120,930	7,993,700	244.6	237.6	-7,610	114,440
1987-88	16.27	106,880	0.08	11,590	28.72	167,584	0.10	40,110	14.17	39,136	0.08	3,700	43,810	55,400	880	19,840	248,100	31,820	30,610	249,310	0.09	22,440	0	0.09	0	22,440	43,470	43,990	87,460	186,020	233,170	34,150	-81,300	7,912,400	234.5	226.5	22,130	151,870
1988-89	11.71	106,880	0.08	8,340	21.00	167,584	0.10	29,330	10.69	39,136	0.08	2,790	32,120	40,460	890	0	252,940	31,020	29,650	254,310	0.09	22,890	0	0.09	0	22,890	29,980	45,920	75,900	140,140	233,250	32,500	-125,610	7,786,790	218.8	219.1	8,850	107,640
1989-90	11.25	106,880	0.08	8,020	15.72	167,584	0.10	21,950	10.63	39,136	0.08	2,770	24,720	32,740	910	6,200	252,260	35,030	28,840	258,450	0.09	23,260	0	0.09	0	23,260	54,790	47,500	102,290	165,400	238,900	32,600	-106,100	7,680,690	205.5	206.8	1,050	132,800
1990-91	16.33	106,880	0.08	11,640	24.23	167,584	0.10	33,840	15.54	39,136	0.08	4,060	37,900	49,540	905	500	232,070	31,590	29,170	234,490	0.09	21,100	0	0.09	0	21,100	101,270	54,150	155,420	227,470	221,270	22,750	-16,550	7,664,140	203.4	200.1	27,700	204,720
1991-92	22.47	106,880	0.08	16,010	37.58	167,584	0.12	62,970	21.16	39,136	0.10	6,900	69,870	85,880	925	8,200	221,480	19,900	28,660	212,720	0.09	19,140	0	0.09	0	19,140	229,600	68,300	297,900	412,050	201,750	17,800	192,500	7,856,640	227.5	223.6	69,010	394,250
1992-93	36.92	106,880	0.11	36,170	58.40	167,584	0.14	114,180	36.20	39,136	0.11	12,990	127,170	163,340	890	0	236,140	20,640	32,070	224,710	0.09	20,220	0	0.09	0	20,220	232,240	62,630	294,870	479,320	214,540	23,950	240,830	8,097,470	257.6	252.8	140,280	455,370
1993-94	11.66	106,880	0.08	8,310	17.12	167,584	0.10	23,910	11.23	39,136	0.08	2,930	26,840	35,150	845	15,230	243,610	20,510	36,140	227,980	0.09	20,520	0	0.09	0	20,520	33,540	38,300	71,840	143,590	220,790	26,700	-103,900	7,993,570	244.6	250.9	9,300	116,890
1994-95	31.19	106,880	0.08	22,220	48.67	167,584	0.14	95,150	28.77	39,136	0.11	10,320	105,470	127,690	860	0	243,480	20,870	36,620	227,730	0.09	20,500	0	0.09	0	20,500	221,840	22,350	244,190	393,240	226,250	23,500	143,490	8,137,060	262.5	253.9	105,050	369,740
1995-96	17.02	106,880	0.08	12,130	26.59	167,584	0.10	37,130	14.86	39,136	0.08	3,880	41,010	53,140	810	13,790	268,950	18,480	39,570	247,860	0.09	22,310	0	0.09	0	22,310	125,600	32,480	158,080	248,130	250,010	27,850	-29,730	8,107,330	258.8	251.4	26,100	220,280
1996-97	17.72	106,880	0.08	12,630	27.13	167,584	0.10	37,890	18.34	39,136	0.10	5,980	43,870	56,500	820	1,440	279,480	18,700	40,440	257,740	0.09	23,200	0	0.09	0	23,200	86,780	55,080	141,860	223,820	256,790	30,400	-63,370	8,043,960	250.9	245.2	26,920	193,420
1997-98	36.81	106,880	0.07	22,950	50.84	167,584	0.13	92,310	36.24	39,136	0.10	11,820	104,130	127,080	840	0	254,040	15,650	38,970	230,720	0.09	20,760	0	0.09	0	20,760	184,830	62,890	247,720	396,400	235,990	26,650	133,760	8,177,720	267.6	251.8	101,270	369,750
1998-99	8.77	106,880	0.00	0	14.37	167,584	0.00	0	7.76	39,136	0.00	0	0	0	750	31,040	265,150	14,940	39,170	240,920	0.09	21,680	0	0.09	0	21,680	65,510	13,350	78,860	132,330	242,940	26,200	-136,810	8,040,910	250.5	251.7	-25,450	106,130
1999-00	15.06	106,880	0.05	6,710	21.49	167,584	0.08	24,010	12.99	39,136	0.06	2,540	26,550	33,260	760	23,250	278,690	23,050	42,860	258,880	0.09	23,300	0	0.09	0	23,300	66,270	61,680	127,950	208,520	261,680	29,300	-82,460	7,958,450	240.2	231.3	4,720	179,220
2000-01	16.12	106,880	0.05	7,180	23.15	167,584	0.08	25,860	15.35	39,136	0.06	3,000	28,860	36,040	860	10,130	270,920	21,630	41,000	251,550	0.09	22,640	1,268	0.09	110	22,750	79,310	42,990	122,300	192,080	250,890	25,900	-84,710	7,873,740	229.6	224.7	11,000	166,180
2001-02	6.85	106,880	0.00	0	10.31	167,584	0.00	0	5.66	39,136	0.00	0	0	0	890	3,760	263,690	36,180	44,160	255,710	0.09	23,010	1,463	0.09	130	23,140	70,580	46,080	116,660	144,450	247,880	27,650	-131,080	7,742,660	213.2	214.4	-26,760	116,800
2002-03	19.49	106,880	0.06	10,410	29.22	167,584	0.10	40,800	19.32	39,136	0.08	5,040	45,840	56,250	940	11,410	237,490	41,500	41,590	237,400	0.09	21,370	1,329	0.09	120	21,490	63,870	56,440	120,310	210,400	241,680	23,400	-54,680	7,687,980	206.4	204.0	33,790	187,000
2003-04	12.86	106,880	0.05	5,730	16.64	167,584	0.08	18,590	12.43	39,136	0.06	2,430	21,020	26,750	960	28,740	252,850	51,310	42,470	261,690	0.09	23,550	1,557	0.09	140	23,690	45,710	68,320	114,030	194,170	258,380	20,500	-84,710	7,603,270	195.8	207.5	7,210	173,670
2004-05	45.42	106,880	0.07	28,320	67.41	167,584	0.13	122,380	38.91	39,136	0.10	12,690	135,070	163,390	960	0	247,270	31,270	41,580	236,960	0.09	21,330	1,300	0.09	120	21,450	406,070	21,720	427,790	613,590	234,980	24,100	354,510	7,957,780	240.1	225.4	140,250	589,490
2005-06	16.61	106,880	0.05	7,390	26.07	167,584	0.08	29,130	14.20	39,136	0.06	2,780	31,910	39,300	860	5,450	259,940	24,620	38,440	246,120	0.09	22,150	1,159	0.09	100	22,250	150,120	79,040	229,160	297,020	246,690	22,800	27,530	7,985,310	243.6	244.1	17,360	274,220
2006-07	5.72	106,880	0.00	0	9.77	167,584	0.00	0	5.06	39,136	0.00	0	0	0	950	6,380	284,330	27,040	43,920	267,450	0.09	24,070	2,285	0.09	210	24,280	47,830	24,780	72,610	104,220	270,380	26,100	-192,260	7,793,050	219.5	227.2	-25,150	78,120
2007-08	17.20	106,880	0.05	7,660	27.10	167,584	0.08	30,280	13.95	39,136	0.06	2,730	33,010	40,670	940	10,440	258,170	31,290	40,860	248,600	0.09	22,370	2,587	0.09	230	22,600	87,240	7,730	94,970	169,620	250,240	38,200	-118,820	7,674,230	204.7	206.8	3,410	131,420
2008-09	12.90	106,880	0.05	5,740	17.68	167,584	0.08	19,750	13.64	39,136	0.06	2,670	22,420	28,160	960	23,480	250,550	22,830	43,750	229,630	0.09	20,670	2,316	0.09	210	20,880	91,160	6,610	97,770	171,250	236,720	27,300	-92,770	7,581,460	193.1	198.1	1,820	143,950
2009-10	20.13	106,880	0.06	10,760	29.16	167,584	0.10	40,730	17.97	39,136	0.08	4,690	45,420	56,180	945	0	237,120	17,010	40,040	214,090	0.09	19,270	2,354	0.09	210	19,480	192,440	32,710	225,150	301,760	222,450	28,400	50,910	7,632,370	199.5	196.6	28,730	273,360
2010-11	25.40	106,880	0.06	13,570	38.16	167,584	0.10	53,290	23.12	39,136	0.08	6,030	59,320	72,890	985	15,590	226,940	11,070	39,140	198,870	0.09	17,900	2,314	0.09	210	18,110	259,210	68,420	327,630	435,210	213,400	23,200	198,610	7,830,980	224.3	224.3	50,680	412,010
STATISTICAL ANALYSIS																																						
Maximum	45.42			92,110	67.41			218,510	38.91			31,100	249,610	341,720	985	31,040				267,450		24,070			230	24,280			427,790	613,590	270,380	38,200	354,510	8,333,040			315,400	589,490
Minimum	5.72			0	9.77			0	5.06			0	0	0	658	0				178,100		16,030			0	16,030			28,360	104,220	181,240	17,800	-192,260	7,581,460			-26,760	78,120
1973-74 to 2010-11 Ave.	19.32			18,680	29.13			54,740	17.80			6,820	61,570	80,240	857	9,210				230,440		20,740			47	20,790			141,170	251,540	228,040	27,460	-3,950	7,924,390			53,640	224,090
Last 5 years Ave.	16.27			7,550	24.37			28,810	14.75			3,220	32,030	39,580	956	11,180				231,730		20,860			214	21,070			163,630	236,410	238,640	28,640	-30,870	7,702,420			11,900	207,770
Last 10 years Ave.	18.26			8,960	27.15			35,500	16.43			3,910	39,400	48,360	939	10,530				239,650		21,570			168	21,740			182,610	264,170	242,280	26,170	-4,280	7,748,910			23,130	238,000
Data Source	Table III.2				Table III.2				Table III.2						App E	App J	App F	App G	App H				App L				App I (27)- App G (4)	App G	App I		App F	App E				
column	(2)				(5)				(8)						(5)	(18)	(5)	(16)	(5)				(12)					(4)	(27)		(3)	(4)				

TABLE III.7

TOTAL DISSOLVED SOLIDS, NITRATE, CHLORIDE, AND SULFATE WELL TEST DATA HISTORIC TRENDS

		Nitrate, mg/L (from Appendix S.1)			
Decade	No. wells	<45	>45		mean
		------- % of wells tested -------			- mg/L -
1970s	40	23%	78%		64
1980s	109	48%	52%		48
1990s	178	63%	37%		40
2000s	219	79%	21%		31
2010s	248	90%	10%		20
total	796				
		Chloride, mg/L			
Decade	No. wells	<75	75-99	> 100	mean
		------- % of wells tested -------			- mg/L -
1970s	715	96.8%	1.5%	1.7%	26.2
1980s	1126	97.3%	1.5%	1.2%	26.2
1990s	1019	96.2%	2.3%	1.6%	25.6
2000s	902	93.2%	4.0%	2.8%	30.4
2010s	130	91.5%	3.8%	4.6%	30.3
total	3903				
		Sulfate, mg/L			
Decade	No. wells	<75	75-99	> 100	mean
		------- % of wells tested -------			- mg/L -
1970s	715	81.1%	7.1%	11.7%	51.3
1980s	1126	85.9%	6.7%	7.5%	46.5
1990s	1019	87.7%	6.2%	6.1%	46.1
2000s	902	86.4%	3.4%	10.2%	51.6
2010s	130	81.5%	7.7%	10.8%	52.7
	3903				
		TDS, mg/L (from Appendix S.2)			
Decade	No. wells	<450	451 to 600	>600	mean
		------- % of wells tested -------			- mg/L -
1970s	62	63%	34%	3%	361
1980s	105	53%	31%	15%	350
1990s	159	58%	24%	18%	337
2000s	280	62%	22%	16%	318
2010s	180	75%	18%	7%	290
total	786				

*(Percent of wells tested in the decade within the defined concentration limits.)

TABLE III.8
CALIBRATION COEFFICIENTS OR CONCENTRATION FOR NITRATE, CHLORIDE AND SULFATE BALANCE MODELS

Source	Unit	Concentration or Coefficient		
		Nitrate	Chloride	Sulfate
Mean Groundwater Quality, 1973-74 to 2010-2011	mg/L	24	28	49
Precipation and Watershed (Mountains, Southern Low Hills)	mg/L	19	28	49
Subsurface flow from Puente Basin	Factor	1	1	1
Incidental Recharge from water released to San Gabriel River	Factor	1	1	1
Loading from returned flow (Direct uses)				
San Gabriel Basin, Surface water, Raymond Basin imported	Factor	1.5†		1.5‡
	mg/L		28	
Recycled water				
Whttier Narrows, San Jose Creek WRPs	Factor	1†	1	1.5
Treated imported water, Weymouth	Factor		1	1.5
	mg/L	19		
Loading from Direct spreading				
Local Runoff (Azusa)	Factor			1‡
	mg/L	19	28	
Untreated imported water (State Water Project)	Factor		1	
	mg/L	19		49

† Minimum concentration = 19 mg/L, chosen to represent improving water quality in the Basin.

‡ Minimum concentration = 49 mg/L.

TABLE III.9
LOADING AND ASSIMILATIVE CAPACITY OF NITRATE IN SAN GABRIEL BASIN

Water Year	Nitrate loading: Precipitation /Watershed Runoff LBS	Puente Basin Subsurface Inflow LBS	Incidental Percolation in River LBS	Returned flow Total LBS	Direct Spreading LBS	Total LBS	Nitrate unloading: Groundwater extraction unloading LBS	Subsurface outflow unloading LBS	Total LBS	Nitrate balance LBS	Nitrate in Groundwater (mixing, 75% of volume) LBS	Allowable loading 45 mg/l * mixing volume LBS	Assimilative capacity 75% basin + inflow/outflow LBS	Assimilative capacity 75% basin + inflow/outflow mg/L
column(1)	(2)	(3)	(4)	(5)	(6)	(7)=(2)+(3)+(4)+(5)+(6)	(8)	(9)	(10)=(8)+(9)	(11)=(7)-(10)	(12)	(13)	(14)=(13)-(12)	(15)
1973-74	5,704,000	25,000	0	1,706,000	3,392,000	10,827,000	11,754,000	318,000	12,072,000	-1,245,000	316,277,000	727,631,000	411,354,000	25
1974-75	4,950,000	22,000	0	2,014,000	2,366,000	9,352,000	13,884,000	354,000	14,238,000	-4,886,000	311,391,000	720,828,000	409,437,000	26
1975-76	4,699,000	23,000	0	3,005,000	1,840,000	9,567,000	21,329,000	510,000	21,839,000	-12,272,000	299,119,000	710,960,000	411,841,000	26
1976-77	4,579,000	21,000	459,000	2,341,000	1,464,000	8,864,000	16,288,000	684,000	16,972,000	-8,108,000	291,011,000	702,132,000	411,121,000	26
1977-78	17,647,000	23,000	0	1,632,000	7,755,000	27,057,000	10,823,000	74,000	10,897,000	16,160,000	307,171,000	729,686,000	422,515,000	26
1978-79	8,267,000	27,000	0	2,219,000	5,114,000	15,627,000	15,114,000	58,000	15,172,000	455,000	307,626,000	734,784,000	427,158,000	26
1979-80	15,004,000	29,000	0	2,212,000	5,331,000	22,576,000	15,007,000	241,000	15,248,000	7,328,000	314,954,000	751,513,000	436,559,000	26
1980-81	3,587,000	26,000	0	1,871,000	2,566,000	8,050,000	12,288,000	305,000	12,593,000	-4,543,000	310,411,000	741,825,000	431,414,000	26
1981-82	3,583,000	27,000	0	2,397,000	6,657,000	12,664,000	16,431,000	247,000	16,678,000	-4,014,000	306,397,000	740,535,000	434,138,000	26
1982-83	8,803,000	27,000	0	2,031,000	15,092,000	25,953,000	13,538,000	133,000	13,671,000	12,282,000	318,679,000	764,411,000	445,732,000	26
1983-84	1,728,000	25,000	4,928,000	1,906,000	3,565,000	12,152,000	12,397,000	360,000	12,757,000	-605,000	318,074,000	755,129,000	437,055,000	26
1984-85	2,280,000	40,000	4,405,000	2,474,000	3,068,000	12,267,000	16,493,000	293,000	16,786,000	-4,519,000	313,555,000	745,085,000	431,530,000	26
1985-86	4,103,000	36,000	4,366,000	2,746,000	6,671,000	17,922,000	18,648,000	148,000	18,796,000	-874,000	312,681,000	744,375,000	431,694,000	26
1986-87	1,272,000	29,000	4,898,000	2,350,000	3,897,000	12,446,000	15,584,000	477,000	16,061,000	-3,615,000	309,066,000	733,282,000	424,216,000	26
1987-88	2,861,000	27,000	3,783,000	2,681,000	4,517,000	13,869,000	18,151,000	627,000	18,778,000	-4,909,000	304,157,000	725,824,000	421,667,000	26
1988-89	2,090,000	31,000	0	2,803,000	3,919,000	8,843,000	18,842,000	398,000	19,240,000	-10,397,000	293,760,000	714,302,000	420,542,000	26
1989-90	1,691,000	30,000	1,418,000	2,329,000	5,282,000	10,750,000	15,487,000	678,000	16,165,000	-5,415,000	288,345,000	704,569,000	416,224,000	27
1990-91	2,558,000	23,000	115,000	2,182,000	8,026,000	12,904,000	14,620,000	501,000	15,121,000	-2,217,000	286,128,000	703,051,000	416,923,000	27
1991-92	4,435,000	72,000	1,715,000	1,932,000	15,383,000	23,537,000	12,864,000	544,000	13,408,000	10,129,000	296,257,000	720,709,000	424,452,000	27
1992-93	8,435,000	26,000	0	2,007,000	15,227,000	25,695,000	13,342,000	498,000	13,840,000	11,855,000	308,112,000	742,801,000	434,689,000	26
1993-94	1,815,000	24,000	2,552,000	2,322,000	3,711,000	10,424,000	15,645,000	559,000	16,204,000	-5,780,000	302,332,000	733,270,000	430,938,000	26
1994-95	6,594,000	27,000	0	1,957,000	12,610,000	21,188,000	13,105,000	463,000	13,568,000	7,620,000	309,952,000	746,433,000	436,481,000	26
1995-96	2,744,000	17,000	2,665,000	2,220,000	8,163,000	15,809,000	15,058,000	507,000	15,565,000	244,000	310,196,000	743,706,000	433,510,000	26
1996-97	2,918,000	19,000	232,000	2,397,000	7,326,000	12,892,000	16,241,000	2,380,000	18,621,000	-5,729,000	304,467,000	737,893,000	433,426,000	26
1997-98	6,562,000	22,000	0	2,289,000	12,793,000	21,666,000	15,715,000	359,000	16,074,000	5,592,000	310,059,000	750,163,000	440,104,000	26
1998-99	0	19,000	5,723,000	2,076,000	4,073,000	11,891,000	14,045,000	449,000	14,494,000	-2,603,000	307,456,000	737,613,000	430,157,000	26
1999-00	1,718,000	18,000	4,063,000	2,261,000	6,607,000	14,667,000	15,270,000	541,000	15,811,000	-1,144,000	306,312,000	730,049,000	423,737,000	26
2000-01	1,861,000	20,000	1,603,000	2,159,093	6,316,000	11,959,093	14,273,000	443,000	14,716,000	-2,756,907	303,555,093	722,278,000	418,722,907	26
2001-02	0	24,000	584,000	2,237,668	6,025,000	8,870,668	14,512,000	609,000	15,121,000	-6,250,332	297,304,761	710,254,000	412,949,239	26
2002-03	2,905,000	26,000	1,435,000	2,363,559	6,214,000	12,943,559	15,726,000	487,000	16,213,000	-3,269,441	294,035,320	705,238,000	411,202,680	26
2003-04	1,382,000	30,000	2,551,000	2,329,659	5,889,000	12,181,659	15,078,000	426,000	15,504,000	-3,322,341	290,712,979	697,467,000	406,754,021	26
2004-05	8,438,000	24,000	0	2,010,847	22,092,000	32,564,847	13,265,000	516,000	13,781,000	18,783,847	309,496,826	729,987,000	420,490,174	26
2005-06	2,030,000	22,000	369,000	2,031,565	11,834,000	16,286,565	13,611,000	446,000	14,057,000	2,229,565	311,726,391	732,512,000	420,785,609	26
2006-07	0	31,000	498,000	2,206,442	3,750,000	6,485,442	14,735,000	575,000	15,310,000	-8,824,558	302,901,833	714,876,000	411,974,167	26
2007-08	2,101,000	26,000	810,000	2,470,346	4,904,000	10,311,346	16,732,000	794,000	17,526,000	-7,214,654	295,687,178	703,976,000	408,288,822	26
2008-09	1,454,000	26,000	1,991,000	2,424,752	5,049,000	10,944,752	16,484,000	467,000	16,951,000	-6,006,248	289,680,931	695,466,000	405,785,069	26
2009-10	2,902,000	31,000	0	2,200,299	11,627,000	16,760,299	15,007,000	733,000	15,740,000	1,020,299	290,701,230	700,136,000	409,434,770	26
2010-11	3,764,000	38,000	1,528,000	1,920,451	16,919,000	24,169,451	13,137,000	681,000	13,818,000	10,351,451	301,052,681	718,355,000	417,302,319	26
Max	17,647,000	72,000	5,723,000	3,005,000	22,092,000	32,564,800	21,329,000	2,380,000	21,839,000	18,783,800	318,679,000	764,411,000	445,732,000	27
Min	0	17,000	0	1,632,000	1,464,000	6,485,400	10,823,000	58,000	10,897,000	-12,272,000	286,128,000	695,466,000	405,785,100	25
1973-74 to	4,143,800	27,200	1,386,600	2,229,300	7,290,400	15,077,300	15,013,800	496,900	15,510,700	-433,400	303,968,400	726,923,800	422,955,400	26
Last 5 yrs n	2,044,200	30,400	965,400	2,244,500	8,449,800	13,734,300	15,219,000	650,000	15,869,000	-2,134,700	296,004,800	706,561,800	410,557,000	26
Last 10 yrs	2,497,600	27,800	976,600	2,219,600	9,430,300	15,151,900	14,828,700	573,400	15,402,100	-250,200	298,330,000	710,826,700	412,496,700	26

*(condensed from Appendix M)

TABLE III.10
LOADING AND ASSIMILATIVE CAPACITY OF CHLORIDE IN SAN GABRIEL BASIN

Water Year	Chloride loading: Precipitation /Watershed Runoff LBS	Puente Basin Subsurface Inflow LBS	Incidental Percolation in River LBS	Returned flow Total LBS	Direct Spreading LBS	Total LBS	Chloride unloading: Groundwater extraction unloading LBS	Subsurface outflow unloading LBS	Total LBS	Chloride balance LBS	Chloride in Groundwater (mixing, 75% of volume) LBS	Allowable loading 100 mg/l * mixing volume LBS	Assimilative capacity 75% basin + inflow/outflow LBS	Assimilative capacity 75% basin + inflow/outflow mg/L
column(1)	(2)	(3)	(4)	(5)	(6)	(7)=(2)+(3)+(4)+(5)+(6)	(8)	(9)	(10)=(8)+(9)	(11)=(7)-(10)	(12)	(13)	(14)=(13)-(12)	(15)
1973-74	8,393,000	114,000	0	1,657,000	5,737,000	15,901,000	12,651,000	1,399,000	14,050,000	1,851,000	340,406,000	1,616,959,000	1,276,553,000	79
1974-75	7,283,000	101,000	0	1,591,000	6,229,000	15,204,000	15,010,000	1,721,000	16,731,000	-1,527,000	338,879,000	1,601,839,000	1,262,960,000	79
1975-76	6,915,000	104,000	0	1,747,000	4,528,000	13,294,000	17,784,000	762,000	18,546,000	-5,252,000	333,627,000	1,579,911,000	1,246,284,000	79
1976-77	6,737,000	94,000	976,000	1,658,000	5,449,000	14,914,000	15,646,000	4,905,000	20,551,000	-5,637,000	327,990,000	1,560,294,000	1,232,304,000	79
1977-78	25,965,000	104,000	0	1,610,000	12,155,000	39,834,000	12,363,000	1,323,000	13,686,000	26,148,000	354,138,000	1,621,525,000	1,267,387,000	78
1978-79	12,164,000	121,000	0	1,749,000	8,379,000	22,413,000	13,628,000	1,232,000	14,860,000	7,553,000	361,691,000	1,632,853,000	1,271,162,000	78
1979-80	22,074,000	133,000	0	1,832,000	7,682,000	31,721,000	14,056,000	968,000	15,024,000	16,697,000	378,388,000	1,670,029,000	1,291,641,000	77
1980-81	5,278,000	117,000	0	1,965,000	3,782,000	11,142,000	13,455,000	1,476,000	14,931,000	-3,789,000	374,599,000	1,648,500,000	1,273,901,000	77
1981-82	5,274,000	121,000	0	1,882,000	11,200,000	18,477,000	15,896,000	1,255,000	17,151,000	1,326,000	375,925,000	1,645,634,000	1,269,709,000	77
1982-83	12,955,000	121,000	0	1,769,000	20,468,000	35,313,000	19,308,000	716,000	20,024,000	15,289,000	391,214,000	1,698,690,000	1,307,476,000	77
1983-84	2,543,000	114,000	7,837,000	2,040,000	5,245,000	17,779,000	12,675,000	1,236,000	13,911,000	3,868,000	395,082,000	1,678,065,000	1,282,983,000	76
1984-85	3,356,000	117,000	4,761,000	2,152,000	4,521,000	14,907,000	16,907,000	1,153,000	18,060,000	-3,153,000	391,929,000	1,655,745,000	1,263,816,000	76
1985-86	6,039,000	132,000	6,353,000	2,154,000	17,725,000	32,403,000	18,241,000	1,009,000	19,250,000	13,153,000	405,082,000	1,654,167,000	1,249,085,000	76
1986-87	1,873,000	127,000	7,916,000	2,242,000	9,088,000	21,246,000	16,099,000	1,529,000	17,628,000	3,618,000	408,700,000	1,629,516,000	1,220,816,000	75
1987-88	4,211,000	124,000	4,799,000	2,189,000	15,025,000	26,348,000	14,705,000	2,209,000	16,914,000	9,434,000	418,134,000	1,612,943,000	1,194,809,000	74
1988-89	3,075,000	116,000	0	2,255,000	18,881,000	24,327,000	17,060,000	1,325,000	18,385,000	5,942,000	424,076,000	1,587,337,000	1,163,261,000	73
1989-90	2,488,000	133,000	2,174,000	2,391,000	16,564,000	23,750,000	15,098,000	3,278,000	18,376,000	5,374,000	429,450,000	1,565,709,000	1,136,259,000	73
1990-91	3,765,000	130,000	207,000	2,282,000	27,576,000	33,960,000	14,466,000	2,721,000	17,187,000	16,773,000	446,223,000	1,562,335,000	1,116,112,000	71
1991-92	6,528,000	133,000	3,321,000	1,927,000	33,438,000	45,347,000	15,296,000	3,483,000	18,779,000	26,568,000	472,791,000	1,601,576,000	1,128,785,000	70
1992-93	12,414,000	179,000	0	2,055,000	27,377,000	42,025,000	15,212,000	3,710,000	18,922,000	23,103,000	495,894,000	1,650,669,000	1,154,775,000	70
1993-94	2,672,000	121,000	5,464,000	2,092,000	8,070,000	18,419,000	16,871,000	4,790,000	21,661,000	-3,242,000	492,652,000	1,629,489,000	1,136,837,000	70
1994-95	9,708,000	123,000	0	2,135,000	20,405,000	32,371,000	15,760,000	4,471,000	20,231,000	12,140,000	504,792,000	1,658,740,000	1,153,948,000	70
1995-96	4,039,000	99,000	4,123,000	2,230,000	13,443,000	23,934,000	19,460,000	4,163,000	23,623,000	311,000	505,103,000	1,652,679,000	1,147,576,000	69
1996-97	4,295,000	117,000	446,000	2,294,000	11,396,000	18,548,000	19,457,000	4,875,000	24,332,000	-5,784,000	499,319,000	1,639,761,000	1,140,442,000	70
1997-98	9,661,000	120,000	0	2,028,000	23,296,000	35,105,000	17,346,000	3,694,000	21,040,000	14,065,000	513,384,000	1,667,028,000	1,153,644,000	69
1998-99	0	97,000	8,943,000	2,112,000	6,183,000	17,335,000	13,716,000	3,418,000	17,134,000	201,000	513,585,000	1,639,140,000	1,125,555,000	69
1999-00	2,529,000	108,000	6,509,000	2,361,000	12,252,000	23,759,000	17,257,000	4,547,000	21,804,000	1,955,000	515,540,000	1,622,330,000	1,106,790,000	68
2000-01	2,739,000	123,000	3,029,000	2,315,120	15,734,000	23,940,120	17,978,000	5,350,000	23,328,000	612,120	516,152,120	1,605,062,000	1,088,909,880	68
2001-02	0	123,000	1,155,000	2,584,440	14,639,000	18,501,440	22,560,000	4,509,000	27,069,000	-8,567,560	507,584,560	1,578,341,000	1,070,756,440	68
2002-03	4,277,000	134,000	3,504,000	2,579,736	12,225,000	22,719,736	20,235,000	3,816,000	24,051,000	-1,331,264	506,253,296	1,567,195,000	1,060,941,704	68
2003-04	2,034,000	137,000	8,280,000	2,918,373	12,021,000	25,390,373	20,096,000	3,343,000	23,439,000	1,951,373	508,204,669	1,549,927,000	1,041,722,331	67
2004-05	12,422,000	128,000	0	2,364,107	34,210,000	49,124,107	22,456,000	5,777,000	28,233,000	20,891,107	529,095,776	1,622,193,000	1,093,097,224	67
2005-06	2,987,000	123,000	1,555,000	2,301,791	19,374,000	26,340,791	21,293,000	3,656,000	24,949,000	1,391,791	530,487,567	1,627,805,000	1,097,317,433	67
2006-07	0	136,000	1,803,000	2,451,948	8,355,000	12,745,948	24,577,000	4,044,000	28,621,000	-15,875,052	514,612,514	1,588,613,000	1,074,000,486	68
2007-08	3,092,000	115,000	3,178,000	2,518,342	8,068,000	16,971,342	21,575,000	8,618,000	30,193,000	-13,221,658	501,390,857	1,564,392,000	1,063,001,143	68
2008-09	2,140,000	137,000	7,403,000	2,308,856	8,232,000	20,220,856	17,365,000	4,823,000	22,188,000	-1,967,144	499,423,712	1,545,481,000	1,046,057,288	68
2009-10	4,271,000	136,000	0	2,052,095	19,871,000	26,330,095	21,936,000	6,793,000	28,729,000	-2,398,905	497,024,807	1,555,859,000	1,058,834,193	68
2010-11	5,541,000	141,000	5,000,000	1,828,091	25,678,000	38,188,091	20,741,000	5,927,000	26,668,000	11,520,091	508,544,899	1,596,345,000	1,087,800,101	68
Max	25,965,000	179,000	8,943,000	2,918,400	34,210,000	49,124,100	24,577,000	8,618,000	30,193,000	26,568,000	530,487,600	1,698,690,000	1,307,476,000	79
Min	0	94,000	0	1,591,000	3,782,000	11,142,000	12,363,000	716,000	13,686,000	-15,875,100	327,990,000	1,545,481,000	1,041,722,300	67
1973-74 to	6,098,300	122,400	2,598,300	2,121,600	14,065,800	25,006,500	17,269,300	3,263,800	20,533,100	4,473,400	448,088,600	1,615,386,200	1,167,297,600	72
Last 5 yrs n	3,008,800	133,000	3,476,800	2,231,900	14,040,800	22,891,300	21,238,800	6,041,000	27,279,800	-4,388,500	504,199,400	1,570,138,000	1,065,938,600	68
Last 10 yrs	3,676,400	131,000	3,187,800	2,390,800	16,267,300	25,653,300	21,283,400	5,130,600	26,414,000	-760,700	510,262,300	1,579,615,100	1,069,352,800	68

* (condensed from Appendix N)

TABLE III.11
LOADING AND ASSIMILATIVE CAPACITY OF SULFATE IN SAN GABRIEL BASIN

Water Year	Sulfate loading: Precipitation /Watershed Runoff LBS	Puente Basin Subsurface Inflow LBS	Incidental Percolation in River LBS	Returned flow Total LBS	Direct Spreading (3) LBS	Total LBS	Sulfate unloading: Groundwater extraction unloading LBS	Subsurface outflow unloading LBS	Total LBS	Sulfate balance LBS	Sulfate in Groundwater (mixing, 75% of volume) LBS	Allowable loading 100 mg/l * mixing volume LBS	Assimilative capacity 75% basin + inflow/outflow LBS	Assimilative capacity 75% basin + inflow/outflow mg/L
column(1)	(2)	(3)	(4)	(5)	(6)	(7)=(2)+(3)+(4)+(5)+(6)	(8)	(9)	(10)=(8)+(9)	(11)=(7)-(10)	(12)	(13)	(14)=(13)-(12)	(15
1973-74	14,711,000	342,000	0	4,188,000	8,746,000	27,987,000	28,854,000	3,625,000	32,479,000	-4,492,000	776,406,000	1,616,959,000	840,553,000	52
1974-75	12,767,000	304,000	0	4,184,000	6,101,000	23,356,000	28,346,000	5,140,000	33,486,000	-10,130,000	766,276,000	1,601,839,000	835,563,000	52
1975-76	12,119,000	313,000	0	4,610,000	4,745,000	21,787,000	30,443,000	2,135,000	32,578,000	-10,791,000	755,485,000	1,579,911,000	824,426,000	52
1976-77	11,809,000	283,000	680,000	5,375,000	3,777,000	21,924,000	32,961,000	3,066,000	36,027,000	-14,103,000	741,382,000	1,560,294,000	818,912,000	52
1977-78	45,511,000	313,000	0	4,598,000	20,001,000	70,423,000	25,906,000	2,426,000	28,332,000	42,091,000	783,473,000	1,621,525,000	838,052,000	52
1978-79	21,322,000	364,000	0	4,974,000	13,189,000	39,849,000	28,364,000	2,139,000	30,503,000	9,346,000	792,819,000	1,632,853,000	840,034,000	51
1979-80	38,693,000	398,000	0	4,632,000	13,747,000	57,470,000	25,148,000	2,259,000	27,407,000	30,063,000	822,882,000	1,670,029,000	847,147,000	51
1980-81	9,251,000	351,000	0	4,834,000	6,618,000	21,054,000	24,401,000	3,300,000	27,701,000	-6,647,000	816,235,000	1,648,500,000	832,265,000	50
1981-82	9,240,000	364,000	0	5,697,000	17,167,000	32,468,000	30,900,000	3,058,000	33,958,000	-1,490,000	814,745,000	1,645,634,000	830,889,000	50
1982-83	22,704,000	364,000	0	4,484,000	38,919,000	66,471,000	23,211,000	1,749,000	24,960,000	41,511,000	856,256,000	1,698,690,000	842,434,000	50
1983-84	4,455,000	342,000	5,959,000	4,834,000	9,194,000	24,784,000	23,382,000	4,871,000	28,253,000	-3,469,000	852,787,000	1,678,065,000	825,278,000	49
1984-85	5,881,000	351,000	5,777,000	6,349,000	7,911,000	26,269,000	32,781,000	4,035,000	36,816,000	-10,547,000	842,240,000	1,655,745,000	813,505,000	49
1985-86	10,581,000	386,000	8,664,000	6,239,000	17,204,000	43,074,000	32,594,000	6,982,000	39,576,000	3,498,000	845,738,000	1,654,167,000	808,429,000	49
1986-87	3,281,000	358,000	7,256,000	5,763,000	10,050,000	26,708,000	27,981,000	4,228,000	32,209,000	-5,501,000	840,237,000	1,629,516,000	789,279,000	48
1987-88	7,379,000	366,000	6,902,000	6,326,000	11,648,000	32,621,000	30,336,000	5,950,000	36,286,000	-3,665,000	836,572,000	1,612,943,000	776,371,000	48
1988-89	5,389,000	373,000	0	5,923,000	10,107,000	21,792,000	28,607,000	3,445,000	32,052,000	-10,260,000	826,312,000	1,587,337,000	761,025,000	48
1989-90	4,360,000	377,000	2,056,000	6,209,000	13,623,000	26,625,000	29,077,000	7,177,000	36,254,000	-9,629,000	816,683,000	1,565,709,000	749,026,000	48
1990-91	6,598,000	390,000	258,000	5,899,000	20,699,000	33,844,000	26,686,000	5,936,000	32,622,000	1,222,000	817,905,000	1,562,335,000	744,430,000	48
1991-92	11,437,000	398,000	3,276,000	5,229,000	39,673,000	60,013,000	24,437,000	5,661,000	30,098,000	29,915,000	847,820,000	1,601,576,000	753,756,000	47
1992-93	21,754,000	420,000	0	5,701,000	39,271,000	67,146,000	27,900,000	6,900,000	34,800,000	32,346,000	880,166,000	1,650,669,000	770,503,000	47
1993-94	4,682,000	364,000	5,174,000	6,329,000	9,569,000	26,118,000	32,094,000	7,983,000	40,077,000	-13,959,000	866,207,000	1,629,489,000	763,282,000	47
1994-95	17,006,000	368,000	0	5,727,000	32,521,000	55,622,000	26,782,000	7,601,000	34,383,000	21,239,000	887,446,000	1,658,740,000	771,294,000	46
1995-96	7,077,000	358,000	3,823,000	7,140,000	21,054,000	39,452,000	39,704,000	6,888,000	46,592,000	-7,140,000	880,306,000	1,652,679,000	772,373,000	47
1996-97	7,525,000	351,000	474,000	6,413,000	18,895,000	33,658,000	34,188,000	8,263,000	42,451,000	-8,793,000	871,513,000	1,639,761,000	768,248,000	47
1997-98	16,925,000	360,000	0	5,365,000	32,992,000	55,642,000	29,612,000	6,157,000	35,769,000	19,873,000	891,386,000	1,667,028,000	775,642,000	47
1998-99	0	312,000	7,424,000	4,685,000	10,504,000	22,925,000	24,962,000	5,697,000	30,659,000	-7,734,000	883,652,000	1,639,140,000	755,488,000	46
1999-00	4,430,000	325,000	4,929,000	6,348,000	17,040,000	33,072,000	33,654,000	7,597,000	41,251,000	-8,179,000	875,473,000	1,622,330,000	746,857,000	46
2000-01	4,800,000	368,000	2,671,000	5,933,131	16,288,000	30,060,131	30,612,000	8,025,000	38,637,000	-8,576,869	866,896,131	1,605,062,000	738,165,869	46
2001-02	0	387,000	1,032,000	7,935,219	15,537,000	24,891,219	37,440,000	12,024,000	49,464,000	-24,572,781	842,323,350	1,578,341,000	736,017,650	47
2002-03	7,491,000	402,000	2,605,000	7,674,963	16,025,000	34,197,963	33,438,000	10,176,000	43,614,000	-9,416,037	832,907,312	1,567,195,000	734,287,688	47
2003-04	3,562,000	411,000	6,796,000	8,688,704	15,187,000	34,644,704	35,256,000	8,915,000	44,171,000	-9,526,296	823,381,016	1,549,927,000	726,545,984	47
2004-05	21,761,000	417,000	0	6,863,146	56,974,000	86,015,146	32,552,000	7,860,000	40,412,000	45,603,146	868,984,163	1,622,193,000	753,208,837	46
2005-06	5,234,000	368,000	1,167,000	6,866,568	30,520,000	44,155,568	36,492,000	5,267,000	41,759,000	2,396,568	871,380,730	1,627,805,000	756,424,270	46
2006-07	0	407,000	1,280,000	7,504,425	9,670,000	18,861,425	45,466,000	6,243,000	51,709,000	-32,847,575	838,533,155	1,588,613,000	750,079,845	47
2007-08	5,416,000	358,000	2,296,000	6,514,492	12,648,000	27,232,492	33,187,000	11,421,000	44,608,000	-17,375,508	821,157,647	1,564,392,000	743,234,353	48
2008-09	3,750,000	411,000	6,248,000	6,142,465	13,021,000	29,572,465	29,415,000	6,678,000	36,093,000	-6,520,535	814,637,112	1,545,481,000	730,843,888	47
2009-10	7,482,000	407,000	0	7,220,806	29,986,000	45,095,806	42,267,000	8,491,000	50,758,000	-5,662,194	808,974,918	1,555,859,000	746,884,082	48
2010-11	9,707,000	424,000	3,284,000	4,760,451	43,634,000	61,809,451	29,068,000	6,936,000	36,004,000	25,805,451	834,780,369	1,596,345,000	761,564,631	48
Max	45,511,000	424,000	8,664,000	8,688,700	56,974,000	86,015,100	45,466,000	12,024,000	51,709,000	45,603,100	891,386,000	1,698,690,000	847,147,000	52
Min	0	283,000	0	4,184,000	3,777,000	18,861,400	23,211,000	1,749,000	24,960,000	-32,847,600	741,382,000	1,545,481,000	726,546,000	46
1973-74 to	10,686,600	367,200	2,369,200	5,898,900	18,801,400	38,123,400	30,750,100	5,955,400	36,705,500	1,418,000	834,535,700	1,615,386,200	780,850,500	48
Last 5 yrs	5,271,000	401,400	2,621,600	6,428,500	21,791,800	36,514,300	35,880,600	7,953,800	43,834,400	-7,320,100	823,616,600	1,570,138,000	746,521,400	48
Last 10 yrs	6,440,300	399,200	2,470,800	7,017,100	24,320,200	40,647,600	35,458,100	8,401,100	43,859,200	-3,211,600	835,706,000	1,579,615,100	743,909,100	47

* (condensed from Appendix O)

TABLE III.12
CALIBRATION COEFFICIENTS OR CONCENTRATION FOR TOTAL DISSOLVED SOLIDS (TDS) BALANCE MODEL

Loading/Unloading

Decadal Mean Groundwater TDS Concentration (GW)	mg/L
1973-74 to 1979-80	345
1980-81 to 1989-90	335
1990-91 to 1999-2000	326
2000-01 to 2010-11	362

Volume of annual recharge from precipitation or returned flow or surface spreading to mean volume	Coefficient, c (multiplier)	
	1973-74 to 1999-2000	2000-01 to 2010-11
Greater than mean	0.94	1.25
75% to mean	0.90	1.10
Less than 75% of mean	0.90	1.00

Source	Concentration or Coefficient	
Subsurface inflow from Puente Basin	Use annual water quality.	Use annual water quality.
Treated, Imported Water (Blend of Weymouth)	Use annual water quality.	Use annual water quality.
Incidental Recharge	Use annual San Jose Creek water quality.	Use annual San Jose Creek water quality.
Recycled Water:		
For Irrigation (Whittier Narrows, San Jose Creek WRPs)	Use annual water quality.	Use annual water quality.
Direct Spreading	Use annual water quality.	Use annual water quality.

	Multiply appropriate annual coefficient (c) by decadal mean TDS concentration (GW). Use greater of source TDS or product (c*GW)	
Precipitation (Valley Floor, Watershed)	c*GW	c*GW
Loading from returned flow (Direct uses)		
San Gabriel Basin, Raymond Basin, and Surface Waters	c*GW	c*GW
Loading from Direct Spreading (Local Runoff, State Water Project)	c*GW	c*GW

Concentration

The loading/unloading balance was used to estimate the annual mass of TDS stored in groundwater.

The annual mass of TDS stored was used to estimate the TDS concentration (annual TDS estimate).

annual TDS estimate = annual mass of TDS storage / annual GW storage volume / 2.718

The groundwater TDS concentration in the model was further adjusted for volume of groundwater in storage.

annual TDS adjusted = annual TDS estimate + (annual GW storage volume - mean GW storage volume) * -0.0001

TABLE III.13
LOADING AND ASSIMILATIVE CAPACITY OF TDS IN SAN GABRIEL BASIN

Water Year	TDS loading: Precipitation /Watershed Runoff LBS	Puente Basin Subsurface Inflow LBS	Incidental Percolation in River LBS	Returned flow Total LBS	Direct Spreading LBS	Total LBS	TDS unloading: Groundwater extraction unloading LBS	Subsurface outflow unloading LBS	Total LBS	Balance TDS balance LBS	TDS in Groundwater (mixing, 75% of volume) LBS	Allowable loading 450 mg/l * mixing volume LBS	Assimilative capacity 75% basin + inflow/outflow LBS	Assimilative capacity 75% basin + inflow/outflow mg/L
column(1)	(2)	(3)	(4)	(5)	(6)	(7)=(2)+(3)+(4)+(5)+(6)	(8)	(9)	(10)=(8)+(9)	(11)=(7)-(10)	(12)	(13)	(14)=(13)-(12)	(15)
1973-74	97,275,000	1,197,000	0	19,110,000	57,831,000	175,413,000	194,981,000	21,434,000	216,415,000	-41,002,000	5,246,546,000	7,276,314,000	2,029,768,000	126
1974-75	84,418,000	1,063,000	0	18,335,000	40,342,000	144,158,000	186,577,000	20,967,000	207,544,000	-63,386,000	5,183,160,000	7,208,276,000	2,025,116,000	126
1975-76	80,137,000	1,093,000	0	21,346,000	31,377,000	133,953,000	217,046,000	22,033,000	239,079,000	-105,126,000	5,078,034,000	7,109,599,000	2,031,565,000	129
1976-77	78,086,000	988,000	4,685,000	19,993,000	24,975,000	128,727,000	192,781,000	25,447,000	218,228,000	-89,501,000	4,988,533,000	7,021,325,000	2,032,792,000	130
1977-78	300,930,000	1,093,000	0	19,049,000	132,253,000	453,325,000	175,616,000	17,057,000	192,673,000	260,652,000	5,249,185,000	7,296,862,000	2,047,677,000	126
1978-79	140,989,000	1,272,000	0	20,044,000	87,209,000	249,514,000	188,198,000	15,299,000	203,497,000	46,017,000	5,295,202,000	7,347,837,000	2,052,635,000	126
1979-80	255,850,000	1,392,000	0	19,667,000	90,899,000	367,808,000	190,105,000	18,333,000	208,438,000	159,370,000	5,454,572,000	7,515,130,000	2,060,558,000	123
1980-81	59,470,000	1,227,000	0	20,095,000	42,543,000	123,335,000	177,780,000	22,405,000	200,185,000	-76,850,000	5,377,722,000	7,418,251,000	2,040,529,000	124
1981-82	59,401,000	1,272,000	0	21,123,000	110,360,000	192,156,000	195,675,000	21,329,000	217,004,000	-24,848,000	5,352,874,000	7,405,354,000	2,052,480,000	125
1982-83	145,951,000	1,272,000	0	19,034,000	250,199,000	416,456,000	175,695,000	25,122,000	200,817,000	215,639,000	5,568,513,000	7,644,106,000	2,075,593,000	122
1983-84	27,366,000	1,197,000	30,329,000	21,403,000	59,110,000	139,405,000	182,718,000	16,722,000	199,440,000	-60,035,000	5,508,478,000	7,551,291,000	2,042,813,000	122
1984-85	37,809,000	1,227,000	33,378,000	24,381,000	50,857,000	147,652,000	218,882,000	22,236,000	241,118,000	-93,466,000	5,415,012,000	7,450,853,000	2,035,841,000	123
1985-86	68,022,000	1,365,000	34,366,000	25,562,000	110,592,000	239,907,000	237,114,000	16,236,000	253,350,000	-13,443,000	5,401,569,000	7,443,753,000	2,042,184,000	123
1986-87	20,159,000	1,354,000	38,326,000	22,512,000	64,606,000	146,957,000	213,640,000	14,844,000	228,484,000	-81,527,000	5,320,042,000	7,332,821,000	2,012,779,000	124
1987-88	47,432,000	1,234,000	32,557,000	24,315,000	74,881,000	180,419,000	215,655,000	32,487,000	248,142,000	-67,723,000	5,252,319,000	7,258,242,000	2,005,923,000	124
1988-89	34,640,000	1,202,000	0	25,083,000	68,344,000	129,269,000	221,770,000	18,285,000	240,055,000	-110,786,000	5,141,533,000	7,143,017,000	2,001,484,000	126
1989-90	34,705,000	1,291,000	10,426,000	23,891,000	98,746,000	169,059,000	210,915,000	29,860,000	240,775,000	-71,716,000	5,069,817,000	7,045,689,000	1,975,872,000	126
1990-91	41,203,000	1,362,000	866,000	21,517,000	139,567,000	204,515,000	196,000,000	25,167,000	221,167,000	-16,652,000	5,053,165,000	7,030,507,000	1,977,342,000	127
1991-92	71,427,000	1,392,000	14,409,000	19,512,000	259,082,000	365,822,000	167,413,000	23,997,000	191,410,000	174,412,000	5,227,577,000	7,207,092,000	1,979,515,000	124
1992-93	135,851,000	1,579,000	0	20,626,000	249,161,000	407,217,000	186,114,000	28,252,000	214,366,000	192,851,000	5,420,428,000	7,428,012,000	2,007,584,000	122
1993-94	28,286,000	1,272,000	26,679,000	24,853,000	59,758,000	140,848,000	223,552,000	34,471,000	258,023,000	-117,175,000	5,303,253,000	7,332,702,000	2,029,449,000	125
1994-95	106,201,000	1,287,000	0	21,426,000	203,087,000	332,001,000	183,666,000	29,382,000	213,048,000	118,953,000	5,422,206,000	7,464,329,000	2,042,123,000	123
1995-96	44,197,000	1,134,000	24,243,000	25,719,000	131,477,000	226,770,000	240,675,000	33,306,000	273,981,000	-47,211,000	5,374,995,000	7,437,056,000	2,062,061,000	125
1996-97	46,991,000	1,227,000	2,450,000	25,579,000	117,994,000	194,241,000	236,014,000	35,530,000	271,544,000	-77,303,000	5,297,692,000	7,378,926,000	2,081,234,000	127
1997-98	105,694,000	1,187,000	0	21,076,000	206,031,000	333,988,000	185,454,000	29,698,000	215,152,000	118,836,000	5,416,528,000	7,501,627,000	2,085,099,000	125
1998-99	0	1,089,000	49,171,000	21,736,000	65,597,000	137,593,000	130,590,000	25,636,000	156,226,000	-18,633,000	5,397,895,000	7,376,128,000	1,978,233,000	121
1999-00	26,488,000	1,130,000	36,736,000	23,773,000	106,409,000	194,536,000	227,734,000	33,448,000	261,182,000	-66,646,000	5,331,249,000	7,300,485,000	1,969,236,000	121
2000-01	38,987,000	1,276,000	16,327,000	32,926,936	150,250,000	239,766,936	229,739,000	35,198,000	264,937,000	-25,170,064	5,306,078,936	7,222,779,000	1,916,700,064	119
2001-02	0	1,258,000	6,397,000	34,077,004	143,321,000	185,053,004	241,198,000	36,073,000	277,271,000	-92,217,996	5,213,860,939	7,102,536,000	1,888,675,061	120
2002-03	69,105,000	1,407,000	19,584,000	32,846,301	147,818,000	270,760,301	224,438,000	26,076,000	250,514,000	20,246,301	5,234,107,240	7,052,376,000	1,818,268,760	116
2003-04	26,881,000	1,487,000	47,839,000	30,842,254	140,090,000	247,139,254	257,061,000	22,845,000	279,906,000	-32,766,746	5,201,340,494	6,974,670,000	1,773,329,506	114
2004-05	200,730,000	1,461,000	0	27,461,579	525,556,000	755,208,579	242,582,000	26,857,000	269,439,000	485,769,579	5,687,110,073	7,299,871,000	1,612,760,927	99
2005-06	42,513,000	1,356,000	9,014,000	27,306,310	281,531,000	361,720,310	250,225,000	25,532,000	275,757,000	85,963,310	5,773,073,384	7,325,124,000	1,552,050,616	95
2006-07	0	1,575,000	10,942,000	34,251,177	89,204,000	135,972,177	263,364,000	32,207,000	295,571,000	-159,598,823	5,613,474,560	7,148,760,000	1,535,285,440	97
2007-08	49,965,000	1,482,000	18,402,000	32,653,382	116,674,000	219,176,382	239,849,000	50,460,000	290,309,000	-71,132,618	5,542,341,942	7,039,763,000	1,497,421,058	96
2008-09	28,268,000	1,252,000	41,897,000	31,461,743	120,114,000	222,992,743	216,184,000	32,649,000	248,833,000	-25,840,257	5,516,501,685	6,954,663,000	1,438,161,315	93
2009-10	69,019,000	1,369,000	0	25,242,664	276,604,000	372,234,664	232,869,000	38,596,000	271,465,000	100,769,664	5,617,271,350	7,001,364,000	1,384,092,650	89
2010-11	89,548,000	1,482,000	23,729,000	22,200,529	402,505,000	539,464,529	212,792,000	13,242,000	226,034,000	313,430,529	5,930,701,879	7,183,554,000	1,252,852,121	78
Max	300,930,000	1,579,000	49,171,000	34,251,200	525,556,000	755,208,600	263,364,000	50,460,000	295,571,000	485,769,600	5,930,701,900	7,644,106,000	2,085,099,000	130
Min	0	988,000	0	18,335,000	24,975,000	123,335,000	130,590,000	13,242,000	156,226,000	-159,598,800	4,988,533,000	6,954,663,000	1,252,852,100	78
1973-74 to 2010-2011 mean	73,526,200	1,284,300	14,019,800	24,263,900	140,183,000	253,277,200	210,070,000	26,282,100	236,352,100	16,925,100	5,362,735,800	7,269,238,000	1,906,502,200	118
Last 5 yrs	47,360,000	1,432,000	18,994,000	29,161,900	201,020,200	297,968,100	233,011,600	33,430,800	266,442,400	31,525,700	5,644,058,300	7,065,620,800	1,421,562,500	91
Last 10 yrs	57,602,900	1,412,900	17,780,400	29,834,300	224,341,700	330,972,200	238,056,200	30,453,700	268,509,900	62,462,300	5,532,978,400	7,108,268,100	1,575,289,700	100

* (condensed from Appendix P)

TABLE III.14a

ASSIMILATIVE CAPACITY ANALYSIS: SALTS IN SOLUTION POSSIBILITIES
HYPOTHETICAL SCENARIOS FOR RECHARGE WATER QUALITY CHARACTERISTICS

Scenario	NO_3	Cl	SO_4	TDS†	
				Minimum‡	Maximum‡
	---------- mg/L ----------				
Scenario 1	20	50	250	605	968
Scenario 2	1	250	60	635	1,015
Scenario 3	1	60	250	594	950

† TDS is estimated using the equivalent weight of nitrate, chloride, and sulfate, and the equivalent weight of the most common companion cations: calcium, magnesium, and potassium.

‡ The minimum and maximum are estimated using the ratios identified in the analysis of waters in the Main San Gabriel Basin, in which nitrate, chloride, and sulfate contributed 55 to 80 percent of the total TDS concentration.

TABLE III.14b

ASSIMILATIVE CAPACITY ANALYSIS: GROUND WATER RECHARGE WITH RECYCLED WATER

INDIRECT REUSE REPLENISHMENT PROJECT

Water Quantity Assumptions, 2001-02 to 2010-11				
	ac-ft			
Mixing model, 75% of groundwater in storage	5,811,700	5,811,700	5,811,700	5,811,700
	ac-ft/yr			
Groundwater Recharge/Removal	250,000	250,000	250,000	250,000
Recycled Water Replacement	10,000	10,000	10,000	10,000
Balance of Recharge	240,000	240,000	240,000	240,000
Water Quality Characteristics, 2001-02 to 2010-11				
	Nitrate	Chloride	Sulfate	TDS
	mg/L			
Groundwater	19	32	53	350
Basin Water Quality Objectives	45	100	100	450
San Jose Creek Water Reclamation Plant - West	27	110	85	530
Loading Characteristics, 2001-02 to 2010-11				
	lbs			
Allowable loading	710,826,700	1,579,615,100	1,579,615,100	7,108,268,100
Current load	298,330,000	510,262,300	835,706,000	5,532,978,400
Assimilative Capacity (AC)	412,496,700	1,069,352,800	743,909,100	1,575,289,700
10% AC	41,249,670	106,935,280	74,390,910	157,528,970
IRRP Project Evaluation				
	lbs/yr			
Recycled Water Project loading	734,000	2,989,000	2,310,000	14,403,000
Balance of Recharge loading	12,392,000	21,068,000	34,503,000	228,278,000
Total loading	13,126,000	24,057,000	36,813,000	242,681,000
Groundwater removal unloading	12,909,000	21,946,000	35,941,000	237,790,000
Net load	217,000	2,111,000	872,000	4,891,000
	percent			
Percent AC used with 10,000 AF after 1 year	0.1	0.2	0.1	0.3
Percent AC used with 10,000 AF after 5 years	0.2	0.9	0.5	1.4
Percent AC used with 10,000 AF after 10 years	0.4	1.6	1.0	2.6
Percent AC used with 10,000 AF after 20 years	0.7	2.7	1.6	4.2
Percent AC used after Equilibrium Reached	1.2	4.6	2.7	7.2

TABLE III.14c

ASSIMILATIVE CAPACITY ANALYSIS: GROUND WATER RECHARGE WITH RECYCLED WATER

SCENARIO 1

Water Quantity Assumptions, 2001-02 to 2010-11				
	----------	acre ft	----------	
Mixing model, 75% of groundwater in storage	5,811,700	5,811,700	5,811,700	5,811,700
	----------	ac-ft/yr	----------	
Groundwater Recharge/Removal	250,000	250,000	250,000	250,000
Replenishent Water	5,700	5,700	5,700	5,700
Balance of Recharge	244,300	244,300	244,300	244,300
Water Quality Characteristics, 2001-02 to 2010-11				
	Nitrate	Chloride	Sulfate	TDS
	----------	mg/L	----------	
Groundwater	19	32	53	350
Basin Water Quality Objectives	45	100	100	450
Replenishment Water - Scenario 1	20	50	250	787
Loading Characteristics, 2001-02 to 2010-11				
	----------	lbs	----------	
Allowable loading	710,826,700	1,579,615,100	1,579,615,100	7,108,268,100
Current load	298,330,000	510,262,300	835,706,000	5,532,978,400
Assimilative Capacity (AC)	412,496,700	1,069,352,800	743,909,100	1,575,289,700
10% AC	41,249,670	106,935,280	74,390,910	157,528,970
Scenario 1 Evaluation				
	----------	lbs/yr	----------	
Recycled Water Project loading	310,000	775,000	3,873,000	12,191,000
Balance of Recharge loading	12,614,000	21,445,000	35,122,000	232,368,000
Total loading	12,924,000	22,220,000	38,995,000	244,559,000
Groundwater removal unloading	12,909,000	21,946,000	35,941,000	237,790,000
Net load	15,000	274,000	3,054,000	6,769,000
	----------	percent	----------	
Percent AC used with 5,700 AFY after 1 year	0.0	0.0	0.4	0.4
Percent AC used with 5,700 AFY after 5 years	0.0	0.1	1.9	2.0
Percent AC used with 5,700 AFY after 10 years	0.0	0.2	3.4	3.5
Percent AC used with 5,700 AFY after 20 years	0.1	0.4	5.6	5.8
Percent AC used after Equilibrium Reached	0.1	0.6	9.6	10.0

TABLE III.14.d

ASSIMILATIVE CAPACITY ANALYSIS: GROUND WATER RECHARGE WITH RECYCLED WATER

SCENARIO 2

Water Quantity Assumptions, 2001-02 to 2010-11				
	ac-ft			
Mixing model, 75% of groundwater in storage	5,811,700	5,811,700	5,811,700	5,811,700
	ac-ft/yr			
Groundwater Recharge/Removal	250,000	250,000	250,000	250,000
Replenishment Water	5,300	5,300	5,300	5,300
Balance of Recharge	244,700	244,700	244,700	244,700
Water Quality Characteristics, 2001-02 to 2010-11				
	Nitrate	Chloride	Sulfate	TDS
	mg/L			
Groundwater	19	32	53	350
Basin Water Quality Objectives	45	100	100	450
Replenishment Water - Scenario 2	1	250	60	825
Loading Characteristics, 2001-02 to 2010-11				
	lbs			
Allowable loading	710,826,700	1,579,615,100	1,579,615,100	7,108,268,100
Current load	298,330,000	510,262,300	835,706,000	5,532,978,400
Assimilative Capacity (AC)	412,496,700	1,069,352,800	743,909,100	1,575,289,700
10% AC	41,249,670	106,935,280	74,390,910	157,528,970
Scenario 2 Evaluation				
	lbs/yr			
Recycled Water Project loading	14,000	3,601,000	864,000	11,883,000
Balance of Recharge loading	12,635,000	21,481,000	35,179,000	232,749,000
Total loading	12,649,000	25,082,000	36,043,000	244,632,000
Groundwater removal unloading	12,909,000	21,946,000	35,941,000	237,790,000
Net load	-260,000	3,136,000	102,000	6,842,000
	percent			
Percent AC used with 5,300 AFY after 1 year	-0.1	0.3	0.0	0.4
Percent AC used with 5,300 AFY after 5 years	-0.3	1.3	0.1	2.0
Percent AC used with 5,300 AFY after 10 years	-0.5	2.4	0.1	3.5
Percent AC used with 5,300 AFY after 20 years	-0.9	4.0	0.2	5.8
Percent AC used after Equilibrium Reached	-1.5	6.8	0.3	10.1

TABLE III.14.e

ASSIMILATIVE CAPACITY ANALYSIS: GROUND WATER RECHARGE WITH RECYCLED WATER

SCENARIO 3

Water Quantity Assumptions, 2001-02 to 2010-11				
	ac-ft			
Mixing model, 75% of groundwater in storage	5,811,700	5,811,700	5,811,700	5,811,700
	ac-ft/yr			
Groundwater Recharge/Removal	250,000	250,000	250,000	250,000
Replenishment Water	5,800	5,800	5,800	5,800
Balance of Recharge	244,200	244,200	244,200	244,200
Water Quality Characteristics, 2001-02 to 2010-11				
	Nitrate	Chloride	Sulfate	TDS
	mg/L			
Groundwater	19	32	53	350
Basin Water Quality Objectives	45	100	100	450
Replenishment Water - Scenario 3	1	60	250	772
Loading Characteristics, 2001-02 to 2010-11				
	lbs			
Allowable loading	710,826,700	1,579,615,100	1,579,615,100	7,108,268,100
Current load	298,330,000	510,262,300	835,706,000	5,532,978,400
Assimilative Capacity (AC)	412,496,700	1,069,352,800	743,909,100	1,575,289,700
10% AC	41,249,670	106,935,280	74,390,910	157,528,970
Scenario 3 Evaluation				
	lbs/yr			
Recycled Water Project loading	16,000	946,000	3,941,000	12,168,000
Balance of Recharge loading	12,609,000	21,437,000	35,107,000	232,273,000
Total loading	12,625,000	22,383,000	39,048,000	244,441,000
Groundwater removal unloading	12,909,000	21,946,000	35,941,000	237,790,000
Net load	-284,000	437,000	3,107,000	6,651,000
	percent			
Percent AC used with 5,800 AFY after 1 year	-0.1	0.0	0.4	0.4
Percent AC used with 5,800 AFY after 5 years	-0.3	0.2	1.9	2.0
Percent AC used with 5,800 AFY after 10 years	-0.6	0.4	3.5	3.6
Percent AC used with 5,800 AFY after 20 years	-0.9	0.6	5.7	5.9
Percent AC used after Equilibrium Reached	-1.5	1.0	9.8	10.1

Table III.15

Existing and Potential Implementation Measures

Activity	Timeframe	Type of Implementation Measure	Loading Impact	Concentration Impact
Groundwater Replenishment	Existing	• Spreading Grounds • Replenishment in unlined portions of streams • Replenishment Coordinating Groups • Optimize delivery of SWP water	Increase	Decrease
	Potential	• New replenishment facilities	Increase	Decrease
Reduce Stormwater Runoff	Potential	• Stormwater to BMPs to reduce runoff	Increase	No Change
Recycled Water	Existing	• Nitrogen Treatment	Decrease	Decrease
Imported Water TDS Management	Existing	• MWD Salinity Source Water Control Program	No Change	Decrease
Institutional	Existing	• Basin Adjunction/Watermaster • Establishment of Safe Yield • Supplemental Water Criteria	None	None
Regulatory	Existing	• Title 22 Water Quality Monitoring	None	None
	Future	• SNMP Monitoring Program	None	None

Existing – Implementation measures or projects/programs that are currently in place

Potential – Implementation measures that are anticipated to be in operation before 2025 notwithstanding exigencies that are outside in the control of the project sponsors