Appendix 7. Analyses for trace elements for sampled wells, grouped by study, lead through zinc, Santa Ana NAWQA, California

[Sample dates are given in Appendix 3; number below the compound is the data parameter code, which is a 5-digit number used in the USGS computerized data system, National Water Information System (NWIS), to uniquely identify a specific constituent or property; dissolved indicates analysis of filtered sample;{},concentration in braces was less than the associated maximum field-blank concentration and may reflect cross contamination; µg/L, micrograms per liter; —, no data; <, less than; E, estimated]

NAWQA identification No.	Lead, dissolved, µg/L (01049)	Lithium, dissolved, µg/L (01130)	Manganese, dissolved, µg/L (01056)	Molybdenum, dissolved, µg/L (01060)	Nickel, dissolved, µg/L (01065)	Selenium, dissolved, µg/L (01145)	Silver, dissolved, µg/L (01075)	Strontium , dissolved, µg/L (01080)	Thallium, dissolved, µg/L (01057)	Vanadium, dissolved, µg/L (01085)	Zinc, dissolved, µg/L (01090)
COS-1	<1.00	—	<1.0	3.5	<1.00	<1.0	—	—	—	—	<1
COS-2	<1.00	—	<1.0	3.7	4.48	<1.0	<1.0	—	—	—	2
COS-3	2.83	—	1.2	5	2.34	<1.0	<1.0	—	—	—	8
COS-4	<1.00	—	150	13.2	<1.00	<1.0	<1.0	—	—	—	2
COS-5	2.96	—	1.1	4.7	<1.00	1.3	<1.0	—	—	—	5
COS-6	<1.00	—	<1.0	16.1	<1.00	1.7	<1.0	—	—	—	2
COS-7	<1.00	—	<1.0	9.4	<1.00	1.9	<1.0	—	—	—	1
COS-8	2.37	—	<1.0	2.2	2.16	<1.0	<1.0	—	—	—	10
COS-9	<1.00	—	668	11.3	4.16	<1.0	<1.0	—	—	—	5
COS-10	<1.00	—	<1.0	5.4	<1.00	1.6	<1.0	—	—	—	1
COS-11	<1.00	—	<1.0	4.1	1.45	<2.4	<1.0	—	—	—	4
COS-12	<1.00	—	1.8	8.6	<1.00	<1.0	<1.0	—	—	—	1
COS-13	3.52	—	147	50.4	1.16	2.6	<1.0	—	—	—	42
COS-14	1.83	—	6.2	5.1	<1.00	<1.0	<1.0	—	—	—	1
COS-15	<1.00	—	31.9	4.8	<1.00	<1.0	<1.0	—	—	—	<1
COS-16	<1.00	—	2.6	4.2	2.34	<1.0	<1.0	—	—	—	7
COS-17	3.39	—	<1.0	5.6	1.25	1.2	<1.0	—	—	—	5
COS-18	1.38	—	<1.0	3.8	2.77	<1.0	<1.0	—	—	—	2
COS-19	3.06	—	<1.0	2.8	3.21	<1.0	<1.0	—	—	—	4
COS-20	<1.00	—	<1.0	3.6	<1.00	1.4	<1.0	—	—	—	5
COL-1	<1.00	25.3	761	9	14.2	5.4	<1.0	2,280	<0.9	3.2	<6
COL-2	<1.00	16	1.7	3.5	9.98	3.7	<1.0	1,380	<.9	2.1	<6
COL-3	<1.00	4.3	37.1	2.6	4.45	1.1	<1.0	662	<.9	1.9	<4
COL-4	<1.00	14.6	1.2	2.3	4.43	4.6	<1.0	1,340	<.9	1.1	<6
COL-5	<2.00	42.7	110	9.6	10.6	11.8	<2.0	1,520	<2	2.9	<15
COL-6	<3.00	5.7	837	187	5.22	<3.0	<3.0	1,590	<3	<3	<11
COL-7	<1.00	6.7	1,220	58.7	9.54	1.3	<1.0	2,220	<.9	6.9	4
COL-8	<1.00	4.7	573	11.1	3.37	E0.5	<1.0	627	<.9	1.9	<1
COL-9	<1.00	5.6	1,420	36.4	2.59	4.1	<1.0	1,380	<.9	4.6	5
COL-10	<1.00	7.5	407	61.2	<1.00	7.1	<1.0	1,070	<.9	5.6	3
COL-11	<1.00	6.5	940	5.1	<1.00	2.1	<1.0	827	<.9	3.3	5
COL-12	<7.00	92.2	278	<7.0	<7.00	5.6	<7.0	15,900	<.9	<7	34
COL-13	<1.00	61.4	1.8	11.4	<1.00	28.3	<1.0	2,090	<.9	10.9	38
COL-14	<1.00	18.4	1,560	144	1.66	2.3	<1.0	2,100	<.9	1.4	4
COL-15	<1.00	15.3	252	55.5	6.24	8.4	<1.0	946	<.9	20	4
COL-16	<1.00	7.3	232	143	1.32	E.5	<1.0	991	<.9	1.8	2
COL-17	<1.00	5.1	1,230	25.1	2.95	<.7	<1.0	759	<.9	1.9	5
COL-18	<1.00	3.5	221	5.6	34	1.1	<1.0	1,520	<.9	2.7	1

Appendix 7. Analyses for trace elements for sampled wells, grouped by study, lead through zinc, Santa Ana NAWQA, California—Continued

NAWQA identification No.	Lead, dissolved, µg/L (01049)	Lithium, dissolved, µg/L (01130)	Manganese, dissolved, µg/L (01056)	Molybdenum, dissolved, µg/L (01060)	Nickel, dissolved, µg/L (01065)	Selenium, dissolved, µg/L (01145)	Silver, dissolved, µg/L (01075)	Strontium , dissolved, µg/L (01080)	Thallium, dissolved, µg/L (01057)	Vanadium, dissolved, µg/L (01085)	Zinc, dissolved, µg/L (01090)
COL-19	<1.00	6.9	150	1,510	4.48	2.2	<1.0	1,170	<2.7	1.5	3
COL-20	<1.00	10.9	46.9	3.4	13.4	11.3	<1.0	1,240	<.9	2.3	3
COL-21	<15.0	90	7,560	42.1	15.3	<4.3	<15.0	8,720	<13.5	<15	62
COL-22	<2.00	9.2	724	322	5.56	<1.4	<2.0	824	<1.8	2.1	18
COL-23	—	—	—	—	—	—	—	—	—	—	—
COL-24	<2.00	6.2	778	<2.0	6.76	3.3	<2.0	4,460	<1.8	<2	4
COL-25	<5.00	57.7	2970	33.9	11.4	5.9	<5.0	4,990	<4.5	6.6	33
COL-26	<2.00	15.6	973	7.2	<2.00	<1.8	<2.0	1,470	<1.8	<2	2
COF-1	—	—	<2.2	—	—	—	—	—	—	—	—
COF-2	—	—	<2.2	—	—	—	—	—	—	—	—
COF-3	—	—	<2.2	—	—	—	—	—	—	—	—
COF-4	—	—	<2.2	—	—	—	—	—	—	—	—
COF-5	—	—	<2.2	—	—	—	—	—	—	—	—
COF-6	—	—	3	—	—	—	—	—	—	—	—
COF-7	—	—	<2.2	—	—	—	—	—	—	—	—
COF-8	—	—	—	—	—	—	—	—	—	—	—
COF-9	—	—	<2.2	—	—	—	—	—	—	—	—
COF-10	—	—	<2.2	—	—	—	—	—	—	—	—
COF-11	—	—	<2.2	—	—	—	—	—	—	—	—
COF-12	—	—	<2.2	—	—	—	—	—	—	—	—
COF-13	—	—	<2.2	—	—	—	—	—	—	—	—
COF-14	—	—	<2.2	—	—	—	—	—	—	—	—
COF-15	—	—	<2.2	—	—	—	—	—	—	—	—
COF-16	—	—	<2.2	—	—	—	—	—	—	—	—
COF-17	—	—	<2.2	—	—	—	—	—	—	—	—
COF-18	—	—	<2.2	—	—	—	—	—	—	—	—
COF-19	—	—	<2.2	—	—	—	—	—	—	—	—
COF-20	—	—	<2.2	—	—	—	—	—	—	—	—
COF-21	—	—	512	—	—	—	—	—	—	—	—
COF-22	—	—	—	—	—	—	—	—	—	—	—
COF-23	—	—	<2.2	—	—	—	—	—	—	—	—
INS-1	<1.00	0.6	<1.0	6.2	<1.00	0.7	<1.0	259	<.9	7.5	5
INS-2	<1.00	2.3	<1.0	5.3	<1.00	.7	<1.0	360	<.9	10.2	1
INS-3	<1.00	.6	<1.0	4.1	1.56	E.5	<1.0	339	<.9	16	6
INS-4	1.21	1.5	<1.0	3.5	1.75	<.7	<1.0	254	<.9	5.4	9
INS-5	2.62	3.8	<1.0	2.8	2.83	E.5	<1.0	452	<.9	2.3	4
INS-6	1.89	.4	<1.0	3.5	<1.00	.9	<1.0	403	<.9	3.5	4
INS-7	1.57	.5	<1.0	2.4	1.65	E.4	<1.0	327	<.9	5.6	6
INS-8	<1.00	3.7	<1.0	2.8	<1.00	<.7	<1.0	323	<.9	2.4	<1
INS-9	4.35	1.7	<1.0	3.2	<1.00	E.5	<1.0	346	<.9	7.5	8
INS-10	<1.00	.4	<1.0	12.1	<1.00	1	<1.0	211	<.9	33	<2

Appendix 7. Analyses for trace elements for sampled wells, grouped by study, lead through zinc, Santa Ana NAWQA, California—Continued

NAWQA identification No.	Lead, dissolved, µg/L (01049)	Lithium, dissolved, µg/L (01130)	Manganese, dissolved, µg/L (01056)	Molybdenum, dissolved, µg/L (01060)	Nickel, dissolved, µg/L (01065)	Selenium, dissolved, µg/L (01145)	Silver, dissolved, µg/L (01075)	Strontium , dissolved, µg/L (01080)	Thallium, dissolved, µg/L (01057)	Vanadium, dissolved, µg/L (01085)	Zinc, dissolved, µg/L (01090)
INS-11	1.49	1.2	<1.0	3.3	<1.00	<.7	<1.0	345	<.9	4.8	5
INS-12	<1.00	.8	<1.0	3	2.38	3.1	<1.0	359	<.9	6.2	< 4
INS-13	3.4	8.2	<1.0	7.6	6.24	3.4	<1.0	807	<.9	4	<4
INS-14	<1.00	9.5	9.5	6.7	4.05	1.4	<1.0	517	<.9	20.7	<8
INS-15	1.24	3.2	<1.0	3.2	<1.00	1.3	<1.0	431	<.9	6.3	2
INS-16	<1.00	3.5	<1.0	2.3	<1.00	E.4	<1.0	251	<.9	4.3	<1
INS-17	<1.00	.5	<1.0	2.9	<1.00	<.7	<1.0	243	<.9	1.7	5
INS-18	1.6	6.2	<1.0	1.6	<1.00	<.7	<1.0	244	<.9	1.4	5
INS-19	<1.00	4.5	<1.0	5.4	<1.00	1.1	<1.0	490	<.9	2.8	2
INS-20	<1.00	.5	<1.0	6.8	<1.00	<.7	<1.0	237	<.9	2.3	2
INS-21	<1.00	<0.3	7.1	2.1	<1.00	E.5	<1.0	267	<.9	<1	4
INS-22	1.47	<.3	<1.0	4.9	<1.00	E.5	<1.0	271	<.9	5.5	2
INS-23	1.92	1	<1.0	1.9	<1.00	E.6	<1.0	285	<.9	10	<6
INS-24	1.56	6.8	<1.0	3.1	<1.00	.7	<1.0	715	<.9	3.6	2
INS-25	<1.00	27.5	<1.0	19.6	1.99	2.4	<1.0	234	<.9	1.5	<6
INS-26	1.88	5.5	<1.0	2.8	2.81	1.6	<1.0	903	<.9	4.7	<5
INS-27	1.09	7.8	1.1	3.1	1.14	.8	<1.0	440	<.9	8.2	<10
INS-28	<1.00	6.2	<1.0	3.6	1.15	E.4	<1.0	360	<.9	5.7	<5
INS-29	2.45	2	<1.0	2.7	1.83	7	<1.0	842	<.9	2.9	<10
INF-1	—	—	—	—	—	—	—	—		—	—
INF-1a	<1.00	2.6	13.4	9.9	<1.00	1	<1.0	365	<.9	<1	<1
INF-2	—	—	—	—	—	—	—	—	—	—	—
INF-2a	<1.00	18.7	197	< 1.0	<1.00	<.7	<1.0	959	<.9	2.5	<1
INF-3	—	—	—	—	—	—	—	—	—	—	—
INF-3a	<1.00	8	185	<1.0	<1.00	<.7	<1.0	1,710	<.9	1.3	2
INF-4	<1.00	6.2	368	4.5	6.3	1.3	<1.0	334	<.9	2.8	<1
INF-5	<1.00	.9	{1.3}	1.4	<1.00	<.7	<1.0	86.1	<.9	<1	<1
INF-6	<1.00	1.4	<1.0	8.1	5.83	<.7	<1.0	289	<.9	2.5	4
INF-6a	—	—	—	—	—	—	—	—	—	—	—
INF-7	<1.00	.7	<1.0	9.2	2.75	<.7	<1.0	246	<.9	3.3	2
INF-7a	—	—	—	—	—	—	—	—	—	—	—
INF-8	<1.00	1.3	2.5	7.4	5.73	<.7	<1.0	273	<.9	1.6	3
INF-8a	—	—	—	—	—	—	—	—	—	—	—
INF-9	<1.00	3.4	10.3	1.9	1.89	<.7	<1.0	182	<.9	1.6	<1
INF-9a	—	—	—	—	—	—	—	—	—	—	—
INF-10	<1.00	3.2	114	6.2	<1.00	1.9	<1.0	185	<.9	1.6	2
INF-11	<1.00	6	79.5	8.5	<1.00	1.6	<1.0	211	<.9	20.5	2
INF-12	<1.00	8.9	<1.0	7.7	<1.00	2.6	<1.0	150	<.9	17.9	2
INF-13	<1.00	1.6	302	1.3	3.42	2.1	<1.0	1,880	<.9	3.3	3
INF-14	—	—	—	—	—	—	—	—	—	—	—
INF-15	<1.00	1.2	1.9	8.4	5.03	E.4	<1.0	434	<.9	5.9	6

Appendix 7. Analyses for trace elements for sampled wells, grouped by study, lead through zinc, Santa Ana NAWQA, California—Continued

NAWQA identification No.	Lead, dissolved, µg/L (01049)	Lithium, dissolved, µg/L (01130)	Manganese, dissolved, µg/L (01056)	Molybdenum, dissolved, µg/L (01060)	Nickel, dissolved, µg/L (01065)	Selenium, dissolved, µg/L (01145)	Silver, dissolved, µg/L (01075)	Strontium , dissolved, µg/L (01080)	Thallium, dissolved, µg/L (01057)	Vanadium, dissolved, µg/L (01085)	Zinc, dissolved, µg/L (01090)
INF-16	<1.00	.8	<1.0	7	<1.00	<.7	<1.0	255	<.9	2.9	5
INF-17	<.08	4	25.3	3	1.13	1.6	<1.0	357	<.04	1.4	3
INF-18	.14	1.4	.1	3.1	.2	1.6	<1.0	541	<.04	3	2
INF-19	<.08	2.6	20.1	2.8	.1	1.3	<1.0	189	<.04	E.2	2
INF-20	.11	2	7.7	4.7	.1	1.5	<1.0	308	<.04	4	2
INF-21	<.08	7.7	230	44.9	.47	5	<1.0	565	<.04	1.2	3
SAS-1	.39	5.3	.8	9.1	<.06	3.2	<1.0	485	<.04	9.4	5
SAS-2	.38	10	.5	28	<.06	5.9	<1.0	393	<.04	11.4	7
SAS-3	.1	17.3	.6	14.3	.1	22.6	<1.0	564	<.04	13.1	5
SAS-4	.81	11.4	2.7	14.8	<.06	2.7	<1.0	446	<.04	9.1	3
SAS-5	.11	10.5	1.3	4.5	.11	1.5	<1.0	624	<.04	6.6	3
SAS-6	.1	3.6	1.6	19.7	E.05	4.2	<1.0	179	<.04	55	3
SAS-7	.09	1.6	196	4.7	.09	<.3	<1.0	343	<.04	1.7	4
SAS-8	E.05	2.3	91.4	2.9	.11	<.3	<1.0	304	<.04	2.3	3
SAS-9	1.01	8.8	9.7	50.1	<.06	14.9	<1.0	323	<.04	8.4	3
SAS-10	.13	2.8	3.8	46.2	<.06	2	<1.0	161	.06	121	5
SAS-11	.31	6.3	.6	6.5	<.06	1.9	<1.0	743	.06	16.6	4
SAS-12	.17	9	.3	11.3	<.06	1.3	<1.0	411	.09	21.9	1
SAS-13	.62	17.7	.6	4.7	<.06	2	<1.0	685	.08	19.1	12
SAS-14	0.5	24	32.7	3.1	<0.06	1.6	<1.0	328	<.04	9.6	6
SAS-15	.58	16.7	17.3	6.7	<.06	2.3	<1.0	587	<.04	26.6	19
SAS-16	3.11	27.5	29.3	13.4	<.06	7.2	<1.0	1,040	.07	12.9	13
SAS-17	.68	1.6	1.3	13.9	<.06	1.6	<1.0	299	<.04	37.4	10
SAS-18	.13	4.2	28.7	15.4	<.06	.5	<1.0	226	E.02	11.4	6
SAS-19	.11	4.4	.2	2.7	<.06	.8	<1.0	417	<.04	7.8	3
SAS-20	E.05	8.5	394	20.8	<.06	<.3	<1.0	563	.16	2.3	8
SAS-21	.16	5.1	.3	2.2	<.06	E.3	<1.0	162	<.04	8.7	<1
SAS-22	.34	78.4	81.3	17.6	<.06	.4	<1.0	504	.17	2.3	6
SAS-23	<.08	2.1	71.4	4.5	<.06	E.2	<1.0	211	<.04	1.2	1

Appendix 8. Analyses for selected isotopes for sampled wells, grouped by study, Santa Ana NAWQA, California

[Sample dates are given in Appendix 3; number below the compound is the data parameter code, which is a 5-digit number used in the USGS computerized data system, National Water Information System (NWIS), to uniquely identify a specific constituent or property; dissolved indicates analysis of filtered sample; per mil, parts per thousand; pCi/L, picocuries per liter; µg/L, micrograms per liter; —, no data; <, less than; E, estimated]

NAWQA identification No.	Carbon-13/ carbon-12, ratio per mil (82081)	Carbon-14, percent modern (49933)	Deuterium/ protium, ratio per mil (82082)	Oxygen-18/ oxygen-16, ratio per mil (82085)	Radon-222, pCi/L (82303)	Tritium, total pCi/L (07000)	Uranium, dissolved, µg/L (22703)
COS-1	—	—	-58.0	-8.50	719	<1.0	<1.00
COS-2	—	—	-64.8	-8.78	679	59.5	15.8
COS-3	—	—	-59.9	-8.59	565	17.9	8.55
COS-4	—	—	-51.6	-7.63	603	1.6	<1.00
COS-5	—	—	-55.5	-8.35	313	<1.0	1.63
COS-6	—	—	-53.9	-8.05	452	3.5	1.25
COS-7	—	—	-47.5	-7.32	475	11.2	2.05
COS-8	—	—	-45.7	-6.53	612	19.2	1.07
COS-9	—	—	-53.2	-7.69	644	22.1	7.88
COS-10	-11.18	78.93	-56.6	-8.36	359	<1.0	4.92
COS-11	-11.70	83.26	-57.9	-8.54	416	11.8	5
COS-12	—	—	-53.5	-7.82	584	8	1.75
COS-13	—	—	-46.8	-7.11	408	<1.0	9.66
COS-14	—	—	-56.7	-8.42	448	<1.0	3.94
COS-15	—	—	-57.1	-8.32	197	<1.0	<1.00
COS-16	-11.66	68.45	-57.6	-8.33	383	146	13.5
COS-17	-15.29	118.8	-55.8	-8.25	327	4.5	2.58
COS-18	—	—	-58.0	-8.21	474	36.2	16.1
COS-19	—	—	-55.5	-7.89	542	22.4	13.4
COS-20	—	—	-68.3	-9.24	504	68.8	12.7
COL-1	—	—	-52.6	-7.71	264	1.6	26
COL-2	—	—	-55.5	-6.96	356	33.3	54.6
COL-3	—	—	-34.3	-5.22	312	33.6	17.5
COL-4	—	—	-47.5	-6.95	362	19.2	4.5
COL-5	—	—	-55.9	-7.45	676	26.9	102
COL-6	—	—	-47.8	-7.06	394	14.4	4.62
COL-7	—	—	-57.4	-7.89	588	21.1	47.2
COL-8	—	—	-37.8	-3.74	253	45.4	7.73
COL-9	—	—	-49.7	-7.08	395	28.8	9.82
COL-10	—	—	-42.4	-6.36	198	16.3	57.3
COL-11	—	—	-44.7	-6.50	471	14.4	4.88
COL-12	—	—	-43.9	-6.45	341	1.3	<7
COL-13	—	—	-50.2	-6.85	965	49.3	53
COL-14	—	—	-51.8	-7.20	337	43.8	153
COL-15	—	—	-42.6	-5.93	342	525	43.2
COL-16	—	—	-48.1	-6.74	544	19.2	43.8

Appendix 8. Analyses for selected isotopes for sampled wells, grouped by study, Santa Ana NAWQA, California—Continued

NAWQA identification No.	Carbon-13/ carbon-12, ratio per mil (82081)	Carbon-14, percent modern (49933)	Deuterium/ protium, ratio per mil (82082)	Oxygen-18/ oxygen-16, ratio per mil (82085)	Radon-222, pCi/L (82303)	Tritium, total pCi/L (07000)	Uranium, dissolved, µg/L (22703)
COL-17	—	—	-40.1	-5.32	301	31.7	<1.00
COL-18	—	—	-50.6	-7.31	249	12.5	<1.00
COL-19	—	—	-45.4	-6.50	203	26.2	113
COL-20	—	—	-48.6	-7.44	440	1	3.01
COL-21	—	—	-49.9	-6.79	210	21.4	80.9
COL-22	—	—	-39.1	-5.08	—	85.8	73.2
COL-23	—	—	-51.5	-7.58	—	13.4	—
COL-24	—	—	-49.4	-7.36	301	21.4	<2.00
COL-25	—	—	-55.0	-7.77	414	21.8	312
COL-26	—	—	-47.5	-6.78	282	25.6	<2.00
COF-1	—	—	-57.7	-8.27	—	—	—
COF-2	—	—	-56.0	-8.37	—	—	—
COF-3	—	—	-57.2	-8.41	—	—	—
COF-4	—	—	-56.9	-8.29	—	—	—
COF-5	—	—	-59.4	-8.55	—	—	—
COF-6	—	—	-56.3	-8.46	—	—	—
COF-7	—	—	-60.8	-8.38	—	—	—
COF-8	—	—	-58.9	-8.61	—	—	—
COF-9	—	—	-55.7	-8.01	—	—	—
COF-10	—	—	-52.2	-7.26	—	—	—
COF-11	—	—	-54.0	-7.50	—	—	—
COF-12	—	—	-52.3	-7.26	—	—	—
COF-13	—	—	-60.7	-8.44	—	37.8	—
COF-14	—	—	-53.7	-7.57	—	—	—
COF-15	—	—	-54.7	-8.13	—	—	—
COF-16	—	—	-46.9	-6.85	—	—	—
COF-17	—	—	-54.6	-7.46	—	19.5	—
COF-18	—	—	-54.5	-7.94	—	26.6	—
COF-19	—	—	-55.7	-7.58	—	18.2	—
COF-20	—	—	-61.3	-8.09	—	28.5	—
COF-21	—	—	-58.3	-7.72	—	20.5	—
COF-22	—	—	-48.5	-6.90	—	18.6	—
COF-23	—	—	-53.0	-7.43	—	23	—
OCC-1	—	—	-54.8	-8.42	—	—	—
OCC-2	—	—	-59.2	-8.56	—	—	—
OCC-3	—	—	-62.5	-8.79	—	—	—
OCC-4	—	—	-57.9	-8.34	—	—	—
OCC-5	—	—	-57.9	-8.41	—	—	—
OCC-6	—	—	-53.9	-8.18	—	—	—

Appendix 8. Analyses for selected isotopes for sampled wells, grouped by study, Santa Ana NAWQA, California—Continued

NAWQA identification No.	Carbon-13/ carbon-12, ratio per mil (82081)	Carbon-14, percent modern (49933)	Deuterium/ protium, ratio per mil (82082)	Oxygen-18/ oxygen-16, ratio per mil (82085)	Radon-222, pCi/L (82303)	Tritium, total pCi/L (07000)	Uranium, dissolved, µg/L (22703)
OCC-7	—	—	-69.0	-9.16	—	—	—
OCC-8	—	—	-58.7	-8.49	—	—	—
OCC-9	—	—	-64.0	-8.47	—	—	—
OCC-10	—	—	-54.8	-7.77	—	—	—
OCC-11	—	—	-60.3	-8.63	—	—	—
OCC-12	—	—	-41.2	-6.33	—	—	—
OCC-13	—	—	-59.4	-8.30	—	—	—
OCC-14	—	—	-56.0	-8.28	—	—	—
OCC-15	—	—	-56.5	-8.11	—	—	—
OCC-16	—	—	-55.2	-8.29	—	—	—
OCC-17	—	—	-57.9	-8.02	—	—	—
OCC-18	—	—	-57.9	-8.24	—	—	—
OCC-19	—	—	-53.7	-7.56	—	—	—
OCC-20	—	—	-56.0	-7.83	—	—	—
OCC-21	—	—	-54.7	-8.18	—	—	—
OCC-22	—	—	-54.4	-8.36	—	—	—
OCC-23	—	—	-56.7	-8.35	—	—	—
OCC-24	—	—	-55.5	-8.28	—	—	—
OCC-25	—	—	-58.7	-8.49	—	—	—
OCC-26	—	—	-55.0	-7.99	—	—	—
OCC-27	—	—	-50.9	-7.15	—	—	—
OCC-28	—	—	-51.2	-7.74	—	—	—
OCC-29	—	—	-52.0	-7.35	—	—	—
OCC-30	—	—	-55.7	-8.33	—	—	—
OCC-31	—	—	-56.4	-7.74	—	—	—
OCC-32	—	—	-55.7	-7.94	—	—	—
OCC-33	—	—	-56.5	-8.37	—	—	—
OCC-34	—	—	-35.2	-5.47	—	—	—
OCC-35	—	—	-49.4	-7.07	—	—	—
OCC-36	—	—	-37.4	-5.70	—	—	—
OCC-37	—	—	-54.7	-8.17	—	—	—
OCC-38	—	—	-60.8	-8.53	—	—	—
OCC-39	—	—	-54.6	-7.91	—	—	—
OCC-40	—	—	-61.4	-8.40	—	—	—
OCC-41	—	—	-56.0	-7.79	—	—	—
OCC-42	—	—	-57.9	-8.04	—	—	—
OCC-43	—	—	-54.4	-8.16	—	—	—
OCC-44	—	—	-57.6	-8.49	—	—	—
OCC-45	—	—	-50.2	-7.17	—	—	—

Appendix 8. Analyses for selected isotopes for sampled wells, grouped by study, Santa Ana NAWQA, California—Continued

NAWQA identification No.	Carbon-13/ carbon-12, ratio per mil (82081)	Carbon-14, percent modern (49933)	Deuterium/ protium, ratio per mil (82082)	Oxygen-18/ oxygen-16, ratio per mil (82085)	Radon-222, pCi/L (82303)	Tritium, total pCi/L (07000)	Uranium, dissolved, µg/L (22703)
OCC-46	—	—	-57.3	-8.24	—	—	—
OCC-47	—	—	-55.9	-7.89	—	—	—
OCC-48	—	—	-52.2	-7.58	—	—	—
OCC-49	—	—	-50.1	-7.41	—	—	—
OCC-50	—	—	-53.7	-8.31	—	—	—
OCC-51	—	—	-57.0	-8.42	—	—	—
OCC-52	—	—	-58.1	-8.25	—	—	—
OCC-53	—	—	-57.2	-8.53	—	—	—
OCC-54	—	—	-53.0	-7.67	—	—	—
OCC-55	—	—	-56.4	-7.63	—	—	—
OCC-56	—	—	-53.5	-7.99	—	—	—
INS-1	—	—	-51.5	-8.06	390	<1.0	1.29
INS-2	—	—	-52.2	-8.00	220	1.3	2.06
INS-3	—	—	-53.2	-8.27	240	2.6	<1.00
INS-4	—	—	-59.4	-9.04	362	<1.0	3.2
INS-5	—	—	-52.1	-8.14	353	17.9	5.8
INS-6	—	—	-57.7	-8.74	331	4.2	3.28
INS-7	—	—	-58.8	-8.63	319	11.5	2.02
INS-8	—	—	-61.4	-9.10	758	14.4	5.94
INS-9	—	—	-57.0	-8.52	268	<1.0	3.34
INS-10	—	—	-53.9	-8.10	158	2.2	<1.00
INS-11	—	—	-57.3	-8.77	480	1.9	5.22
INS-12	—	—	-60.4	-9.12	356	1	1.44
INS-13	—	—	-50.2	-6.97	664	18.2	6.58
INS-14	—	—	-50.4	-7.45	—	3.2	11.4
INS-15	—	—	-51.7	-7.95	241	1.3	2.85
INS-16	—	—	-60.2	-9.04	555	11.8	2.38
INS-17	—	—	-62.8	-9.41	416	13.4	2.2
INS-18	—	—	-58.1	-8.83	4,560	12.5	10.5
INS-19	—	—	-63.3	-9.22	1,520	10.6	40.5
INS-20	—	—	-70.5	-10.27	880	14.4	7.5
INS-21	—	—	-60.9	-9.23	430	9	1.07
INS-22	—	—	-58.3	-8.66	247	2.6	1.16
INS-23	—	—	-53.7	-7.95	306	4.8	1.31
INS-24	—	—	-55.9	-8.37	368	9.3	23.9
INS-25	—	—	-44.8	-6.50	2,370	16.3	9.78
INS-26	—	—	-59.2	-8.51	475	3.8	23.2
INS-27	—	—	-56.5	-8.50	1,220	7	7.1
INS-28	—	—	-65.5	-9.80	685	12.2	9.53

Appendix 8. Analyses for selected isotopes for sampled wells, grouped by study, Santa Ana NAWQA, California—Continued

NAWQA identification No.	Carbon-13/ carbon-12, ratio per mil (82081)	Carbon-14, percent modern (49933)	Deuterium/ protium, ratio per mil (82082)	Oxygen-18/ oxygen-16, ratio per mil (82085)	Radon-222, pCi/L (82303)	Tritium, total pCi/L (07000)	Uranium, dissolved, µg/L (22703)
INS-29	—	—	-48.2	-7.12	482	5.1	<1.00
INF-1	—	—	—	—	—	—	—
INF-1a	-14.64	48.03	—	—	—	<.3	<1.00
INF-2	—	—	—	—	—	—	—
INF-2a	-16.74	69.65	—	—	—	6	<1.00
INF-3	—	—	—	—	—	—	—
INF-3a	-14.24	83.7	—	—	—	—	<1.00
INF-4	-15.31	62.5	—	—	—	—	1.7
INF-5	-9.08	87.72	—	—	—	—	<1.00
INF-6	-12.27	89.08	-68.7	-9.86	—	—	7.56
INF-6a	—	—	—	—	—	—	—
INF-7	-10.99	84.47	-69.5	-9.96	—	.4	2.81
INF-7a	—	—	—	—	—	—	—
INF-8	-10.45	115.8	-69.1	-9.85	—	—	12.1
INF-8a	—	—	—	—	—	—	—
INF-9	-15.30	85.48	-65.9	-9.46	—	—	5.94
INF-9a	—	—	—	—	—	—	—
INF-10	—	—	-57.7	-8.51	—	13.9	<1.00
INF-11	-12.59	70.04	-62.0	-9.04	—	.6	2.82
INF-12	-16.33	67.44	-62.0	-9.03	—	<.3	2.74
INF-13	-15.95	93.25	-54.3	-7.84	—	—	<1.00
INF-14	—	—	—	—	—	11.9	—
INF-15	-20.23	74.83	—	—	—	—	4.05
INF-16	-11.05	100.7	—	—	—	—	7.31
INF-17	-13.06	99.51	-51.4	-7.67	—	—	2.69
INF-18	-24.23	—	-53.1	-7.84	—	—	<.02
INF-19	-4.31	93.87	-49.4	-7.94	—	<.3	<.02
INF-20	-11.10	72	-50.4	-8.05	—	<.3	2.52
INF-21	—	—	-46.7	-6.95	—	13.8	3.56
SAS-1	—	—	-55.4	-7.66	441	1.3	2.01
SAS-2	—	—	-53.5	-7.87	186	0	4.51
SAS-3	—	—	-57.5	-8.25	—	0	5.38
SAS-4	—	—	-56.6	-7.93	—	17	15.7
SAS-5	—	—	-57.1	-8.21	—	11.5	6.93
SAS-6	—	—	-62.1	-8.98	E305	1	2.12
SAS-7	—	—	-61.8	-9.07	E297	.6	.1
SAS-8	—	—	-62.5	-8.92	E297	6.7	.55
SAS-9	—	—	-46.3	-7.22	1,800	6.4	5.45
SAS-10	—	—	-51.3	-7.22	268	2.6	1.08

Appendix 8. Analyses for selected isotopes for sampled wells, grouped by study, Santa Ana NAWQA, California—Continued

NAWQA identification No.	Carbon-13/ carbon-12, ratio per mil (82081)	Carbon-14, percent modern (49933)	Deuterium/ protium, ratio per mil (82082)	Oxygen-18/ oxygen-16, ratio per mil (82085)	Radon-222, pCi/L (82303)	Tritium, total pCi/L (07000)	Uranium, dissolved, µg/L (22703)
SAS-11	—	—	-48.2	-6.53	324	14.4	3.38
SAS-12	—	—	-56.8	-8.05	965	1.3	1.19
SAS-13	—	—	-56.7	-8.07	1,200	3.2	6.14
SAS-14	—	—	-51.4	-7.60	1,470	2.2	0.59
SAS-15	—	—	-57.6	-7.96	—	27.5	13.3
SAS-16	—	—	-49.3	-7.17	—	3.8	8.7
SAS-17	—	—	-51.2	-7.27	220	4.8	2.71
SAS-18	—	—	-61.7	-9.03	259	1	1.83
SAS-19	—	—	-59.7	-8.63	—	12.8	3.75
SAS-20	—	—	-65.3	-9.25	—	0	<.02
SAS-21	—	—	-55.6	-8.58	—	11.5	1.33
SAS-22	—	—	-57.1	-8.05	1,220	1	.53
SAS-23	—	—	-60.2	-9.26	342	0	.69
SAC-1	—	—	-61.6	-8.27	—	—	—
SAC-2	—	—	-57.7	-8.40	—	—	—
SAC-3	—	—	-58.9	-8.78	—	—	—
SAC-4	—	—	-58.6	-7.62	—	—	—
SAC-5	—	—	-57.0	-8.28	—	—	—
SAC-6	—	—	-57.1	-7.86	—	—	—
SAC-7	—	—	-53.7	-7.76	—	—	—
SAC-8	—	—	-62.0	-9.18	—	—	—
SAC-9	—	—	-58.4	-8.71	—	—	—
SAC-10	—	—	-60.4	-8.87	—	—	—
SAC-11	—	—	-60.5	-8.91	—	—	—

Appendix 9*A*. Analyses for pesticide compounds at concentrations above the laboratory reporting limit (LRL) for sampled wells in the COSUS study, Santa Ana NAWQA, California

[Sample dates are given in Appendix 3; percent values are detection frequencies; number below the compound is the data parameter code, which is a 5-digit number used in the USGS computerized data system, National Water Information System (NWIS), to uniquely identify a specific constituent or property; number in brackets below the parameter code is the LRL; all concentrations are reported as micrograms per liter; laboratory code 9060 data for the COSUS may be lower than concentrations in ground water due to excessive holding times prior to laboratory analysis; concentrations reported as equal to the LRL were above the LRL prior to rounding; E, estimated; —, not detected]

	Schedule 2001 (20 wells)				Laboratory code 9060 (20 wells)		
	Degradation product (25 percent)	Herbicide (20 percent)			Herbicide (5 percent)		
NAWQA identification No.	Deethyl-atrazine* (04040)	Atrazine* (39632)	Simazine (04035)	Tebuthiuron* (82670)	Diuron (49300)	Sulfometru-ron methyl (50337)	Number of pesticides detected
	[0.002]	[0.001]	[0.005]	[0.01]	[0.08]	[0.039]	
COS-9	E0.006	0.007	0.096	0.015	0.45	0.099	6
COS-19	E.026	.049	.315	E.021	—	—	4
COS-18	E.017	.03	.016	—	—	—	3
COS-8	E.008	.005	—	—	—	—	2
COS-2	E.004	—	—	—	—	—	1
Wells with pesticide detections.	5	4	3	2	1	1	
Detection frequency (percent).	25	20	15	10	5	5	

*—Parameter is found on Schedule 2001 and on Laboratory code 9060.

Appendix 9*B*. Analyses for pesticide compounds at concentrations above the laboratory reporting limit (LRL) for sampled wells in the COLUS study, Santa Ana NAWQA, California

[Sample dates are given in Appendix 3; percent values are detection frequencies; number below the compound is the data parameter code, which is a 5-digit number used in the USGS computerized data system, National Water Information System (NWIS), to uniquely identify a specific constituent or property; laboratory code 9060 was under development at the time of this study; number in brackets below the parameter code is the LRL; all concentrations are reported as micrograms per liter; concentrations reported as equal to the LRL were above the LRL prior to rounding; E, estimated; —, not detected]

	Schedule 2001 (26 wells)						Laboratory code 9060 (26 wells)				
	Herbicide (38 percent)					Degradation product (8 percent)	Herbicide (4 percent)		Degradation product (4 percent)	Fungicide (4 percent)	
NAWQA identification No.	Prometon (04037)	Simazine (04035)	Tebuthiuron* (82670)	Terbacil (82665)	Atrazine* (39632)	Deethylatrazine* (04040)	Bentazon (38711)	Diuron (49300)	Hydroxyatrazine (50355)	Benomyl (50300)	Number of pesticides detected
	[0.018]	[0.005]	[0.01]	[0.007]	[0.001]	[0.002]	[0.02]	[0.08]	[0.193]	[0.022]	
COL-17	0.02	0.012	—	—	—	—	0.02	0.3	—	E0.033	5
COL-10	.463	—	—	—	0.004	E0.003	—	—	E0.304	—	4
COL-8	.029	.007	—	—	—	—	—	—	—	—	2
COL-13	—	.006	—	—	—	E.003	—	—	—	—	2
COL-3	—	.017	—	—	—	—	—	—	—	—	1
COL-11	.036	—	—	—	—	—	—	—	—	—	1
COL-15	—	—	2.12	—	—	—	—	—	—	—	1
COL-16	.031	—	—	—	—	—	—	—	—	—	1
COL-22	—	—	E.113	—	—	—	—	—	—	—	1
COL-23	—	—	—	E0.092	—	—	—	—	—	—	1
Wells with pesticide detections.	5	4	2	1	1	2	1	1	1	1	
Detection frequency (percent).	19	15	8	4	4	8	4	4	4	4	

*—Parameter is found on Schedule 2001 and on Laboratory code 9060.

Appendix 9*C*. Analyses for pesticide compounds at concentrations above the laboratory reporting limit (LRL) for sampled wells in the COFPS study, Santa Ana NAWQA, California

[Sample dates are given in Appendix 3; percent values are detection frequencies; number below the compound is the data parameter code, which is a 5-digit number used in the USGS computerized data system, National Water Information System (NWIS), to uniquely identify a specific constituent or property; number in brackets below the parameter number is LRL; all concentrations are reported as micrograms per liter; concentrations reported as equal to the LRL were above the LRL prior to rounding; E, estimated; —, not detected]

	Schedule 2001 (21 wells)						
	Degradation product (43 percent)	Herbicide (38 percent)					
NAWQA identification No.	Deethyl-atrazine (04040)	Atrazine (39632)	Simazine (04035)	Tebuthiuron (82670)	EPTC (82668)	Prometon (04037)	Number of pesticides detected
	[0.002]	[0.001]	[0.005]	[0.01]	[0.002]	[0.018]	
COF-12	E0.009	0.031	0.216	0.048	—	0.02	5
COF-17	E.01	.016	.022	.02	—	—	4
COF-18	E.003	.008	.034	—	E.004	—	4
COF-19	E.024	.033	.094	.048	—	—	4
COF-21	E.005	.017	.048	.021	—	—	4
COF-10	E.015	.017	.008	—	—	—	3
COF-11	E.014	.015	.011	—	—	—	3
COF-20	E.01	.011	—	—	—	—	2
COF-23	E.002	—	—	—	—	—	1
Wells with pesticide detections.	9	8	7	4	1	1	
Detection frequency (percent).	43	38	33	19	5	5	

Appendix 9*D*. Analyses for pesticide compounds at concentrations above the laboratory reporting limit (LRL) for sampled wells in the INSUS study, Santa Ana NAWQA, California

[Sample dates are given in Appendix 3; percent values are detection frequencies; number below the compound is the data parameter code, which is a 5-digit number used in the USGS computerized data system, National Water Information System (NWIS), to uniquely identify a specific constituent or property; number in brackets below the parameter number is the LRL; laboratory code 9060 was under development at the time of this study; all concentrations are reports as micrograms per liter; concentrations reported as equal to the LRL were above the LRL prior to rounding; E, estimated; —, not detected]

	Schedule 2001 (29 wells)					Laboratory code 9060 (29 wells)				
	Herbicide (79 percent)				Degradation product (69 percent)	Herbicide (10 percent)		Degradation product (7 percent)	Insecticide (3 percent)	
NAWQA identification No.	Atrazine* (39632)	Simazine (04035)	Prometon (04037)	Tebu-thiuron* (82670)	Deethyl-atrazine* (04040)	Bromacil (04029)	Diuron (49300)	Deisopropyl-atrazine (04038)	Methyl parathion (82667)	Number of pesticides detected
	[0.001]	[0.005]	[0.018]	[0.01]	[0.002]	[0.08]	[0.08]	[0.07]	[0.006]	
INS-20	0.006	0.133	—	—	E0.004	0.54	0.14	0.1	—	6
INS-26	.045	.091	—	—	E.037	.09	—	E.13	—	5
INS-19	.007	.1	0.019	—	E.005	—	—	—	—	4
INS-24	.053	.15	—	—	E.043	—	—	—	0.007	4
INS-25	E.003	.031	—	0.014	E.005	—	—	—	—	4
INS-3	.008	.016	—	—	E.004	—	—	—	—	3
INS-7	.042	.02	—	—	E.056	—	—	—	—	3
INS-11	.012	.01	—	—	E.01	—	—	—	—	3
INS-13	.005	.054	—	—	E.006	—	—	—	—	3
INS-14	.006	.007	—	—	E.008	—	—	—	—	3
INS-22	.029	.008	—	—	E.011	—	—	—	—	3
INS-23	.01	.006	—	—	E.01	—	—	—	—	3
INS-28	E.004	.01	—	—	E.003	—	—	—	—	3
INS-1	E.003	—	—	—	E.003	—	—	—	—	2
INS-2	E.004	—	—	—	E.006	—	—	—	—	2
INS-6	.007	—	—	—	E.007	—	—	—	—	2
INS-12	E.003	—	—	—	E.004	—	—	—	—	2
INS-15	.005	—	—	—	E.005	—	—	—	—	2
INS-17	.005	—	—	—	E.005	—	—	—	—	2
INS-21	—	.021	—	—	—	—	.23	—	—	2
INS-5	—	—	—	—	E.014	—	—	—	—	1
INS-8	—	.006	—	—	—	—	—	—	—	1
INS-18	—	.062	—	—	—	—	—	—	—	1
INS-27	—	.006	—	—	—	—	—	—	—	1
Wells with pesticide detections.	19	17	1	1	20	2	2	2	1	
Detection frequency (percent).	66	59	3	3	69	7	7	7	3	

*—Parameter is found on Schedule 2001 and on Laboratory code 9060.

Appendix 9*E*. Analyses for pesticide compounds at concentrations above the laboratory reporting limit (LRL) for sampled wells in the INFPS study, Santa Ana NAWQA, California

[Sample dates are given in Appendix 3; percent values are detection frequencies; number below the compound is the data parameter code, which is a 5-digit number used in the USGS computerized data system, National Water Information System (NWIS), to uniquely identify a specific constituent or property; number in brackets below the parameter code is the LRL; all concentrations are reported as micrograms per liter; concentrations reported as equal to the LRL were above the LRL prior to rounding; E, estimated; —, no tdetected]

	Schedule 2001 (14 wells)						
	Herbicide (50 percent)				Insecticide (14 percent)		
NAWQA identification No.	Simazine (04035)	Atrazine (39632)	Benfluralin (82673)	Tebuthiuron (82670)	Methyl azinphos (82686)	Carbaryl (82680)	Number of pesticides detected
	[0.005]	[0.001]	[0.002]	[0.01]	[0.001]	[0.003]	
INF-1a	—	0.004	—	—	<0.01	—	2
INF-8	0.023	E.004	—	—	—	—	2
INF-15	—	—	E0.004	—	—	E0.004	2
INF-2a	—	—	—	E0.177	—	—	1
INF-4	.01	—	—	—	—	—	1
INF-9	.011	—	—	—	—	—	1
INF-14	.09	—	—	—	—	—	1
Wells with pesticide detections.	4	2	1	1	1	1	
Detection frequency (percent).	29	14	7	7	7	7	

Appendix 9*F*. Analyses for pesticide compounds at concentrations above the laboratory reporting limit (LRL) for sampled wells in the SANSUS study, Santa Ana NAWQA, California

[Sample dates are given in Appendix 3; percent values are detection frequencies; number below the compound is the data parameter code, which is a 5-digit number used in the USGS computerized data system, National Water Information System (NWIS), to uniquely identify a specific constituent or property; number in brackets below the parameter code is the LRL; laboratory code 9060 was under development at the time of this study; all concentrations are reported as micrograms per liter; concentrations reported as equal to the LRL were above the LRL prior to rounding; E, estimated; —, not detected]

	Schedule 2001 (23 wells)					Laboratory code 9060 (22 wells)		
	Herbicide (43 percent)				Degradation product (13 percent)	Degradation product (14 percent)		
NAWQA identification No.	Simazine (04035)	Atrazine* (39632)	Molinate (82671)	Tebuthiuron* (82670)	Deethyl-atrazine* (04040)	Deisopropyl-atrazine (04038)	Deethyldeiso propyl-atrazine (04039)	Number of pesticides detected
	[0.011]	[0.007]	[0.002]	[0.016]	[0.006]	[0.07]	[0.06]	
SAS-4	0.237	—	—	0.032	—	0.31	0.21	4
SAS-11	.015	0.007	—	—	E0.009	—	—	3
SAS-5	.066	—	—	—	—	.3	—	2
SAS-15	—	.015	—	—	E.019	—	—	2
SAS-19	.031	—	—	—	—	E.2	—	2
SAS-21	—	.007	E0.018	—	—	—	—	2
SAS-10	.013	—	—	—	—	—	—	1
SAS-13	—	.02	—	—	—	—	—	1
SAS-17	—	—	—	—	E.026	—	—	1
SAS-20	—	—	E.006	—	—	—	—	1
SAS-22	—	—	.015	—	—	—	—	1
Wells with pesticide detections.	5	4	3	1	3	3	1	
Detection frequency (percent).	22	17	13	4	13	14	4	

*—Parameter is found on Schedule 2001 and on Laboratory code 9060.