

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Reference	Location Number	Date	Geologic Unit *	Type	pH	Water Temperature °C	Electrical conductivity μS/cm	Dissolved solids mg/l
Baldwin & Rankin, 1995	11.05.24.213	5/14/1971	Jm		7.5	18	1750	1377.0
Risser & Lyford, 1983	10.5.4.323	11/25/1974	Jm	well	8.2	n.a.	1650	1438.0
Risser & Lyford, 1983	10.6.25.242	6/6/1973	Jm	spring	8.9	15	1670	1125.0
Risser & Lyford, 1983	11.5.24.213	5/14/1971	Jm	well	7.5	18	1750	1376.0
Risser & Lyford, 1983	11.5.29.444	4/16/1955	Jm	well	8.4	n.a.	1900	1682.0
Risser & Lyford, 1983	11.5.30.422	3/31/1960	Jm	well	8.4	19	670	580.6
Risser & Lyford, 1983	12.2.36.442	5/29/1976	Jm	well	8.2	n.a.	11000	9011.0
Risser & Lyford, 1983	8.2.20.423	9/24/1973	Jm	spring	7.7	25	32300	25244.9
Risser & Lyford, 1983	8.2.20.423	4/21/1975	Jm	spring	7.1	24	32600	26042.6
Risser & Lyford, 1983	10.7.10.213	1/16/1980	Jm/Kd	well	7.4	28	2000	1671.0
Risser & Lyford, 1983	10.4.30.414	3/15/1974	Jsr	well	8.0	11	2670	2269.0
Risser & Lyford, 1983	9.5.29.232	12/11/1973	Jsr	well	8.1	n.a.	2670	2064.0
Risser & Lyford, 1983	9.6.31.143	5/13/1957	Jsr	well	7.4	14	2530	2144.0
Shomaker, 1971	15.18.25.133	5/1/1956	Jsr	well	9.2	n.a.	717	560.3
Shomaker, 1971	16.16.30.3431	4/1/1956	Jsr	well	7.8	n.a.	445	354.8
Risser & Lyford, 1983	9.5.13.233	1/19/1973	Jsr/TRc	well	n.a.	n.a.	1440	1062.0
Baldwin & Rankin, 1995	06.10.06.121	8/28/1978	Jz	well	7.2	15	539	462.8
Baldwin & Rankin, 1995	06.12.01.311	9/6/1978	Jz	well	8.0	15	500	434.0
Baldwin & Rankin, 1995	07.10.20.414	8/4/1978	Jz		n.a.	12	682	620.3
Baldwin & Rankin, 1995	07.10.22.112	9/5/1978	Jz		7.5	20	856	713.3
Baldwin & Rankin, 1995	07.12.21.433	11/30/1978	Jz		8.5	16	259	220.8
Baldwin & Rankin, 1995	07.19.31.411	11/11/1980	Jz	well	7.6	16	750	692.0
Baldwin & Rankin, 1995	07.20.14.212A	10/21/1980	Jz	well	7.5	15	476	377.8
Baldwin & Rankin, 1995	08.09.07.311	11/30/1978	Jz		7.6	13	893	775.9
Baldwin & Rankin, 1995	08.10.24.221	8/2/1978	Jz		7.5	15	922	759.4
Baldwin & Rankin, 1995	08.10.24.311	11/8/1978	Jz		7.6	18	682	557.7
Baldwin & Rankin, 1995	08.10.26.412	11/13/1978	Jz		7.8	13	727	587.1
Baldwin & Rankin, 1995	08.17.02.314	7/28/1972	Jz		8.0	23	3400	3229.0
Baldwin & Rankin, 1995	09.09.28.113	8/10/1978	Jz		7.4	16	556	451.0
Baldwin & Rankin, 1995	09.14.06.111	1/5/1981	Jz		8.3	14	440	358.9
Orr, B.R. 1987	11.20.22.211	9/5/1979	Jz	well	8.1	20	240	263.3
Orr, B.R. 1987	12.20.17.133	9/24/1973	Jz	well	8.0	n.a.	410	298.0
Orr, B.R. 1987	8.17.2.314	7/28/1972	Jz	well	8.0	23	3440	3270.0
Risser & Lyford, 1983	10.4.36.224	3/27/1968	Jz	well	8.5	n.a.	2810	2320.0
Risser & Lyford, 1983	10.4.8.344	4/4/1974	Jz	well	8.5	n.a.	2090	1433.0

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

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Location Number	Ca ⁺⁺ mg/l	Mg ⁺⁺ mg/l	Na ⁺ mg/l	K ⁺ mg/l	HCO ₃ ⁻ mg/l	SO ₄ ⁻⁻ mg/l	Cl ⁻ mg/l	Mass Balance** %
11.05.24.213	21.0	12.0	370.0	3.0	480.0	470.0	16.0	0.28
10.5.4.323	11.0	2.0	450.0	0.0	370.0	580.0	26.0	3.61
10.6.25.242	26.0	51.0	270.0	7.4	190.0	560.0	21.0	6.29
11.5.24.213	21.0	12.0	370.0	3.0	480.0	470.0	16.0	0.28
11.5.29.444	11.0	6.5	175.0	440.0	400.0	610.0	25.0	-0.03
11.5.30.422	5.5	1.1	52.0	150.0	230.0	120.0	7.3	-0.09
12.2.36.442	70.0	13.0	3300.0	10.0	250.0	3380.0	1970.0	6.58
8.2.20.423	630.0	120.0	8100.0	6.3	2810.0	5500.0	8100.0	0.61
8.2.20.423	570.0	150.0	8300.0	280.0	2900.0	6100.0	7800.0	1.79
10.7.10.213	52.0	25.0	400.0	24.0	530.0	560.0	69.0	0.82
10.4.30.414	370.0	18.0	260.0	3.3	180.0	1400.0	39.0	-2.88
9.5.29.232	240.0	27.0	350.0	4.3	210.0	1200.0	34.0	0.25
9.6.31.143	240.0	89.0	0.0	270.0	270.0	1200.0	60.0	-8.55
15.18.25.133	1.2	0.2	170.0		302.0	57.0	7.0	8.23
16.16.30.3431	34.0	6.9	53.0		196.0	40.0	16.0	0.80
9.5.13.233	72.0	28.0	220.0	13.0	200.0	450.0	79.0	3.01
06.10.06.121	56.0	26.0	23.0	2.6	312.0	39.0	2.7	-0.02
06.12.01.311	28.0	8.9	69.0	3.9	232.0	54.0	11.0	-0.07
07.10.20.414	100.0	23.0	23.0	2.6	374.0	80.0	5.5	-0.01
07.10.22.112	85.0	48.0	31.0	3.3	381.0	150.0	9.3	-0.04
07.12.21.433	12.0	1.7	44.0	2.7	126.0	18.0	10.0	-0.01
07.19.31.411	73.0	18.0	89.0	3.4	306.0	180.0	11.0	0.04
07.20.14.212A	18.0	3.8	80.0	2.0	201.0	59.0	7.8	-0.02
08.09.07.311	83.0	44.0	64.0	3.5	314.0	250.0	10.0	0.00
08.10.24.221	110.0	39.0	39.0	3.0	292.0	260.0	9.6	0.00
08.10.24.311	70.0	28.0	35.0	3.2	274.0	130.0	7.1	0.02
08.10.26.412	69.0	37.0	33.0	3.8	257.0	170.0	9.4	0.02
08.17.02.314	560.0	160.0	170.0	6.0	260.0	2000.0	74.0	0.69
09.09.28.113	53.0	23.0	32.0	2.0	228.0	94.0	10.0	0.03
09.14.06.111	30.0	11.0	41.0	2.9	209.0	16.0	18.0	-0.09
11.20.22.211	32.0	8.2	24.0	1.2	159.0	11.0	7.2	4.82
12.20.17.133	38.0	8.5	39.0	2.0	146.0	37.0	28.0	4.70
8.17.2.314	557.0	156.0	171.0	6.3	260.0	2047.0	74.0	-0.76
10.4.36.224	36.0	12.0	650.0	5.9	480.0	1100.0	37.0	-0.96
10.4.8.344	58.0	6.1	390.0	2.7	280.0	660.0	37.0	2.65

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

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Location Number	SiO ₂ (aq) mg/l	F ⁻ mg/l	Br ⁻ mg/l	Fe ⁺⁺ mg/l	Calcite log Q/K	Gypsum log Q/K	Quartz log Q/K	CO ₂ (g) fugacity
11.05.24.213	13.0	1.3	n.a.	n.a.	6.63E-01	1.56E-02	2.90E+00	1.16E-02
10.5.4.323	n.a.	n.a.	n.a.	n.a.	1.62E+00	9.01E-03	n.a.	2.05E-03
10.6.25.242	n.a.	n.a.	n.a.	n.a.	7.15E+00	2.14E-02	n.a.	1.75E-04
11.5.24.213	13.0	n.a.	n.a.	n.a.	6.64E-01	1.56E-02	2.90E+00	1.16E-02
11.5.29.444	15.0	n.a.	n.a.	n.a.	2.70E+00	8.99E-03	2.36E+00	1.41E-03
11.5.30.422	15.0	n.a.	n.a.	n.a.	1.06E+00	1.86E-03	3.11E+00	7.95E-04
12.2.36.442	17.0	0.9	n.a.	0.2	2.89E+00	8.19E-02	2.73E+00	1.12E-03
8.2.20.423	n.a.	n.a.	n.a.	n.a.	5.39E+01	4.90E-01	n.a.	3.28E-02
8.2.20.423	22.0	n.a.	n.a.	n.a.	1.13E+01	4.88E-01	4.28E+00	1.23E-01
10.7.10.213	18.0	3.4	n.a.	0.12	1.82E+00	3.85E-02	2.70E+00	1.82E-02
10.4.30.414	n.a.	n.a.	n.a.	n.a.	8.10E+00	4.51E-01	n.a.	1.20E-03
9.5.29.232	n.a.	n.a.	n.a.	n.a.	1.26E+01	2.58E-01	n.a.	1.37E-03
9.6.31.143	21.0	n.a.	n.a.	n.a.	2.26E+00	2.65E-01	5.49E+00	7.29E-03
15.18.25.133	19.0	1.6	n.a.	0.09	1.77E+00	1.56E-04	2.42E+00	1.67E-04
16.16.30.3431	10.0	0.6	n.a.	0.01	1.92E+00	4.18E-03	1.63E+00	2.90E-03
9.5.13.233	n.a.	n.a.	n.a.	n.a.	n.a.	5.02E-02	n.a.	n.a.
06.10.06.121	12.0	1.1	n.a.	n.a.	7.70E-01	5.84E-03	3.04E+00	1.41E-02
06.12.01.311	28.0	0.6	n.a.	n.a.	2.07E+00	4.61E-03	7.01E+00	1.89E-03
07.10.20.414	12.0	0.2	n.a.	n.a.	n.a.	1.81E-02	3.47E+00	n.a.
07.10.22.112	12.0	0.6	n.a.	n.a.	3.01E+00	2.50E-02	2.46E+00	9.63E-03
07.12.21.433	6.2	0.3	n.a.	n.a.	1.84E+00	8.50E-04	1.45E+00	3.41E-04
07.19.31.411	16.0	0.4	n.a.	n.a.	2.34E+00	2.85E-02	3.87E+00	5.94E-03
07.20.14.212A	10.0	0.3	n.a.	n.a.	3.54E-01	3.51E-03	2.58E+00	4.95E-03
08.09.07.311	12.0	0.4	n.a.	n.a.	2.29E+00	3.95E-02	3.31E+00	5.76E-03
08.10.24.221	12.0	0.4	n.a.	n.a.	2.36E+00	5.26E-02	3.04E+00	6.82E-03
08.10.24.311	14.0	0.6	n.a.	n.a.	2.28E+00	2.08E-02	3.11E+00	5.51E-03
08.10.26.412	10.0	0.6	n.a.	n.a.	2.76E+00	2.57E-02	2.75E+00	3.08E-03
08.17.02.314	n.a.	0.4	n.a.	n.a.	2.19E+01	6.48E-01	n.a.	1.91E-03
09.09.28.113	14.0	0.5	n.a.	n.a.	8.85E-01	1.30E-02	3.39E+00	6.93E-03
09.14.06.111	31.0	0.3	n.a.	n.a.	4.10E+00	1.56E-03	8.00E+00	8.51E-04
11.20.22.211	21.0	0.3	n.a.	0.06	2.67E+00	1.22E-03	4.32E+00	1.11E-03
12.20.17.133	n.a.	0.3	n.a.	0	2.59E+00	4.35E-03	n.a.	1.37E-03
8.17.2.314	n.a.	0.42	n.a.	0.03	2.16E+01	6.56E-01	n.a.	1.92E-03
10.4.36.224	n.a.	n.a.	n.a.	n.a.	1.02E+01	3.70E-02	n.a.	1.27E-03
10.4.8.344	n.a.	n.a.	n.a.	n.a.	1.23E+01	4.98E-02	n.a.	7.61E-04

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Reference	Location Number	Date	Geologic Unit *	Type	pH	Water Temperature °C	Electrical conductivity µS/cm	Dissolved solids mg/l
Risser & Lyford, 1983	10.5.14.234	10/19/1974	Jz	well	8.3	n.a.	n.a.	1599.0
Risser & Lyford, 1983	8.2.19.421	9/24/1973	Jz	spring	8.1	16	4230	3150.0
Risser & Lyford, 1983	8.2.20.332	9/24/1973	Jz	spring	8.3	20	490	361.3
Risser & Lyford, 1983	8.2.30.342	9/3/1941	Jz	spring	n.a.	22	n.a.	21868.8
Risser & Lyford, 1983	8.2.30.342	4/21/1975	Jz	spring	7.3	n.a.	41400	23753.8
Risser & Lyford, 1983	8.2.7.314	4/21/1975	Jz	spring	8.3	n.a.	30100	22822.8
Risser & Lyford, 1983	8.3.12.413	9/14/1973	Jz	spring	8.2	17	4150	3101.0
Risser & Lyford, 1983	8.3.12.413	4/21/1975	Jz	spring	7.9	17	4030	3080.0
Risser & Lyford, 1983	9.6.13.322	5/12/1967	Jz	well	8.7	n.a.	1110	813.1
Risser & Lyford, 1983	9.6.26.233	10/11/1973	Jz	well	8.3	16	460	317.1
Risser & Lyford, 1983	9.6.28.122	2/4/1974	Jz	spring	8.2	n.a.	440	335.5
Risser & Lyford, 1983	9.6.4.243	10/21/1974	Jz	well	7.2	n.a.	2590	1166.0
Risser & Lyford, 1983	9.5.9.231	12/21/1978	Jz/Jsr	well	7.6	15	n.a.	3005.0
Risser & Lyford, 1983	9.6.13.343	5/12/1967	Jz/Jsr	well	8.5	n.a.	1150	759.5
Risser & Lyford, 1983	9.6.26.443	10/18/1978	Jz/Jsr	well	8.2	n.a.	450	335.5
Baldwin & Rankin, 1995	04.09.09.131	3/2/1981	Kcc		7.5	12	1600	1470.0
Baldwin & Rankin, 1995	04.11.06.111	4/27/1981	Kcc		7.5	14	425	387.9
Baldwin & Rankin, 1995	04.11.08.124A	4/29/1981	Kcc		8.0	14	1000	842.2
Baldwin & Rankin, 1995	04.12.11.342	4/28/1981	Kcc		7.6	14	1000	850.0
Baldwin & Rankin, 1995	05.10.27.234	5/6/1981	Kcc		1.5	13	2150	1621.0
Baldwin & Rankin, 1995	05.10.35.223	4/28/1981	Kcc		1.5	13	1800	1521.0
Baldwin & Rankin, 1995	05.12.01.224	8/30/1978	Kcc		1.6	15	741	558.6
Baldwin & Rankin, 1995	05.20.24.122	9/24/1980	Kcc		7.6	15	500	389.4
Orr, B.R. 1987	11.16.8.131	8/16/1972	Kcc	well	8.6	n.a.	1360	1146.0
Orr, B.R. 1987	12.16.30.242	11/6/1979	Kcc	well	7.8	15	900	774.4
Orr, B.R. 1987	12.17.15.213	11/13/1979	Kcc	well	8.0	n.a.	511	609.9
Orr, B.R. 1987	12.17.32.323	4/1/1976	Kcc	well	7.9	n.a.	660	569.1
Shomaker, 1971	14.17.31.3242	7/1/1954	Kcc	well	n.a.	n.a.	688	556.4
Shomaker, 1971	14.17.31.3242	7/1/1954	Kcc	well	n.a.	n.a.	805	643.3
Baldwin & Rankin, 1995	04.09.01.341	3/17/1981	Kd		7.6	12	3300	1137.0
Baldwin & Rankin, 1995	05.07.35.334	5/20/1981	Kd		7.6	15	450	368.7
Baldwin & Rankin, 1995	05.08.11.214	6/10/1981	Kd		7.6	17	1500	1193.0
Baldwin & Rankin, 1995	05.08.32.111	3/3/1981	Kd		7.3	13	4500	1393.0
Baldwin & Rankin, 1995	05.12.04.112	8/31/1978	Kd	well	8.1	15	632	532.0
Baldwin & Rankin, 1995	05.12.13.141	8/30/1978	Kd	well	8.0	13	733	600.9

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Location Number	Ca ⁺⁺ mg/l	Mg ⁺⁺ mg/l	Na ⁺ mg/l	K ⁺ mg/l	HCO ₃ ⁻ mg/l	SO ₄ ⁻⁻ mg/l	Cl ⁻ mg/l	Mass Balance** %
10.5.14.234	108.0	39.0	370.0	2.3	180.0	800.0	100.0	4.92
8.2.19.421	270.0	110.0	580.0	11.0	190.0	1600.0	390.0	0.64
8.2.20.332	42.0	22.0	25.0	5.5	230.0	33.0	4.6	5.63
8.2.30.342	520.0	170.0	6700.0	200.0	1360.0	6600.0	6300.0	-0.14
8.2.30.342	560.0	350.0	11000.0	320.0	1530.0	8900.0	1100.0	38.48
8.2.7.314	260.0	130.0	7400.0	440.0	1780.0	5100.0	7700.0	0.60
8.3.12.413	270.0	110.0	540.0	12.0	190.0	1600.0	380.0	-0.88
8.3.12.413	270.0	100.0	560.0	12.0	230.0	1500.0	380.0	0.70
9.6.13.322	5.0	3.5	230.0	2.3	450.0	110.0	13.0	2.75
9.6.26.233	54.0	9.7	22.0	2.0	170.0	43.0	17.0	3.92
9.6.28.122	64.0	0.1	13.0	1.2	210.0	28.0	20.0	-9.42
9.6.4.243	78.0	95.0	420.0	1.6	92.0	210.0	260.0	38.87
9.5.9.231	550.0	24.0	310.0	5.9	130.0	1950.0	37.0	-0.83
9.6.13.343	11.0	1.3	210.0	2.7	250.0	270.0	15.0	-1.42
9.6.26.443	60.0	6.0	23.0	2.0	190.0	39.0	16.0	1.81
04.09.09.131	110.0	30.0	270.0	3.8	524.5	500.0	28.0	0.00
04.11.06.111	5.9	0.9	98.0	1.4	239.9	19.0	12.0	0.00
04.11.08.124A	32.0	9.1	200.0	1.9	330.2	220.0	39.0	0.00
04.12.11.342	17.0	6.2	210.0	2.5	512.6	75.0	21.0	0.00
05.10.27.234	150.0	30.0	310.0	3.0	530.4	640.0	53.0	0.00
05.10.35.223	83.0	16.0	370.0	3.6	467.5	620.0	38.0	0.00
05.12.01.224	57.0	20.0	75.0	2.6	257.1	160.0	9.7	0.00
05.20.24.122	73.0	11.0	7.9	1.7	216.8	23.0	32.0	-0.01
11.16.8.131	140.0	34.0	160.0	5.5	315.0	471.0	21.0	4.07
12.16.30.242	41.0	9.8	170.0	3.8	402.0	120.0	20.0	3.46
12.17.15.213	56.0	21.0	69.0	4.2	329.0	90.0	20.0	-1.29
12.17.32.323	60.0	22.0	55.0	2.7	367.0	53.0	11.0	-1.12
14.17.31.3242	51.0	12.0	83.0		284.0	101.0	13.0	0.12
14.17.31.3242	22.0	18.0	135.0		260.0	178.0	16.0	0.19
04.09.01.341	170.0	67.0	500.0	5.7	359.7	1400.0	30.0	0.00
05.07.35.334	38.0	21.0	22.0	2.9	228.9	19.0	18.0	0.00
05.08.11.214	120.0	59.0	140.0	5.1	228.3	610.0	22.0	0.00
05.08.32.111	490.0	230.0	440.0	5.3	150.3	2800.0	67.0	0.00
05.12.04.112	12.0	5.2	130.0	2.5	233.8	130.0	7.3	0.00
05.12.13.141	23.0	8.6	130.0	1.9	304.7	110.0	9.7	0.00

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	SiO ₂ (aq) mg/l	F ⁻ mg/l	Br ⁻ mg/l	Fe ⁺⁺ mg/l	Calcite log Q/K	Gypsum log Q/K	Quartz log Q/K	CO ₂ (g) fugacity
10.5.14.234	n.a.	n.a.	n.a.	n.a.	8.89E+00	9.77E-02	n.a.	7.59E-04
8.2.19.421	n.a.	n.a.	n.a.	n.a.	8.21E+00	3.02E-01	n.a.	1.04E-03
8.2.20.332	n.a.	n.a.	n.a.	n.a.	7.24E+00	3.91E-03	n.a.	1.00E-03
8.2.30.342	20.0	n.a.	n.a.	n.a.	n.a.	5.47E-01	4.20E+00	n.a.
8.2.30.342	19.0	n.a.	n.a.	n.a.	1.02E+01	6.84E-01	3.43E+00	4.04E-02
8.2.7.314	17.0	n.a.	n.a.	n.a.	5.90E+01	2.06E-01	2.69E+00	5.35E-03
8.3.12.413	n.a.	n.a.	n.a.	n.a.	1.07E+01	3.02E-01	n.a.	8.38E-04
8.3.12.413	30.0	n.a.	n.a.	n.a.	6.53E+00	2.92E-01	7.13E+00	2.02E-03
9.6.13.322	n.a.	n.a.	n.a.	n.a.	3.70E+00	1.18E-03	n.a.	8.17E-04
9.6.26.233	n.a.	n.a.	n.a.	n.a.	6.18E+00	6.91E-03	n.a.	7.03E-04
9.6.28.122	n.a.	n.a.	n.a.	n.a.	9.70E+00	5.28E-03	n.a.	1.24E-03
9.6.4.243	12.0	n.a.	n.a.	n.a.	3.15E-01	2.27E-02	1.98E+00	4.49E-03
9.5.9.231	n.a.	n.a.	n.a.	0.01	3.36E+00	7.17E-01	n.a.	2.17E-03
9.6.13.343	n.a.	n.a.	n.a.	n.a.	2.83E+00	6.19E-03	n.a.	7.23E-04
9.6.26.443	n.a.	0.2	n.a.	T	8.10E+00	6.68E-03	n.a.	1.12E-03
04.09.09.131	13.0	0.6	n.a.	n.a.	3.03E+00	3.76E+00	7.84E-02	1.14E-02
04.11.06.111	15.0	0.8	n.a.	n.a.	1.44E-01	3.95E+00	4.10E-04	5.90E-03
04.11.08.124A	11.0	1.1	n.a.	n.a.	2.51E+00	2.88E+00	1.52E-02	2.56E-03
04.12.11.342	11.0	3	n.a.	n.a.	8.76E-01	2.97E+00	3.21E-03	9.70E-03
05.10.27.234	11.0	0.6	n.a.	n.a.	6.47E-11	3.14E+00	6.05E-02	1.68E-01
05.10.35.223	12.0	0.4	n.a.	n.a.	3.28E-11	3.35E+00	3.42E-02	1.50E-01
05.12.01.224	18.0	0.9	n.a.	n.a.	2.64E-11	4.58E+00	8.84E-03	8.71E-02
05.20.24.122	27.0	0.4	n.a.	n.a.	1.98E+00	6.81E+00	4.76E-03	4.25E-03
11.16.8.131	n.a.	0.35	n.a.	0	4.50E+01	n.a.	8.88E-02	6.57E-04
12.16.30.242	10.0	1.9	n.a.	n.a.	2.70E+00	2.57E+00	1.15E-02	4.94E-03
12.17.15.213	22.0	0.4	n.a.	0.01	7.14E+00	3.55E+00	1.16E-02	3.00E-03
12.17.32.323	n.a.	0.98	n.a.	0	6.97E+00	n.a.	7.54E-03	4.20E-03
14.17.31.3242	12.0	0.4	n.a.	n.a.	n.a.	1.97E+00	1.27E-02	n.a.
14.17.31.3242	14.0	0.3	n.a.	n.a.	n.a.	2.30E+00	9.07E-03	n.a.
04.09.01.341	10.0	0.3	n.a.	n.a.	4.91E+00	2.89E+00	n.a.	6.04E-03
05.07.35.334	22.0	0.6	n.a.	n.a.	1.12E+00	5.55E+00	2.19E-03	4.52E-03
05.08.11.214	11.0	0.5	n.a.	n.a.	2.18E+00	2.56E+00	9.91E-02	4.30E-03
05.08.32.111	14.0	0.2	n.a.	n.a.	2.31E+00	3.91E+00	n.a.	4.37E-03
05.12.04.112	11.0	1.4	n.a.	n.a.	1.02E+00	2.74E+00	4.33E-03	1.51E-03
05.12.13.141	13.0	2	n.a.	n.a.	1.87E+00	3.55E+00	6.76E-03	2.38E-03

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Reference	Location Number	Date	Geologic Unit *	Type	pH	Water Temperature °C	Electrical conductivity μS/cm	Dissolved solids mg/l
Baldwin & Rankin, 1995	05.14.15.334	12/3/1980	Kd	well	7.9	17	450	374.7
Baldwin & Rankin, 1995	05.15.16.223	12/3/1980	Kd	well	8.2	15	290	311.2
Baldwin & Rankin, 1995	05.16.21.242	11/19/1980	Kd	well	8.4	13	1000	880.3
Baldwin & Rankin, 1995	05.17.13.132A	11/19/1980	Kd	well	8.7	13	650	526.9
Baldwin & Rankin, 1995	05.17.14.443	11/19/1980	Kd	well	8.7	16	650	557.2
Baldwin & Rankin, 1995	05.18.13.444	11/19/1980	Kd	well	8.3	14	950	804.2
Baldwin & Rankin, 1995	05.19.04.444B	11/12/1980	Kd	well	9.1	17	500	481.9
Baldwin & Rankin, 1995	05.21.10 .112B	10/1/1980	Kd	well	7.8	15	500	338.3
Baldwin & Rankin, 1995	06.08.34.333A	5/21/1981	Kd		7.3	11	5000	1900.0
Baldwin & Rankin, 1995	06.10.07.232	8/28/1978	Kd	well	7.4	14	1170	952.4
Baldwin & Rankin, 1995	06.10.20.114	8/29/1978	Kd	well	7.2	14	1680	1468.0
Baldwin & Rankin, 1995	06.11.02.412	8/31/1978	Kd		7.6	14	1290	955.7
Baldwin & Rankin, 1995	06.12.13.421	8/31/1978	Kd	well	7.8	14	477	399.0
Baldwin & Rankin, 1995	06.17.13.342	1/6/1981	Kd		8.5	14	470	388.1
Baldwin & Rankin, 1995	06.17.16.331	11/13/1980	Kd		8.0	14	450	433.7
Baldwin & Rankin, 1995	06.17.19.131	11/14/1980	Kd	well	8.2	13	350	320.8
Baldwin & Rankin, 1995	06.17.20.442	11/13/1980	Kd		8.2	15	400	381.9
Baldwin & Rankin, 1995	06.17.30.111	11/6/1980	Kd		7.6	13	418	365.0
Baldwin & Rankin, 1995	06.17.30.214	11/13/1980	Kd		8.2	15	455	422.1
Baldwin & Rankin, 1995	06.17.30.311	11/7/1980	Kd		8.1	15	380	362.9
Baldwin & Rankin, 1995	06.19.16.113	10/29/1980	Kd	well	8.0	14	655	511.2
Baldwin & Rankin, 1995	06.19.24.311	11/5/1980	Kd		7.8	15	2200	935.8
Baldwin & Rankin, 1995	06.19.24.421	11/5/1980	Kd	well	8.2	15	480	396.1
Baldwin & Rankin, 1995	06.19.29.231	11/11/1980	Kd	well	8.0	17	2200	956.9
Baldwin & Rankin, 1995	06.20.04.233	10/15/1980	Kd	well	7.0	14	2570	1106.0
Baldwin & Rankin, 1995	06.20.10.213	10/1/1980	Kd		7.1	16	2130	1787.0
Baldwin & Rankin, 1995	06.20.31.132	10/21/1980	Kd		8.8	15	1800	1333.0
Baldwin & Rankin, 1995	07.04.29.421	6/9/1981	Kd	well	8.0	19	679	564.1
Baldwin & Rankin, 1995	07.16.06.314	1/6/1981	Kd	well	8.8	15	1400	1066.0
Baldwin & Rankin, 1995	07.17.16.214	11/4/1980	Kd	well	7.8	15	1300	1228.0
Baldwin & Rankin, 1995	07.18.11.234	10/29/1980	Kd	well	7.8	17	701	600.3
Baldwin & Rankin, 1995	07.18.26.442	10/29/1980	Kd	well	8.6	14	697	561.7
Baldwin & Rankin, 1995	07.20.14.213	10/2/1980	Kd	well	7.6	16	500	480.7
Baldwin & Rankin, 1995	07.20.26.334	10/21/1980	Kd	well	7.2	16	1150	918.3
Baldwin & Rankin, 1995	07.20.27.112	10/2/1980	Kd	well		15	1850	1417.0

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	Ca ⁺⁺ mg/l	Mg ⁺⁺ mg/l	Na ⁺ mg/l	K ⁺ mg/l	HCO ₃ ⁻ mg/l	SO ₄ ⁻⁻ mg/l	Cl ⁻ mg/l	Mass Balance** %
05.14.15.334	31.0	11.0	46.0	3.5	233.5	22.0	9.1	0.00
05.15.16.223	24.0	7.5	42.0	4.0	190.0	18.0	9.0	0.01
05.16.21.242	2.3	0.2	240.0	1.2	538.3	78.0	5.4	0.00
05.17.13.132A	2.8	0.6	140.0	1.0	313.7	50.0	4.3	-0.01
05.17.14.443	1.3	0.1	150.0	0.5	355.8	34.0	2.5	-0.01
05.18.13.444	3.7	0.6	230.0	1.2	353.7	170.0	33.0	0.00
05.19.04.444B	1.9	0.2	130.0	0.8	300.6	30.0	8.3	0.00
05.21.10.112B	50.0	12.0	18.0	2.1	191.7	24.0	24.0	0.00
06.08.34.333A	470.0	300.0	420.0	2.5	668.4	2600.0	49.0	0.00
06.10.07.232	99.0	36.0	110.0	3.6	405.0	280.0	11.0	0.00
06.10.20.114	170.0	52.0	170.0	3.2	495.8	560.0	16.0	0.00
06.11.02.412	58.0	21.0	190.0	3.9	240.0	430.0	3.5	0.00
06.12.13.421	49.0	12.0	35.0	2.5	198.1	39.0	34.0	0.00
06.17.13.342	24.0	10.0	56.0	3.8	215.2	39.0	7.6	-0.01
06.17.16.331	39.0	17.0	40.0	5.2	250.7	37.0	12.0	-0.01
06.17.19.131	12.0	3.1	67.0	2.4	197.0	21.0	5.8	-0.01
06.17.20.442	33.0	15.0	34.0	5.1	224.1	27.0	9.0	0.01
06.17.30.111	38.0	13.0	31.0	3.6	217.7	32.0	6.1	-0.01
06.17.30.214	42.0	19.0	30.0	4.9	246.6	34.0	12.0	0.01
06.17.30.311	32.0	14.0	31.0	5.5	204.1	35.0	5.8	0.00
06.19.16.113	60.0	17.0	47.0	4.0	248.2	78.0	30.0	0.00
06.19.24.311	370.0	100.0	130.0	6.0	303.9	1300.0	16.0	0.00
06.19.24.421	46.0	18.0	23.0	5.0	208.4	62.0	7.0	0.00
06.19.29.231	120.0	39.0	410.0	5.3	356.2	1000.0	18.0	0.00
06.20.04.233	230.0	62.0	330.0	5.6	465.9	1100.0	19.0	0.00
06.20.10.213	190.0	53.0	250.0	6.2	468.0	810.0	12.0	0.00
06.20.31.132	16.0	3.6	390.0	12.0	188.5	670.0	47.0	0.00
07.04.29.421	17.0	26.0	98.0	3.2	269.7	110.0	22.0	0.00
07.16.06.314	5.0	1.2	310.0	1.5	430.5	250.0	57.0	0.00
07.17.16.214	110.0	54.0	160.0	1.8	387.7	500.0	6.1	0.00
07.18.11.234	74.0	23.0	44.0	12.0	303.8	130.0	4.2	0.00
07.18.26.442	2.7	0.4	160.0	0.6	282.8	77.0	32.0	0.00
07.20.14.213	60.0	10.0	46.0	4.5	345.6	1.7	8.2	0.00
07.20.26.334	94.0	35.0	110.0	4.1	367.7	290.0	14.0	0.00
07.20.27.112	230.0	72.0	64.0	4.9	268.2	740.0	18.0	0.00

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	SiO ₂ (aq) mg/l	F ⁻ mg/l	Br ⁻ mg/l	Fe ⁺⁺ mg/l	Calcite log Q/K	Gypsum log Q/K	Quartz log Q/K	CO ₂ (g) fugacity
05.14.15.334	20.0	0.4	n.a.	n.a.	2.05E+00	4.61E+00	2.17E-03	2.46E-03
05.15.16.223	17.0	0.4	n.a.	n.a.	2.53E+00	4.22E+00	1.49E-03	9.95E-04
05.16.21.242	8.8	7.5	n.a.	n.a.	7.64E-01	2.36E+00	4.45E-04	1.68E-03
05.17.13.132A	13.0	1.6	n.a.	n.a.	1.22E+00	3.39E+00	4.23E-04	4.99E-04
05.17.14.443	12.0	1.1	n.a.	n.a.	7.03E-01	2.73E+00	1.31E-04	5.88E-04
05.18.13.444	9.4	3.7	n.a.	n.a.	6.47E-01	2.43E+00	1.50E-03	1.40E-03
05.19.04.444B	9.1	0.5	n.a.	n.a.	2.05E+00	1.80E+00	1.60E-04	1.95E-04
05.21.10.112B	18.0	0.4	n.a.	n.a.	2.00E+00	4.53E+00	3.68E-03	2.44E-03
06.08.34.333A	8.0	0.1	n.a.	n.a.	8.36E+00	2.50E+00	n.a.	1.86E-02
06.10.07.232	17.0	0.5	n.a.	n.a.	2.12E+00	4.50E+00	4.91E-02	1.15E-02
06.10.20.114	18.0	0.6	n.a.	n.a.	2.20E+00	4.78E+00	1.23E-01	2.06E-02
06.11.02.412	12.0	1.1	n.a.	n.a.	1.12E+00	3.17E+00	4.39E-02	4.45E-03
06.12.13.421	31.0	0.4	n.a.	n.a.	1.89E+00	8.14E+00	5.65E-03	2.48E-03
06.17.13.342	32.0	0.3	n.a.	n.a.	5.13E+00	8.15E+00	2.96E-03	5.51E-04
06.17.16.331	34.0	0.3	n.a.	n.a.	3.02E+00	8.89E+00	4.23E-03	2.00E-03
06.17.19.131	13.0	0.3	n.a.	n.a.	1.24E+00	3.53E+00	9.24E-04	1.01E-03
06.17.20.442	35.0	0.3	n.a.	n.a.	3.82E+00	8.89E+00	2.77E-03	1.15E-03
06.17.30.111	27.0	0.2	n.a.	n.a.	9.96E-01	7.43E+00	3.84E-03	4.20E-03
06.17.30.214	34.0	0.3	n.a.	n.a.	5.15E+00	8.63E+00	4.12E-03	1.25E-03
06.17.30.311	36.0	0.3	n.a.	n.a.	2.74E+00	8.98E+00	3.53E-03	1.33E-03
06.19.16.113	28.0	0.5	n.a.	n.a.	4.25E+00	7.32E+00	1.21E-02	1.95E-03
06.19.24.311	12.0	0.6	n.a.	n.a.	1.52E+01	3.03E+00	n.a.	3.28E-03
06.19.24.421	27.0	0.3	n.a.	n.a.	4.78E+00	6.71E+00	8.07E-03	1.07E-03
06.19.29.231	9.8	0.7	n.a.	n.a.	1.13E+01	2.25E+00	n.a.	2.70E-03
06.20.04.233	17.0	0.5	n.a.	n.a.	2.02E+00	4.52E+00	n.a.	2.78E-02
06.20.10.213	17.0	0.5	n.a.	n.a.	1.68E+00	4.24E+00	1.70E-01	2.39E-02
06.20.31.132	5.7	0.7	n.a.	n.a.	3.27E+00	1.35E+00	1.55E-02	2.22E-04
07.04.29.421	19.0	0.8	n.a.	n.a.	1.49E+00	4.01E+00	4.75E-03	2.28E-03
07.16.06.314	6.7	4.4	n.a.	n.a.	2.86E+00	1.56E+00	2.35E-03	5.28E-04
07.17.16.214	11.0	0.8	n.a.	n.a.	5.27E+00	2.78E+00	7.85E-02	4.57E-03
07.18.11.234	12.0	0.3	n.a.	n.a.	4.12E+00	2.77E+00	2.18E-02	3.86E-03
07.18.26.442	5.6	1	n.a.	n.a.	8.54E-01	1.41E+00	5.99E-04	5.72E-04
07.20.14.213	10.0	0.2	n.a.	n.a.	2.61E+00	2.47E+00	2.90E-04	6.81E-03
07.20.26.334	16.0	0.5	n.a.	n.a.	1.19E+00	3.89E+00	4.85E-02	1.63E-02
07.20.27.112	20.0	0.3	n.a.	n.a.	n.a.	5.10E+00	1.96E-01	n.a.

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Reference	Location Number	Date	Geologic Unit *	Type	pH	Water Temperature °C	Electrical conductivity μS/cm	Dissolved solids mg/l
Baldwin & Rankin, 1995	07.21.10.332	1/10/1980	Kd	well	6.9	16	1650	1243.0
Baldwin & Rankin, 1995	07.21.26.111	9/25/1980	Kd	well	7.3	16	1400	1187.0
Baldwin & Rankin, 1995	07.21.26.141A	9/25/1980	Kd	well	7.8		1400	1068.0
Baldwin & Rankin, 1995	07.21.36.222	10/15/1980	Kd	well	7.5	12	1290	1022.0
Orr, B.R. 1987	10.16.32.114	7/31/1972	Kd	well	8.8	16	1780	1240.0
Orr, B.R. 1987	10.17.35.412	7/31/1972	Kd	well	8.8	20	1190	810.7
Orr, B.R. 1987	11.17.28.143	7/31/1972	Kd	well	8.1	14	1810	1364.0
Orr, B.R. 1987	11.18.27.411	7/31/1972	Kd	well	8.4	n.a.	1030	788.2
Orr, B.R. 1987	11.18.27.411	8/10/1972	Kd	well	8.9	15	970	760.2
Risser & Lyford, 1983	10.6.3.111	9/11/1952	Kd	well	n.a.	n.a.	n.a.	1132.0
Risser & Lyford, 1983	10.6.3.111	3/25/1965	Kd	well	8.1	n.a.	n.a.	1398.0
Risser & Lyford, 1983	10.6.3.111	11/17/1978	Kd	well	7.3	18	1130	958.1
Risser & Lyford, 1983	10.6.3.334	2/20/1951	Kd	well	n.a.	n.a.	1350	1347.0
Risser & Lyford, 1983	10.6.9.121	12/13/1966	Kd	well	7.5	n.a.	n.a.	1102.0
Risser & Lyford, 1983	10.6.9.121	11/7/1978	Kd	well	7.0	16	1300	1217.0
Baldwin & Rankin, 1995	04.11.11.213	5/5/1981	Kg		8.7	17	1190	990.5
Baldwin & Rankin, 1995	05.09.26.412	3/19/1981	Kg		8.1	15	1700	1407.0
Baldwin & Rankin, 1995	05.10.12.113	8/29/1978	Kg	spring	7.2	14	588	505.8
Baldwin & Rankin, 1995	05.10.12.141	4/4/1981	Kg	spring	7.5	14	227	194.8
Baldwin & Rankin, 1995	05.11.26.323	9/6/1978	Kg		7.6	17	1550	1270.0
Baldwin & Rankin, 1995	05.12.20.133	8/30/1978	Kg		8.2	13	1000	838.6
Baldwin & Rankin, 1995	05.12.27.313	8/31/1978	Kg		7.8	17	543	450.8
Baldwin & Rankin, 1995	05.13.15.333	8/31/1978	Kg		8.0	16	670	552.6
Orr, B.R. 1987	11.17.24.432	11/6/1979	Kg	well	7.6	14	1300	1155.0
Orr, B.R. 1987	11.17.5.322	7/31/1972	Kg	well	8.8	22	700	541.8
Orr, B.R. 1987	12.16.7.331	8/1/1972	Kg	well	8.2	16	1190	924.0
Orr, B.R. 1987	12.18.28.434	6/2/1973	Kg	well	8.5	n.a.	420	321.5
Orr, B.R. 1987	7.16.21.342	8/31/1971	Kg	well	8.8	n.a.	760	583.6
Orr, B.R. 1987	7.21.3.122a	6/19/1979	Kg	spring	7.3	16	1250	1159.0
Orr, B.R. 1987	8.20.31.321	8/21/1979	Kg	well	7.6	18	900	815.1
Orr, B.R. 1987	9.16.34.412	7/28/1972	Kg	well	9.0	20	850	633.1
Shomaker, 1971	15.18.13.1134	8/1/1948	Kg	well	n.a.	n.a.	1180	984.7
Shomaker, 1971	15.18.13.1134	4/1/1956	Kg	well	7.6	n.a.	1220	1017.0
Shomaker, 1971	15.18.13.1144	11/1/1948	Kg	well	7.7	n.a.	1100	934.0
Shomaker, 1971	15.18.13.1144	3/1/1956	Kg	well	7.3	n.a.	1340	1104.0

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	Ca ⁺⁺ mg/l	Mg ⁺⁺ mg/l	Na ⁺ mg/l	K ⁺ mg/l	HCO ₃ ⁻ mg/l	SO ₄ ⁻⁻ mg/l	Cl ⁻ mg/l	Mass Balance** %
07.21.10.332	160.0	49.0	130.0	5.1	239.7	650.0	12.0	0.00
07.21.26.111	150.0	40.0	130.0	3.1	341.8	490.0	25.0	0.00
07.21.26.141A	120.0	40.0	130.0	2.7	218.6	520.0	21.0	0.00
07.21.36.222	140.0	43.0	82.0	2.2	313.7	420.0	9.2	0.00
10.16.32.114	14.0	2.4	376.0	4.7	336.0	333.0	171.0	0.31
10.17.35.412	6.0	1.2	248.0	4.7	229.0	299.0	21.0	3.35
11.17.28.143	34.0	12.0	367.0	6.3	387.0	547.0	12.0	2.00
11.18.27.411	42.0	13.0	172.0	4.7	228.0	327.0	1.8	0.80
11.18.27.411	42.0	12.0	167.0	0.0	214.0	320.0	5.3	0.13
10.6.3.111	20.0	9.8	123.0	300.0	400.0	370.0	20.0	0.01
10.6.3.111	22.0	8.5	133.9	350.0	400.0	450.0	23.0	-0.01
10.6.3.111	160.0	45.0	46.0	4.7	280.0	420.0	9.0	0.80
10.6.3.334	130.0	67.0	0.0	160.0	300.0	560.0	80.0	-7.85
10.6.9.121	120.0	68.0	110.0	4.7	380.0	400.0	25.0	3.86
10.6.9.121	140.0	59.0	110.0	4.3	480.0	410.0	19.0	-0.61
04.11.11.213	7.4	1.7	270.0	0.9	540.1	140.0	18.0	0.00
05.09.26.412	60.0	14.0	340.0	2.5	332.0	640.0	8.2	0.00
05.10.12.113	63.0	21.0	35.0	2.6	304.3	45.0	19.0	-0.01
05.10.12.141	30.0	2.9	11.0	2.2	130.6	1.6	3.4	0.00
05.11.26.323	170.0	54.0	120.0	3.6	205.9	680.0	25.0	0.00
05.12.20.133	3.6	1.0	230.0	1.7	472.8	110.0	9.5	0.00
05.12.27.313	31.0	13.0	68.0	0.8	260.8	39.0	18.0	0.00
05.13.15.333	25.0	6.6	110.0	4.5	284.4	73.0	18.0	0.00
11.17.24.432	140.0	50.0	15.0	5.2	390.0	530.0	15.0	-20.06
11.17.5.322	14.0	2.4	145.0	2.0	267.0	105.0	5.3	3.88
12.16.7.331	74.0	27.0	158.0	8.2	402.0	196.0	60.0	2.50
12.18.28.434	34.0	8.5	49.0	2.4	218.0	6.2	3.6	9.35
7.16.21.342	8.0	3.7	162.0	0.0	245.0	156.0	8.2	1.67
7.21.3.122a	120.0	40.0	160.0	4.5	305.0	480.0	45.0	0.28
8.20.31.321	51.0	19.0	160.0	4.1	183.0	370.0	21.0	-0.55
9.16.34.412	2.0	1.2	196.0	1.2	272.0	151.0	8.9	5.42
15.18.13.1134	96.0	44.0	122.0		318.0	395.0	9.0	0.10
15.18.13.1134	79.0	32.0	164.0	3.6	403.0	305.0	20.0	1.02
15.18.13.1144	129.0	34.0	81.0		326.0	345.0	8.0	0.02
15.18.13.1144	148.0	56.0	82.0		278.0	514.0	10.0	0.06

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	SiO ₂ (aq) mg/l	F ⁻ mg/l	Br ⁻ mg/l	Fe ⁺⁺ mg/l	Calcite log Q/K	Gypsum log Q/K	Quartz log Q/K	CO ₂ (g) fugacity
07.21.10.332	12.0	0.3	n.a.	n.a.	4.73E-01	2.99E+00	1.37E-01	1.82E-02
07.21.26.111	16.0	0.7	n.a.	n.a.	1.94E+00	3.98E+00	1.05E-01	1.20E-02
07.21.26.141A	17.0	0.7	n.a.	n.a.	4.57E+00	2.77E+00	8.87E-02	2.99E-03
07.21.36.222	17.0	0.6	n.a.	n.a.	2.57E+00	4.91E+00	9.21E-02	6.90E-03
10.16.32.114	n.a.	3.8	n.a.	0	6.04E+00	n.a.	7.81E-03	4.09E-04
10.17.35.412	n.a.	2.1	n.a.	0	2.27E+00	n.a.	3.61E-03	3.03E-04
11.17.28.143	n.a.	0.39	n.a.	0.02	2.98E+00	n.a.	2.83E-02	2.29E-03
11.18.27.411	n.a.	0.29	n.a.	0	7.56E+00	n.a.	2.58E-02	8.16E-04
11.18.27.411	n.a.	0.25	n.a.	0	1.53E+01	n.a.	2.62E-02	2.04E-04
10.6.3.111	12.0	n.a.	n.a.	n.a.	n.a.	1.98E+00	1.35E-02	n.a.
10.6.3.111	12.0	n.a.	n.a.	n.a.	3.06E+00	1.93E+00	1.54E-02	2.84E-03
10.6.3.111	n.a.	1.2	n.a.	T	1.97E+00	n.a.	1.01E-01	1.02E-02
10.6.3.334	50.0	n.a.	n.a.	n.a.	n.a.	8.26E+00	9.35E-02	n.a.
10.6.9.121	n.a.	n.a.	n.a.	n.a.	4.02E+00	n.a.	6.73E-02	1.00E-02
10.6.9.121	18.0	0.9	n.a.	0.5	1.21E+00	4.39E+00	8.27E-02	3.07E-02
04.11.11.213	8.8	4.2	n.a.	n.a.	4.87E+00	1.91E+00	2.13E-03	8.69E-04
05.09.26.412	11.0	0.8	n.a.	n.a.	4.56E+00	2.75E+00	5.42E-02	1.99E-03
05.10.12.113	27.0	0.3	n.a.	n.a.	8.04E-01	7.14E+00	7.47E-03	1.35E-02
05.10.12.141	13.0	2.8	n.a.	n.a.	4.39E-01	3.43E+00	1.90E-04	3.24E-03
05.11.26.323	14.0	0.3	n.a.	n.a.	2.65E+00	3.33E+00	1.46E-01	3.81E-03
05.12.20.133	11.0	1	n.a.	n.a.	6.70E-01	2.98E+00	9.93E-04	2.33E-03
05.12.27.313	22.0	0.8	n.a.	n.a.	1.69E+00	5.19E+00	3.58E-03	3.38E-03
05.13.15.333	32.0	0.8	n.a.	n.a.	2.21E+00	7.67E+00	5.17E-03	2.33E-03
11.17.24.432	15.0	0.4	n.a.	n.a.	4.09E+00	3.97E+00	1.07E-01	7.11E-03
11.17.5.322	n.a.	1.5	n.a.	0	7.92E+00	n.a.	3.78E-03	3.72E-04
12.16.7.331	n.a.	0.56	n.a.	0.01	1.16E+01	n.a.	2.72E-02	1.99E-03
12.18.28.434	n.a.	0.26	n.a.	0	1.07E+01	n.a.	6.52E-04	6.46E-04
7.16.21.342	n.a.	1	n.a.	0.02	4.30E+00	n.a.	2.95E-03	3.54E-04
7.21.3.122a	9.6	0.3	n.a.	3.2	1.42E+00	2.34E+00	8.49E-02	1.08E-02
8.20.31.321	9.5	0.3	n.a.	0.01	9.10E-01	2.11E+00	3.55E-02	3.63E-03
9.16.34.412	n.a.	0.92	n.a.	0.18	1.53E+00	n.a.	7.01E-04	2.28E-04
15.18.13.1134	n.a.	0.8	n.a.	n.a.	n.a.	n.a.	5.89E-02	n.a.
15.18.13.1134	14.0	0.6	n.a.	0.83	3.83E+00	2.29E+00	4.01E-02	8.73E-03
15.18.13.1144	14.0	0.4	n.a.	n.a.	6.37E+00	2.29E+00	7.04E-02	5.62E-03
15.18.13.1144	20.0	0.5	n.a.	1.9	2.14E+00	3.29E+00	1.03E-01	1.13E-02

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Reference	Location Number	Date	Geologic Unit *	Type	pH	Water Temperature °C	Electrical conductivity μS/cm	Dissolved solids mg/l
Shomaker, 1971	15.18.13.324	12/1/1953	Kg	well	n.a.	n.a.	4350	4199.0
Shomaker, 1971	15.18.14.222	11/1/1955	Kg	well	7.5	n.a.	1210	1021.0
Shomaker, 1971	15.18.24.230	1/1/1956	Kg	well	7.7	n.a.	1070	879.5
Baldwin & Rankin, 1995	05.16.19.141	11/19/1980	Km	well	8.0	13	700	538.7
Baldwin & Rankin, 1995	10.11.31.124	7/28/1981	Km		7.3	14	250	231.2
Risser & Lyford, 1983	6.7.18.113	7/9/1963	Km	well	6.9	n.a.	5070	5013.0
Risser & Lyford, 1983	7.2.6.214	4/21/1975	Km	spring	8.6	n.a.	37000	29046.0
Risser & Lyford, 1983	7.2.6.434	4/22/1975	Km	spring	9.1	n.a.	41500	32931.9
Baldwin & Rankin, 1995	04.07.07.111	5/13/1981	Kmv		n.a.	19	n.a.	936.9
Baldwin & Rankin, 1995	04.16.10.331A	12/17/1980	Kmv		8.1	n.a.	533	440.8
Baldwin & Rankin, 1995	04.16.10.331B	12/17/1980	Kmv		7.7	11	846	630.9
Baldwin & Rankin, 1995	04.17.03.324B	10/14/1980	Kmv		8.2	14	1900	1287.0
Baldwin & Rankin, 1995	04.17.04.233	10/13/1980	Kmv		8.3	14	1550	1101.0
Baldwin & Rankin, 1995	04.17.08.121	10/14/1980	Kmv		8.1	15	600	458.2
Baldwin & Rankin, 1995	04.18.03.442	10/31/1980	Kmv		7.8	13	600	584.8
Baldwin & Rankin, 1995	04.18.05.144B	11/18/1980	Kmv		7.6	14	350	300.0
Baldwin & Rankin, 1995	05.11.15.242	9/6/1978	Kmv		1.8	17	888	660.9
Baldwin & Rankin, 1995	05.12.25.344	8/31/1978	Kmv		1.4	13	1130	848.4
Baldwin & Rankin, 1995	05.13.18.113	12/3/1980	Kmv		8.8	16	1150	947.4
Baldwin & Rankin, 1995	05.14.06.334	12/18/1980	Kmv		8.2	14	406	352.6
Baldwin & Rankin, 1995	05.15.19.444	12/4/1980	Kmv		8.0	14	1130	845.2
Baldwin & Rankin, 1995	05.15.26.133	12/16/1980	Kmv		8.7	15	330	355.2
Baldwin & Rankin, 1995	05.15.28.431	12/16/1980	Kmv		9.3	13	500	522.7
Baldwin & Rankin, 1995	05.15.31.222A	12/4/1980	Kmv		8.9	15	340	344.3
Baldwin & Rankin, 1995	05.16.36.431	12/17/1980	Kmv	spring	7.9	11	1300	1194.0
Baldwin & Rankin, 1995	05.17.05.232	11/13/1980	Kmv	well	9.1	15	450	448.4
Baldwin & Rankin, 1995	05.17.05.444	11/6/1980	Kmv	well	9.3	15	525	516.6
Baldwin & Rankin, 1995	05.17.06.333	11/6/1980	Kmv	well	8.1	12	327	282.6
Baldwin & Rankin, 1995	05.17.07.333	11/20/1980	Kmv	well	7.3	14	350	294.2
Baldwin & Rankin, 1995	05.17.09.223	11/6/1980	Kmv	well	8.1	14	465	479.5
Baldwin & Rankin, 1995	05.17.10.344	11/20/1980	Kmv	well	8.0	13	700	555.1
Baldwin & Rankin, 1995	05.17.29.131	10/10/1980	Kmv		7.4	15	550	432.9
Baldwin & Rankin, 1995	05.17.31.211	10/20/1980	Kmv		7.5	13	450	362.3
Baldwin & Rankin, 1995	05.18.01.233	11/5/1980	Kmv	well	9.3	15	350	308.5
Baldwin & Rankin, 1995	05.18.08.223	11/12/1980	Kmv	well	8.1	20	340	312.5

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Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	Ca ⁺⁺ mg/l	Mg ⁺⁺ mg/l	Na ⁺ mg/l	K ⁺ mg/l	HCO ₃ ⁻ mg/l	SO ₄ ⁻⁻ mg/l	Cl ⁻ mg/l	Mass Balance** %
15.18.13.324	456.0	268.0	413.0		142.0	2850.0	31.0	0.18
15.18.14.222	66.0	28.0	185.0	3.4	434.0	261.0	33.0	0.93
15.18.24.230	134.0	42.0	52.0		296.0	319.0	8.2	2.81
05.16.19.141	4.7	26.0	100.0	1.6	330.7	59.0	4.1	-0.01
10.11.31.124	33.0	8.5	8.3	1.1	130.5	22.0	4.9	-0.01
6.7.18.113	550.0	520.0	210.0	15.0	460.0	3200.0	71.0	2.30
7.2.6.214	210.0	110.0	10000.0	280.0	725.8	6700.0	11000.0	0.00
7.2.6.434	110.0	160.0	11000.0	320.0	1910.0	7400.0	12000.0	-1.80
04.07.07.111	270.0	130.0	190.0	5.2	306.3	1300.0	17.0	0.00
04.16.10.331A	22.0	5.1	89.0	1.8	235.4	68.0	5.7	-0.01
04.16.10.331B	43.0	11.0	120.0	2.3	237.7	200.0	9.5	0.00
04.17.03.324B	6.4	0.9	380.0	2.3	360.1	520.0	8.9	0.00
04.17.04.233	7.6	0.9	330.0	1.4	208.2	530.0	14.0	0.00
04.17.08.121	5.5	0.7	120.0	1.3	267.6	44.0	10.0	0.00
04.18.03.442	50.0	32.0	57.0	8.7	285.4	66.0	63.0	0.00
04.18.05.144B	47.0	8.9	14.0	0.7	173.5	21.0	15.0	0.00
05.11.15.242	26.0	7.7	170.0	2.6	354.9	150.0	16.0	0.00
05.12.25.344	4.9	1.8	260.0	2.0	532.5	110.0	26.0	0.00
05.13.18.113	2.2	0.5	260.0	2.7	571.7	94.0	7.1	0.00
05.14.06.334	27.0	9.9	48.0	3.7	209.2	25.0	14.0	-0.01
05.15.19.444	110.0	31.0	78.0	5.4	378.7	95.0	120.0	0.00
05.15.26.133	5.3	1.3	87.0	1.3	226.7	17.0	4.2	0.00
05.15.28.431	2.2	0.3	140.0	1.2	362.4	2.9	9.0	0.00
05.15.31.222A	3.6	0.6	87.0	2.1	216.9	16.0	6.3	0.01
05.16.36.431	110.0	57.0	140.0	2.8	426.6	430.0	14.0	0.00
05.17.05.232	2.6	0.6	120.0	1.2	262.0	45.0	7.0	0.00
05.17.05.444	1.6	0.3	140.0	0.9	308.9	49.0	4.7	0.00
05.17.06.333	11.0	3.6	56.0	2.1	170.0	19.0	5.4	0.00
05.17.07.333	41.0	10.0	16.0	1.9	163.8	34.0	7.8	0.00
05.17.09.223	14.0	2.9	110.0	2.3	289.1	43.0	5.2	0.00
05.17.10.344	4.2	0.6	150.0	1.0	311.9	74.0	5.5	0.00
05.17.29.131	30.0	6.0	79.0	2.4	224.4	72.0	11.0	0.00
05.17.31.211	13.0	2.4	80.0	2.2	226.3	22.0	7.6	0.00
05.18.01.233	3.4	0.7	80.0	1.3	179.6	22.0	12.0	-0.01
05.18.08.223	42.0	10.0	20.0	1.3	181.5	19.0	16.0	-0.01

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	SiO ₂ (aq) mg/l	F ⁻ mg/l	Br ⁻ mg/l	Fe ⁺⁺ mg/l	Calcite log Q/K	Gypsum log Q/K	Quartz log Q/K	CO ₂ (g) fugacity
15.18.13.324	38.0	0.9	n.a.	n.a.	n.a.	6.37E+00	6.12E-01	n.a.
15.18.14.222	17.0	0.7	n.a.	0.34	2.78E+00	2.79E+00	3.01E-02	1.18E-02
15.18.24.230	16.0	0.4	n.a.	15	6.11E+00	2.61E+00	6.71E-02	5.07E-03
05.16.19.141	14.0	0.8	n.a.	n.a.	4.38E-01	3.83E+00	7.84E-04	2.60E-03
10.11.31.124	26.0	1	n.a.	n.a.	2.78E-01	6.86E+00	2.63E-03	4.89E-03
6.7.18.113	8.8	n.a.	n.a.	n.a.	2.24E+00	1.48E+00	6.82E-01	3.59E-02
7.2.6.214	20.0	n.a.	n.a.	n.a.	3.25E+01	2.73E+00	1.75E-01	1.00E-03
7.2.6.434	30.0	n.a.	n.a.	n.a.	1.00E+02	2.49E+00	7.95E-02	7.17E-04
04.07.07.111	18.0	0.4	n.a.	n.a.	n.a.	3.96E+00	n.a.	n.a.
04.16.10.331A	14.0	0.7	n.a.	n.a.	2.83E+00	2.25E+00	4.38E-03	1.76E-03
04.16.10.331B	10.0	0.6	n.a.	n.a.	1.16E+00	3.01E+00	2.06E-02	3.49E-03
04.17.03.324B	8.6	1.4	n.a.	n.a.	6.72E-01	2.28E+00	5.43E-03	1.72E-03
04.17.04.233	8.8	0.4	n.a.	n.a.	6.08E-01	2.27E+00	6.87E-03	8.00E-04
04.17.08.121	9.9	0.6	n.a.	n.a.	6.01E-01	2.47E+00	7.97E-04	1.75E-03
04.18.03.442	25.0	0.6	n.a.	n.a.	2.40E+00	6.87E+00	8.07E-03	3.45E-03
04.18.05.144B	22.0	0.7	n.a.	n.a.	1.05E+00	5.79E+00	3.22E-03	3.41E-03
05.11.15.242	13.0	0.8	n.a.	n.a.	4.79E-11	3.04E+00	5.10E-03	1.27E-01
05.12.25.344	8.7	3.4	n.a.	n.a.	1.62E-12	2.42E+00	3.96E-04	1.71E-01
05.13.18.113	8.0	1.7	n.a.	n.a.	1.86E+00	1.82E+00	4.45E-04	7.18E-04
05.14.06.334	16.0	0.6	n.a.	n.a.	2.92E+00	4.15E+00	2.21E-03	1.07E-03
05.15.19.444	29.0	0.4	n.a.	n.a.	1.02E+01	7.59E+00	2.03E-02	2.86E-03
05.15.26.133	12.0	0.4	n.a.	n.a.	1.99E+00	2.92E+00	3.18E-04	3.73E-04
05.15.28.431	1.9	3.1	n.a.	n.a.	3.52E+00	4.21E-01	1.63E-05	1.36E-04
05.15.31.222A	11.0	0.5	n.a.	n.a.	2.01E+00	2.53E+00	2.00E-04	2.25E-04
05.16.36.431	17.0	0.4	n.a.	n.a.	6.63E+00	5.11E+00	7.11E-02	3.81E-03
05.17.05.232	8.7	0.9	n.a.	n.a.	2.36E+00	1.89E+00	3.40E-04	1.66E-04
05.17.05.444	9.5	0.9	n.a.	n.a.	2.30E+00	1.91E+00	1.96E-04	1.19E-04
05.17.06.333	16.0	0.4	n.a.	n.a.	7.73E-01	4.56E+00	8.02E-04	1.09E-03
05.17.07.333	24.0	0.8	n.a.	n.a.	4.10E-01	6.34E+00	4.60E-03	6.08E-03
05.17.09.223	14.0	0.5	n.a.	n.a.	1.57E+00	3.65E+00	1.91E-03	1.86E-03
05.17.10.344	9.4	0.6	n.a.	n.a.	3.71E-01	2.57E+00	9.46E-04	2.47E-03
05.17.29.131	13.0	0.7	n.a.	n.a.	5.02E-01	3.29E+00	6.53E-03	6.81E-03
05.17.31.211	13.0	0.6	n.a.	n.a.	2.84E-01	3.66E+00	1.04E-03	5.44E-03
05.18.01.233	8.2	0.5	n.a.	n.a.	3.48E+00	1.66E+00	2.42E-04	7.05E-05
05.18.08.223	23.0	0.4	n.a.	n.a.	3.89E+00	4.64E+00	2.55E-03	1.27E-03

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Reference	Location Number	Date	Geologic Unit *	Type	pH	Water Temperature °C	Electrical conductivity μS/cm	Dissolved solids mg/l
Baldwin & Rankin, 1995	05.18.10.342	11/5/1980	Kmv	well	7.2	15	414	333.8
Baldwin & Rankin, 1995	05.18.12.212	11/5/1980	Kmv	well	8.2	15	336	274.9
Baldwin & Rankin, 1995	05.18.13.222	11/6/1980	Kmv	well	8.0	14	351	284.2
Baldwin & Rankin, 1995	05.18.15.111	12/2/1980	Kmv	well	7.8	17	456	371.0
Baldwin & Rankin, 1995	05.18.15.444	12/2/1980	Kmv	well	7.8	13	532	428.9
Baldwin & Rankin, 1995	05.18.24.324	1/7/1981	Kmv	well	8.0	14	500	355.6
Baldwin & Rankin, 1995	05.19.07.334	10/14/1980	Kmv	spring	7.0	13	371	292.0
Baldwin & Rankin, 1995	06.11.34.322	8/31/1978	Kmv		7.7	14	404	344.3
Baldwin & Rankin, 1995	06.17.27.123	1/6/1981	Kmv	well	8.8	14	1300	978.5
Baldwin & Rankin, 1995	06.17.31.313	11/20/1980	Kmv	well	7.2	13	600	451.9
Baldwin & Rankin, 1995	06.17.34.433B	11/6/1980	Kmv	well	7.8	13	1510	1190.0
Baldwin & Rankin, 1995	06.18.30.214	10/31/1980	Kmv	spring	7.8	15	421	364.5
Baldwin & Rankin, 1995	07.09.09.334	8/9/1978	Kmv	spring	7.2	12	608	503.0
Baldwin & Rankin, 1995	07.20.10.311	10/21/1980	Kmv		7.4	16	437	378.6
Baldwin & Rankin, 1995	08.16.22.342	1/8/1981	Kmv		9.5	15	900	740.8
Risser & Lyford, 1983	11.7.35.243	8/14/1978	Kmv	well	8.4	17	950	911.8
Risser & Lyford, 1983	7.2.10.444	6/5/1975	Kmv	well	8.3	n.a.	9430	6929.0
Risser & Lyford, 1983	8.2.1.333	6/5/1975	Kmv	well	2.4	n.a.	5430	4256.0
Risser & Lyford, 1983	9.2.27.422	9/24/1973	Kmv	well	8.1	20	460	324.9
Hood and Kister, 1962	1.7.2.31.140	9/2/1941	Pa	spring	n.a.	27	n.a.	18361.9
Hood and Kister, 1962	2.1.4.14.113	8/31/1949	Pa		n.a.	n.a.	2860	2746.0
Hood and Kister, 1962	2.10.14.20.400	8/12/1947	Pa	well	n.a.	n.a.	1400	1165.0
Hood and Kister, 1962	2.2.5.20.244	12/19/1949	Pa	well	n.a.	14	3010	2804.0
Hood and Kister, 1962	4.7.7.9.222	2/25/1954	Pa		n.a.	n.a.	2430	2099.0
Risser & Lyford, 1983	7.2.31.144	9/2/1941	Pa	spring	n.a.	27	n.a.	18530.1
Orr, B.R. 1987	10.15.17.424	9/30/1975	Pg	well	8.0	32	550	468.2
Orr, B.R. 1987	10.19.13.444	2/27/1980	Pg	well	7.2	21	1150	819.9
Orr, B.R. 1987	10.19.24.122b	3/28/1968	Pg	well	7.8	27	1470	1091.0
Orr, B.R. 1987	10.19.24.122b	8/3/1972	Pg	well	7.7	n.a.	1400	1122.0
Orr, B.R. 1987	10.19.27.112	2/13/1973	Pg	well	7.7	27	1190	943.3
Orr, B.R. 1987	12.16.17.214	3/26/1980	Pg	spring	8.2	4	500	490.2
Orr, B.R. 1987	12.16.8.314	12/14/1950	Pg	spring	n.a.	11	573	485.2
Orr, B.R. 1987	8.15.27.311	5/14/1975	Pg	well	7.9	36	989	795.2
Orr, B.R. 1987	8.15.27.342	5/11/1973	Pg	well	8.3	33	1010	789.1
Orr, B.R. 1987	8.20.20.422	6/21/1978	Pg	spring	7.3	22	1100	888.9

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	Ca ⁺⁺ mg/l	Mg ⁺⁺ mg/l	Na ⁺ mg/l	K ⁺ mg/l	HCO ₃ ⁻ mg/l	SO ₄ ⁻⁻ mg/l	Cl ⁻ mg/l	Mass Balance** %
05.18.10.342	47.0	10.0	22.0	2.0	201.0	22.0	15.0	0.00
05.18.12.212	31.0	7.8	24.0	2.1	153.0	28.0	6.9	0.01
05.18.13.222	40.0	9.0	15.0	1.8	151.7	32.0	10.0	0.00
05.18.15.111	62.0	11.0	16.0	1.8	203.7	28.0	29.0	0.01
05.18.15.444	32.0	9.3	67.0	2.5	255.2	42.0	10.0	0.00
05.18.24.324	57.0	13.0	15.0	1.8	183.4	27.0	37.0	0.00
05.19.07.334	50.0	8.4	8.8	0.8	184.0	9.9	13.0	0.00
06.11.34.322	52.0	8.4	22.0	1.2	202.8	32.0	10.0	0.01
06.17.27.123	7.0	1.7	270.0	1.5	485.6	180.0	20.0	0.00
06.17.31.313	46.0	15.0	48.0	2.7	282.6	41.0	7.1	0.00
06.17.34.433B	83.0	19.0	230.0	3.2	441.1	380.0	23.0	0.00
06.18.30.214	37.0	13.0	29.0	3.5	202.1	37.0	6.5	0.00
07.09.09.334	67.0	22.0	31.0	2.6	276.6	53.0	33.0	0.00
07.20.10.311	67.0	8.0	14.0	2.5	250.9	23.0	2.9	0.01
08.16.22.342	1.9	0.3	210.0	0.7	351.0	160.0	6.6	0.00
11.7.35.243	10.0	1.0	250.0	3.5	620.0	17.0	12.0	3.07
7.2.10.444	92.0	30.0	2200.0	33.0	460.0	2600.0	1500.0	-0.19
8.2.1.333	140.0	53.0	1100.0	28.0	565.0	2300.0	210.0	-2.57
9.2.27.422	34.0	7.3	52.0	3.9	180.0	44.0	4.6	7.65
1.7.2.31.140	603	271.0	5230.0	118.0	1620.0	5380.0	5120.0	-0.02
2.1.4.14.113	408	114.0	241.0		212	1710.0	36.0	0.16
2.10.14.20.400	169	66.0	65.0		205	629.0	6.0	0.20
2.2.5.20.244	468	184.0	98.0		175	1830.0	48.0	0.51
4.7.7.9.222	176	93.0	322.0		306	1100.0	86.0	0.16
7.2.31.144	610.0	270.0	5300.0	120.0	1630.0	5400.0	5200.0	0.08
10.15.17.424	74.0	25.0	12.0	1.6	251.0	84.0	7.5	1.92
10.19.13.444	110.0	27.0	10.0	9.1	87.0	540.0	34.0	-23.86
10.19.24.122b	155.0	22.0	124.0	8.5	198.0	551.0	33.0	-1.60
10.19.24.122b	162.0	27.0	114.0	11.0	226.0	555.0	28.0	-1.60
10.19.27.112	150.0	29.0	79.0	4.3	229.0	442.0	11.0	0.56
12.16.17.214	100.0	8.3	8.5	1.7	317.0	35.0	10.0	-0.99
12.16.8.314	78.0	26.0	8.5	1.0	283.0	72.0	8.0	0.49
8.15.27.311	120.0	36.0	42.0	7.0	257.0	300.0	19.0	-0.18
8.15.27.342	116.0	34.0	60.0	3.9	248.0	305.0	19.0	1.55
8.20.20.422	140.0	40.0	55.0	5.7	310.0	300.0	32.0	2.34

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	SiO ₂ (aq) mg/l	F ⁻ mg/l	Br ⁻ mg/l	Fe ⁺⁺ mg/l	Calcite log Q/K	Gypsum log Q/K	Quartz log Q/K	CO ₂ (g) fugacity
05.18.10.342	22.0	0.4	n.a.	n.a.	4.57E-01	5.57E+00	3.29E-03	9.23E-03
05.18.12.212	22.0	0.5	n.a.	n.a.	2.64E+00	5.47E+00	2.99E-03	8.01E-04
05.18.13.222	25.0	0.6	n.a.	n.a.	2.03E+00	6.54E+00	4.25E-03	1.23E-03
05.18.15.111	21.0	0.5	n.a.	n.a.	2.75E+00	4.85E+00	5.03E-03	2.65E-03
05.18.15.444	13.0	0.6	n.a.	n.a.	1.53E+00	3.57E+00	4.12E-03	3.16E-03
05.18.24.324	22.0	0.5	n.a.	n.a.	3.31E+00	5.75E+00	4.55E-03	1.46E-03
05.19.07.334	27.0	0.6	n.a.	n.a.	2.51E-01	7.45E+00	1.66E-03	1.21E-02
06.11.34.322	18.0	0.5	n.a.	n.a.	1.67E+00	4.74E+00	5.15E-03	3.18E-03
06.17.27.123	8.1	5	n.a.	n.a.	4.60E+00	1.98E+00	2.56E-03	5.93E-04
06.17.31.313	20.0	0.3	n.a.	n.a.	5.46E-01	5.52E+00	5.48E-03	1.25E-02
06.17.34.433B	15.0	0.2	n.a.	n.a.	4.50E+00	4.13E+00	5.22E-02	5.13E-03
06.18.30.214	38.0	0.4	n.a.	n.a.	1.53E+00	9.76E+00	4.30E-03	2.57E-03
07.09.09.334	28.0	0.4	n.a.	n.a.	7.17E-01	8.08E+00	9.27E-03	1.19E-02
07.20.10.311	16.0	0.4	n.a.	n.a.	1.35E+00	3.87E+00	4.53E-03	7.69E-03
08.16.22.342	7.7	1.9	n.a.	n.a.	3.57E+00	1.36E+00	5.47E-04	7.83E-05
11.7.35.243	n.a.	n.a.	n.a.	n.a.	4.44E+00	n.a.	4.16E-04	2.03E-03
7.2.10.444	15.0	n.a.	n.a.	n.a.	9.97E+00	2.37E+00	1.02E-01	1.70E-03
8.2.1.333	9.5	n.a.	n.a.	n.a.	4.52E-09	1.59E+00	1.74E-01	2.60E-01
9.2.27.422	n.a.	n.a.	n.a.	n.a.	3.03E+00	n.a.	4.70E-03	1.26E-03
1.7.2.31.140	20.0	0.8	n.a.	0.18	n.a.	5.90E-01	3.39E+00	n.a.
2.1.4.14.113	25.0	n.a.	n.a.	n.a.	n.a.	4.67E-01	4.16E+00	n.a.
2.10.14.20.400	24.0	1	n.a.	n.a.	n.a.	1.33E-01	3.96E+00	n.a.
2.2.5.20.244	n.a.	0.7	n.a.	n.a.	n.a.	5.62E-01	n.a.	n.a.
4.7.7.9.222	16.0	n.a.	n.a.	n.a.	n.a.	1.73E-01	2.66E+00	n.a.
7.2.31.144	n.a.	1.2	n.a.	n.a.	n.a.	5.94E-01	n.a.	n.a.
10.15.17.424	14.0	0.37	n.a.	0	9.42E+00	1.49E-02	1.78E+00	2.54E-03
10.19.13.444	4.4	0.6	n.a.	0.8	3.53E-01	9.57E-02	8.69E-01	4.18E-03
10.19.24.122b	n.a.	1.3	n.a.	0.15	5.55E+00	1.20E-01	n.a.	2.76E-03
10.19.24.122b	n.a.	1.3	n.a.	0.02	4.92E+00	1.22E-01	n.a.	3.84E-03
10.19.27.112	n.a.	1	n.a.	0.55	5.26E+00	1.00E-01	n.a.	4.02E-03
12.16.17.214	11.0	0.2	n.a.	0.03	1.05E+01	9.43E-03	4.54E+00	1.38E-03
12.16.8.314	8.4	0.3	n.a.	n.a.	n.a.	1.40E-02	2.54E+00	n.a.
8.15.27.311	15.0	0.7	n.a.	0.01	1.11E+01	6.17E-02	1.66E+00	3.35E-03
8.15.27.342	n.a.	0.46	n.a.	3.5	2.31E+01	5.96E-02	n.a.	1.22E-03
8.20.20.422	14.0	0.5	n.a.	n.a.	2.33E+00	6.85E-02	2.65E+00	1.21E-02

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Reference	Location Number	Date	Geologic Unit *	Type	pH	Water Temperature °C	Electrical conductivity μS/cm	Dissolved solids mg/l
Orr, B.R. 1987	8.20.21.144	6/19/1979	Pg	spring	7.0	22	1050	911.3
Orr, B.R. 1987	9.18.5.324	5/4/1964	Pg	well	7.9	31	1140	883.7
Orr, B.R. 1987	8.20.16.324	6/19/1979	Psa	spring	8.1	28	1150	1099.0
Risser & Lyford, 1983	7.2.18.313	8/25/1941	Psa	spring	n.a.	28	n.a.	35903.0
Risser & Lyford, 1983	7.2.18.313	4/22/1975	Psa	spring	8.7	n.a.	45000	36005.1
Risser & Lyford, 1983	7.2.18.431	4/22/1975	Psa	spring	7.8	12	34300	27918.0
Risser & Lyford, 1983	7.2.30.124	9/2/1941	Psa	spring	n.a.	24	n.a.	22340.7
Risser & Lyford, 1983	7.2.30.124	5/16/1975	Psa	spring	8.3	22	37000	29259.7
Risser & Lyford, 1983	7.3.1.432a	4/21/1975	Psa	spring	7.6	n.a.	8530	6625.0
Risser & Lyford, 1983	8.3.15.413	11/29/1963	Psa	well	7.3	20	15800	13931.0
Shomaker, 1971	14.15.20.434	9/1/1940	Psa	well	n.a.	n.a.	n.a.	602.3
Baldwin & Rankin, 1995	05.04.05.142	6/9/1981	Psg	well	7.0	19	2200	2086.0
Baldwin & Rankin, 1995	05.20.29.344	9/26/1980	Psg	Well	8.4	23	1350	953.0
Baldwin & Rankin, 1995	05.21.35.321	9/24/1980	Psg	Well	7.6	17	1300	662.7
Baldwin & Rankin, 1995	06.05.26.132	8/29/1962	Psg	Well	6.9	21	4630	4387.0
Baldwin & Rankin, 1995	07.04.15.222	5/19/1981	Psg	well	7.3	11	5000	3176.0
Baldwin & Rankin, 1995	07.11.02.311	4/29/1981	Psg	Well	8.4	17	160	187.0
Baldwin & Rankin, 1995	07.12.13.244	9/6/1978	Psg	Well	7.4	14	761	618.5
Baldwin & Rankin, 1995	07.19.08.333	11/6/1980	Psg	Well	7.4	14	1180	967.0
Baldwin & Rankin, 1995	07.19.15.131	11/6/1980	Psg	Well	7.3	24	1100	912.1
Baldwin & Rankin, 1995	07.19.33.423	11/5/1980	Psg	Well	7.2	18	1000	872.0
Baldwin & Rankin, 1995	08.11.06.233	11/2/1978	Psg	Well	7.9	12	342	286.0
Baldwin & Rankin, 1995	08.15.27.311	5/14/1975	Psg	Well	8.3	n.a.	1010	776.7
Baldwin & Rankin, 1995	08.20.21.144	6/19/1979	Psg	Spring	7.0	22	1050	917.9
Baldwin & Rankin, 1995	09.05.12.442	11/10/1964	Psg	Well	6.7	32	18000	14485.8
Baldwin & Rankin, 1995	09.09.28.1344	9/21/1984	Psg	Well	6.9	42	1300	1011.0
Baldwin & Rankin, 1995	10.10.03.423	6/6/1984	Psg	spring	7.1	15	1490	1197.0
Baldwin & Rankin, 1995	10.10.26.331	10/13/1964	Psg	well	7.4	17	1180	904.7
Baldwin & Rankin, 1995	11.10.09.221	6/26/1962	Psg	well	7.3	14	1080	871.3
Baldwin & Rankin, 1995	12.12.17.200	8/30/1964	Psg	well	7.4	n.a.	647	518.6
Drakos & Riesterer, 2013	Grasshopper Hogback Spring	10/7/2008	Psg	spring	6.8	14	n.a.	353.8
Drakos & Riesterer, 2013	Lower Pescado Spring	11/9/2007	Psg	spring	7.0	14	n.a.	350.5
Drakos & Riesterer, 2013	Nutria Canyon Wall Spring	11/7/2007	Psg	spring	6.7	7	n.a.	440.1
Drakos & Riesterer, 2013	Nutria Main Spring	11/7/2007	Psg	spring	7.0	13	n.a.	455.4
Drakos & Riesterer, 2013	Ojo Caliente Big Spring	11/8/2007	Psg	spring	6.8	21	n.a.	876.6

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	Ca ⁺⁺ mg/l	Mg ⁺⁺ mg/l	Na ⁺ mg/l	K ⁺ mg/l	HCO ₃ ⁻ mg/l	SO ₄ ⁻⁻ mg/l	Cl ⁻ mg/l	Mass Balance** %
8.20.21.144	140.0	41.0	54.0	5.8	329.0	310.0	32.0	0.42
9.18.5.324	124.0	26.0	93.0	10.2	218.0	396.0	18.0	1.23
8.20.16.324	140.0	30.0	150.0	5.0	268.0	450.0	43.0	3.64
7.2.18.313	940.0	230.0	11000.0	290.0	2910.0	9100.0	11400.0	-0.63
7.2.18.313	380.0	230.0	12000.0	310.0	1960.0	9100.0	12000.0	0.68
7.2.18.431	390.0	170.0	8600.0	230.0	2720.0	5900.0	9900.0	-3.87
7.2.30.124	710.0	220.0	6600.0	170.0	2210.0	5700.0	6700.0	0.16
7.2.30.124	340.0	230.0	9500.0	280.0	1490.0	7400.0	10000.0	-0.47
7.3.1.432a	540.0	200.0	1300.0	31.0	640.0	2800.0	1100.0	0.46
8.3.15.413	680.0	180.0	3500.0	120.0	2390.0	4300.0	2800.0	-0.88
14.15.20.434	101.0	32.0	11.0		265.0	170.0	10.0	-0.09
05.04.05.142	360.0	150.0	21.0	3.5	228.0	1300.0	18.0	0.00
05.20.29.344	140.0	34.0	69.0	9.7	374.0	250.0	60.0	0.02
05.21.35.321	54.0	42.0	75.0	10.0	118.0	290.0	60.0	0.02
06.05.26.132	600.0	190.0	430.0	27.0	410.0	2600.0	140.0	0.13
07.04.15.222	590.0	130.0	150.0	11.0	354.0	1800.0	130.0	0.00
07.11.02.311	14.0	3.4	21.0	1.5	106.0	8.5	0.8	-0.18
07.12.13.244	83.0	16.0	59.0	3.5	285.0	110.0	41.0	-0.03
07.19.08.333	150.0	38.0	57.0	6.8	396.0	270.0	41.0	-0.02
07.19.15.131	140.0	39.0	53.0	6.3	337.0	290.0	39.0	0.00
07.19.33.423	130.0	38.0	54.0	6.9	333.0	260.0	45.0	-0.01
08.11.06.233	33.0	13.0	16.0	2.7	181.0	16.0	6.5	-0.03
08.15.27.311	110.0	34.0	60.0	4.0	250.0	300.0	19.0	0.54
08.20.21.144	140.0	41.0	54.0	5.8	336.0	310.0	32.0	-0.03
09.05.12.442	320.0	330.0	4100.0	59.0	1770.0	4300.0	3700.0	0.01
09.09.28.1344	140.0	39.0	88.0	7.4	375.0	290.0	72.0	-0.01
10.10.03.423	150.0	47.0	130.0	6.6	350.0	400.0	110.0	0.02
10.10.26.331	120.0	41.0	75.0	5.0	300.0	270.0	80.0	-0.17
11.10.09.221	140.0	31.0	62.0	4.0	280.0	300.0	34.0	2.24
12.12.17.200	82.0	29.0	14.0	1.0	290.0	87.0	13.0	1.29
Grasshopper Hogback Spring	67.0	9.3	15.0	1.4	268.4	6.6	7.1	0.62
Lower Pescado Spring	41.0	14.0	39.0	2.8	232.0	24.0	10.0	3.99
Nutria Canyon Wall Spring	75.0	21.0	11.0	0.1	293.0	64.0	6.2	-2.93
Nutria Main Spring	79.0	18.0	9.2	0.1	317.0	43.0	5.9	-3.58
Ojo Caliente Big Spring	160.0	39.0	51.0	4.7	329.4	280.0	34.0	5.22

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** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	SiO ₂ (aq) mg/l	F ⁻ mg/l	Br ⁻ mg/l	Fe ⁺⁺ mg/l	Calcite log Q/K	Gypsum log Q/K	Quartz log Q/K	CO ₂ (g) fugacity
8.20.21.144	15.0	0.5	n.a.	0.01	1.13E+00	7.04E-02	2.85E+00	2.35E-02
9.18.5.324	n.a.	n.a.	n.a.	0.01	7.72E+00	7.90E-02	n.a.	2.61E-03
8.20.16.324	14.0	0.5	n.a.	0.02	1.46E+01	9.08E-02	2.06E+00	1.92E-03
7.2.18.313	35.0	n.a.	n.a.	n.a.	n.a.	8.52E-01	6.15E+00	n.a.
7.2.18.313	26.0	n.a.	n.a.	n.a.	1.58E+02	3.26E-01	3.23E+00	1.98E-03
7.2.18.431	27.0	n.a.	n.a.	n.a.	2.25E+01	3.11E-01	8.78E+00	1.99E-02
7.2.30.124	32.0	n.a.	n.a.	n.a.	n.a.	6.35E-01	6.20E+00	n.a.
7.2.30.124	23.0	n.a.	n.a.	n.a.	4.76E+01	3.07E-01	4.37E+00	3.96E-03
7.3.1.432a	21.0	n.a.	n.a.	n.a.	1.64E+01	5.82E-01	3.52E+00	1.13E-02
8.3.15.413	11.0	n.a.	n.a.	n.a.	2.21E+01	6.91E-01	2.38E+00	6.94E-02
14.15.20.434	13.0	0.3	n.a.	0	n.a.	3.42E-02	2.14E+00	n.a.
05.04.05.142	16.0	0.5	n.a.	n.a.	1.17E+00	3.73E-01	3.46E+00	1.45E-02
05.20.29.344	15.0	2	n.a.	n.a.	3.75E+01	5.59E-02	2.62E+00	1.24E-03
05.21.35.321	14.0	1.5	n.a.	n.a.	6.36E-01	3.09E-02	3.32E+00	2.30E-03
06.05.26.132	9.9	1.9	n.a.	n.a.	2.01E+00	7.60E-01	2.03E+00	3.04E-02
07.04.15.222	20.0	1.1	n.a.	n.a.	4.11E+00	6.84E-01	6.26E+00	1.04E-02
07.11.02.311	30.0	1.5	n.a.	n.a.	1.56E+00	4.97E-04	6.76E+00	3.68E-04
07.12.13.244	27.0	1	n.a.	n.a.	1.51E+00	2.12E-02	7.13E+00	8.28E-03
07.19.08.333	17.0	0.6	n.a.	n.a.	3.12E+00	6.70E-02	4.50E+00	1.11E-02
07.19.15.131	16.0	0.6	n.a.	n.a.	2.71E+00	6.60E-02	2.80E+00	1.36E-02
07.19.33.423	16.0	0.6	n.a.	n.a.	1.62E+00	5.81E-02	3.57E+00	1.51E-02
08.11.06.233	19.0	0.3	n.a.	n.a.	1.50E+00	1.80E-03	5.44E+00	1.79E-03
08.15.27.311	n.a.	0.5	n.a.	n.a.	1.73E+01	5.59E-02	n.a.	1.10E-03
08.20.21.144	15.0	0.5	n.a.	n.a.	1.15E+00	7.03E-02	2.85E+00	2.40E-02
09.05.12.442	14.0	2.9	n.a.	n.a.	2.38E+00	3.11E-01	1.96E+00	2.05E-01
09.09.28.1344	18.0	0.7	n.a.	n.a.	1.86E+00	6.55E-02	1.68E+00	4.46E-02
10.10.03.423	18.0	0.5	n.a.	n.a.	1.18E+00	8.75E-02	4.68E+00	1.80E-02
10.10.26.331	20.0	0.6	n.a.	n.a.	2.12E+00	5.51E-02	4.65E+00	8.84E-03
11.10.09.221	28.0	0.6	n.a.	n.a.	1.60E+00	7.27E-02	7.58E+00	9.67E-03
12.12.17.200	8.1	0.6	n.a.	n.a.	2.26E+00	1.60E-02	1.33E+00	9.96E-03
Grasshopper Hogback Spring	n.a.	0.25	n.a.	n.a.	2.77E-01	1.35E-03	n.a.	2.52E-02
Lower Pescado Spring	n.a.	0.39	n.a.	n.a.	2.65E-01	3.07E-03	n.a.	1.51E-02
Nutria Canyon Wall Spring	n.a.	0.37	n.a.	n.a.	1.55E-01	1.32E-02	n.a.	2.90E-02
Nutria Main Spring	n.a.	0.32	n.a.	n.a.	6.31E-01	8.98E-03	n.a.	1.96E-02
Ojo Caliente Big Spring	n.a.	0.52	n.a.	n.a.	7.93E-01	7.25E-02	n.a.	3.14E-02

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Reference	Location Number	Date	Geologic Unit *	Type	pH	Water Temperature °C	Electrical conductivity μS/cm	Dissolved solids mg/l
Drakos & Riesterer, 2013	Plumasano Wash Seeps	10/9/2008	Psg	spring	7.5	19	n.a.	893.1
Drakos & Riesterer, 2013	Rainbow Spring	8/30/2005	Psg	spring	6.9	22	n.a.	864.4
Drakos & Riesterer, 2013	Sacred Spring	11/8/2007	Psg	spring	6.9	18	n.a.	856.0
Eib et al., 2007	75RNutri030.2	5/3/2004	Psg	stream	7.4	12	347	314.1
Eib et al., 2007	75Tampic000.1	5/3/2004	Psg	spring	7.7	14	360	319.5
NWIS, April 2013	13.13.01.2223	11/20/1986	Psg	well	7.4	17	n.a.	611.7
NWIS, April 2013	13.13.22.1333	9/4/1985	Psg	well	7.5	13	n.a.	621.2
NWIS, April 2013	13.13.22.1333	7/25/1986	Psg	well	7.5		n.a.	609.8
NWIS, April 2013	15.13.25.1423	2/24/1982	Psg	well	7.4	20	n.a.	353.8
NWIS, April 2013	15.13.25.1423	9/6/1985	Psg	well	7.6	18	n.a.	370.7
Risser & Lyford, 1983	9.5.12.442	12/3/1973	Psg	well	8.3	27	13000	10353.4
Roberston et al., 2013		10/22/2009	Psg	well	7.6	15	3560	2809.0
Roberston et al., 2013		10/22/2009	Psg	well	7.0	15	2450	2017.0
Shomaker, 1971	14.15.1.3134	1/1/1950	Psg	well	n.a.	n.a.	853	718.3
Shomaker, 1971	14.15.14.3423	1/1/1950	Psg	well	n.a.	n.a.	861	757.0
Shomaker, 1971	14.15.14.3423	8/1/1960	Psg	well	7.8	n.a.	859	742.0
Shomaker, 1971	14.15.14.3423	11/1/1960	Psg	well	7.7	n.a.	839	697.8
Shomaker, 1971	14.15.17.412	11/1/1960	Psg	well	7.8	n.a.	839	688.1
Shomaker, 1971	14.15.28.1434	8/1/1941	Psg	well	n.a.	n.a.	n.a.	1568.0
Shomaker, 1971	14.15.28.1434	1/1/1950	Psg	well	n.a.	n.a.	801	682.1
Shomaker, 1971	14.15.28.1434	8/1/1960	Psg	well	7.4	n.a.	1940	1788.0
Shomaker, 1971	14.15.28.1434	11/1/1960	Psg	well	7.9	n.a.	2490	2488.0
Shomaker, 1971	14.15.28.1434	11/1/1960	Psg	well	7.0	n.a.	1520	1360.0
Shomaker, 1971	14.15.4.143	11/1/1960	Psg	well	n.a.	n.a.	n.a.	839.4
Shomaker, 1971	14.16.4.4314	12/1/1953	Psg	well	n.a.	n.a.	1010	859.4
Shomaker, 1971	14.16.9.1222	11/1/1967	Psg	well	7.2	n.a.	914	1504.0
Shomaker, 1971	15.15.18.3313	6/1/1955	Psg	well	7.3	n.a.	1190	992.2
Shomaker, 1971	15.15.33.3112	10/1/1956	Psg	well	7.3	n.a.	n.a.	994.5
Shomaker, 1971	15.16.20.2443	1/1/1968	Psg	well	7.2	n.a.		4518.0
Shomaker, 1971	15.16.21.3231	4/1/1956	Psg	well	7.6	n.a.	1310	1057.0
Shomaker, 1971	15.16.23.3132	5/1/1950	Psg	well	n.a.	n.a.	1350	1139.0
Shomaker, 1971	15.16.30.3241	5/1/1951	Psg		7.4	n.a.	1380	1136.0
Shomaker, 1971	15.16.30.3443	4/1/1969	Psg	well	7.7	n.a.	1400	1158.0
Shomaker, 1971	15.17.12.3323	12/1/1957	Psg	well	7.9	n.a.	1500	1189.0
Shomaker, 1971	15.17.12.3323	1/1/1967	Psg	well	8.2	n.a.		1174.0

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Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	Ca ⁺⁺ mg/l	Mg ⁺⁺ mg/l	Na ⁺ mg/l	K ⁺ mg/l	HCO ₃ ⁻ mg/l	SO ₄ ⁻⁻ mg/l	Cl ⁻ mg/l	Mass Balance** %
Plumasano Wash Seeps	110.0	13.0	27.0	2.6	390.4	310.0	47.0	-29.03
Rainbow Spring	130.0	41.0	53.0	5.3	341.4	280.0	33.0	-0.23
Sacred Spring	130.0	38.0	49.0	4.6	342.0	280.0	34.0	-2.19
75RNutri030.2	57.0	14.0	5.7	5.0	204.0	17.9	10.0	4.47
75Tampic000.1	53.0	14.0	13.2	5.0	191.0	30.3	10.0	5.32
13.13.01.2223	100.0	33.0	15.0	1.2	262.0	190.0	5.0	-0.02
13.13.22.1333	63.0	20.0	77.0	1.7	297.0	150.0	6.5	0.04
13.13.22.1333	62.0	20.0	79.0	1.7	283.0	150.0	6.5	1.69
15.13.25.1423	50.0	18.0	13.0	2.9	170.0	84.0	2.9	-0.02
15.13.25.1423	49.0	20.0	15.0	2.7	190.0	78.0	2.5	0.03
9.5.12.442	180.0	150.0	3200.0	28.0	1500.0	3300.0	2000.0	3.71
	26.0	6.7	870.0	0.3	920.0	950.0	48.0	4.59
	170.0	41.0	380.0	0.4	700.0	750.0	11.0	1.78
14.15.1.3134	134.0	38.0	7.1		264.0	269.0	6.0	0.12
14.15.14.3423	140.0	41.0	3.0		280.0	275.0	6.0	0.03
14.15.14.3423	151.0	26.0	11.0		270.0	267.0	6.0	-0.01
14.15.14.3423	136.0	29.0	12.0		238.0	258.0	14.0	0.14
14.15.17.412	142.0	26.0	13.0		213.0	284.0	12.0	0.24
14.15.28.1434	253.0	60.0	112.0		229.0	900.0	14.0	-1.00
14.15.28.1434	129.0	36.0	3.0		280.0	228.0	6.0	0.12
14.15.28.1434	378.0	84.0	14.0		184.0	1110.0	10.0	-0.05
14.15.28.1434	525.0	109.0	38.0		184.0	1610.0	10.0	0.00
14.15.28.1434	290.0	59.0	13.0		242.0	732.0	16.0	0.59
14.15.4.143	172.0	35.0	12.0		239.0	375.0	6.4	0.33
14.16.4.4314	160.0	45.0	9.2		260.0	365.0	7.0	0.12
14.16.9.1222	914.0	36.0	4.4		280.0	252.0	9.0	65.71
15.15.18.3313	183.0	55.0	14.0		241.0	486.0	6.0	0.10
15.15.33.3112	185.0	41.0	38.0		257.0	455.0	20.0	0.03
15.16.20.2443	358.0	322.0	378.0		2918.0	612.0	8.0	0.00
15.16.21.3231	131.0	77.0	60.0		172.0	603.0	4.0	-0.01
15.16.23.3132	169.0	87.0	24.0		247.0	596.0	5.0	0.11
15.16.30.3241	150.0	78.0	62.0		218.0	617.0	5.0	0.12
15.16.30.3443	140.0	68.0	93.0		228.0	613.0	4.4	0.01
15.17.12.3323	78.0	49.0	197.0		212.0	612.0	10.0	-0.02
15.17.12.3323	116.0	15.0	200.0	3.3	200.0	615.0	23.0	-2.84

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Supplemental Table III
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Location Number	SiO ₂ (aq) mg/l	F ⁻ mg/l	Br ⁻ mg/l	Fe ⁺⁺ mg/l	Calcite log Q/K	Gypsum log Q/K	Quartz log Q/K	CO ₂ (g) fugacity
Plumasano Wash Seeps	n.a.	0.39	n.a.	n.a.	3.39E+00	6.21E-02	n.a.	9.66E-03
Rainbow Spring	n.a.	0.52	n.a.	n.a.	8.68E-01	6.12E-02	n.a.	2.88E-02
Sacred Spring	n.a.	0.54	n.a.	n.a.	6.83E-01	6.26E-02	n.a.	2.92E-02
75RNutri030.2	5.6	0.143	n.a.	0.1	8.19E-01	3.15E-03	1.65E+00	5.88E-03
75Tampic000.1	4.9	0.478	n.a.	0.1	1.61E+00	4.86E-03	1.28E+00	3.00E-03
13.13.01.2223	10.0	0.4	n.a.	1.2	1.76E+00	3.86E-02	2.29E+00	7.93E-03
13.13.22.1333	9.5	0.6	n.a.	2	1.42E+00	2.20E-02	2.68E+00	6.85E-03
13.13.22.1333	9.8	0.5	n.a.	2.1	2.02E+00	2.06E-02	1.60E+00	7.85E-03
15.13.25.1423	15.0	0.5	n.a.	1.5	7.50E-01	1.17E-02	3.07E+00	5.53E-03
15.13.25.1423	15.0	0.3	n.a.	1.1	1.25E+00	1.06E-02	3.33E+00	3.90E-03
9.5.12.442	n.a.	n.a.	n.a.	n.a.	5.33E+01	1.77E-01	n.a.	5.27E-03
	n.a.	0.7	0.23	0.0097	1.38E+00	2.47E-02	n.a.	1.50E-02
	n.a.	0.25	0.21	0.0097	1.65E+00	1.41E-01	n.a.	4.27E-02
14.15.1.3134	n.a.	0.2	n.a.	n.a.	n.a.	6.18E-02	n.a.	n.a.
14.15.14.3423	12.0	n.a.	n.a.	n.a.	n.a.	6.44E-02	1.98E+00	n.a.
14.15.14.3423	13.0	0.3	n.a.	0	8.43E+00	6.89E-02	2.12E+00	3.73E-03
14.15.14.3423	13.0	0.3	n.a.	0	5.39E+00	6.19E-02	2.12E+00	4.14E-03
14.15.17.412	n.a.	0	n.a.	n.a.	6.29E+00	7.01E-02	n.a.	2.96E-03
14.15.28.1434	n.a.	0.4	n.a.	n.a.	n.a.	2.32E-01	n.a.	n.a.
14.15.28.1434	n.a.	0.1	n.a.	n.a.	n.a.	5.25E-02	n.a.	n.a.
14.15.28.1434	12.0	0	n.a.	n.a.	3.59E+00	3.63E-01	1.98E+00	5.70E-03
14.15.28.1434	13.0	0.4	n.a.	0	1.38E+01	5.70E-01	2.13E+00	1.79E-03
14.15.28.1434	19.0	0.1	n.a.	0	1.52E+00	2.30E-01	3.14E+00	1.75E-02
14.15.4.143	n.a.	0	n.a.	n.a.	n.a.	9.86E-02	n.a.	n.a.
14.16.4.4314	13.0	0.2	n.a.	n.a.	n.a.	8.90E-02	2.14E+00	n.a.
14.16.9.1222	15.0	0.5	n.a.	0.25	8.87E+00	1.63E-01	2.49E+00	1.19E-02
15.15.18.3313	13.0	0.2	n.a.	n.a.	2.36E+00	1.21E-01	2.14E+00	9.75E-03
15.15.33.3112	4.0	n.a.	n.a.	0.9	2.58E+00	1.18E-01	6.57E-01	1.04E-02
15.16.20.2443	n.a.	n.a.	n.a.	0.1	2.59E+01	1.21E-01	n.a.	1.29E-01
15.16.21.3231	11.0	0.3	n.a.	0.71	2.37E+00	1.03E-01	1.80E+00	3.64E-03
15.16.23.3132	11.0	0.2	n.a.	n.a.	n.a.	1.24E-01	1.82E+00	n.a.
15.16.30.3241	9.7	0.3	n.a.	n.a.	2.09E+00	1.16E-01	1.59E+00	7.10E-03
15.16.30.3443	13.0	0.3	n.a.	0.38	4.17E+00	1.09E-01	2.13E+00	3.85E-03
15.17.12.3323	29.0	0.1	n.a.	3	3.44E+00	6.49E-02	4.71E+00	2.31E-03
15.17.12.3323	n.a.	0.6	n.a.	1.82	9.56E+00	9.79E-02	n.a.	1.09E-03

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Reference	Location Number	Date	Geologic Unit *	Type	pH	Water Temperature °C	Electrical conductivity μS/cm	Dissolved solids mg/l
Shomaker, 1971	15.17.13.1142	8/1/1964	Psg	well	7.7	n.a.	1380	1267.0
Shomaker, 1971	15.17.13.1142	10/1/1964	Psg	well	7.6	n.a.	1330	1069.0
Shomaker, 1971	15.17.13.1142	1/1/1967	Psg	well	8.0	n.a.		1119.0
Shomaker, 1971	15.17.13.210	12/1/1933	Psg	well	n.a.	n.a.	n.a.	1070.0
Shomaker, 1971	15.17.13.210	5/1/1950	Psg	well	n.a.	n.a.	1340	1098.0
Shomaker, 1971	15.17.13.210	12/1/1957	Psg	well	8.1	n.a.	1500	1183.0
Shomaker, 1971	15.17.16.2112	11/1/1952	Psg	well	n.a.	n.a.	1380	917.6
Shomaker, 1971	15.17.16.2112	8/1/1953	Psg	well	n.a.	n.a.	1350	1078.0
Shomaker, 1971	15.17.16.2222	8/1/1953	Psg	well	n.a.	n.a.	1310	967.2
Shomaker, 1971	15.17.16.2222	3/1/1962	Psg	well	7.3	n.a.	n.a.	806.9
Shomaker, 1971	15.17.16.222a	8/1/1953	Psg	well	n.a.	n.a.	1380	1034.0
Shomaker, 1971	15.17.16.222a	3/1/1962	Psg	well	7.3	n.a.	n.a.	1762.0
Shomaker, 1971	15.17.16.222a	1/1/1968	Psg	well	7.1	n.a.		3072.0
Shomaker, 1971	15.17.16.3131	3/1/1941	Psg	well	n.a.	n.a.	n.a.	991.9
Shomaker, 1971	15.17.16.3131	6/1/1952	Psg	well	n.a.	n.a.	1510	1158.0
Shomaker, 1971	15.17.24.4121	2/1/1942	Psg	well	n.a.	n.a.	n.a.	1091.0
Shomaker, 1971	15.17.24.4121	2/1/1943	Psg	well	n.a.	n.a.	1290	1074.0
Shomaker, 1971	15.17.24.4121	6/1/1950	Psg	well	7.2	n.a.	1310	1078.0
Shomaker, 1971	15.17.24.4121	5/1/1951	Psg	well	7.3	n.a.	1310	1066.0
Shomaker, 1971	15.17.24.4121	5/1/1954	Psg	well	7.3	n.a.	1300	1088.0
Shomaker, 1971	15.17.24.4121	10/1/1955	Psg	well	7.8	n.a.	1290	1076.0
Shomaker, 1971	15.17.24.4121	10/1/1957	Psg	well	7.6	n.a.	1290	1070.0
Shomaker, 1971	15.17.24.4121	8/1/1958	Psg	well	7.3	n.a.	1290	1078.0
Shomaker, 1971	15.17.24.4121	10/1/1959	Psg	well	7.6	n.a.	1290	1088.0
Shomaker, 1971	15.17.24.4121	10/1/1960	Psg	well	7.2	n.a.	1300	1086.0
Shomaker, 1971	15.17.24.4121	11/1/1961	Psg	well	7.6	n.a.	1290	1052.0
Shomaker, 1971	15.17.24.4121	2/1/1963	Psg	well	7.4	n.a.	1290	1074.0
Shomaker, 1971	15.17.24.4121	6/1/1964	Psg	well	7.7	n.a.	1300	1063.0
Shomaker, 1971	15.17.24.4121	7/1/1965	Psg	well	7.9	n.a.	1310	1088.0
Shomaker, 1971	15.17.24.4121	9/1/1966	Psg	well	7.5	n.a.	1310	1060.0
Shomaker, 1971	15.17.24.4121	7/1/1967	Psg	well	7.8	n.a.	1260	1066.0
Shomaker, 1971	15.17.24.4121	9/1/1968	Psg	well	7.5	n.a.	1310	1075.0
Shomaker, 1971	s14.16.7.4331	8/1/1950	Psg	spring	n.a.	n.a.	774	1324.0
Shomaker, 1971	s14.16.9.1134	8/1/1950	Psg	spring	n.a.	n.a.	734	1256.0
Shomaker, 1971	s14.16.9.1224	8/1/1950	Psg	spring	n.a.	n.a.	913	1541.0

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	Ca ⁺⁺ mg/l	Mg ⁺⁺ mg/l	Na ⁺ mg/l	K ⁺ mg/l	HCO ₃ ⁻ mg/l	SO ₄ ⁻⁻ mg/l	Cl ⁻ mg/l	Mass Balance** %
15.17.13.1142	120.0	60.0	113.0	4.3	226.0	732.0	14.0	-9.61
15.17.13.1142	122.0	58.0	101.0		216.0	554.0	4.8	0.14
15.17.13.1142	122.0	60.0	106.0	3.9	231.0	572.0	22.0	-1.81
15.17.13.210	112.0	55.0	121.0		212.0	565.0	5.0	-0.01
15.17.13.210	116.0	61.0	112.0		218.0	571.0	7.0	0.06
15.17.13.210	75.0	32.0	231.0		210.0	608.0	11.0	0.04
15.17.16.2112	6.0	3.1	306.0		156.0	407.0	29.0	7.84
15.17.16.2112	100.0	41.0	156.0		238.0	506.0	24.0	0.12
15.17.16.2222	83.0	35.0	160.0		168.0	489.0	25.0	1.23
15.17.16.2222	124.0	76.0			124.0	440.0	44.0	0.03
15.17.16.222a	12.0	2.2	301.0		260.0	399.0	44.0	0.22
15.17.16.222a	234.0	164.0			850.0	515.0	18.0	0.01
15.17.16.222a	250.0	182.0	321.0		1876.0	493.0	14.0	0.00
15.17.16.3131	28.0	12.0	306.0		147.0	439.0	60.0	8.48
15.17.16.3131	29.0	12.0	306.0		284.0	463.0	50.0	0.12
15.17.24.4121	143.0	76.0	54.0	4.0	211.0	587.0	4.5	0.11
15.17.24.4121	138.0	78.0	57.0		211.0	584.0	6.0	-0.01
15.17.24.4121	142.0	76.0	55.0		216.0	579.0	5.0	-0.02
15.17.24.4121	140.0	77.0	52.0		213.0	571.0	5.5	0.16
15.17.24.4121	137.0	69.0	75.0		219.0	579.0	3.8	0.08
15.17.24.4121	133.0	75.0	66.0		208.0	581.0	4.8	0.12
15.17.24.4121	144.0	89.0	29.0		210.0	586.0	4.8	-0.03
15.17.24.4121	141.0	69.0	67.0		216.0	575.0	4.2	-0.01
15.17.24.4121	146.0	73.0	58.0		212.0	585.0	5.6	0.01
15.17.24.4121	147.0	71.0	61.0		212.0	586.0	3.8	0.15
15.17.24.4121	154.0	67.0	34.0		213.0	570.0	5.4	-2.77
15.17.24.4121	140.0	75.0	57.0		213.0	578.0	3.9	0.00
15.17.24.4121	130.0	68.0	60.0		214.0	578.0	4.6	-3.23
15.17.24.4121	144.0	73.0	57.0		214.0	587.0	4.0	-0.54
15.17.24.4121	140.0	74.0	54.0		219.0	559.0	6.4	0.05
15.17.24.4121	146.0	69.0	57.0		208.0	574.0	3.8	-0.08
15.17.24.4121	146.0	69.0	60.0		216.0	576.0	1.1	0.03
s14.16.7.4331	774.0	37.0	1.4		335.0	156.0	8.0	64.63
s14.16.9.1134	734.0	34.0	4.6		314.0	150.0	7.0	64.78
s14.16.9.1224	913.0	40.0	7.6		276.0	283.0	8.0	64.42

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	SiO ₂ (aq) mg/l	F ⁻ mg/l	Br ⁻ mg/l	Fe ⁺⁺ mg/l	Calcite log Q/K	Gypsum log Q/K	Quartz log Q/K	CO ₂ (g) fugacity
15.17.13.1142	n.a.	0.4	n.a.	n.a.	3.34E+00	1.08E-01	n.a.	3.83E-03
15.17.13.1142	12.0	0.3	n.a.	4.2	2.82E+00	9.22E-02	1.97E+00	4.59E-03
15.17.13.1142	n.a.	0.4	n.a.	3.07	7.53E+00	9.25E-02	n.a.	1.99E-03
15.17.13.210	n.a.	0	n.a.	n.a.	n.a.	8.71E-02	n.a.	n.a.
15.17.13.210	13.0	0.1	n.a.	n.a.	n.a.	8.96E-02	2.15E+00	n.a.
15.17.13.210	14.0	0.3	n.a.	2	5.19E+00	6.33E-02	2.25E+00	1.45E-03
15.17.16.2112	10.0	0.5	n.a.	n.a.	n.a.	4.52E-03	1.65E+00	n.a.
15.17.16.2112	13.0	0.3	n.a.	n.a.	n.a.	7.34E-02	2.15E+00	n.a.
15.17.16.2222	7.0	0.3	n.a.	n.a.	n.a.	6.25E-02	1.16E+00	n.a.
15.17.16.2222	n.a.	n.a.	n.a.	2	8.65E-01	8.01E-02	n.a.	5.07E-03
15.17.16.222a	15.0	0.5	n.a.	n.a.	n.a.	8.60E-03	2.47E+00	n.a.
15.17.16.222a	n.a.	n.a.	n.a.	1.5	9.03E+00	1.16E-01	n.a.	3.28E-02
15.17.16.222a	n.a.	n.a.	n.a.	1	1.10E+01	9.58E-02	n.a.	1.06E-01
15.17.16.3131	n.a.	n.a.	n.a.	n.a.	n.a.	2.08E-02	n.a.	n.a.
15.17.16.3131	13.0	0.6	n.a.	n.a.	n.a.	2.16E-02	2.15E+00	n.a.
15.17.24.4121	11.0	0.2	n.a.	0.6	n.a.	1.08E-01	1.82E+00	n.a.
15.17.24.4121	n.a.	n.a.	n.a.	n.a.	n.a.	1.04E-01	n.a.	n.a.
15.17.24.4121	11.0	0.2	n.a.	0.65	1.22E+00	1.07E-01	1.81E+00	1.08E-02
15.17.24.4121	11.0	0.3	n.a.	1.6	1.53E+00	1.04E-01	1.81E+00	8.61E-03
15.17.24.4121	10.0	0.1	n.a.	0.76	1.53E+00	1.04E-01	1.64E+00	8.87E-03
15.17.24.4121	9.5	0.2	n.a.	0.11	4.68E+00	1.01E-01	1.55E+00	2.81E-03
15.17.24.4121	10.0	0.2	n.a.	0.17	3.19E+00	1.07E-01	1.64E+00	4.42E-03
15.17.24.4121	9.8	0.2	n.a.	1.1	1.56E+00	1.07E-01	1.61E+00	8.74E-03
15.17.24.4121	11.0	0.2	n.a.	0.16	3.26E+00	1.10E-01	1.80E+00	4.47E-03
15.17.24.4121	11.0	0.3	n.a.	0.33	1.23E+00	1.12E-01	1.81E+00	1.06E-02
15.17.24.4121	11.0	0.3	n.a.	0.25	3.50E+00	1.16E-01	1.80E+00	4.51E-03
15.17.24.4121	10.0	0.3	n.a.	0.86	1.95E+00	1.06E-01	1.64E+00	6.96E-03
15.17.24.4121	10.0	0.3	n.a.	0.07	3.74E+00	1.00E-01	1.63E+00	3.64E-03
15.17.24.4121	10.0	0.3	n.a.	0.09	6.54E+00	1.09E-01	1.63E+00	2.30E-03
15.17.24.4121	9.5	0.3	n.a.	0.98	2.58E+00	1.03E-01	1.56E+00	5.77E-03
15.17.24.4121	9.7	0.2	n.a.	0.25	5.16E+00	1.10E-01	1.58E+00	2.81E-03
15.17.24.4121	10.0	0.2	n.a.	0.18	2.63E+00	1.10E-01	1.64E+00	5.69E-03
s14.16.7.4331	12.0	0.2	n.a.	n.a.	n.a.	9.62E-02	1.99E+00	n.a.
s14.16.9.1134	12.0	0.2	n.a.	n.a.	n.a.	9.14E-02	1.99E+00	n.a.
s14.16.9.1224	13.0	0.2	n.a.	n.a.	n.a.	1.81E-01	2.16E+00	n.a.

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Reference	Location Number	Date	Geologic Unit *	Type	pH	Water Temperature °C	Electrical conductivity μS/cm	Dissolved solids mg/l
Shomaker, 1971	s16.16.7.4411	11/1/1943	Psg	spring	n.a.	n.a.	707	1213.0
Shomaker, 1971	s16.16.7.4411	8/1/1950	Psg	spring	n.a.	n.a.	703	1205.0
Baldwin & Rankin, 1995	11.11.05.232	7/15/1981	Py		7.5	15	500	398.2
Hood and Kister, 1962	2.1.10.11.412	1/25/1951	Py	well	n.a.	18	1360	2926.0
Hood and Kister, 1962	2.1.15.5.111	8/15/1948	Py	well	n.a.	n.a.	2940	3717.0
Hood and Kister, 1962	2.10.16.5.120	7/11/1947	Py	well	n.a.	n.a.	2540	2099.0
Hood and Kister, 1962	2.11.28.30.232	12/11/1951	Py	well	7.7	15	2200	7596.0
Hood and Kister, 1962	2.12.12.4.110	8/4/1947	Py	well	n.a.	n.a.	1000	2478.0
Hood and Kister, 1962	2.2.20.10	7/30/1940	Py	well	n.a.	n.a.	2840	4809.0
Hood and Kister, 1962	2.2.6.9.233	8/11/1950	Py	well	7.4	n.a.	3990	2772.0
Hood and Kister, 1962	2.3.13.33.413	7/20/1950	Py	well	n.a.	n.a.	2750	2849.0
Hood and Kister, 1962	2.3.8.16.222	8/1/1950	Py	well	n.a.	n.a.	6300	2657.0
Hood and Kister, 1962	2.5.14.32.300	7/24/1945	Py		n.a.	n.a.	2970	3237.0
Hood and Kister, 1962	2.7.11.34.311	7/26/1950	Py	well	n.a.	n.a.	3410	2202.0
Hood and Kister, 1962	2.8.13.22.130	5/26/1951	Py	well	n.a.	n.a.	2460	1223.0
Hood and Kister, 1962	2.9.10.18.233	9/27/1950	Py	well	n.a.	n.a.	1470	2376.0
Hood and Kister, 1962	2.9.12.16.213	5/13/1946	Py	well	n.a.	n.a.	3350	2362.0
Risser & Lyford, 1983	6.2.6.431	8/7/1941	Py	spring	n.a.	26	n.a.	14038.2
Shomaker, 1971	13.16.1.3134	6/1/1956	Py	well	7.5	n.a.	604	521.3
Shomaker, 1971	13.16.1.3134	6/1/1968	Py	well	7.7	n.a.	604	529.3
Shomaker, 1971	15.16.30.3443	9/1/1968	Py	well	7.3	n.a.	5520	4724.0
Baldwin & Rankin, 1995	06.10.20.411	8/29/1978	Qa		7.4	14	1890	1580.0
Baldwin & Rankin, 1995	06.11.34.113	8/28/1978	Qa		7.8	17	539	451.2
Baldwin & Rankin, 1995	06.17.33.212	11/21/1980	Qa		7.5	14	320	292.0
Baldwin & Rankin, 1995	06.21.10.222	9/30/1980	Qa		8.5	18	900	707.5
Baldwin & Rankin, 1995	07.04.13.114	5/19/1981	Qa	well	7.8	16	826	668.7
Baldwin & Rankin, 1995	07.04.25.111	5/19/1981	Qa	Well	6.9	16	3010	2627.0
Baldwin & Rankin, 1995	11.15.32.242	1/7/1981	Qa		8.5	6	800	620.1
Eib et al., 2007	75Tampic000.1	6/9/2004	Qa	spring	7.8	16	642	563.8
Orr, B.R. 1987	10.17.12.431	6/18/1979	Qa	spring	7.6	14	420	435.6
Orr, B.R. 1987	10.17.12.433	12/15/1970	Qa	well	8.4	n.a.	600	495.5
Orr, B.R. 1987	10.17.12.442	6/18/1979	Qa	spring	7.7	15	410	417.4
Orr, B.R. 1987	10.18.11.141	1/1/1971	Qa	well	8.3	13	900	668.9
Orr, B.R. 1987	10.19.13.224	8/3/1972	Qa	spring	8.0	n.a.	460	357.7
Orr, B.R. 1987	10.19.13.224	2/26/1980	Qa	spring	7.7	14	405	402.0

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

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Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	Ca ⁺⁺ mg/l	Mg ⁺⁺ mg/l	Na ⁺ mg/l	K ⁺ mg/l	HCO ₃ ⁻ mg/l	SO ₄ ⁻⁻ mg/l	Cl ⁻ mg/l	Mass Balance** %
s16.16.7.4411	707.0	31.0	15.0		334.0	119.0	7.0	65.04
s16.16.7.4411	703.0	33.0	5.8		328.0	118.0	8.0	65.04
11.11.05.232	55.0	25.0	7.2	1.2	283.0	7.0	13.0	-0.06
2.1.10.11.412	184	562.0	174.0	11.0	135	497.0	1630.0	3.89
2.1.15.5.111	562	530.0	198.0	304.0	497	70.0	2530.0	4.19
2.10.16.5.120	412	436.0	90.0	37.0	151	238.0	1270.0	17.26
2.11.28.30.232	436	890.0	102.0	1510.0	238	994.0	1840.0	28.69
2.12.12.4.110	890	486.0	185.0	18.0	994	152.0	1610.0	17.77
2.2.20.10	586	656.0	139.0	730.0	186	294.0	1790.0	28.81
2.2.6.9.233	530	586.0	136.0	26.0	70	186.0	1790.0	18.82
2.3.13.33.413	548	484.0	198.0	55.0	121	279.0	1750.0	14.92
2.3.8.16.222	656	548.0	154.0	2.0	294	121.0	1800.0	18.55
2.5.14.32.300	484	542.0	230.0	85.0	279	100.0	2210.0	7.96
2.7.11.34.311	542	332.0	147.0	93.0	100	337.0	1180.0	20.17
2.8.13.22.130	332	180.0	64.0	80.0	337	177.0	656.0	13.29
2.9.10.18.233	180	42.0	13.0	708.0	177	439.0	789.0	-4.87
2.9.12.16.213	42	412.0	149.0	65.0	439	151.0	1570.0	-10.61
6.2.6.431	540	450.0	3700.0	38.0	1390.0	2700.0	5200.0	0.05
13.16.1.3134	71.0	34.0	10.0		367.0	14.0	13.0	0.75
13.16.1.3134	74.0	28.0	16.0		372.0	14.0	11.0	-0.06
15.16.30.3443	264	59	1100	21	110	2990	63	0.44
06.10.20.411	190.0	58.0	180.0	3.0	366.0	760.0	12.0	0.00
06.11.34.113	67.0	10.0	34.0	1.8	267.0	50.0	9.8	-0.03
06.17.33.212	30.0	20.0	8.5	4.1	215.0	0.8	2.9	-0.08
06.21.10.222	99.0	31.0	49.0	3.2	234.0	240.0	31.0	-0.02
07.04.13.114	96.0	33.0	25.0	5.6	384.0	100.0	13.0	-0.04
07.04.25.111	390.0	160.0	140.0	6.5	607.0	1200.0	140.0	0.00
11.15.32.242	15.0	7.3	150.0	1.0	353.0	31.0	52.0	0.00
75Tampic000.1	96.0	22.0	13.8	5.0	324.0	90.1	10.0	-0.95
10.17.12.431	42.0	14.0	43.0	3.2	244.0	39.0	19.0	-1.40
10.17.12.433	58.0	19.0	49.0	3.5	284.0	70.0	12.0	1.73
10.17.12.442	40.0	14.0	39.0	3.2	244.0	35.0	10.0	-0.85
10.18.11.141	41.0	7.9	146.0	0.0	192.0	250.0	32.0	-1.14
10.19.13.224	46.0	4.9	46.0	0.8	209.0	43.0	8.9	1.58
10.19.13.224	47.0	4.3	52.0	1.0	232.0	40.0	10.0	0.69

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	SiO ₂ (aq) mg/l	F ⁻ mg/l	Br ⁻ mg/l	Fe ⁺⁺ mg/l	Calcite log Q/K	Gypsum log Q/K	Quartz log Q/K	CO ₂ (g) fugacity
s16.16.7.4411	n.a.	0.1	n.a.	n.a.	n.a.	7.20E-02	n.a.	n.a.
s16.16.7.4411	8.9	0.1	n.a.	n.a.	n.a.	7.12E-02	1.48E+00	n.a.
11.11.05.232	12.0	12	0.5	n.a.	1.53E+00	1.09E-03	3.03E+00	6.88E-03
2.1.10.11.412	23.0	27	2	n.a.	n.a.	5.81E-01	6.11E+00	n.a.
2.1.15.5.111	75.0	10	n.a.	n.a.	n.a.	6.85E-01	1.67E+00	n.a.
2.10.16.5.120	14.0	14	0.4	n.a.	n.a.	4.32E-01	2.32E+00	n.a.
2.11.28.30.232	2270.0	n.a.	n.a.	n.a.	3.88E+01	6.28E-01	n.a.	1.17E-02
2.12.12.4.110	4.0	23	0.3	n.a.	n.a.	5.10E-01	3.83E+00	n.a.
2.2.20.10	1200.0	n.a.	n.a.	n.a.	n.a.	5.64E-01	n.a.	n.a.
2.2.6.9.233	25.0	26	0.5	n.a.	4.58E+00	6.49E-01	4.31E+00	5.50E-03
2.3.13.33.413	61.0	21	1	n.a.	n.a.	5.19E-01	3.50E+00	n.a.
2.3.8.16.222	21.0	10	1.4	n.a.	n.a.	6.18E-01	1.67E+00	n.a.
2.5.14.32.300	69.0	n.a.	1.2	n.a.	n.a.	6.50E-01	n.a.	n.a.
2.7.11.34.311	89.0	22	1.8	n.a.	n.a.	3.05E-01	3.65E+00	n.a.
2.8.13.22.130	37.0	27	2.3	n.a.	n.a.	1.43E-01	4.46E+00	n.a.
2.9.10.18.233	365.0	20	0.6	n.a.	n.a.	3.48E-02	3.32E+00	n.a.
2.9.12.16.213	15.0	n.a.	0.5	n.a.	n.a.	4.52E-01	n.a.	n.a.
6.2.6.431	21.0	21	n.a.	n.a.	n.a.	3.36E-01	3.70E+00	n.a.
13.16.1.3134	18	18	0.2	n.a.	3.32E+00	2.35E-03	2.94E+00	1.02E-02
13.16.1.3134	18	18	0.3	n.a.	5.65E+00	2.47E-03	2.93E+00	6.66E-03
15.16.30.3443	3.8	0.4	n.a.	115	7.04E-01	3.80E-01	6.35E-01	3.96E-03
06.10.20.411	19.0	0.6	n.a.	n.a.	2.78E+00	1.68E-01	5.04E+00	9.94E-03
06.11.34.113	14.0	0.3	n.a.	n.a.	3.63E+00	9.08E-03	3.30E+00	3.43E-03
06.17.33.212	13.0	2.1	n.a.	n.a.	6.64E-01	8.02E-05	3.43E+00	5.25E-03
06.21.10.222	20.0	0.4	n.a.	n.a.	1.93E+01	4.47E-02	4.27E+00	5.90E-04
07.04.13.114	15.0	0.9	n.a.	n.a.	6.41E+00	2.02E-02	3.62E+00	4.76E-03
07.04.25.111	17.0	1	n.a.	n.a.	2.25E+00	3.51E-01	4.17E+00	4.36E-02
11.15.32.242	11.0	0.6	n.a.	n.a.	3.67E+00	1.37E-03	4.06E+00	8.05E-04
75Tampic000.1	5.6	0.409	n.a.	0.1	5.71E+00	1.96E-02	n.a.	4.06E-03
10.17.12.431	35.0	0.3	n.a.	0.01	1.23E+00	4.85E-03	9.22E+00	4.74E-03
10.17.12.433	n.a.	0.44	n.a.	0.35	1.63E+01	9.73E-03	n.a.	1.03E-03
10.17.12.442	35.0	0.3	n.a.	0.01	1.53E+00	4.21E-03	9.01E+00	3.85E-03
10.18.11.141	n.a.	0.68	n.a.	n.a.	3.70E+00	2.29E-02	n.a.	7.44E-04
10.19.13.224	n.a.	0.37	n.a.	0	4.33E+00	5.84E-03	n.a.	1.96E-03
10.19.13.224	18.0	0.3	n.a.	0.45	1.69E+00	5.76E-03	4.74E+00	3.63E-03

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** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Reference	Location Number	Date	Geologic Unit *	Type	pH	Water Temperature °C	Electrical conductivity μS/cm	Dissolved solids mg/l
Orr, B.R. 1987	10.19.24.122a	7/22/1966	Qa	well	7.9	n.a.	780	584.3
Orr, B.R. 1987	10.19.28.114	8/3/1972	Qa	well	8.3	20	5080	3070.0
Orr, B.R. 1987	10.19.30.232	8/2/1972	Qa	well	8.3	n.a.	990	819.1
Orr, B.R. 1987	12.17.23.244	8/1/1972	Qa	well	8.2	12	1660	1157.0
Orr, B.R. 1987	7.21.3.000	7/27/1972	Qa	spring	7.8	n.a.	2200	2042.0
Orr, B.R. 1987	8.21.12.312	7/27/1972	Qa	well	7.5	11	2450	1855.0
Orr, B.R. 1987	8.21.26.321	7/27/1972	Qa	well	7.9	23	1600	1254.0
Orr, B.R. 1987	9.17.33.324	6/20/1979	Qa	spring	6.8	14	3315	3071.0
Orr, B.R. 1987	9.17.5.122	7/31/1972	Qa	well	8.2	17	2720	2347.0
Orr, B.R. 1987	9.18.16.242	4/6/1978	Qa	spring		17	362	251.4
Orr, B.R. 1987	9.20.18.432	7/27/1972	Qa	well	7.9	n.a.	830	648.7
Orr, B.R. 1987	9.20.8.223	7/26/1972	Qa	well	7.8	14	2880	1857.0
Orr, B.R. 1987	9.21.25.433	12/5/1979	Qa	spring	7.5	14	900	753.4
Risser & Lyford, 1983	10.6.31.443	5/25/1960	Qa	well	7.7	14	1510	1282.0
Risser & Lyford, 1983	10.6.35.322	2/12/1960	Qa	well	8.1	15	1460	1250.0
Risser & Lyford, 1983	10.6.35.324	1/19/1973	Qa	well	8.0	n.a.	1450	1255.0
Risser & Lyford, 1983	10.6.35.342	3/8/1960	Qa	well	7.8	16	1570	1350.0
Risser & Lyford, 1983	10.7.35.232	8/14/1975	Qa	well	8.1	n.a.	3300	2487.0
Risser & Lyford, 1983	10.7.36.212	1/18/1973	Qa	well	8.0	n.a.	720	656.5
Risser & Lyford, 1983	10.7.36.221	10/29/1979	Qa	well	8.2	n.a.	920	634.3
Risser & Lyford, 1983	11.5.32.234	4/22/1960	Qa	well	7.3	13	580	534.0
Risser & Lyford, 1983	11.6.27.334	7/5/1978	Qa	well	7.6	15	1900	1550.0
Risser & Lyford, 1983	12.1.18.134	6/17/1974	Qa	spring	8.1	n.a.	600	419.2
Risser & Lyford, 1983	6.7.34.341	11/2/1973	Qa	well	7.9	14	630	458.0
Risser & Lyford, 1983	8.5.34.431	6/8/1973	Qa	well	8.0	17	2400	518.7
Risser & Lyford, 1983	9.4.29.323	5/1/1973	Qa	well	8.2	13	3660	3024.0
Risser & Lyford, 1983	9.6.10.124	11/16/1973	Qa	well	8.2	n.a.	520	442.2
Risser & Lyford, 1983	9.6.2.123	8/24/1978	Qa	well	8.0	n.a.	3100	2466.0
Roberston et al., 2013	MW03	10/23/2009	Qa	well	7.3	14	5380	3978.0
Roberston et al., 2013	MW18D	10/23/2009	Qa	well	n.a.	n.a.	n.a.	6327.0
Roberston et al., 2013	MW20	10/23/2009	Qa	well	6.9	14	1900	15136.2
Roberston et al., 2013	MW22D	10/21/2009	Qa	well	7.3	14	5330	3745.0
Roberston et al., 2013	MW22S	10/23/2009	Qa	well	7.4	15	4640	3483.0
Roberston et al., 2013	SMW01	10/24/2009	Qa	well	7.8	12	2050	1504.0
Roberston et al., 2013	TMW01	10/14/2009	Qa	well	7.7	16	2810	2094.0

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Supplemental Table III
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Location Number	Ca ⁺⁺ mg/l	Mg ⁺⁺ mg/l	Na ⁺ mg/l	K ⁺ mg/l	HCO ₃ ⁻ mg/l	SO ₄ ⁻⁻ mg/l	Cl ⁻ mg/l	Mass Balance** %
10.19.24.122a	71.0	13.0	70.0	2.0	302.0	103.0	25.0	-0.59
10.19.28.114	46.0	2.4	1042.0	3.1	143.0	748.0	1084.0	-0.62
10.19.30.232	34.0	7.3	189.0	0.0	542.0	3.4	44.0	1.55
12.17.23.244	126.0	51.0	171.0	2.0	349.0	337.0	122.0	5.25
7.21.3.000	132.0	559.0	282.0	5.9	232.0	722.0	110.0	49.53
8.21.12.312	279.0	46.0	245.0	0.0	310.0	864.0	117.0	3.64
8.21.26.321	222.0	40.0	98.0	5.1	270.0	554.0	67.0	2.49
9.17.33.324	500.0	150.0	160.0	3.6	317.0	1900.0	50.0	-2.01
9.17.5.122	361.0	71.0	250.0	5.1	299.0	1344.0	18.0	2.15
9.18.16.242	41.0	8.3	22.0	11.0	79.0	56.0	28.0	9.92
9.20.18.432	62.0	7.3	117.0	0.0	315.0	126.0	23.0	2.02
9.20.8.223	214.0	33.0	349.0	2.0	252.0	495.0	514.0	-0.54
9.21.25.433	98.0	6.7	130.0	1.1	293.0	110.0	100.0	5.75
10.6.31.443	100.0	47.0	73.0	180.0	360.0	420.0	70.0	0.05
10.6.35.322	62.0	50.0	82.0	210.0	260.0	520.0	38.0	-0.05
10.6.35.324	78.0	55.0	240.0	3.1	320.0	500.0	61.0	4.30
10.6.35.342	73.0	44.0	99.0	230.0	280.0	560.0	43.0	-0.03
10.7.35.232	110.0	89.0	570.0	9.4	420.0	1060.0	230.0	3.28
10.7.36.212	78.0	24.0	70.0	8.2	300.0	160.0	18.0	2.04
10.7.36.221	80.0	24.0	60.0	7.4	300.0	150.0	14.0	1.92
11.5.32.234	69.0	20.0	12.0	30.0	310.0	53.0	7.6	-0.17
11.6.27.334	180.0	70.0	170.0	8.2	310.0	800.0	16.0	0.35
12.1.18.134	68.0	13.0	40.0	0.0	180.0	108.0	11.0	5.92
6.7.34.341	66.0	29.0	22.0	2.0	230.0	94.0	17.0	3.73
8.5.34.431	36.0	19.0	85.0	1.2	230.0	130.0	19.0	0.53
9.4.29.323	420.0	55.0	470.0	0.0	140.0	1800.0	140.0	2.46
9.6.10.124	76.0	12.0	19.0	3.5	290.0	24.0	3.6	3.08
9.6.2.123	160.0	110.0	450.0	6.3	400.0	1110.0	230.0	0.84
MW03	77.0	16.0	1200.0	0.5	950.0	1600.0	160.0	3.58
MW18D	74.0	20.0	1900.0	0.9	1600.0	2100.0	630.0	0.16
MW20	480.0	110.0	4100.0	2.6	1200.0	5700.0	3600.0	-6.31
MW22D	69.0	15.0	1200.0	0.6	830.0	1400.0	250.0	6.64
MW22S	77.0	24.0	960.0	0.5	1000.0	1100.0	340.0	-1.35
SMW01	23.0	7.2	440.0	0.1	610.0	310.0	120.0	2.56
TMW01	98.0	19.0	560.0	0.5	400.0	840.0	180.0	2.84

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Location Number	SiO ₂ (aq) mg/l	F ⁻ mg/l	Br ⁻ mg/l	Fe ⁺⁺ mg/l	Calcite log Q/K	Gypsum log Q/K	Quartz log Q/K	CO ₂ (g) fugacity
10.19.24.122a	n.a.	0.4	n.a.	0.07	6.56E+00	1.68E-02	n.a.	3.45E-03
10.19.28.114	n.a.	1.8	n.a.	0	2.24E+00	3.26E-02	n.a.	5.42E-04
10.19.30.232	n.a.	1	n.a.	0.03	1.38E+01	2.69E-04	n.a.	2.48E-03
12.17.23.244	n.a.	0.52	n.a.	0	1.32E+01	6.41E-02	n.a.	1.58E-03
7.21.3.000	n.a.	0.88	n.a.	0	3.90E+00	5.90E-02	n.a.	2.68E-03
8.21.12.312	n.a.	0.29	n.a.	0.02	3.75E+00	2.51E-01	n.a.	6.37E-03
8.21.26.321	n.a.	0.28	n.a.	0.01	1.18E+01	1.53E-01	n.a.	2.78E-03
9.17.33.324	8.8	0.3	n.a.	3.2	9.20E-01	6.11E-01	2.36E+00	2.60E-02
9.17.5.122	n.a.	0.52	n.a.	0.02	2.51E+01	3.90E-01	n.a.	1.34E-03
9.18.16.242	6.0	0.1	n.a.	0.02	n.a.	7.39E-03	1.40E+00	n.a.
9.20.18.432	n.a.	0.64	n.a.	0	5.81E+00	1.77E-02	n.a.	3.60E-03
9.20.8.223	n.a.	0.92	n.a.	0	5.78E+00	1.22E-01	n.a.	2.80E-03
9.21.25.433	20.0	0.3	n.a.	0.04	2.24E+00	2.33E-02	5.28E+00	6.80E-03
10.6.31.443	36.0	n.a.	n.a.	n.a.	3.60E+00	6.33E-02	9.34E+00	5.30E-03
10.6.35.322	29.0	n.a.	n.a.	n.a.	4.06E+00	4.83E-02	7.25E+00	1.58E-03
10.6.35.324	n.a.	n.a.	n.a.	n.a.	6.68E+00	5.31E-02	n.a.	2.76E-03
10.6.35.342	24.0	n.a.	n.a.	n.a.	2.58E+00	5.87E-02	5.78E+00	3.39E-03
10.7.35.232	n.a.	n.a.	n.a.	n.a.	1.13E+01	1.00E-01	n.a.	2.72E-03
10.7.36.212	n.a.	n.a.	n.a.	n.a.	8.42E+00	2.55E-02	n.a.	2.70E-03
10.7.36.221	n.a.	n.a.	n.a.	n.a.	1.37E+01	2.46E-02	n.a.	1.70E-03
11.5.32.234	42.0	n.a.	n.a.	n.a.	1.12E+00	9.52E-03	1.14E+01	1.11E-02
11.6.27.334	n.a.	0.5	n.a.	0.01	3.72E+00	1.64E-01	n.a.	5.54E-03
12.1.18.134	n.a.	n.a.	n.a.	n.a.	6.27E+00	1.81E-02	n.a.	1.31E-03
6.7.34.341	n.a.	n.a.	n.a.	n.a.	3.38E+00	1.52E-02	n.a.	2.26E-03
8.5.34.431	n.a.	n.a.	n.a.	n.a.	2.51E+00	1.18E-02	n.a.	1.89E-03
9.4.29.323	n.a.	n.a.	n.a.	n.a.	1.06E+01	5.27E-01	n.a.	5.82E-04
9.6.10.124	15.0	n.a.	n.a.	n.a.	1.48E+01	4.68E-03	2.40E+00	1.68E-03
9.6.2.123	n.a.	1.5	n.a.	0.02	1.24E+01	1.47E-01	n.a.	3.23E-03
MW03	n.a.	0.45	0.38	0.0097	1.45E+00	8.88E-02	n.a.	3.14E-02
MW18D	n.a.	0.56	1.4	0.0097	n.a.	7.61E-02	n.a.	n.a.
MW20	n.a.	1.2	5.7	0.0097	1.87E+00	6.12E-01	n.a.	7.45E-02
MW22D	n.a.	0.41	0.53	0.0097	1.37E+00	7.43E-02	n.a.	2.42E-02
MW22S	n.a.	0.27	2.1	0.021	2.45E+00	7.11E-02	n.a.	2.59E-02
SMW01	n.a.	0.82	0.2	0.0097	1.42E+00	1.21E-02	n.a.	7.74E-03
TMW01	n.a.	0.44	1.7	0.12	2.78E+00	9.05E-02	n.a.	6.44E-03

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Reference	Location Number	Date	Geologic Unit *	Type	pH	Water Temperature °C	Electrical conductivity μS/cm	Dissolved solids mg/l
Roberston et al., 2013	TMW03	10/20/2009	Qa	well	7.8	15	4320	2563.0
Roberston et al., 2013	TMW04	10/14/2009	Qa	well	8.0	14	3940	2683.0
Roberston et al., 2013	TMW06	10/14/2009	Qa	well	7.5	16	4950	3689.0
Roberston et al., 2013	TMW07	10/17/2009	Qa	well	7.8	13	5340	4203.0
Roberston et al., 2013	TMW08	10/20/2009	Qa	well	7.4	15	1640	13287.0
Roberston et al., 2013	TMW10	10/19/2009	Qa	well	7.7	15	6740	3363.0
Roberston et al., 2013	TMW11	10/20/2009	Qa	well	8.0	18	2200	1664.0
Roberston et al., 2013	TMW13	10/22/2009	Qa	well	7.5	14	2350	1829.0
Roberston et al., 2013	TMW15	10/26/2009	Qa	well	7.6	13	2300	1791.0
Roberston et al., 2013	TMW21	10/24/2009	Qa	well	7.7	14	2640	2072.0
Roberston et al., 2013	TMW22	10/19/2009	Qa	well	7.8	13	3490	2602.0
Roberston et al., 2013	TMW23	10/19/2009	Qa	well	7.8	13	3250	2341.0
Roberston et al., 2013	TMW24	10/19/2009	Qa	well	7.8	20	3840	2789.0
Roberston et al., 2013	TMW25		Qa	well	n.a.	n.a.	n.a.	2953.0
Roberston et al., 2013	TMW26	10/22/2009	Qa	well	8.0	15	3590	2541.0
Roberston et al., 2013	TMW27	10/17/2009	Qa	well	7.8	14	1530	1146.0
Roberston et al., 2013	TMW29	10/19/2009	Qa	well	7.9	13	2520	1955.0
Shomaker, 1971	13.16.10.2234	8/1/1956	Qa	well	7.2	n.a.	562	476.1
Shomaker, 1971	15.17.13.3141	10/1/1965	Qa	well	7.9	n.a.	1200	996.6
Shomaker, 1971	15.17.13.3141	10/1/1966	Qa	well	7.7	n.a.	1200	1009.0
Shomaker, 1971	15.17.13.3243	10/1/1965	Qa	well	7.8	n.a.	873	714.3
Shomaker, 1971	15.17.13.3243	10/1/1966	Qa	well	7.6	n.a.	1240	1023.0
Shomaker, 1971	15.17.13.3414	10/1/1965	Qa	well	8.0	n.a.	1560	1237.0
Shomaker, 1971	15.17.14.2324a	10/1/1964	Qa	well	7.9	n.a.	1440	1104.0
Shomaker, 1971	15.17.14.2324a	1/1/1967	Qa	well	8.5	n.a.	n.a.	1091.0
Shomaker, 1971	15.17.14.4224	10/1/1965	Qa	well	7.7	n.a.	1390	1127.0
Shomaker, 1971	15.17.14.4224	9/1/1966	Qa	well	7.8	n.a.	1290	1080.0
Shomaker, 1971	15.17.15.1321	3/1/1965	Qa	well	7.7	n.a.	984	945.2
Shomaker, 1971	15.17.15.24142	3/1/1965	Qa	well	7.7	n.a.	1390	1092.0
Shomaker, 1971	16.17.33.4223	9/1/1953	Qa	well	n.a.	n.a.	1330	1226.0
Baldwin & Rankin, 1995	04.12.02.133	4/27/1981	Qb		7.0	13	1300	977.1
Baldwin & Rankin, 1995	05.07.34.433	5/20/1981	Qb		8.3	19	504	403.3
Baldwin & Rankin, 1995	06.18.27.433	11/12/1980	Qb		7.6	16	383	370.0
Baldwin & Rankin, 1995	09.12.12.113	7/14/1981	Qb	spring	7.0	6	308	253.6
Baldwin & Rankin, 1995	10.14.34.312	1/5/1981	Qb	well	7.8	15	455	389.8

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	Ca ⁺⁺ mg/l	Mg ⁺⁺ mg/l	Na ⁺ mg/l	K ⁺ mg/l	HCO ₃ ⁻ mg/l	SO ₄ ⁻⁻ mg/l	Cl ⁻ mg/l	Mass Balance** %
TMW03	45.0	11.0	910.0	0.5	460.0	970.0	170.0	13.57
TMW04	27.0	6.0	860.0	0.9	440.0	1200.0	150.0	3.75
TMW06	52.0	14.0	1100.0	0.5	1100.0	1300.0	140.0	2.54
TMW07	55.0	11.0	1300.0	3.0	740.0	1900.0	200.0	2.50
TMW08	280.0	85.0	3700.0	3.5	830.0	6700.0	1700.0	-4.98
TMW10	46.0	14.0	1000.0	0.6	680.0	1200.0	430.0	-1.37
TMW11	15.0	3.0	490.0	0.5	880.0	220.0	59.0	3.84
TMW13	27.0	5.2	570.0	0.4	830.0	340.0	69.0	8.02
TMW15	18.0	3.3	580.0	0.4	900.0	240.0	61.0	10.31
TMW21	33.0	7.3	660.0	0.6	770.0	560.0	49.0	9.37
TMW22	28.0	10.0	830.0	1.0	820.0	780.0	140.0	6.55
TMW23	16.0	4.9	770.0	0.5	790.0	680.0	86.0	8.05
TMW24	26.0	8.1	890.0	0.5	1000.0	530.0	340.0	4.72
TMW25	58.0	13.0	880.0	0.3	850.0	930.0	220.0	3.36
TMW26	16.0	7.4	800.0	0.5	830.0	640.0	250.0	3.18
TMW27	24.0	6.4	340.0	0.5	540.0	120.0	120.0	5.72
TMW29	39.0	8.5	550.0	1.1	770.0	520.0	71.0	2.20
13.16.10.2234	90.0	15.0	10.0		284.0	59.0	10.0	-0.05
15.17.13.3141	12.0	2.4	276.0		537.0	80.0	80.0	0.30
15.17.13.3141	14.0	2.2	278.0		550.0	74.0	83.0	0.28
15.17.13.3243	32.0	6.8	163.0		406.0	45.0	55.0	0.56
15.17.13.3243	23.0	4.0	272.0		540.0	86.0	93.0	0.16
15.17.13.3414	14.0	3.6	353.0		588.0	133.0	137.0	0.23
15.17.14.2324a	31.0	8.9	289.0		358.0	375.0	34.0	0.73
15.17.14.2324a	25.0	4.3	276.0	1.1	476.0	243.0	65.0	-3.75
15.17.14.4224	28.0	5.4	298.0		574.0	107.0	109.0	0.31
15.17.14.4224	21.0	4.3	289.0		576.0	85.0	97.0	0.09
15.17.15.1321	52.0	59.0	120.0		510.0	173.0	23.0	0.23
15.17.15.24142	98.0	26.0	189.0		382.0	340.0	50.0	1.66
16.17.33.4223	80.0	19.0	227.0		776.0	91.0	26.0	0.26
04.12.02.133	65.0	29.0	180.0	3.0	271.0	400.0	27.0	0.01
05.07.34.433	36.0	26.0	26.0	4.0	231.0	31.0	26.0	0.03
06.18.27.433	34.0	14.0	32.0	4.3	211.0	35.0	5.7	0.02
09.12.12.113	39.0	7.3	9.2	5.2	168.0	10.0	4.0	0.08
10.14.34.312	36.0	12.0	43.0	2.0	244.0	16.0	13.0	0.06

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	SiO ₂ (aq) mg/l	F ⁻ mg/l	Br ⁻ mg/l	Fe ⁺⁺ mg/l	Calcite log Q/K	Gypsum log Q/K	Quartz log Q/K	CO ₂ (g) fugacity
TMW03	n.a.	0.98	0.23	0.016	1.84E+00	4.38E-02	n.a.	5.12E-03
TMW04	n.a.	1.1	0.8	0.0097	1.43E+00	3.07E-02	n.a.	3.31E-03
TMW06	n.a.	0.53	0.42	0.034	2.30E+00	5.34E-02	n.a.	2.26E-02
TMW07	n.a.	0.43	0.4	0.0097	2.61E+00	6.99E-02	n.a.	7.55E-03
TMW08	n.a.	0.6	4.2	0.038	2.89E+00	4.42E-01	n.a.	1.91E-02
TMW10	n.a.	0.57	0.27	0.0097	1.76E+00	4.64E-02	n.a.	1.05E-02
TMW11	n.a.	1.9	0.58	0.0097	2.65E+00	5.45E-03	n.a.	7.81E-03
TMW13	n.a.	1.7	0.56	0.0097	1.32E+00	1.39E-02	n.a.	1.83E-02
TMW15	n.a.	1.7	0.49	0.0097	1.21E+00	7.03E-03	n.a.	1.57E-02
TMW21	n.a.	0.98	0.39	0.0097	2.13E+00	2.38E-02	n.a.	1.08E-02
TMW22	n.a.	0.92	0.58	0.081	1.87E+00	2.37E-02	n.a.	9.62E-03
TMW23	n.a.	0.79	0.4	0.22	1.15E+00	1.29E-02	n.a.	8.99E-03
TMW24	n.a.	0.98	1.3	0.0097	3.28E+00	1.50E-02	n.a.	1.11E-02
TMW25	n.a.	0.6	1	0.0097	n.a.	4.89E-02	n.a.	n.a.
TMW26	n.a.	1.8	0.96	0.022	1.86E+00	1.16E-02	n.a.	6.56E-03
TMW27	n.a.	0.99	0.39	0.0097	1.77E+00	5.96E-03	n.a.	6.92E-03
TMW29	n.a.	0.91	0.56	0.017	3.68E+00	2.73E-02	n.a.	7.26E-03
13.16.10.2234	15.0	0.2	n.a.	2	1.54E+00	1.28E-02	2.46E+00	1.49E-02
15.17.13.3141	11.0	1.2	n.a.	0.7	1.82E+00	2.14E-03	1.78E+00	6.13E-03
15.17.13.3141	11.0	1.1	n.a.	1.9	1.37E+00	2.32E-03	1.79E+00	9.81E-03
15.17.13.3243	8.5	0.9	n.a.	0.66	3.22E+00	3.59E-03	1.38E+00	5.86E-03
15.17.13.3243	10.0	0.9	n.a.	1.4	1.71E+00	4.29E-03	1.64E+00	1.20E-02
15.17.13.3414	8.4	1.1	n.a.	2.4	2.64E+00	3.56E-03	1.36E+00	5.26E-03
15.17.14.2324a	8.9	1.1	n.a.	0.17	2.58E+00	1.98E-02	1.45E+00	4.00E-03
15.17.14.2324a	n.a.	0.9	n.a.	0.22	1.11E+01	1.08E-02	n.a.	1.34E-03
15.17.14.4224	10.0	1.3	n.a.	0.9	2.69E+00	6.04E-03	1.63E+00	1.01E-02
15.17.14.4224	11.0	1.2	n.a.	0.52	2.63E+00	3.76E-03	1.79E+00	8.17E-03
15.17.15.1321	13.0	0.6	n.a.		4.33E+00	1.59E-02	2.12E+00	8.89E-03
15.17.15.24142	11.0	0.5	n.a.		5.52E+00	5.26E-02	1.80E+00	6.58E-03
16.17.33.4223	5.8	1.4	n.a.	n.a.	n.a.	1.30E-02	9.57E-01	n.a.
04.12.02.133	16.0	0.9	n.a.	n.a.	2.95E-01	4.59E-02	4.53E+00	1.67E-02
05.07.34.433	23.0	0.7	n.a.	n.a.	5.99E+00	3.12E-03	4.78E+00	9.89E-04
06.18.27.433	37.0	0.3	n.a.	n.a.	9.58E-01	3.74E-03	8.94E+00	4.25E-03
09.12.12.113	21.0	0.5	n.a.	n.a.	1.42E-01	1.46E-03	7.97E+00	9.89E-03
10.14.34.312	26.0	0.3	n.a.	n.a.	1.80E+00	1.82E-03	6.68E+00	3.09E-03

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Reference	Location Number	Date	Geologic Unit *	Type	pH	Water Temperature °C	Electrical conductivity μS/cm	Dissolved solids mg/l
Baldwin & Rankin, 1995	12.07.03.434	7/14/1981	Qb	spring	7.7	11	190	186.3
Baldwin & Rankin, 1995	12.07.08.322	7/14/1981	Qb	spring	8.5	13	127	129.6
Baldwin & Rankin, 1995	12.07.10.414	7/14/1981	Qb	spring	7.9	12	129	145.3
Baldwin & Rankin, 1995	12.07.11.330	8/29/1962	Qb	well	6.6	7	257	171.3
Baldwin & Rankin, 1995	12.07.31.331	7/13/1981	Qb	spring	7.4	14	111	138.2
Baldwin & Rankin, 1995	12.08.24.112	7/16/1981	Qb	spring	7.0	9	130	132.2
Baldwin & Rankin, 1995	12.08.25.111	7/15/1981	Qb	spring	7.0	14	160	174.7
Baldwin & Rankin, 1995	12.08.35.231	7/15/1981	Qb	spring	7.7	8	106	128.2
Baldwin & Rankin, 1995	12.08.36.234	7/13/1981	Qb	spring	8.1	14	117	137.6
Risser & Lyford, 1983	11.6.22.333	1/18/1973	Qb	spring	8.0	n.a.	190	141.4
Risser & Lyford, 1983	8.3.10.222	10/12/1948	Qb	spring	n.a.	n.a.	3810	2954.0
Risser & Lyford, 1983	8.3.10.222	9/24/1973	Qb	spring	8.1	17	3930	2837.0
Risser & Lyford, 1983	9.5.4.133	9/13/1973	Qb	well	8.1	16	2390	1957.0
Risser & Lyford, 1983	8.4.15.123	10/29/1973	Qb/TRc	well	8.0	n.a.	3470	2720.0
Baldwin & Rankin, 1995	04.06.12.111	5/2/1984	TRc		7.0	n.a.	4300	3392.0
Baldwin & Rankin, 1995	05.05.10.333A	6/9/1981	TRc	well	7.4	19	2400	2288.0
Baldwin & Rankin, 1995	05.05.10.333B	6/9/1981	TRc	well	7.1	19	3800	3603.0
Baldwin & Rankin, 1995	05.05.16.443	6/5/1981	TRc	well	7.3	17	2400	2193.0
Baldwin & Rankin, 1995	05.06.31.242	6/10/1981	TRc	well	9.1	21	829	681.2
Baldwin & Rankin, 1995	06.18.10.232	10/29/1980	TRc	well	9.0	17	629	554.8
Baldwin & Rankin, 1995	06.19.01.131	11/6/1980	TRc	well	8.1	17	520	491.7
Baldwin & Rankin, 1995	06.19.13.413	11/5/1980	TRc	well	8.4	20	930	765.2
Baldwin & Rankin, 1995	07.05.06.221A	3/26/1981	TRc	well	9.1	20	1500	1377.0
Baldwin & Rankin, 1995	07.05.36.333	6/9/1981	TRc	well	7.2	19	1100	963.8
Baldwin & Rankin, 1995	07.06.10.443B	3/26/1981	TRc	well	8.6	17	1200	1150.0
Baldwin & Rankin, 1995	07.06.18.424	3/26/1981	TRc	well	8.4	15	950	926.9
Baldwin & Rankin, 1995	07.06.22.331	3/26/1981	TRc	well	8.7	19	2300	1781.0
Baldwin & Rankin, 1995	07.17.30.121	10/29/1980	TRc	well	9.0	12	624	550.2
Baldwin & Rankin, 1995	07.18.09.323	11/4/1980	TRc	well	9.2	19	900	735.0
Baldwin & Rankin, 1995	07.18.29.311	10/30/1980	TRc	well	9.2	20	600	574.7
Baldwin & Rankin, 1995	07.19.02.344	10/30/1980	TRc	well	8.3	19	690	529.8
Baldwin & Rankin, 1995	07.19.12.142	10/30/1980	TRc	well	9.1	16	950	786.3
Baldwin & Rankin, 1995	08.12.19.334	5/6/1981	TRc	well	8.3	15	270	250.3
Baldwin & Rankin, 1995	08.17.30.332	12/4/1980	TRc	well	7.8	7	600	738.9
Baldwin & Rankin, 1995	08.18.24.221	8/31/1979	TRc	well	8.3	n.a.	700	603.1

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	Ca ⁺⁺ mg/l	Mg ⁺⁺ mg/l	Na ⁺ mg/l	K ⁺ mg/l	HCO ₃ ⁻ mg/l	SO ₄ ⁻⁻ mg/l	Cl ⁻ mg/l	Mass Balance** %
12.07.03.434	19.0	7.3	7.9	1.0	112.0	1.0	2.2	-0.02
12.07.08.322	17.0	2.9	4.2	1.0	75.0	1.0	1.6	-0.01
12.07.10.414	12.0	4.8	6.7	1.4	77.0	1.0	1.4	-0.06
12.07.11.330	26.0	6.1	6.2	1.4	58.0	5.2	45.0	-5.04
12.07.31.331	10.0	3.6	5.8	3.9	66.0	2.0	1.1	-0.32
12.08.24.112	13.0	4.2	5.7	2.5	70.0	4.0	2.7	-0.03
12.08.25.111	13.0	7.4	5.6	2.0	91.0	0.9	1.5	-0.02
12.08.35.231	7.7	3.3	6.5	3.7	60.0	1.0	1.2	-0.25
12.08.36.234	9.5	4.7	5.5	2.9	66.0	1.0	2.4	0.16
11.6.22.333	20.0	3.6	11.5	3.5	97.0	2.9	3.5	3.71
8.3.10.222	260.0	120.0	500.0	44.0	230.0	1500.0	300.0	2.53
8.3.10.222	280.0	100.0	510.0	7.8	180.0	1400.0	360.0	2.68
9.5.4.133	310.0	63.0	170.0	5.1	190.0	1000.0	220.0	-3.36
8.4.15.123	66.0	45.0	730.0	1.2	460.0	1100.0	320.0	-0.88
04.06.12.111	330.0	83.0	580.0	18.0	351.0	1900.0	130.0	0.01
05.05.10.333A	120.0	200.0	230.0	8.9	820.0	890.0	25.0	0.00
05.05.10.333B	400.0	140.0	450.0	22.0	730.0	1800.0	77.0	0.00
05.05.16.443	120.0	180.0	230.0	5.5	917.0	740.0	18.0	0.00
05.06.31.242	2.2	0.3	190.0	3.8	315.0	110.0	37.0	-0.01
06.18.10.232	1.3	0.0	150.0	2.4	342.0	35.0	11.0	0.05
06.19.01.131	26.0	3.9	100.0	6.5	263.0	71.0	12.0	0.05
06.19.13.413	17.0	2.5	200.0	3.7	268.0	240.0	16.0	0.03
07.05.06.221A	3.4	0.7	390.0	0.3	780.0	140.0	53.0	0.01
07.05.36.333	110.0	40.0	100.0	6.2	343.0	330.0	28.0	0.02
07.06.10.443B	5.6	2.3	310.0	0.3	721.0	80.0	17.0	-0.02
07.06.18.424	8.1	4.4	240.0	0.3	588.0	61.0	11.0	-0.03
07.06.22.331	6.2	0.5	560.0	0.4	323.0	730.0	150.0	-0.01
07.17.30.121	1.9	0.2	150.0	0.7	328.0	50.0	8.2	0.03
07.18.09.323	2.1	0.3	210.0	1.4	313.0	180.0	15.0	-0.01
07.18.29.311	1.6	0.1	160.0	1.6	307.0	81.0	13.0	0.02
07.19.02.344	2.0	0.3	140.0	6.1	330.0	30.0	12.0	-0.02
07.19.12.142	3.3	0.2	230.0	1.1	260.0	260.0	19.0	0.01
08.12.19.334	11.0	3.9	43.0	3.3	139.0	14.0	9.0	0.01
08.17.30.332	37.0	9.4	160.0	2.5	285.0	230.0	6.7	-0.03
08.18.24.221	6.4	0.5	170.0	1.0	198.0	210.0	5.9	-0.03

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	SiO ₂ (aq) mg/l	F ⁻ mg/l	Br ⁻ mg/l	Fe ⁺⁺ mg/l	Calcite log Q/K	Gypsum log Q/K	Quartz log Q/K	CO ₂ (g) fugacity
12.07.03.434	37.0	0.4	n.a.	n.a.	3.59E-01	7.99E-05	1.11E+01	1.74E-03
12.07.08.322	26.0	0.6	n.a.	n.a.	1.53E+00	7.68E-05	7.09E+00	1.96E-04
12.07.10.414	41.0	0.5	n.a.	n.a.	2.74E-01	5.54E-05	1.17E+01	7.88E-04
12.07.11.330	30.0	0.2	n.a.	n.a.	1.07E-02	5.65E-04	1.09E+01	6.57E-03
12.07.31.331	47.0	0.5	n.a.	n.a.	6.35E-02	9.56E-05	1.24E+01	2.07E-03
12.08.24.112	34.0	0.4	n.a.	n.a.	2.50E-02	2.47E-04	1.12E+01	4.43E-03
12.08.25.111	58.0	0.5	n.a.	n.a.	3.84E-02	5.21E-05	1.53E+01	6.22E-03
12.08.35.231	45.0	0.6	n.a.	n.a.	7.64E-02	3.88E-05	1.55E+01	9.12E-04
12.08.36.234	45.0	0.6	n.a.	n.a.	3.22E-01	4.47E-05	1.17E+01	4.44E-04
11.6.22.333	n.a.	n.a.	n.a.	n.a.	1.07E+00	2.38E-04	n.a.	9.43E-04
8.3.10.222	n.a.	n.a.	n.a.	n.a.	n.a.	2.71E-01	n.a.	n.a.
8.3.10.222	n.a.	n.a.	n.a.	n.a.	8.84E+00	2.93E-01	n.a.	1.01E-03
9.5.4.133	n.a.	n.a.	n.a.	n.a.	1.16E+01	2.91E-01	n.a.	1.07E-03
8.4.15.123	n.a.	n.a.	n.a.	n.a.	5.73E+00	6.28E-02	n.a.	3.77E-03
04.06.12.111	12.0	2.6	n.a.	n.a.	1.63E+00	3.93E-01	2.00E+00	2.42E-02
05.05.10.333A	11.0	0.5	n.a.	n.a.	4.02E+00	9.47E-02	2.42E+00	2.31E-02
05.05.10.333B	8.9	2.7	n.a.	n.a.	4.40E+00	4.44E-01	1.93E+00	3.69E-02
05.05.16.443	6.6	0.6	n.a.	n.a.	3.49E+00	8.45E-02	1.55E+00	3.13E-02
05.06.31.242	20.0	1.2	n.a.	n.a.	2.41E+00	5.44E-04	3.27E+00	2.10E-04
06.18.10.232	12.0	0.6	n.a.	n.a.	1.26E+00	1.24E-04	2.45E+00	2.81E-04
06.19.01.131	10.0	0.6	n.a.	n.a.	2.82E+00	5.37E-03	2.29E+00	1.75E-03
06.19.13.413	18.0	0.3	n.a.	n.a.	3.31E+00	8.97E-03	3.56E+00	9.11E-04
07.05.06.221A	8.5	1.8	n.a.	n.a.	6.26E+00	6.74E-04	1.43E+00	4.89E-04
07.05.36.333	17.0	1.3	n.a.	n.a.	1.39E+00	6.01E-02	3.64E+00	1.58E-02
07.06.10.443B	13.0	1.8	n.a.	n.a.	3.91E+00	9.08E-04	2.86E+00	1.46E-03
07.06.18.424	14.0	1.5	n.a.	n.a.	3.10E+00	1.18E-03	3.43E+00	1.87E-03
07.06.22.331	9.9	0.6	n.a.	n.a.	1.82E+00	5.59E-03	1.95E+00	5.04E-04
07.17.30.121	9.8	1.2	n.a.	n.a.	1.53E+00	2.67E-04	2.53E+00	2.52E-04
07.18.09.323	11.0	1.3	n.a.	n.a.	2.44E+00	7.66E-04	1.89E+00	1.57E-04
07.18.29.311	9.1	0.6	n.a.	n.a.	2.10E+00	3.05E-04	1.50E+00	1.60E-04
07.19.02.344	10.0	0.4	n.a.	n.a.	4.75E-01	1.89E-04	2.08E+00	1.44E-03
07.19.12.142	9.9	2.2	n.a.	n.a.	2.36E+00	1.74E-03	2.04E+00	1.60E-04
08.12.19.334	27.0	0.2	n.a.	n.a.	1.14E+00	6.06E-04	6.67E+00	5.88E-04
08.17.30.332	11.0	0.6	n.a.	n.a.	1.27E+00	1.99E-02	3.97E+00	3.17E-03
08.18.24.221	11.0	0.7	n.a.	n.a.	9.20E-01	3.26E-03	1.75E+00	9.25E-04

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Reference	Location Number	Date	Geologic Unit *	Type	pH	Water Temperature °C	Electrical conductivity μS/cm	Dissolved solids mg/l
Baldwin & Rankin, 1995	08.19.04.321	8/1/1972	TRc	well	8.8	18	740	572.0
Baldwin & Rankin, 1995	08.19.12.211	8/1/1972	TRc	well	8.8	18	990	700.8
Baldwin & Rankin, 1995	08.19.22.313	8/1/1972	TRc	well	9.0	22	730	530.8
Baldwin & Rankin, 1995	08.19.36.313	2/10/1981	TRc	well	7.7	n.a.	553	401.3
Baldwin & Rankin, 1995	08.20.04.344	9/8/1972	TRc	well	7.5	18	1050	888.5
Baldwin & Rankin, 1995	10.09.26.433	8/10/1978	TRc		7.6	20	1665	540.2
Drakos & Riesterer, 2013	Black Rock Spring	11/8/2007	TRc	spring	6.8	12	n.a.	348.7
Orr, B.R. 1987	10.18.22.333b	8/8/1972	TRc	well	8.0	13	770	557.9
Orr, B.R. 1987	10.19.22.231	7/6/1976	TRc	well	8.8	n.a.	1150	952.3
Orr, B.R. 1987	10.19.22.241	7/22/1978	TRc	well	7.6	15	776	638.2
Orr, B.R. 1987	10.19.22.244	7/7/1976	TRc	well	8.6	n.a.	1360	1019.0
Orr, B.R. 1987	10.19.22.421	7/6/1976	TRc	well	8.4	n.a.	1230	927.5
Orr, B.R. 1987	10.19.22.433	7/6/1976	TRc	well	8.8	21	1330	2729.0
Orr, B.R. 1987	10.19.23.134	12/15/1975	TRc	well	8.1	n.a.	880	762.7
Orr, B.R. 1987	10.19.23.143	7/6/1976	TRc	well	8.7	n.a.	940	693.1
Orr, B.R. 1987	10.19.24.221	8/3/1972	TRc	well	8.4	20	2510	1731.0
Orr, B.R. 1987	10.19.28.131	8/3/1972	TRc	well	8.2	n.a.	1330	1076.0
Orr, B.R. 1987	10.19.28.141	8/3/1972	TRc	well	8.7	18	1520	1056.0
Orr, B.R. 1987	10.19.28.314	8/3/1972	TRc	well	8.4	20	1570	1263.0
Orr, B.R. 1987	10.19.28.343	8/3/1972	TRc	well	8.7	20	1190	1091.0
Orr, B.R. 1987	10.19.28.343	7/30/1980	TRc	well	8.3	20	1400	1095.0
Orr, B.R. 1987	10.19.33.121	8/3/1972	TRc	well	8.3	20	1620	1242.0
Orr, B.R. 1987	10.20.22.211	7/25/1972	TRc	well	7.8	16	800	594.5
Orr, B.R. 1987	10.20.32.421	9/4/1979	TRc	well	8.3	29	1300	1196.0
Orr, B.R. 1987	11.20.34.244	3/26/1980	TRc	spring	8.1	8	325	329.1
Orr, B.R. 1987	12.21.24.423	10/11/1972	TRc	well	9.2	n.a.	530	339.9
Orr, B.R. 1987	8.18.24.221	8/31/1979	TRc	well	8.3	n.a.	700	665.5
Orr, B.R. 1987	8.19.12.221	8/1/1972	TRc	well	8.8	18	990	701.0
Orr, B.R. 1987	8.19.22.313	8/1/1972	TRc	well	9.0	22	730	532.7
Orr, B.R. 1987	8.19.4.321	8/1/1972	TRc	well	8.8	18	740	569.7
Orr, B.R. 1987	8.20.1.322	4/7/1978	TRc	spring	n.a.	14	1850	1100.0
Orr, B.R. 1987	8.20.4.344	8/9/1972	TRc	well	7.6	18	1050	881.6
Orr, B.R. 1987	8.20.8.443	7/27/1972	TRc	spring	7.8	n.a.	830	560.8
Orr, B.R. 1987	8.20.8.443	2/26/1980	TRc	spring	7.1	10	1400	922.5
Orr, B.R. 1987	9.18.19.442	8/21/1979	TRc	well	8.9	14	2650	1952.0

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	Ca ⁺⁺ mg/l	Mg ⁺⁺ mg/l	Na ⁺ mg/l	K ⁺ mg/l	HCO ₃ ⁻ mg/l	SO ₄ ⁻⁻ mg/l	Cl ⁻ mg/l	Mass Balance** %
08.19.04.321	2.0	1.2	180.0	2.0	300.0	70.0	16.0	8.40
08.19.12.211	2.0	1.2	210.0	2.0	300.0	170.0	12.0	3.24
08.19.22.313	2.0	0.0	160.0	3.0	250.0	100.0	14.0	4.09
08.19.36.313	68.0	10.0	25.0	2.3	205.0	23.0	54.0	0.00
08.20.04.344	130.0	38.0	57.0	4.0	330.0	300.0	35.0	-1.80
10.09.26.433	27.0	13.0	100.0	2.1	276.0	100.0	7.8	-0.05
Black Rock Spring	43.0	4.0	48.0	1.0	244.0	22.0	6.9	-0.70
10.18.22.333b	44.0	9.7	110.0	0.0	198.0	190.0	7.1	2.48
10.19.22.231	8.0	1.2	281.0	1.6	404.0	201.0	55.0	1.60
10.19.22.241	67.0	7.0	100.0	3.9	341.0	91.0	19.0	2.12
10.19.22.244	24.0	3.6	283.0	3.1	453.0	202.0	51.0	3.01
10.19.22.421	58.0	9.7	207.0	2.0	342.0	245.0	64.0	0.93
10.19.22.433	4.0	0.0	2099.0	2.4	387.0	174.0	62.0	77.31
10.19.23.134	40.0	3.6	182.0	0.8	360.0	144.0	34.0	1.84
10.19.23.143	16.0	1.2	202.0	1.6	311.0	129.0	32.0	5.64
10.19.24.221	14.0	2.4	540.0	1.2	384.0	507.0	277.0	-0.51
10.19.28.131	24.0	1.2	292.0	2.0	560.0	109.0	88.0	0.42
10.19.28.141	6.0	1.2	331.0	9.0	354.0	189.0	164.0	2.25
10.19.28.314	6.0	1.2	365.0	0.0	662.0	157.0	73.0	0.29
10.19.28.343	4.0	1.2	461.0	0.0	394.0	181.0	48.0	27.46
10.19.28.343	5.2	0.3	330.0	2.0	439.0	240.0	67.0	2.11
10.19.33.121	8.0	1.2	356.0	0.0	561.0	251.0	66.0	-0.93
10.20.22.211	62.0	7.3	108.0	0.0	306.0	61.0	53.0	3.78
10.20.32.421	6.1	0.5	350.0	2.2	451.0	320.0	51.0	0.42
11.20.34.244	8.8	2.1	78.0	0.7	207.0	10.0	5.6	3.38
12.21.24.423	4.0	0.0	124.0	0.0	194.0	4.8	13.0	21.06
8.18.24.221	6.4	5.0	170.0	1.0	256.0	210.0	5.9	-3.46
8.19.12.221	2.0	1.2	214.0	2.4	297.0	168.0	12.0	4.72
8.19.22.313	2.0	0.0	164.0	2.7	247.0	101.0	14.0	5.45
8.19.4.321	2.0	1.2	176.0	1.6	302.0	70.0	16.0	7.02
8.20.1.322	56.0	6.5	260.0	3.0	385.0	280.0	91.0	0.02
8.20.4.344	128.0	38.0	57.0	3.9	328.0	296.0	35.0	-1.76
8.20.8.443	64.0	6.1	102.0	3.9	296.0	34.0	57.0	6.91
8.20.8.443	140.0	140.0	180.0	4.4	34.0	120.0	290.0	40.37
9.18.19.442	14.0	1.0	650.0	1.1	29.0	900.0	350.0	-0.01

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	SiO ₂ (aq) mg/l	F ⁻ mg/l	Br ⁻ mg/l	Fe ⁺⁺ mg/l	Calcite log Q/K	Gypsum log Q/K	Quartz log Q/K	CO ₂ (g) fugacity
08.19.04.321	n.a.	1.2	n.a.	n.a.	1.15E+00	3.78E-04	n.a.	3.99E-04
08.19.12.211	n.a.	4	n.a.	n.a.	1.02E+00	7.89E-04	n.a.	3.93E-04
08.19.22.313	n.a.	2	n.a.	n.a.	1.61E+00	5.14E-04	n.a.	2.18E-04
08.19.36.313	16.0	0.2	n.a.	n.a.	3.06E+00	4.26E-03	2.61E+00	3.72E-03
08.20.04.344	n.a.	0.6	n.a.	n.a.	3.30E+00	6.52E-02	n.a.	7.97E-03
10.09.26.433	18.0	0.5	n.a.	n.a.	1.00E+00	7.24E-03	3.68E+00	5.82E-03
Black Rock Spring	n.a.	0.3	n.a.	n.a.	1.43E-01	3.16E-03	n.a.	2.30E-02
10.18.22.333b	n.a.	0.44	n.a.	0.01	2.20E+00	2.04E-02	n.a.	1.54E-03
10.19.22.231	n.a.	0.86	n.a.	0.2	5.98E+00	3.00E-03	n.a.	5.69E-04
10.19.22.241	14.0	0.7	n.a.	0.03	2.50E+00	1.49E-02	3.53E+00	6.59E-03
10.19.22.244	n.a.	0.56	n.a.	0.02	1.30E+01	8.91E-03	n.a.	1.01E-03
10.19.22.421	n.a.	0.64	n.a.	0.02	1.56E+01	2.59E-02	n.a.	1.21E-03
10.19.22.433	n.a.	1.6	n.a.	0.05	1.89E+00	7.44E-04	n.a.	4.40E-04
10.19.23.134	n.a.	0	n.a.	0	6.50E+00	1.27E-02	n.a.	2.61E-03
10.19.23.143	n.a.	0.6	n.a.	0.13	8.60E+00	4.69E-03	n.a.	5.64E-04
10.19.24.221	n.a.	6	n.a.	0	2.83E+00	9.72E-03	n.a.	1.23E-03
10.19.28.131	n.a.	1.9	n.a.	0	7.08E+00	5.27E-03	n.a.	3.19E-03
10.19.28.141	n.a.	2	n.a.	0	2.63E+00	2.22E-03	n.a.	5.71E-04
10.19.28.314	n.a.	0.5	n.a.	0.06	2.60E+00	1.78E-03	n.a.	2.20E-03
10.19.28.343	n.a.	2.6	n.a.	0	2.04E+00	1.36E-03	n.a.	6.47E-04
10.19.28.343	11.0	1.9	n.a.	0.04	1.21E+00	2.44E-03	2.19E+00	1.85E-03
10.19.33.121	n.a.	0.54	n.a.	0	2.27E+00	3.66E-03	n.a.	2.35E-03
10.20.22.211	n.a.	0.33	n.a.	0	3.56E+00	9.53E-03	n.a.	3.86E-03
10.20.32.421	10.0	6.2	n.a.	0.4	1.77E+00	3.42E-03	1.41E+00	2.14E-03
11.20.34.244	17.0	0.3	n.a.	0.73	6.50E-01	3.41E-04	5.81E+00	1.25E-03
12.21.24.423	n.a.	n.a.	n.a.	0.18	4.67E+00	5.68E-05	n.a.	1.09E-04
8.18.24.221	11.0	0.7	n.a.	0.05	1.16E+00	3.12E-03	1.75E+00	1.19E-03
8.19.12.221	n.a.	4.4	n.a.	0.43	1.01E+00	7.80E-04	n.a.	3.89E-04
8.19.22.313	n.a.	2.2	n.a.	0.08	1.59E+00	5.18E-04	n.a.	2.15E-04
8.19.4.321	n.a.	1.2	n.a.	0.08	1.16E+00	3.79E-04	n.a.	4.02E-04
8.20.1.322	16.0	1.6	n.a.	0.99	n.a.	2.93E-02	4.34E+00	n.a.
8.20.4.344	n.a.	0.58	n.a.	0.02	4.13E+00	6.36E-02	n.a.	6.38E-03
8.20.8.443	n.a.	0.42	n.a.	0	4.90E+00	5.46E-03	n.a.	4.26E-03
8.20.8.443	15.0	0.6	n.a.	0.01	9.68E-02	2.35E-02	4.87E+00	1.57E-03
9.18.19.442	4.0	2.8	n.a.	0.04	4.73E-01	1.48E-02	9.42E-01	2.58E-05

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Reference	Location Number	Date	Geologic Unit *	Type	pH	Water Temperature °C	Electrical conductivity μS/cm	Dissolved solids mg/l
Orr, B.R. 1987	9.19.1.144	4/5/1979	TRc	spring	n.a.	17	500	356.2
Orr, B.R. 1987	9.21.11.314	8/1/1972	TRc	well	8.4	17	350	254.8
Risser & Lyford, 1983	7.2.6.442	4/22/1975	TRc	spring	6.9	14	36500	28835.8
Risser & Lyford, 1983	7.2.7.123	8/25/1941	TRc	spring	n.a.	n.a.	n.a.	29026.4
Risser & Lyford, 1983	7.2.7.241	4/22/1975	TRc	spring	7.7	14	34100	27538.6
Risser & Lyford, 1983	7.2.7.343	4/22/1975	TRc	spring	8.3	14	36800	28168.0
Risser & Lyford, 1983	7.4.11.431	9/4/1941	TRc	spring	n.a.	17	n.a.	4126.0
Risser & Lyford, 1983	8.5.12.311	11/16/1973	TRc	well	7.7	n.a.	3290	2696.0
Risser & Lyford, 1983	9.3.22.443	4/26/1973	TRc	spring	8.3	n.a.	4400	3446.0
Risser & Lyford, 1983	9.4.33.223a	5/3/2013	TRc	well	8.2	16	5640	4267.0
Risser & Lyford, 1983	9.5.13.411	5/2/1963	TRc	well	7.5	n.a.	1850	1368.0
Shomaker, 1971	13.17.13.3241	5/1/1952	TRc	spring	n.a.	n.a.	480	427.4
Shomaker, 1971	14.15.4.1134	5/1/1969	TRc	well	7.9	n.a.	1070	846.4
Shomaker, 1971	15.15.18.3344	6/1/1966	TRc	well	n.a.	n.a.	n.a.	883.8
Shomaker, 1971	15.15.20.3232	3/1/1958	TRc	well	7.6	n.a.	1150	988.4
Shomaker, 1971	15.15.20.3232	6/1/1966	TRc	well	n.a.	n.a.	1180	952.3
Shomaker, 1971	15.15.31.1242	6/1/1968	TRc	well	8.3	n.a.	4490	3234.0
Shomaker, 1971	15.16.27.2312	8/1/1950	TRc	well	n.a.	n.a.	3030	2093.0
Shomaker, 1971	15.16.27.2312	4/1/1953	TRc	well	n.a.	n.a.	2890	1975.0
Shomaker, 1971	s14.16.24.342	6/1/1968	TRc	spring	7.8	n.a.	580	489.3
Risser & Lyford, 1983	8.3.35.114	9/3/1941	TRc/Qa	spring	n.a.	19	n.a.	581.9
Baldwin & Rankin, 1995	11.12.19.321	7/15/1981	Xm	spring	5.7	11	80	90.0

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	Ca ⁺⁺ mg/l	Mg ⁺⁺ mg/l	Na ⁺ mg/l	K ⁺ mg/l	HCO ₃ ⁻ mg/l	SO ₄ ⁻⁻ mg/l	Cl ⁻ mg/l	Mass Balance** %
9.19.1.144	36.0	8.0	39.0	1.8	219.0	14.0	22.0	-3.51
9.21.11.314	18.0	3.6	53.0	2.3	136.0	24.0	18.0	4.73
7.2.6.442	350.0	350.0	9300.0	260.0	2460.0	6200.0	10000.0	0.66
7.2.7.123	110.0	140.0	9900.0	290.0	1750.0	6800.0	10000.0	0.30
7.2.7.241	490.0	140.0	9100.0	260.0	2950.0	5600.0	9000.0	2.29
7.2.7.343	140.0	160.0	9400.0	320.0	1920.0	6200.0	10000.0	-0.62
7.4.11.431	640.0	180.0	300.0	26.0	630.0	2000.0	330.0	-0.67
8.5.12.311	460.0	24.0	360.0	5.5	48.0	1700.0	99.0	2.20
9.3.22.443	220.0	24.0	890.0	0.0	150.0	2100.0	63.0	3.72
9.4.33.223a	340.0	100.0	910.0	18.0	270.0	2000.0	630.0	1.09
9.5.13.411	74.0	28.0	0.0	320.0	270.0	550.0	110.0	-14.47
13.17.13.3241	68.0	13.0	19.0		293.0	14.0	5.0	0.51
14.15.4.1134	165.0	33.0	32.0	0.0	233.0	375.0	9.2	1.88
15.15.18.3344	172.0	35.0	34.5	2.3	171.0	465.0	3.6	1.70
15.15.20.3232	189.0	37.0	34.0		240.0	468.0	10.0	-0.02
15.15.20.3232	184.0	39.0	28.5	0.9	239.0	449.0	11.7	0.21
15.15.31.1242	32.0	9.7	1060.0		336.0	1030.0	752.0	0.35
15.16.27.2312	8.0	3.7	684.0		350.0	625.0	412.0	0.14
15.16.27.2312	8.5	1.7	645.0		359.0	575.0	376.0	0.28
s14.16.24.342	79.0	24.0	12.0		281.0	73.0	8.4	0.59
8.3.35.114	65.0	18.0	43.0	3.9	380.0	13.0	31.0	-4.83
11.12.19.321	12.0	3.1	4.4	0.8	62.0	1.0	1.1	-0.12

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Location Number	SiO ₂ (aq) mg/l	F ⁻ mg/l	Br ⁻ mg/l	Fe ⁺⁺ mg/l	Calcite log Q/K	Gypsum log Q/K	Quartz log Q/K	CO ₂ (g) fugacity
9.19.1.144	16.0	0.4	n.a.	0.01	n.a.	1.64E-03	3.80E+00	n.a.
9.21.11.314	n.a.	0.25	n.a.	0	2.34E+00	1.56E-03	n.a.	4.65E-04
7.2.6.442	22.0	n.a.	n.a.	n.a.	2.16E+00	2.79E-01	6.78E+00	1.25E-01
7.2.7.123	38.0	n.a.	n.a.	n.a.	n.a.	9.51E-02	7.13E+00	n.a.
7.2.7.241	23.0	n.a.	n.a.	n.a.	2.75E+01	3.76E-01	6.70E+00	2.78E-02
7.2.7.343	32.0	n.a.	n.a.	n.a.	1.92E+01	1.15E-01	8.77E+00	4.54E-03
7.4.11.431	20.0	n.a.	n.a.	n.a.	n.a.	6.77E-01	4.85E+00	n.a.
8.5.12.311	-	n.a.	n.a.	n.a.	1.91E+00	5.43E-01	n.a.	7.47E-04
9.3.22.443	-	n.a.	n.a.	n.a.	9.85E+00	2.91E-01	n.a.	5.88E-04
9.4.33.223a	n.a.	n.a.	n.a.	n.a.	1.58E+01	3.92E-01	n.a.	1.13E-03
9.5.13.411	20.0	n.a.	n.a.	n.a.	1.66E+00	5.81E-02	3.28E+00	7.29E-03
13.17.13.3241	15.0	0.4	n.a.	n.a.	n.a.	2.58E-03	2.47E+00	n.a.
14.15.4.1134	n.a.	0.4	n.a.	0.39	9.27E+00	9.48E-02	n.a.	2.54E-03
15.15.18.3344	n.a.	0.35	n.a.	0.07	n.a.	1.17E-01	n.a.	n.a.
15.15.20.3232	12.0	0.3	n.a.	1.2	5.08E+00	1.24E-01	1.97E+00	5.08E-03
15.15.20.3232	n.a.	0.29	n.a.	n.a.	n.a.	1.17E-01	n.a.	n.a.
15.15.31.1242	12.0	2.8	n.a.	n.a.	3.92E+00	2.75E-02	1.90E+00	1.37E-03
15.16.27.2312	9.5	0.5	n.a.	n.a.	n.a.	6.03E-03	1.58E+00	n.a.
15.16.27.2312	8.8	0.7	n.a.	n.a.	n.a.	6.19E-03	1.46E+00	n.a.
s14.16.24.342	14.0	0.3	n.a.	n.a.	5.62E+00	1.35E-02	2.28E+00	4.02E-03
8.3.35.114	28.0	n.a.	n.a.	n.a.	n.a.	2.17E-03	6.13E+00	n.a.
11.12.19.321	20.0	0.3	n.a.	n.a.	2.22E-04	6.15E-05	6.17E+00	1.57E-02

* Geologic Units: See Figure 5, Stratigraphic column for detail on abbreviations for geologic units.

** Mass Balance: Calculated using major ions (charge, weight and sample concentrations). Calculation at end of Supplemental Table II.

Supplemental Table III
Ground Water Quality of Zuni Mountains, New Mexico

Mass Balance Calculation

$$100 * \left(\frac{2 * \text{Ca}^{++}(\text{mg/l})}{40.08} + \frac{2 * \text{Mg}^{++}(\text{mg/l})}{24.305} + \frac{\text{Na}^+(\text{mg/l})}{22.99} + \frac{\text{K}^+(\text{mg/l})}{39.0983} - \frac{\text{HCO}_3^-(\text{mg/l})}{61} - \frac{\text{Cl}^-(\text{mg/l})}{35.453} - \frac{2 * \text{SO}_4^-(\text{mg/l})}{96.06} \right) / \left(\frac{2 * \text{Ca}^{++}(\text{mg/l})}{40.08} + \frac{2 * \text{Mg}^{++}(\text{mg/l})}{24.305} + \frac{\text{Na}^+(\text{mg/l})}{22.99} + \frac{\text{K}^+(\text{mg/l})}{39.0983} - \frac{\text{HCO}_3^-(\text{mg/l})}{61} - \frac{\text{Cl}^-(\text{mg/l})}{35.453} - \frac{2 * \text{SO}_4^-(\text{mg/l})}{96.06} \right)$$

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