TABLE 3-8
SUMMARY OF WATER QUALITY FOR MAGGIE CREEK AND HUMBOLDT RIVER

Monitoring Site[1] (Period of Record)	Total Concentration Statistics[2,3]	Temp °C	pH SU	Alk mg/l	Cond uMHOS/cm	Hard mg/l	TDS mg/l	TSS mg/l	Turb NTU	Ag mg/l	As mg/l	Ba mg/l	Cd mg/l	Cr mg/l	DO mg/l	Cu mg/l	Fe mg/l	Hg mg/l	Mn mg/l	Pb mg/l	Se mg/l	Zn mg/l
MAG-1 (1990-1998)	No. of Samples	32	31	16	32	9	33	33	30	13	34	10	17	31		31	34	17	30	34	33	33
	Minimum	5.1	7.35	100	320	120	222	bdl	bdl	bdl	bdl	bdl	bdl	bdl	4.400	bdl	bdl	bdl	bdl	bdl	bdl	bdl
	Average	15.6	8.33	199	511	189	335	74.4	22.85	0.004	0.013	0.15	0.003	0.011	7.720	0.006	1.09	0.0002	0.08	0.007	0.003	0.020
	Maximum	24.5	9.00	253	705	217	410	1100.0	280.00	0.005	0.033	0.86	0.005	0.022	12.160	0.064	30.00	0.0004	0.93	0.060	0.001	0.270
	No. above Detection Limit	32	31	16	32	9	33	25	29	1	32	7	1	3		8	30	3	25	3	2	17
	No. above Water Standard[4]	0	6	0	0	0	0	5	5	0	0	0	1	1		0	8	3	6	3	0	1
MAG-2 (1990-1996)	No. of Samples	22	22	11	22	11	25	26	22	13	26	9	17	22		22	26	17	22	26	18	26
	Minimum	0.0	6.90	95	239	120.00	230	bdl	bdl	bdl	bdl	bdl	bdl	bdl	2.990	bdl	0.02	bdl	bdl	bdl	bdl	bdl
	Average	12.6	8.25	185	453	186.91	339	57.4	18.69	bdl	0.009	0.173	bdl	0.011	7.020	0.008	1.45	0.00	0.08	0.007	0.011	0.021
	Maximum	25.7	9.10	229	702	220.00	580	1000.0	280.00	bdl	0.019	0.920	bdl	0.022	11.860	0.065	31.00	0.00	0.93	0.017	0.008	0.280
	No. above Detection Limit	21	22	11	22	11	25	20	21	0	23	7	0	3		5	26	3	17	2	4	18
	No. above Water Standard[4]	0	5	0	0	0	1	3	2	0	0	0	0	1		0	7	3	6	2	1	1
MAG-3 (1990-1998)	No. of Samples	33	33	19	33	12	36	37	32	15	36	11	18	33		33	37	18	33	37	37	37
	Minimum	0.2	7.20	90	8	102	221	bdl	bdl	bdl	bdl	bdl	bdl	bdl	3.200	bdl	bdl	bdl	bdl	bdl	bdl	bdl
	Average	12.2	8.28	170	466	174	319	45.3	16.25	bdl	0.007	0.12	0.004	0.008	8.520	0.005	0.84	0.0002	0.08	0.005	0.003	0.014
	Maximum	24.4	10.00	217	1424	217	490	650.0	180.00	bdl	0.014	0.62	0.010	0.015	14.730	0.044	21.00	0.0003	0.62	0.011	0.003	0.190
	No. above Detection Limit	33	33	19	33	12	36	28	31	0	30	8	3	4		7	36	3	29	2	3	21
	No. above Water Standard[4]	0	6	0	0	0	0	6	4	0	0	0	3	1		0	9	3	10	2	0	1
MAG-4 (1990-1996)	No. of Samples	30	31	24	29	16	34	35	31	19	35	15	24	31		31	35	24	31	35	35	35
	Minimum	0.3	6.96	80	111	110	217	bdl	bdl	bdl	bdl	bdl	bdl	bdl	3.100	bdl	bdl	bdl	bdl	bdl	bdl	bdl
	Average	11.0	8.23	158	398	177	308	24.1	10.06	0.004	0.003	0.08	0.003	0.009	7.890	0.007	0.59	0.0002	0.04	0.006	0.003	0.044
	Maximum	23.5	9.50	205	613	196	800	290.0	160.00	0.011	0.012	0.33	0.006	0.009	12.400	0.087	14.00	0.0003	0.35	0.017	0.012	0.738
	No. above Detection Limit	30	31	24	29	16	34	27	30	1	7	10	2	3		5	32	5	24	7	5	19
	No. above Water Standard[4]	0	5	0	0	0	1	3	4	1	0	0	2	0		0	7	5	5	7	1	3
HUM-1 (1990-1998)	No. of Samples	39	39	25	38	16	42	43	38	21	43	17	24	39		39	43	25	39	43	43	43
	Minimum	0.4	7.06	141	106	110	182	bdl	1.00	bdl	bdl	bdl	bdl	bdl	4.170	bdl	bdl	bdl	bdl	bdl	bdl	bdl
	Average	12.1	8.15	190	412	149	284	91.8	34.21	0.008	0.006	0.12	0.003	0.009	8.300	0.007	1.26	0.0002	0.10	0.006	0.003	0.016
	Maximum	24.1	8.72	230	621	190	356	771.0	260.00	0.096	0.019	0.54	0.006	0.018	15.340	0.036	24.00	0.0006	0.69	0.014	0.005	0.097
	No. above Detection Limit	39	39	25	38	16	42	40	38	1	33	16	1	5		14	42	5	37	8	1	30
	No. above Water Standard[4]	0	2	0	0	0	0	23	21	1	0	0	1	1		0	24	5	21	8	0	0
HUM-2 (1990-1996)	No. of Samples	29	29	19	29	14	31	32	29	17	32	14	21	29		29	32	21	29	32	32	32
	Minimum	1.0	7.10	130	111	120	217	bdl	0.80	bdl	bdl	bdl	bdl	bdl	4.200	bdl	bdl	bdl	bdl	bdl	bdl	bdl
	Average	13.0	8.12	194	447	164	311	84.7	28.59	0.005	0.008	0.14	0.004	0.012	7.270	0.006	1.44	0.0002	0.09	0.007	bdl	0.014
	Maximum	22.0	8.63	232	692	238	390	850.0	300.00	0.012	0.018	0.57	0.021	0.100	11.100	0.031	25.00	0.0004	0.77	0.015	bdl	0.100
	No. above Detection Limit	29	29	19	29	14	31	29	29	2	27	12	1	6		9	31	4	27	6	0	17
	No. above Water Standard[4]	0	1	0	0	0	0	16	13	1	0	0	1	2		0	17	4	15	6	0	0
HUM-3 (1990-1997)	No. of Samples	29	29	21	30	13	32	33	29	17	33	13	21	29		29	33	21	29	33	33	32
	Minimum	0.6	7.20	110	116	110	217	bdl	0.80	bdl	bdl	bdl	bdl	bdl	3.700	bdl	bdl	bdl	bdl	bdl	bdl	bdl
	Average	12.3	8.12	191	438	151	316	298.2	31.05	0.005	0.008	0.15	0.004	0.011	7.180	0.008	1.68	0.0002	0.11	0.008	0.003	0.018
	Maximum	24.0	8.50	227	635	184	414	7100.0	300.00	0.014	0.018	0.68	0.013	0.021	11.600	0.050	28.00	0.0009	0.81	0.035	0.012	0.160
	No. above Detection Limit	29	29	21	30	13	32	29	29	2	28	11	2	6		10	32	3	27	7	1	20
	No. above Water Standard[4]	0	0	0	0	0	0	16	14	1	0	0	2	1		0	18	3	19	7	1	1
HUM-4 (1990-1996)	No. of Samples	26	29	22	26	14	31	32	29	18	33	15	22	30		30	33	22	30	33	33	32
	Minimum	2.0	7.14	120	128	120	219	bdl	0.80	bdl	bdl	bdl	bdl	bdl	3.690	bdl	0.05	bdl	bdl	bdl	bdl	bdl
	Average	14.4	8.08	196	450	157	321	90.9	29.77	0.004	0.009	0.14	0.004	0.012	7.520	0.008	1.62	0.0002	0.10	0.006	bdl	0.021
	Maximum	24.2	8.51	240	629	200	450	1100.0	300.00	0.005	0.030	0.71	0.009	0.100	10.100	0.050	31.00	0.0008	0.89	0.017	bdl	0.160
	No. above Detection Limit	26	29	22	26	14	31	26	29	1	31	13	3	5		10	33	3	29	4	0	20
	No. above Water Standard[4]	0	1	0	0	0	0	18	16	0	0	0	3	2		0	18	3	20	4	0	1
HUM-5 (1990-1998)	No. of Samples	37	38	25	38	16	41	42	37	21	42	17	24	38		38	42	24	38	42	42	42
	Minimum	1.7	7.15	130	272	110	170	bdl	0.70	bdl	bdl	bdl	bdl	bdl	4.050	bdl	0.04	bdl	bdl	bdl	bdl	bdl
	Average	13.4	8.17	192	440	150	302	120.4	43.17	0.004	0.007	0.15	0.003	0.018	8.510	bdl	1.57	0.0002	0.10	0.007	0.003	0.018
	Maximum	23.0	8.50	229	636	185	372	1200.0	351.00	0.018	0.020	0.86	0.005	0.380	14.340	0.047	36.00	0.0008	1.00	0.050	0.005	0.180
	No. above Detection Limit	37	38	25	38	16	41	39	37	1	35	15	2	4		11	42	3	36	8	1	28
	No. above Water Standard[4]	0	0	0	0	0	0	22	18	1	0	0	2	2		0	22	3	18	8	0	1

TABLE 3-8
SUMMARY OF WATER QUALITY FOR MAGGIE CREEK AND HUMBOLDT RIVER

Monitoring Site[1] (Period of Record)	Total Concentration Statistics[2,3]	Temp °C	pH SU	Alk mg/l	Cond uMHOS/cm	Hard mg/l	TDS mg/l	TSS mg/l	Turb NTU	Ag mg/l	As mg/l	Ba mg/l	Cd mg/l	Cr mg/l	DO mg/l	Cu mg/l	Fe mg/l	Hg mg/l	Mn mg/l	Pb mg/l	Se mg/l	Zn mg/l
HUM-6 (1991-1996)	No. of Samples	25	26	18	25	14	25	26	26	14	26	14	17	26		26	26	17	26	26	26	26
	Minimum	8.7	6.75	130	300	120	218	bdl	bdl	bdl	bdl	0.11	bdl	bdl	2.400	bdl	bdl	bdl	bdl	bdl	bdl	bdl
	Average	44.0	7.88	241	694	171	368	91.7	27.53	0.004	0.011	0.26	0.003	0.013	4.720	0.008	1.54	0.0002	0.11	0.007	0.003	0.022
	Maximum	75.5	8.28	312	1200	195	452	1000.0	300.00	0.005	0.027	0.65	0.007	0.130	9.980	0.050	27.00	0.0003	0.90	0.020	0.009	0.140
	No. above Detection Limit	25	26	18	25	14	25	24	25	1	24	14	3	3		7	25	4	23	4	1	16
	No. above Water Standard[4]	0	0	0	0	0	0	12	10	0	0	0	3	2		0	13	4	13	4	1	0
HUM-7 (1991-1996)	No. of Samples	24	25	18	24	15	24	25	25	15	25	15	16	25		25	25	16	25	25	25	25
	Minimum	5.4	7.70	120	295	119	210	bdl	1.70	bdl	bdl	bdl	bdl	bdl	3.440	bdl	0.09	bdl	bdl	bdl	bdl	bdl
	Average	15.8	8.13	189	440	154	310	113.5	33.69	bdl	0.009	0.15	0.00	0.009	7.530	0.007	1.89	0.0001	0.11	0.007	0.003	0.033
	Maximum	29.7	8.41	226	740	190	395	990.0	280.00	bdl	0.036	0.68	0.01	0.020	12.660	0.041	28.00	0.0002	0.85	0.050	0.005	0.326
	No. above Detection Limit	24	25	18	24	15	24	24	25	0	20	13	1	3		10	25	3	24	5	1	16
	No. above Water Standard[4]	0	0	0	0	0	0	16	14	0	0	0	1	1		0	18	3	18	5	0	2
HUM-8 (1991-1996)	No. of Samples	26	28	21	27	13	27	28	28	14	28	14	17	28		28	28	17	28	28	28	28
	Minimum	5.9	7.10	130	298	119	224	bdl	0.70	bdl	bdl	bdl	bdl	bdl	3.900	bdl	0.07	bdl	bdl	bdl	bdl	bdl
	Average	15.9	8.05	200	454	155	311	98.5	30.94	bdl	0.011	0.15	0.00	0.011	7.020	0.024	1.70	0.0002	0.10	0.007	0.003	0.026
	Maximum	29.5	8.46	301	606	190	380	1000.0	320.00	bdl	0.050	0.72	0.01	0.020	10.700	0.040	29.00	0.0008	0.89	0.018	0.002	0.150
	No. above Detection Limit	26	28	21	27	13	27	27	28	0	26	12	2	5		10	28	4	27	3	1	16
	No. above Water Standard[4]	0	0	0	0	0	0	14	13	0	0	0	2	1		0	16	4	20	3	0	1
Maximum Detection Limit		NR	NR	NR	NR	NR	NR	5	0.50	0.050	0.005	0.10	0.010	0.100		5.000	0.05	0.0010	0.05	0.050	0.100	0.025
Drinking Water Standards[5]			6.5-8.5 (s)				500(s)			0.050	0.050	2.0	0.005	0.100		1.3	0.3(s)	0.002	0.05(s)	0.05	0.05	5.0(s)
Aquatic Life Standards[6]			6.5-9.0					25-80	10	0.009	0.18(d)-0.34(d)		0.0015(d)-0.006(d)	0.01(d)-0.015(d)		16.1(d)-25.3(d)	1.0	0.000012(d)-0.002		0.0016(d)-0.08(d)	0.005-0.02	0.145(d)-0.160(d)

Source: Newmont, 1999; NAC 445A.144

[1] See Figure 3-2 for location of monitoring sites; MAG-1 through MAG-4 are located on Maggie Creek, HUM-1 through HUM-8 are located on the Humboldt River; HUM-6 is located where Carlin Hot Spring discharges into the Humboldt River. All four stations on Maggie Creek are within the Class C designation; all stations on the Humboldt River, except HUM-5 (Palisade), are withing the Palisade control point designation.

[2] Average values were calculated assuming half detection limit for values below detection limit.

[3] Samples collected generally quarterly; Alk. = Alkalinity; Cond. = Conductivity (field); Hard. = Hardness; TDS = total dissolved solids; TSS = total suspended solids; Turb. = turbidity; Ag = silver; As = arsenic; Ba = barium; Cd = cadmium; Cr = chromium; DO = dissolved oxygen (field measured); Cu = Copper; Fe = iron; Hg = mercury; Mn = manganese; Pb = lead; Se = selenium; Zn = zinc; °C = degree celsius; SU = standard pH units (lab measured); mg/l = milligrams per liter; uMHOS/cm = microhoms per cemtimenter; NTU = nephelometric turbidity units; bdl = below detection limits.

[4] Based on strictest standard.

[5] All concentrations reported are primary drinking water standards unless followed by (s) indicating secondary standards.

[6] All standards for metals are for total recoverable, unless noted with (d) for dissolved fraction.

Ag, Cd, Cu, Pb, and Zn concentration standards are calculated based on a hardness of 175 mg/l, representative of Maggie Creek and the Humboldt River.

For As, Cd, Cr, Cu, Hg, Pb, Se, and Zn low values are 96-hour average concentration limits, high values are 1-hour average concentration limits. Both may be exceeded only once every 3 years.

For Ag and Fe single concentration limits must not be exceeded.