Attachment A

Historical Baseline and End-of-Production Groundwater Quality at Operating ISR Facilities

Irigaray Mine

Source: COGEMA Mining, Inc., 2004, Irigaray Mine Wellfield Restoration Report, Permit to Mine No. 478, July 26, 2004, Prepared by COGEMA Mining, Inc., Petrotek Engineering Corporation and Hydrosolutions, Inc., July 2004. Available from the NRC ADAMS document server under accession nos. ML053270037 and ML053270041.

APPENDIX A
TABLE A-1

Individual Well Baseline Water Quality for Irigaray Units 1 through 9

Well I.D.:	AP-3				AP-4				AP-5			
Production Unit:	UNIT 1				UNIT 1				UNIT 1			
Sample Date:	1976				1976				1976			
Major Ions mg/l:												
Ca	7.3	7.3	7.3	9.6	9.1	9.4	9.4	14.1	2.3	1.6	1.8	5.4
Mg	0.8	0.8	0.8	0.8	0.9	0.9	1	1.2	< 0.1	< 0.1	0.1	0.26
Na	128	127	125	134	128	125	126	145	125	127	128	130
K	2.4	2.1	2.1	2.5	1.9	2.5	1.9	2.4	3.6	5.3	4.9	3.6
CO3	2.2	1.2	4.2	16.1	3.6	1.3	3.9	12.4	8.4	21	19.5	28.5
HC03	73.6	79.2	71.7	98.3	77.4	84.2	82.2	118	44.8	14.2	20.8	75.9
SO4	200	195	193	185	206	201	202	210	195	225	228	180
Cl	12.3	12.3	13	8.9	12.3	12	11.8		12.8	12.8	13	9.2
NH4	< 0.2	< 0.2	0.2	0.1	< 0.2	< 0.2	0.2	0.2	< 0.2	< 0.2	0.2	0.15
NO2 (N)	0.02	< 0.02	0.02	0.25	< 0.02	< 0.02	< 0.02	0.02	< 0.02	< 0.02	< 0.02	0.02
NO3 (N)	0.4	0.35	0.53	0.3	0.44	0.58	0.66	0.65	0.4	0.35	0.31	0.2
F	0.28	0.28	0.28	0.68	0.31	0.33	0.33	0.35	0.28	0.3	0.28	0.25
SiO2	3.9	3.8	3.75	3.8	4.3	4.2	4.6	4.4	3.2	3.85	4	3.4
TDS	380	358	372	394	386	386	388	438	350	338	308	364
Cond. (umho/cm)	605	615	620	610	630	535	618	670	600	638	625	610
Alk. (as CaC03)	92	98	92	93.6	98	102	102	106.8	84	92	94	85.4
pH (units)	8.70	8.40	9.00	8.50	8.90	8.40	8.90	9.00	9.50	10.40	10.20	9.70
Trace Metals mg/l:												
Al												
As	< 0.01	0.012	0.012	0.022	0.082	0.095	0.094	0.105	< 0.01	< 0.01	< 0.01	0.005
Ba	0.016	0.016	0.011	< 0.01	< 0.01	0.015	0.02	0.022	< 0.01	0.043	0.036	0.022
B	0.225	0.1	0.095	0.06	0.109	0.077	0.117	0.08	0.113	0.118	0.11	0.06
Cd	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Cr	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0.002	0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Cu	< 0.005	0.005	< 0.005	< 0.005	< 0.005	0.009	0.012	< 0.005	< 0.005	< 0.005	0.009	< 0.005
Fe	0.036	0.436	0.518	0.20	0.04	0.206	0.559	0.019	0.071	0.21	0.314	0.115
Pb	0.002	0.008	0.008	0.005	< 0.002	0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Mn	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
Hg	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Mo	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.03	< 0.02	< 0.02	< 0.02	< 0.02
Ni	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Se	0.022	0.024	0.02	0.174	0.266	0.416	0.283	2.0*	0.057	0.043	0.035	0.218
V	< 0.05	< 0.05	0.05	0.08	0.21	0.29	0.31	0.55	0.12	0.1	0.09	0.09
Zn	< 0.02	< 0.02	0.02	0.017	< 0.02	< 0.02	< 0.02	0.009	< 0.02	< 0.02	< 0.02	0.009
Radiometric pCi/l:												
U (mg/l)	3.35	3.4	3.46	5.17	9.73	11.89	14.05	18.6	0.56	0.32	0.33	0.33
Ra 226	43	51	59	76	77	125	165	210	22	22	22	28
Ra 226 +/-	7	7	8	8	8	15	20	20	5	5	5	5

APPENDIX A
TABLE A-1

Individual Well Baseline Water Quality for Irigaray Units 1 through 9

Well I.D.:	AP-10				DI-4				DI-12		
Production Unit:	UNIT 1				UNIT 2				UNIT 2		
Sample Date:	1976				1978				1978		
Major Ions mg/l:											
Ca	7.5	6.8	6.7	8.8	5.9	3.9	4.2	5.8	8.8	8.3	7.5
Mg	1	0.9	0.9	1.19	0.12	0.12	0.13	0.31	1.1	0.96	0.9
Na	121	127	125	131	100	97	105	118	113	102	112
K	1.9	1.7	1.7	2.3	2	1.7	1.9	1.3	2	1.7	1.8
CO3	1.5	0.8	1.9	12.4	40	31	38	5	5	5	6
HC03	79.1	84.1	78.9	102.1	39	57	39	116	131	131	115
SO4	188	189	195	180	221	153	156	157	174	168	165
Cl	13.3	13.5	13.8	9.4	12	11.4	12.3	13	7	5.3	11
NH4	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
NO2 (N)	0.24	< 0.02	< 0.02	< 0.02	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
NO3 (N)	0.35	0.44	0.44	0.27	1.0	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
F	0.28	0.28	0.33	0.28	0.43	0.4	0.42	0.37	0.33	0.35	0.35
SiO2	3.45	3.75	3.65	3.3	10.6	10.4	9.6	7.4	9.9	10.2	10
TDS	368	410	358	390	413	338	348	367	388	368	373
Cond. (umho/cm)	595	580	580	600	739	608	640	636	661	623	641
Alk. (as CaC03)	90	96	96	93.6	131	145	127	95	215	215	199
pH (units)	8.50	8.20	8.60	9.10	9.90	9.80	9.80	8.00	8.60	8.60	8.50
Trace Metals mg/l:											
Al											
As	< 0.01	< 0.01	< 0.01	0.009	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ba	0.023	0.015	0.015	0.022	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
B	0.134	0.125	0.099	0.04	0.01	0.01	0.01	0.05	0.02	< 0.01	< 0.01
Cd	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0.002	0.013	< 0.002	< 0.002	< 0.002
Cr	< 0.002	< 0.002	< 0.002	< 0.002	< 0.005	< 0.005	0.005	0.063	0.063	< 0.005	< 0.005
Cu	< 0.005	< 0.005	0.005	< 0.005	0.013	0.013	0.025	< 0.005	0.009	0.025	0.022
Fe	2.0	0.651	0.332	1.2	0.07	0.05	0.41	0.06	0.05	0.08	0.07
Pb	< 0.002	0.008	< 0.002	0.002	< 0.005	< 0.005	0.005	0.014	0.014	< 0.005	< 0.005
Mn	< 0.025	< 0.025	< 0.025	0.038	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Hg	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Mo	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Ni	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Se	0.022	< 0.01	0.011	0.066	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
V	< 0.05	< 0.05	< 0.05	0.07	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Zn	< 0.02	< 0.02	< 0.02	0.009	< 0.02	< 0.02	0.03	< 0.02	0.02	< 0.02	< 0.02
Radiometric pCi/l:											
U (mg/l)	0.83	1.38	0.93	1.51	0.198	0.103	0.131	0.03	0.067	0.054	0.053
Ra 226	35	26	17	34	44	45	35.5	24	78.3	48.1	63.6
Ra 226 +/-	3	2	2	8	1.7	1.7	1.5	2.0	2.5	2.0	2.3

APPENDIX A
TABLE A-1

Individual Well Baseline Water Quality for Irigaray Units 1 through 9

Well I.D.:	DP-7			EI-34			DI-21			
Production Unit:	UNIT 2			UNIT 2			UNIT 3			
Sample Date:	1978			1978			1978			
Major Ions mg/l:										
Ca	9.1	8.6	8.5	10.3	9.1	8.7	5.8	6.2	7.9	6.5
Mg	1.5	1.3	1.2	2.1	1.8	1.7	0.02	0.04	0.02	0.17
Na	112	99	106	110	103	110	100	95	104	118
K	2	1.4	1.8	2.2	1.8	2.1	3	2.2	2.4	1.3
CO3	12	5	10	9	8	11	96	73	49	16.8
HC03	104	124	107	132	131	107	5	5	5	75.6
SO4	185	170	167	180	176	173	144	140	136	150
Cl	12.4	12.2	11.1	12	12.5	11.4	12	12.7	11.5	13
NH4	< 0.1 <	0.1 <	0.1	< 0.1 <	0.1 <	0.1	0.2	0.2	0.2	0.07
NO2 (N)	< 0.03 <	0.03 <	0.03	< 0.03 <	0.03 <	0.03	< 0.03 <	0.03 <	0.03 <	0.03
NO3 (N)	< 1.0 <	1.0 <	1.0	< 1.0 <	1.0 <	1.0	< 1.0 <	1.0 <	1.0 <	1.0
F	0.35	0.35	0.3	0.31	0.31	0.31	0.36	0.35	0.36	0.39
SiO2	8.1	5.6	10.2	8.3	9.6	9.8	13.7	13.1	6.7	7.8
TDS	395	366	371	401	389	382	378	346	321	353
Cond. (umho/cm)	691	631	641	695	667	665	755	674	622	631
Alk. (as CaC03)	191	203	193	232	228	194	160	122	82	90
pH (units)	8.80	8.80	8.70	8.70	8.70	8.60	10.80	10.90	11.00	8.40
Trace Metals mg/l:										
Al										0.07
As	< 0.01 <	0.01 <	0.01	< 0.01 <	0.01 <	0.01	< 0.01 <	0.01 <	0.01 <	0.01
Ba	< 0.05 <	0.05 <	0.05	< 0.05 <	0.05 <	0.05	< 0.05 <	0.05 <	0.05 <	0.05
B	0.01	0.01	0.01	0.02	0.02	0.02	< 0.01	0.01 <	0.01	0.07
Cd	< 0.002 <	0.002 <	0.002	< 0.002 <	0.002 <	0.002	< 0.002 <	0.002 <	0.002 <	0.002
Cr	< 0.005 <	0.005 <	0.005	< 0.005 <	0.005 <	0.005	< 0.005 <	0.005 <	0.005 <	0.005
Cu	0.011	0.021	0.012	0.037	0.04	0.032	0.021	0.02	0.022 <	0.005
Fe	0.36	0.13	0.09	0.50	0.14	0.54	0.04	0.03	0.04	0.10
Pb	< 0.005 <	0.005 <	0.005	< 0.005 <	0.005 <	0.005	< 0.005 <	0.005 <	0.005 <	0.005
Mn	< 0.005 <	0.005 <	0.005	0.007	0.022	0.146	< 0.005 <	0.005 <	0.005 <	0.005
Hg	< 0.0002 <	0.0002 <	0.0002	< 0.0002 <	0.0002 <	0.0002	< 0.0002 <	0.0002 <	0.0002 <	0.0002
Mo	< 0.05 <	0.05 <	0.05	< 0.05 <	0.05 <	0.05	< 0.05 <	0.05 <	0.05 <	0.05
Ni	< 0.2 <	0.2 <	0.2	< 0.2 <	0.2 <	0.2	< 0.2 <	0.2 <	0.2 <	0.2
Se	< 0.01 <	0.01 <	0.01	< 0.01 <	0.01 <	0.01	< 0.01 <	0.01 <	0.01 <	0.01
V	< 0.05 <	0.05 <	0.05	< 0.05 <	0.05 <	0.05	< 0.05 <	0.05 <	0.05 <	0.05
Zn	< 0.02 <	0.02 <	0.02	< 0.02 <	0.02	0.02	< 0.02 <	0.02 <	0.02 <	0.02
Radiometric pCi/l:										
U (mg/l)	0.464	0.346	0.274	0.096	0.086	0.089	0.014	0.014 <	0.01	0.03
Ra 226	23.9	25.2	21.5	84.8	70.6	64.5	21.7	20.7	23.2	14
Ra 226 +/-	1.2	1.4	1.2	2.3	2.0	2.0	1.2	1.2	1.2	1.0

APPENDIX A
TABLE A-1

Individual Well Baseline Water Quality for Irigaray Units 1 through 9

Well I.D.:	DI-27			FI-60			FI-62		
Production Unit:	UNIT 3			UNIT 4			UNIT 4		
Sample Date:	1978			1978			1978		
Major Ions mg/l:									
Ca	9.5	9.7	9	10.1	5.8	4.7	6.3	7.7	7.1
Mg	2	2.2	2.1	2.5	0.52	0.65	1.4	1.3	1.2
Na	101	96	105	105	113	115	102	110	117
K	2.2	2.4	2.2	4	1.8	2.1	3.5	2.6	2.8
CO3	6	6	9	31	17	26	20	21	26
HC03	128	132	114	95	76	61	101	82	76
SO4	168	156	160	189	180	189	179	179	177
Cl	11.9	12.3	11.9	12.2	13.4	13	12.4	13.2	13.2
NH4	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1
NO2 (N)	< 0.03	0.082	0.055	0.052	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
NO3 (N)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
F	0.38	0.38	0.36	0.28	0.27	0.28	0.27	0.28	0.28
SiO2	10.3	10.6	10.4	8.3	7.8	7.8	8.3	9.6	7.2
TDS	376	363	368	401	379	389	385	387	391
Cond. (umho/cm)	645	620	637	711	669	699	675	685	705
Alk. (as CaC03)	220	227	202	113	91	93.5	116.5	102	106
pH (units)	8.70	8.70	8.60	9.20	9.30	9.30	9.10	9.40	9.20
Trace Metals mg/l:									
Al									
As	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ba	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
B	< 0.01	< 0.01	< 0.01	0.02	0.03	0.01	0.02	0.02	0.02
Cd	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Cr	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Cu	0.021	0.018	0.017	0.036	0.028	0.02	0.033	0.03	0.019
Fe	0.77	3.37	1.81	0.46	0.07	0.65	0.06	0.13	0.04
Pb	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Mn	0.023	0.093	0.048	0.012	0.006	0.01	< 0.005	< 0.005	< 0.005
Hg	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Mo	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Ni	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Se	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
V	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Zn	< 0.02	< 0.02	0.02	0.03	0.03	0.03	< 0.02	< 0.02	0.02
Radiometric pCi/l:									
U (mg/l)	0.057	0.039	0.035	0.032	0.039	0.043	0.232	0.192	0.164
Ra 226	17	34	25.7	29.2	34.6	22.9	33	38	31.2
Ra 226 +/-	1.2	1.5	1.4	0	1.5	1.2	1.5	1.5	1.4

APPENDIX A
TABLE A-1

Individual Well Baseline Water Quality for Irigaray Units 1 through 9

Well I.D.:		FI-64					FI-66				FI-67			
Production Unit:		UNIT 4					UNIT 4				UNIT 4			
Sample Date:		1978					1978				1978			
Major Ions mg/l:														
Ca		5.5	5	3.5	8.4		4.2	2.4	2.1		5.3	3.7	3.5	6.8
Mg		0.34	0.32	0.14	0.48		1.4	0.61	0.47		1.8	1.1	0.75	0.32
Na		98	112	118	125		104	113	111		106	117	115	126
K		2.8	3.1	3.1	1.5		2.9	3.5	3.6		3.9	3.2	3.3	1.5
CO3		37	38	41	13.2		25	31	34		41	30	33	14.4
HC03		46	37	34	89.1		78	69	63		54	61	52	89.1
SO4		177	185	171	164		176	180	171		182	195	186	182
Cl		12.5	13.2	13.1	13		12.3	13.1	12.3		11.7	12.8	12.7	13
NH4		0.2 <	0.1	0.2 <	0.1	<	0.1	0.1	0.1		0.2	0.1	0.1 <	0.1
NO2 (N)	<	0.03 <	0.03 <	0.03 <	0.03	<	0.03 <	0.03 <	0.03	<	0.03 <	0.03 <	0.03	0.01
NO3 (N)	<	1.0 <	1.0 <	1.0 <	1.0	<	1.0 <	1.0 <	1.0	<	1.0 <	1.0 <	1.0 <	1.0
F		0.3	0.28	0.28	0.35		0.28	0.27	0.27		0.27	0.28	0.28	0.32
SiO2		8.4	14.8	17.2	7.5		11.5	8.7	10.7		11.9	11.1	11.5	7.8
TDS		366	391	385	379		378	388	378		392	406	393	398
Cond. (umho/cm)		666	705	697	673		666	697	680		713	724	706	702
Alk. (as CaC03)		99	94	96.5	95		105.5	108	108		112.5	100	97.5	97
pH (units)		9.70	9.90	9.90	8.10		9.30	9.70	9.80		9.90	9.60	9.80	8.10
Trace Metals mg/l:														
Al														
As	<	0.01 <	0.01 <	0.01 <	0.01	<	0.01 <	0.01 <	0.01	<	0.01 <	0.01 <	0.01 <	0.01
Ba	<	0.05 <	0.05 <	0.05 <	0.05	<	0.05 <	0.05 <	0.05	<	0.05 <	0.05 <	0.05 <	0.05
B		0.02	0.01	0.02	0.03		0.01	0.02	0.02		0.02	0.01	0.01	0.07
Cd	<	0.002 <	0.002 <	0.002 <	0.002	<	0.002 <	0.002 <	0.002	<	0.002 <	0.002 <	0.002 <	0.002
Cr	<	0.005 <	0.005 <	0.005 <	0.005	<	0.005 <	0.005 <	0.005	<	0.005 <	0.005 <	0.005 <	0.005
Cu		0.026	0.017	0.027	0.007	<	0.005	0.025	0.023		0.014	0.015	0.018	0.005
Fe		0.69	0.16	0.02	0.02	<	0.02	0.27	0.11		0.06	0.13	0.07	0.71
Pb	<	0.005 <	0.005 <	0.005 <	0.005	<	0.005 <	0.005 <	0.005	<	0.005 <	0.005 <	0.005 <	0.005
Mn	<	0.005 <	0.005 <	0.005 <	0.005	<	0.005 <	0.005 <	0.005	<	0.005 <	0.005 <	0.005	0.013
Hg	<	0.0002 <	0.0002 <	0.0002 <	0.0002	<	0.0002 <	0.0002 <	0.0002	<	0.0002 <	0.0002 <	0.0002 <	0.0002
Mo	<	0.05 <	0.05 <	0.05 <	0.05	<	0.05 <	0.05 <	0.05	<	0.05 <	0.05 <	0.05 <	0.05
Ni	<	0.2 <	0.2 <	0.2 <	0.2	<	0.2 <	0.2 <	0.2	<	0.2 <	0.2 <	0.2 <	0.2
Se	<	0.01 <	0.01 <	0.01 <	0.01	<	0.01 <	0.01 <	0.01	<	0.01 <	0.01 <	0.01 <	0.01
V	<	0.05 <	0.05 <	0.05 <	0.05	<	0.05 <	0.05 <	0.05	<	0.05 <	0.05 <	0.05 <	0.05
Zn	<	0.02	0.07 <	0.02 <	0.02	<	0.02 <	0.02 <	0.02	<	0.02	0.06	0.06 <	0.01
Radiometric pCi/l:														
U (mg/l)		0.02	0.032	0.036	0.05		0.045	0.055	0.055		0.017	0.024	0.023	0.02
Ra 226		34.5	56.6	53.1	0		19.2	22.5	23		66.1	73	67.1	87
Ra 226 +/-		1.5	1.9	1.9	0.3		1.0	1.2	1.2		2.0	2.1	2.0	3.0

APPENDIX A
TABLE A-1

Individual Well Baseline Water Quality for Irigaray Units 1 through 9

Well I.D.:	GI-76			GI-82			GI-105			GI-122		
Production Unit:	UNIT 4			UNIT 5			UNIT 5			UNIT 5		
Sample Date:	1978-1979			1982			1979			1979		
Major Ions mg/l:												
Ca	6.4	6.1	6.8	5.1	4.6	3.3	6.6	12.1	12.9	7.3	8.0	8.1
Mg	0.85	0.8	0.84	0.55	0.53	0.37	0.56	1.03	1.11	0.67	0.83	0.87
Na	116	117	121	121	120	118	117	116	120	129	115	125
K	1.5	0.92	1.7	2.4	2.6	3.0	1.9	2.0	1.7	1.7	1.8	1.8
CO3	8.4	11.4	8.7	30.7	25.7	26.6	11	32.9	25.2	9.6	14.4	10.6
HC03	101.3	95.4	108.4	60	49.8	45.3	88	52.9	68.3	85.4	92.1	91.5
SO4	178	174	178	168	174	171	164	169	165	176	165	195
Cl	12.8	12.2	11.9	13.2	12.7	11.7	12.7	12	15.1	10.7	10.7	11.6
NH4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
NO2 (N)												
NO3 (N)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
F	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
SiO2	8.3	6.4	9.1	11.4	11.2	10.8	6	4.3	4.1	7	7.2	7.3
TDS	394	401	402	427	362	357	370	322	390	375	379	420
Cond. (umho/cm)	625	623	586	558	615	602	619	605	662	612	645	647
Alk. (as CaC03)	97.1	97.2	96	100.4	83.7	81.5	105.8	98.2	98	86	92.5	92.6
pH (units)	8.70	8.80	8.50	9.40	9.30	9.30	9.50	9.40	9.60	9.00	8.90	8.90
Trace Metals mg/l:												
Al	< 0.05	< 0.05	0.05	0.05	0.06	< 0.05	2.3	0.17	0.4	0.09	0.25	1.57
As	< 0.002	< 0.002	0.002	0.001	0.001	< 0.001	0.003	< 0.002	< 0.002	0.002	0.002	0.002
Ba	< 0.05	< 0.05	0.05	< 0.05	< 0.05	< 0.05	0.12	0.06	0.06	< 0.05	< 0.05	0.06
B	< 0.01	< 0.01	0.01	0.07	0.07	0.08	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.2
Cd	< 0.002	< 0.002	0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0.002
Cr	< 0.005	< 0.005	0.005	< 0.005	< 0.005	< 0.005	0.006	< 0.005	< 0.005	< 0.005	< 0.005	0.005
Cu	< 0.005	< 0.005	0.005	0.03	0.03	0.03	0.007	< 0.005	< 0.005	0.002	0.004	0.015
Fe	0.04	0.03	0.02	0.04	0.05	0.03	3.95	0.21	0.8	0.19	0.41	3.17
Pb	< 0.005	< 0.005	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.007
Mn	0.006	0.007	0.007	< 0.005	< 0.005	< 0.005	0.08	< 0.005	0.02	< 0.005	0.008	0.041
Hg	< 0.0002	< 0.0002	0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0002
Mo	< 0.05	< 0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Ni	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.01
Se				< 0.001	< 0.001	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
V	< 0.05	< 0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Zn	0.02	0.01	< 0.01	0.01	0.01	0.01	0.03	0.01	0.02	< 0.01	< 0.01	0.02
Radiometric pCi/l:												
U (mg/l)	0.02	0.01	< 0.01	0.01	0.04	0.06	0.03	< 0.01	< 0.01	0.02	0.02	0.02
Ra 226	4.6	6.3	4.9	8.3	5.3	6.3	3.9	2.3	3.5	4	6	10
Ra 226 +/-	1.1	1.3	1.1	0.7	0.6	0.6	0.6	0.5	0.6	0.4	0.5	0.6

APPENDIX A
TABLE A-1

Individual Well Baseline Water Quality for Irigaray Units 1 through 9

Well I.D.:	HI-50					HI-53					HI-57				
Production Unit:	UNIT 6					UNIT 6					UNIT 6				
Sample Date:	03-Dec-87	22-Dec-87	14-Jan-88	02-Feb-88	23-Feb-88	05-Oct-87	08-Sep-87	16-May-79	02-Jun-79	06-Jun-79	20-Jun-79	28-Jun-79	05-Jul-79	17-Dec-87	05-Jan-88
Major Ions mg/l:															
Ca	3.2	3.4	3.1	5.0	5.0	4.9	5.0	13.9	12.2	11.3	8.7	12.4	14.7	23.1	24.7
Mg	0.38	0.41	0.58	0.61	0.67	0.48	0.5	1.05	0.75	1.0	0.53	0.7	0.8	2.6	2.7
Na	126	126	130	127	126	112	110	119	115	114	124	126	133	248	242
K	1.9	2.2	1.5	1.6	1.4	1.3	1.2	3.7	2.6	3.0	2.1	1.9	1.9	3.5	3
CO3	8.5	7	2.4	2.4	2.8	3.0	2.3	22.6	24.1	25.0	19.9	24	18.6	0	0
HC03	83.7	91.8	106	107	106	110	127	62.2	69.8	55	97	73.2	77.5	82.7	82.7
SO4	175	171	181	174	181	140	137	165	164	162	163	168	180	504	493
Cl	11.8	9.9	10.4	9.6	10.8	8.8	7.8	13.2	12.4	11.8	12.8	12.9	11.5	10.5	9
NH4	0.07	0.14	0.27	0.14	0.27	0.21	0.18 <	0.5 <	0.5 <	0.5 <	0.5 <	0.5 <	0.5	0.29	0.26
NO2 (N)	0.1 <	0.02 <	0.04 <	0.03	0.02	0.06 <	0.03 <	1.0 <	1.0 <	1.0 <	1.00 <	1.00 <	1.00 <	0.04 <	0.02
NO3 (N)															
F	0.3	0.29	0.27	0.34	0.26	0.2	0.46	0.3	0.3	0.3	0.30	0.20	0.30	0.16	0.15
SiO2	9.8	9.8	10.5	8.8	9.2	9.2	9	9.5	6.3	12	6	9.4	7.7	9.2	9.4
TDS	352	364	368	360	386	346	324	408.4	370.8	319.6	420.4	424.2	446.1	784	766
Cond. (umho/cm)	627	623	668	660	642	535	490	625	616	588	632	637	632	1257	1343
Alk. (as CaC03)	83.8	87.8	91	91.8	91.8	95.8	108	96.2	98.2	86.7	96.1	100	94.5	67.8	67.8
pH (units)	9.34	9.22	8.7	8.68	8.75	8.77	8.59	9.1	9.1	9.3	9.4	9.3	9.3	7.66	7.75
Trace Metals mg/l:															
Al	< 0.1 <	0.1 <	0.1 <	0.1 <	0.1	< 0.1 <	0.1	0.93	0.42	0.37	< 0.05 <	0.05 <	0.05 <	0.10 <	0.10
As	0.005	0.004	0.002	0.003	0.002	< 0.001 <	0.001 <	0.002 <	0.002 <	0.002	0.003	0.002	0.003	0.002	0.002
Ba	< 0.1 <	0.1 <	0.1 <	0.1 <	0.1	< 0.1 <	0.1	0.1	0.09	0.07	< 0.05 <	0.05 <	0.05 <	0.10 <	0.10
B	< 0.1 <	0.1 <	0.1 <	0.1 <	0.1	< 0.1 <	0.1 <	0.2 <	0.2 <	0.2	< 0.2 <	0.2 <	0.2 <	0.1 <	0.1
Cd	< 0.01 <	0.01 <	0.01 <	0.01 <	0.01	< 0.01 <	0.01 <	0.002 <	0.002 <	0.002	< 0.002 <	0.002 <	0.002 <	0.01 <	0.01
Cr	< 0.05 <	0.05 <	0.05 <	0.05 <	0.05	< 0.05 <	0.05 <	0.005 <	0.005 <	0.005	< 0.005 <	0.005 <	0.005 <	0.05 <	0.05
Cu	< 0.01 <	0.01 <	0.01 <	0.01 <	0.01	< 0.01 <	0.01	0.007 <	0.005 <	0.005	0.013	0.008	0.013 <	0.01 <	0.01
Fe	< 0.05 <	0.05 <	0.05 <	0.05 <	0.05	< 0.05 <	0.05	1.4	0.72	0.61	< 0.02 <	0.02 <	0.02 <	0.05 <	0.05
Pb	< 0.05 <	0.05 <	0.05 <	0.05 <	0.05	< 0.05 <	0.05 <	0.005 <	0.005 <	0.005	< 0.005 <	0.005 <	0.005 <	0.05 <	0.05
Mn	< 0.01 <	0.01 <	0.01 <	0.01 <	0.01	< 0.01 <	0.01	0.03 <	0.005 <	0.005	< 0.005 <	0.005 <	0.005 <	0.01 <	0.01
Hg	< 0.001 <	0.001 <	0.001 <	0.001 <	0.001	< 0.001 <	0.001 <	0.0002 <	0.0002 <	0.0002	< 0.0002 <	0.0002 <	0.0002 <	0.001 <	0.001
Mo	< 0.1 <	0.1 <	0.1 <	0.1 <	0.1	< 0.1 <	0.1 <	0.05 <	0.05 <	0.05	< 0.05 <	0.05 <	0.05 <	0.10 <	0.10
Ni	< 0.05 <	0.05 <	0.05 <	0.05 <	0.05	< 0.05 <	0.05 <	0.01 <	0.01 <	0.01	0.01 <	0.01	0.01 <	0.05 <	0.05
Se	< 0.001 <	0.001 <	0.001 <	0.001 <	0.001	< 0.001 <	0.001	0.002	0.004	0.005	< 0.002 <	0.002 <	0.002 <	0.001 <	0.001
V	< 0.1 <	0.1 <	0.1 <	0.1 <	0.1	< 0.1 <	0.1 <	0.05 <	0.05 <	0.05	< 0.05 <	0.05 <	0.05 <	0.10 <	0.10
Zn	< 0.01 <	0.01 <	0.01	0.03 <	0.01	0.2 <	0.01	0.11	0.02	0.02	0.01 <	0.01	0.01 <	0.01 <	0.01
Radiometric pCi/l:															
U (mg/l)	0.0355	0.0326	0.0221	0.0335	0.0192	0.007	0.004	0.0594	0.0424	0.0424	0.6106	0.7971	1.0176	0.624	0.394
Ra 226	14.9	14.9	16.6	19.9	37.6	7.1	1.3	21	20	19	90	96	77	247.7	203.7
Ra 226 +/-	1.1	0.9	0.9	1.2	1.7	0.8	0.4	1	1	1	3	3	3	3.8	3.6

APPENDIX A
TABLE A-1

Individual Well Baseline Water Quality
for Irigaray Units 1 through 9

Well I.D.:	HI-62					HP-24					HP-59				
Production Unit:	UNIT 6					UNIT 6					UNIT 6				
Sample Date:	16-Aug-79	23-Aug-79	28-Aug-79	04-Mar-88	15-Mar-88	03-Dec-87	22-Dec-87	04-Jan-88	02-Feb-88	23-Feb-88	27-Sep-79	03-Oct-79	10-Oct-79	03-Mar-88	15-Mar-88
Major Ions mg/l:															
Ca	7	6.5	11.9	14.7	10.7	5.9	5.6	5.8	6.8	7.4	26.5	27.1	19	7.7	7
Mg	0.57	0.41	1.6	0.31	0.09	0.66	0.63	0.62	0.84	0.94	7.1	9	4.4	0.8	0.43
Na	119	116	117	128	130	130	121	124	128	135	164	147	138	138	131
K	2.9	2.9	4.4	11	13	1.9	1.8	1.7	0.4	1.1	2.1	3	1.8	4.1	11.4
CO3	27.6	23.4	46.8	28.8	36.4	2.9	1.6	1.1	2.7	3	3.8	7.3	6.7	4.4	3.7
HC03	70.5	80.8	53.7	58.1	44.3	113	109	109	104	96.2	121.8	131.5	103.7	113	102
SO4	146	162	165	191	182	178	168	176	185	215	300	300	255	194	195
Cl	9.8	10.2	11.5	11	12.1	11.9	9.4	9.8	10.2	10.5	10.9	12.6	10.5	12.2	11.8
NH4	< 0.5	< 0.5	< 0.5	0.27	0.31	0.21	0.29	0.22	0.2	0.37	< 0.5	< 0.5	< 0.5	1.88	0.17
NO2 (N)	< 1.00	< 1.00	< 1.00	0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 1	< 1	< 1	0.03	< 0.02
NO3 (N)															
F	0.30	0.30	0.30	0.30	0.26	0.32	0.34	0.28	0.40	0.29	0.30	0.30	0.30	0.30	0.23
SiO2	7.4	7.5	7.5	8.8	8.8	8.1	8.3	9.6	8.6	8.3	8.5	8.2	8.2	9	8.6
TDS	336	364	423	440	398	380	356	380	370	430	581	575	510	450	370
Cond. (umho/cm)	574	578	586	729	679	653	608	642	673	702	870	858	798	715	628
Alk. (as CaC03)	101.1	105.3	122	101	106	98	92	91.2	89.6	84.2	106.2	119.8	96.2	100	90
pH (units)	9.4	9.5	9.4	10	10.2	8.74	8.5	8.34	8.75	8.8	8.3	8.9	8.4	8.9	8.9
Trace Metals mg/l:															
Al			<	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.05	4.25	< 0.05	< 0.10	< 0.10
As	0.002	0.002	0.002	0.003	0.008	0.001	0.001	0.001	0.001	0.001	< 0.002	0.002	< 0.002	< 0.001	< 0.001
Ba			<	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10
B			<	0.1	< 0.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1
Cd			<	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.003	0.003	0.002	< 0.01	< 0.01
Cr			<	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.005	0.01	< 0.05	< 0.05	< 0.05
Cu			<	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.005	0.008	< 0.005	< 0.01	< 0.01
Fe	3.4	5.4	11.8	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.08	9.33	0.04	< 0.05	< 0.05
Pb			<	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.014	0.014	0.01	< 0.05	< 0.05
Mn			<	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.034	0.19	0.019	< 0.01	< 0.01
Hg			<	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.001	< 0.001
Mo			<	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10
Ni			<	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	0.02	< 0.01	< 0.05	< 0.05
Se	< 0.002	< 0.002	0.002	0.003	0.004	< 0.001	< 0.001	< 0.001	0.001	< 0.001	0.002	0.002	0.002	< 0.001	< 0.001
V			<	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10
Zn			<	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	0.05	< 0.01	< 0.01	< 0.01
Radiometric pCi/l:															
U (mg/l)	0.0085	0.017	0.0254	0.0083	0.0104	0.0619	0.0623	0.0226	0.033	0.0326	0.0254	0.0678	0.017	0.0817	0.082
Ra 226	10	13	10	33.6	33.2	16.6	17.5	15.8	22.2	27.7	42	35	32	85.1	75.9
Ra 226 +/-	0.6	0.8	0.7	1.5	3.9	1.1	1	0.9	1.3	1.8	2	2	1	2.4	6

APPENDIX A
TABLE A-1

Individual Well Baseline Water Quality for Irigaray Units 1 through 9

Well I.D.:	HP-87					JP-15					JP-26				
Production Unit:	UNIT 6					UNIT 7					UNIT 7				
Sample Date:	11-Oct-79	17-Oct-79	25-Oct-79	03-Dec-87	29-Sep-87	27-Dec-79	20-Jan-80	10-Jan-80	16-Jun-87	01-Jul-87	18-Oct-79	24-Oct-79	31-Oct-79	11-Jun-87	30-Jun-87
Major Ions mg/l:															
Ca	8.6	7.6	7.4	6.9	7.4	33.6	19.3	28.4	11.6	11	14.1	9.6	9	7	6.8
Mg	0.95	0.89	1.03	0.83	0.83	5.2	5.67	4.4	2	1.8	1.45	1.11	1.15	0.61	0.64
Na	125	130	128	137	135	256	280	275	174	174	140	131	123	125	128
K	1.3	1.5	1.5	2	1.8	4.3	3.9	4.2	2.3	2.1	1.6	1.5	1.8	1.9	1.8
CO3	10.8	7.8	3.6	1.7	0	2.4	4.2	1.8	0	1.3	5.1	2.1	6.5	2.2	0
HCO3	89.6	99.4	104.9	118	119	32.8	47.6	37.2	81.6	96.7	105.2	106.4	100	99.5	110
SO4	171	177	189	193	182	609	624	600	306	293	215	203	183	176	179
Cl	10.6	10.6	10.5	12.8	13.6	10.7	10.9	10.3	10.9	11.1	11	10.5	10.5	9.1	11.3
NH4	< 0.5	< 0.5	< 0.5	0.1	0.17	< 0.5	< 0.5	< 0.5	0.19	0.24	< 0.5	< 0.5	< 0.5	0.24	0.27
NO2 (N)	< 1	< 1	< 1	< 0.03	< 0.02	< 1	< 1	< 1	< 0.03	< 0.02	< 1	< 1	< 1	0.07	< 0.02
NO3 (N)															
F	0.30	0.30	0.30	0.29	0.28	0.2	0.2	0.2	0.26	0.15	0.30	0.30	0.30	0.21	0.22
SiO2	8.6	8.6	8.6	9	9	8.3	9.4	7.5	9	9	8.6	8.6	8.6	9.4	9.4
TDS	382.8	398.8	434	408	390	1054.4	1020.4	934.2	600	584	476	453.8	381.9	378	422
Cond. (umho/cm)	619	613	617	665	651	1465	1427	1415	900	917	697	646	639	628	674
Alk. (as CaCO3)	91.4	94.5	92	99.8	97.8	30.9	46	33.5	66.9	81.6	94.8	90.8	92.8	85.5	90.2
pH (units)	8.7	8.6	8.2	8.49	8.06	9	9.2	8.4	8.2	8.47	8.4	8.2	8.2	8.68	8.15
Trace Metals mg/l:															
Al			<	0.10 <	0.10			<	0.10 <	0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10
As	0.002	0.002	0.002	0.003	0.004	< 0.002	0.002 <	0.002	0.004 <	0.001	< 0.002	< 0.002	< 0.002	0.004	< 0.001
Ba			<	0.10 <	0.10			<	0.10 <	0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10
B			<	0.1 <	0.1			<	0.1 <	0.1	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1
Cd			<	0.01 <	0.01			<	0.01 <	0.01	< 0.002	< 0.002	< 0.002	< 0.01	< 0.01
Cr			<	0.05 <	0.05			<	0.05 <	0.05	< 0.005	< 0.005	< 0.005	< 0.05	< 0.05
Cu			<	0.01 <	0.01			<	0.01 <	0.01	0.005	< 0.005	< 0.005	< 0.01	< 0.01
Fe	0.64	0.13	0.38 <	0.05 <	0.05	0.1	0.04	0.08 <	0.05 <	0.05	0.13	0.19	0.08 <	0.05 <	0.05
Pb			<	0.05 <	0.05			<	0.05 <	0.05	0.005	0.008 <	0.005 <	0.05 <	0.05
Mn			<	0.01 <	0.01			<	0.01 <	0.01	0.007	0.007 <	0.005 <	0.01 <	0.01
Hg			<	0.001 <	0.001			<	0.001 <	0.001	< 0.0002	< 0.0002	< 0.0002	< 0.001	< 0.001
Mo			<	0.10 <	0.10			<	0.10 <	0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10
Ni			<	0.05 <	0.05			<	0.05 <	0.05	< 0.01	< 0.01	< 0.01	< 0.05	< 0.05
Se	0.002	0.002	0.002 <	0.001 <	0.001	0.007 <	0.002 <	0.002 <	0.001 <	0.001	0.005 <	0.002 <	0.002	0.008	0.003
V			<	0.10 <	0.10			<	0.10 <	0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10
Zn			<	0.01 <	0.01			<	0.01 <	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Radiometric pCi/l:															
U (mg/l)	0.008	0.0169	0.0169	0.0275	0.0362	0.0254	0.0084	0.0254	0.0125	0.017	0.0678	0.0848	0.1102	0.442	0.361
Ra 226				9.6	5.2	9	8	9	3.9	3.8	54	42	44	46.4	42.8
Ra 226 +/-				0.9	0.7	0.7	0.7	0.7	0.6	0.7	2	2	2	1.9	2.6

APPENDIX A
TABLE A-1

Individual Well Baseline Water Quality for Irigaray Units 1 through 9

Well I.D.:	JP-47					JP-50					JP-53				
Production Unit:	UNIT 7					UNIT 7					UNIT 7				
Sample Date:	16-Jan-80	22-Jan-80	29-Jan-80	11-Jun-87	30-Jun-87	27-Dec-79	02-Jan-80	10-Jan-80	11-Jun-87	30-Jun-87	16-Jan-80	22-Jan-80	29-Jan-80	16-Jun-87	01-Jul-87
Major Ions mg/l:															
Ca	7.4	6.7	7.4	5.7	5.7	6.1	6.5	6.4	7.1	5.9	7	9.2	6.6	6.4	6.6
Mg	0.76	0.76	0.77	0.53	0.6	0.57	0.56	0.58	0.77	0.64	0.77	1.12	0.72	0.77	0.77
Na	129	136	135	125	127	121	121	124	125	127	117	137	123	127	129
K	1.6	1.5	1.5	2.1	2	1.5	1.3	1.3	1.8	1.8	6.4	1.7	1.4	1.4	1.5
CO3	7.8	9.6	3.9	2.8	2	8.4	5.4	7.2	2.1	1.7	5.5	6.2	5.4	1.2	0
HC03	86.6	87.8	95.8	90.2	90.5	96	103.1	95.2	99.8	113.4	106.1	112.2	104.3	97.3	111
SO4	200	204	213	179	182	179	174	180	179	176	170	189	175	180	179
Cl	10.7	10.4	10.6	11.1	11.5	10.8	12	10.1	11.4	10.6	10.9	10.5	10.7	11.4	11.1
NH4	< 0.5	< 0.5	< 0.5	0.22	0.2	< 0.5	< 0.5	< 0.5	0.12	0.13	< 0.5	< 0.5	< 0.5	0.09	0.19
NO2 (N)	< 1	< 1	< 1	< 0.03	< 0.02	< 1	< 1	< 1	< 0.04	< 0.02	< 1	< 1	< 1	< 0.02	< 0.02
NO3 (N)															
F	0.30	0.30	0.30	0.20	0.25	0.30	0.30	0.30	0.19	0.22	0.30	0.30	0.30	0.33	0.20
SiO2	7.9	5.6	7.6	9	9	7.5	8.8	7.5	9.2	8.8	8.2	5.8	5.9	9	9.2
TDS	404.8	401.2	432.6	358	404	402.8	363.2	345.6	350	400	378.8	398.8	392	406	406
Cond. (umho/cm)	653	653	660	622	667	615	601	621	619	654	615	649	599	643	658
Alk. (as CaC03)	84	88	85	78.9	77.8	92.8	94	90	85.5	96	96.2	102.4	94.5	81.9	91
pH (units)	8.7	9	8.9	8.62	8.69	9.1	8.9	8.8	8.6	8.52	8.7	8.7	8.7	8.43	8.15
Trace Metals mg/l:															
Al	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10			<	0.10	< 0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10
As	0.003	0.003	0.002	0.008	< 0.001	0.002	< 0.002	0.002	0.005	0.002	< 0.002	< 0.002	< 0.002	0.002	< 0.001
Ba	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10			<	0.10	< 0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10
B	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1			<	0.1	< 0.1	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1
Cd	< 0.002	< 0.002	< 0.002	< 0.01	< 0.01			<	0.01	< 0.01	< 0.002	< 0.002	< 0.002	< 0.01	< 0.01
Cr	< 0.005	< 0.005	< 0.005	< 0.05	< 0.05			<	0.05	< 0.05	< 0.005	< 0.005	< 0.005	< 0.05	< 0.05
Cu	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01			<	0.01	< 0.01	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01
Fe	0.02	0.02	0.02	< 0.05	< 0.05	0.02	< 0.02	0.03	< 0.05	< 0.05	0.1	0.04	0.03	< 0.05	< 0.05
Pb	< 0.005	0.005	0.005	< 0.05	< 0.05			<	0.05	< 0.05	0.005	0.007	0.008	< 0.05	< 0.05
Mn	< 0.005	< 0.005	0.005	< 0.01	< 0.01			<	0.01	< 0.01	0.009	0.013	0.008	< 0.01	< 0.01
Hg	< 0.0002	< 0.0002	< 0.0002	< 0.001	< 0.001			<	0.001	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.001	< 0.001
Mo	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10			<	0.10	< 0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10
Ni	< 0.01	< 0.01	< 0.01	< 0.05	< 0.05			<	0.05	< 0.05	< 0.01	< 0.01	< 0.01	< 0.05	< 0.05
Se	0.005	< 0.002	< 0.002	< 0.001	< 0.001	0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001
V	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10			<	0.10	< 0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10
Zn	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01			<	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Radiometric pCi/l:															
U (mg/l)	0.0932	0.0593	0.0678	0.0355	0.0722	0.1017	0.1187	0.1611	0.0997	0.142	0.0763	0.0593	0.0508	1.577	0.0665
Ra 226	13	17	20	13.9	18	28	22	22	14.9	18.9	46	44	43	32.1	24.7
Ra 226 +/-	1	1	1	1.1	1.6	1	1	1	1.1	1.5	2	2	2	1.6	1.7

APPENDIX A
TABLE A-1

Individual Well Baseline Water Quality
for Irigaray Units 1 through 9

Well I.D.:	JP-57					JP-63					KI-128				
Production Unit:	UNIT 7					UNIT 7					UNIT 8				
Sample Date:	16-Jan-80	22-Jan-80	29-Jan-80	11-Jun-87	30-Jun-87	20-Dec-79	26-Dec-79	02-Jan-80	11-Jun-87	30-Jun-87	19-Jun-80	25-Jun-80	20-Jul-80	15-Oct-87	06-Nov-87
Major Ions mg/l:															
Ca	6.8	6.9	6.9	6	6.1	7.6	7.4	7.5	7.7	6.5	10.9	6.3	5.5	5.7	5.8
Mg	0.87	0.92	0.94	0.77	0.78	0.84	0.81	0.86	0.16	0.23	0.77	0.78	0.72	0.88	0.86
Na	118	132	130	126	130	129	130	130	130	130	130	121	123	128	127
K	6.1	1.2	1.4	1.7	1.6	1.87	1.8	1.7	1.8	1.7	1.3	1.3	1.32	1.6	1.5
CO3	6	8.4	7.2	1.9	1.3	5.1	4.8	3.9	8	5.3	42	9	12.7	2.7	3
HC03	99.8	98.7	101.3	114.2	126.8	99.6	98.8	101.6	82.5	91.2	50.02	94.2	81.9	109	114
SO4	180	188	186	173	171	204	209	198	191	194	177	177	171	178	171
Cl	10.5	10.4	10.6	10.9	11.3	10.7	10.9	10.8	10.8	11.3	13.5	14	11.3	10	10.9
NH4	< 0.5	< 0.5	0.5	0.16	0.16	< 0.5	< 0.5	0.5	0.15	0.15	< 0.5	< 0.5	0.5	0.11	0.16
NO2 (N)	< 1	< 1	< 1	< 0.08	0.02	< 1	< 1	< 1	< 0.03	0.02	< 1	< 1	1	< 0.03	0.02
NO3 (N)															
F	0.30	0.30	0.30	0.19	0.23	0.30	0.30	0.30	0.19	0.21	0.3	0.3	0.3	0.22	0.28
SIO2	5.7	7.5	7.7	9.2	9	7.5	8.1	8.3	11.3	11.6	8.1	8.6	8.5	9.4	9
TDS	390.8	384.2	394.4	368	426	443.6	447	385.2	392	434	406.2	387.9	383.2	354	380
Cond. (umho/cm)	632	621	615	622	648	663	655	641	659	693	682	623	602	658	620
Alk. (as CaC03)	91.8	94.8	95	96.9	106.2	89.3	89	89.8	81.9	84.2	111	92.2	88.4	94.2	98.8
pH (units)	9	8.9	8.8	8.55	8.34	8.8	9	8.5	9.22	9.1	9.8	8.8	8.9	8.73	8.76
Trace Metals mg/l:															
Al	0.08 <	0.05 <	0.05 <	0.10 <	0.10	< 0.05 <	0.05 <	0.05 <	0.10 <	0.10	< 0.05 <	0.05 <	0.05 <	0.10 <	0.10
As	0.005	0.002	0.003	0.003 <	0.001	< 0.002 <	0.002 <	0.002	0.002 <	0.001	0.003	0.003	0.002	0.002	0.001
Ba	< 0.05 <	0.05 <	0.05 <	0.10 <	0.10	< 0.05 <	0.05 <	0.05 <	0.10 <	0.10	< 0.05 <	0.05 <	0.05 <	0.10 <	0.10
B	< 0.2 <	0.2 <	0.2 <	0.1 <	0.1	< 0.2 <	0.2 <	0.2 <	0.1 <	0.1	< 0.2 <	0.2 <	0.2 <	0.1 <	0.1
Cd	< 0.002 <	0.002 <	0.002 <	0.01 <	0.01	< 0.002 <	0.002 <	0.002 <	0.01 <	0.01	< 0.002 <	0.002 <	0.002 <	0.01 <	0.01
Cr	< 0.005 <	0.005 <	0.005 <	0.05 <	0.05	< 0.005 <	0.005 <	0.005 <	0.05 <	0.05	< 0.005 <	0.005 <	0.005 <	0.05 <	0.05
Cu	< 0.005 <	0.005 <	0.005 <	0.01 <	0.01	< 0.005 <	0.005 <	0.005 <	0.01 <	0.01	< 0.005 <	0.005 <	0.005 <	0.01 <	0.01
Fe	0.11 <	0.02	0.03 <	0.05 <	0.05	< 0.03	0.02	0.05 <	0.05 <	0.05	< 0.02	0.08	1 <	0.05 <	0.05
Pb	0.007	0.006	0.006 <	0.05 <	0.05	< 0.005 <	0.005 <	0.005 <	0.05 <	0.05	0.005	0.005	0.005 <	0.05 <	0.05
Mn	0.006 <	0.005	0.005 <	0.01 <	0.01	< 0.005 <	0.005 <	0.005 <	0.01 <	0.01	0.009	0.005	0.007	0.01 <	0.01
Hg	< 0.0002 <	0.0002 <	0.0002 <	0.001 <	0.001	< 0.0002 <	0.0002 <	0.0002 <	0.001 <	0.001	< 0.0002 <	0.0002 <	0.0002 <	0.001 <	0.001
Mo	< 0.05 <	0.05 <	0.05 <	0.10 <	0.10	< 0.05 <	0.05 <	0.05 <	0.10 <	0.10	< 0.05 <	0.05 <	0.05 <	0.10 <	0.10
Ni	< 0.01 <	0.01 <	0.01 <	0.05 <	0.05	< 0.01 <	0.01 <	0.01 <	0.05 <	0.05	< 0.01 <	0.01 <	0.01 <	0.05 <	0.05
Se	< 0.002	0.003 <	0.002	0.001 <	0.001	< 0.002	0.002	0.007 <	0.001 <	0.001	< 0.002 <	0.002 <	0.002 <	0.001 <	0.001
V	< 0.05 <	0.05 <	0.05 <	0.10 <	0.10	< 0.05 <	0.05 <	0.05 <	0.10 <	0.10	< 0.05 <	0.05 <	0.05 <	0.10 <	0.10
Zn	< 0.01 <	0.01 <	0.01 <	0.01	0.01	< 0.01 <	0.01 <	0.01 <	0.01 <	0.01	< 0.01 <	0.01 <	0.01	0.01 <	0.01
Radiometric pCi/l:															
U (mg/l)	0.2968	0.1611	0.1441	0.0455	0.0405	0.0593	0.0508	0.0593	0.0386	0.0506	0.0848	0.0339	0.1526	0.0062	0.0164
Ra 226	33	30	29	31	34	15	13	10	10.2	10.6	61	58	47	50	36.9
Ra 226 +/-	2	2	1	1.5	2	0.9	0.9	0.8	0.9	1.1	4	4	4	2.5	1.5

APPENDIX A
TABLE A-1

Individual Well Baseline Water Quality for Irigaray Units 1 through 9

Well I.D.:	KP-29					KP-44					KP-50				
Production Unit:	UNIT 8					UNIT 8					UNIT 8				
Sample Date:	02-Apr-80	09-Apr-80	16-Apr-80	15-Oct-87	06-Nov-87	23-Apr-80	30-Apr-80	07-May-80	14-Oct-87	05-Nov-87	23-Apr-80	30-Apr-80	07-May-80	08-Oct-87	27-Oct-87
Major Ions mg/l:															
Ca	11.4	9.24	8.9	4.8	4.8	10.6	10.7	10.3	5.2	5.4	6.6	6.7	6.3	4.7	5.3
Mg	1.03	1.02	1.11	0.59	0.63	1.2	1.14	1.07	0.69	0.71	0.9	0.8	0.81	0.53	0.46
Na	149	142	142	130	130	143	144	142	124	129	124	119	119	129	128
K	2.8	2.4	2.6	1.8	1.8	1.8	2.2	2.3	1.7	1.7	1.5	1.54	1.7	1.9	2.2
CO3	20.4	14.6	9.5	5	4.3	20.04	23.4	13.2	4.1	4.1	10.6	9.9	7.4	3.1	4.3
HCO3	79.4	88.1	100.2	101	112	72.47	68.2	85.8	106	109	97.4	97.2	100.3	107	103
SO4	231	222	219	178	179	234	228	233	174	177	174	165	174	178	184
Cl	10.2	10.6	10.4	10.4	10.2	10.2	10.3	9.5	10.4	10.6	10.4	10.1	10.3	9.6	10.8
NH4	< 0.5	< 0.5	< 0.5	0.23	0.17	< 0.5	< 0.5	< 0.5	0.1	0.21	< 0.5	< 0.5	< 0.5	0.1	0.16
NO2 (N)	< 1	< 1	< 1	< 0.03	< 0.02	< 1	< 1	< 1	< 0.03	< 0.02	< 1	< 1	< 1	< 0.02	< 0.02
NO3 (N)															
F	0.3	0.3	0.3	0.21	0.28	0.3	0.3	0.3	0.48	0.28	0.3	0.3	0.3	0.26	0.29
SiO2	8.1	7.9	8	9	8.8	8.9	8.7	8.1	9.4	9.4	8.1	8.3	8.2	9	8.6
TDS	480	460.6	461.6	402	374	482.2	488.4	503.8	376	366	384.4	387.4	412.4	402	432
Cond. (umho/cm)	754	715	699	645	629	722	775	769	645	632	593	627	627	639	623
Alk. (as CaC03)	99.1	88.1	97.9	91.6	99.6	92.8	95.6	92.3	93.8	96.2	97.4	96.3	94.6	93.4	92.2
pH (units)	9.2	9.2	8.8	9.03	8.92	9.2	9.2	8.6	8.92	8.91	8.9	8.8	8.6	8.8	8.96
Trace Metals mg/l:															
Al	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10
As	< 0.002	< 0.002	< 0.002	0.002	0.001	< 0.002	< 0.002	< 0.002	0.001	0.001	0.004	< 0.002	< 0.002	0.007	0.005
Ba	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10
B	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1
Cd	< 0.002	< 0.002	< 0.002	< 0.01	< 0.01	< 0.002	< 0.002	< 0.002	< 0.01	< 0.01	< 0.002	< 0.002	< 0.002	< 0.01	< 0.01
Cr	< 0.005	< 0.005	< 0.005	< 0.05	< 0.05	0.005	0.005	< 0.005	< 0.05	< 0.05	< 0.005	0.005	< 0.005	< 0.05	< 0.05
Cu	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01
Fe	< 0.02	< 0.02	< 0.02	< 0.05	< 0.05	0.21	0.08	< 0.02	< 0.05	< 0.05	0.08	0.05	< 0.04	< 0.05	< 0.05
Pb	< 0.005	< 0.005	< 0.008	< 0.05	< 0.05	< 0.005	< 0.005	< 0.005	< 0.05	< 0.05	< 0.005	< 0.005	< 0.005	< 0.05	< 0.05
Mn	< 0.005	< 0.005	0.005	< 0.02	< 0.01	0.09	0.008	< 0.005	< 0.01	< 0.01	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01
Hg	< 0.0002	< 0.0002	< 0.0002	< 0.001	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.001	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.001	< 0.001
Mo	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10
Ni	< 0.01	< 0.01	< 0.01	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01	< 0.05	< 0.05
Se	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001
V	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10
Zn	< 0.01	< 0.01	< 0.01	< 0.01	0.01	0.03	< 0.01	0.01	< 0.01	0.01	0.03	< 0.01	0.01	< 0.02	0.01
Radiometric pCi/l:															
U (mg/l)	0.0084	0.0084	0.0084	0.0057	0.012	0.0169	0.0084	0.0763	0.0003	0.0067	0.178	0.0763	0.0169	0.0052	0.0341
Ra 226	11	11	11	4.9	4.7	11	12	16	11.4	8.4	32	33	36	59.7	30.8
Ra 226 +/-	0.9	1	1	0.8	0.6	2	3	2	0.8	0.7	5	5	5	1.9	1.6

APPENDIX A
TABLE A-1

Individual Well Baseline Water Quality for Irigaray Units 1 through 9

Well I.D.:	KP-63					KP-70				
Production Unit:	UNIT 8					UNIT 8				
Sample Date:	06-Feb-80	12-Feb-80	20-Feb-80	08-Oct-87	27-Oct-87	18-Mar-80	25-Mar-80	01-Apr-80	08-Oct-87	27-Oct-87
Major Ions mg/l:										
Ca	5.7	5.4	5.5	7.1	5.9	9.9	10.2	9.1	7	13.6
Mg	0.55	0.57	0.58	0.72	0.59	0.92	0.88	0.67	0.6	0.03
Na	118	120	118	123	125	132	132	137	122	130
K	1.4	1.5	1.4	1.3	1.3	1.5	1.7	1.2	6.4	17.5
CO3	8.4	7.2	6	0	1.3	15.6	15.8	38.4	12	8.5
HC03	97.4	101.3	101.3	117	110	83.3	85.2	41.5	98.5	23.7
SO4	174	176	174	177	178	213	212	207	175	166
Cl	10.3	10.2	10.5	9.7	9.7	10.4	10.4	10.1	9.7	11.7
NH4	< 0.5	< 0.5	< 0.5	0.33	0.2	< 0.5	< 0.5	< 0.5	0.13	0.2
NO2 (N)	< 1	< 1	< 1	< 0.26	< 0.03	< 1	< 1	< 1	0.04	< 0.02
NO3 (N)										
F	0.3	0.3	0.3	0.11	0.32	0.3	0.3	0.3	0.24	0.32
SiO2	8	7.9	7.8	9	8.6	8.5	7.7	8.7	8.9	7.9
TDS	380.4	344	444.6	372	408	434	443.2	434.4	400	446
Cond. (umho/cm)	577	567	620	645	605	700	712	685	669	791
Alk. (as CaC03)	93.8	95	93	96.2	92.4	94.3	96.2	99	102	136
pH (units)	8.7	8.8	8.6	8.2	8.4	9.2	9.1	9.6	9.42	10.7
Trace Metals mg/l:										
Al			<	0.10	< 0.10	< 0.05	0.06	< 0.06	0.10	0.20
As	0.002	0.003	0.002	0.002	0.002	< 0.002	< 0.002	< 0.002	0.004	0.003
Ba			<	0.10	< 0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10
B			<	0.1	< 0.1	< 0.2	< 0.2	< 0.2	< 0.1	< 0.1
Cd			<	0.01	< 0.01	< 0.002	< 0.002	< 0.002	< 0.01	< 0.01
Cr			<	0.05	< 0.05	< 0.005	< 0.005	< 0.005	< 0.05	< 0.05
Cu			<	0.01	< 0.01	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01
Fe	0.23	6.72	2.92	< 0.05	< 0.05	< 0.02	< 0.02	0.05	< 0.05	< 0.05
Pb			<	0.05	< 0.05	< 0.005	< 0.005	0.005	< 0.05	< 0.05
Mn			<	0.01	< 0.01	< 0.005	< 0.005	< 0.005	< 0.01	< 0.01
Hg			<	0.001	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.001	< 0.001
Mo			<	0.10	< 0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10
Ni			<	0.05	< 0.05	< 0.01	< 0.01	< 0.01	< 0.05	< 0.05
Se	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.002	< 0.002	< 0.002	0.001	< 0.001
V			<	0.10	< 0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10
Zn			<	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Radiometric pCi/l:										
U (mg/l)	0.0254	0.0508	0.0508	< 0.0003	0.0217	0.0169	0.0254	0.0508	0.119	0.12
Ra 226	18	42	18	4.9	13.1	67	75	51	44.7	87.1
Ra 226 +/-	1	2	1	0.6	1.1	2	2	2	1.8	3.1

APPENDIX A
TABLE A-1

Individual Well Baseline Water Quality
for Irigaray Units 1 through 9

Well I.D.:	LI-51					LP-13					LP-20				
Production Unit:	UNIT 9					UNIT 9					UNIT 9				
Sample Date:	14-Jan-81	20-Jan-81	28-Jan-81	19-Nov-87	09-Dec-87	21-Oct-80	28-Oct-80	05-Nov-80	19-Nov-87	09-Dec-87	14-Jan-81	21-Jan-81	28-Jan-81	02-Sep-87	09-Oct-87
Major Ions mg/l:															
Ca	5.2	5.4	5.4	5.4	4.9	9.2	9.1	8.5	9.5	8.4	6.9	6.8	6.7	5.1	5.7
Mg	0.55	0.58	0.59	0.76	0.75	0.58	0.61	0.61	0.15	0.2	0.37	0.47	0.55	0.37	0.29
Na	128	115	125	129	122	125	129	126	134	130	120	124	125	131	129
K	1.9	1.8	1.8	1.4	2.7	1.4	1.7	1.7	1.7	3.1	2.7	2.6	2.2	2.9	2.6
CO3	15	12	12	0	1.2	19.2	36.6	18	0	9.2	21.6	17	14.4	8.1	0
HC03	82.1	89.1	88.9	116	110	83.4	60.4	83.9	144	107	68.3	84.9	89.1	93.9	121
SO4	183	186	183	180	174	180	180	180	180	180	183	174	171	181	171
Cl	10.6	10.6	10.5	10.8	10.5	10.4	10.7	10.9	11	11.2	10.4	10.6	10.4	11.9	10.6
NH4	< 0.5	< 0.5	< 0.5	0.1	0.14	< 0.5	< 0.5	< 0.5	0.1	< 0.05	< 0.5	< 0.5	< 0.5	0.56	0.87
NO2 (N)	< 1	< 1	< 1	0.03	0.03	< 1	< 1	< 1	< 0.04	< 0.02	< 1	< 1	< 1	< 0.05	0.02
NO3 (N)															
F	0.32	0.31	0.31	0.28	0.29	0.20	0.20	0.20	0.25	0.28	0.33	0.30	0.30	0.36	0.38
SIO2	7.43	6.4	7.1	9.2	9.2	10.1	9.48	9.39	10.1	9.8	7.21	7.1	7.21	8.6	9.4
TDS	416.6	434.8	402	366	402	410.7	417.4	391.4	392	422	421.4	422.4	385.2	390	404
Cond. (umho/cm)	640	637	639	632	626	630	651	630	659	655	635	631	621	588	644
Alk. (as CaC03)	92.3	93	92.9	95.2	92.4	100.4	110.5	98.8	118	104	94	98	97.2	91.4	99.6
pH (units)	8.2	8.7	8.8	6.58	8.36	9.2	9.2	9.2	7.2	9.27	9.1	9	8.9	9.27	8.3
Trace Metals mg/l:															
Al			<	0.10 <	0.10	< 0.05	< 0.05	< 0.05	< 0.10	< 0.10			<	0.10 <	0.10
As	0.002	0.002 <	0.002	0.001	0.001	0.003 <	0.002 <	0.002	0.003	0.003	< 0.002	0.003	0.002	0.002 <	0.001
Ba			<	0.10 <	0.10	< 0.05 <	0.05 <	0.05 <	0.10 <	0.10			<	0.10 <	0.10
B			<	0.1 <	0.1	< 0.2 <	0.2 <	0.2 <	0.1 <	0.1			<	0.1 <	0.1
Cd			<	0.01 <	0.01	0.003	0.003	0.003 <	0.01 <	0.01			<	0.01 <	0.01
Cr			<	0.05 <	0.05	< 0.005 <	0.005 <	0.005 <	0.05 <	0.05			<	0.05 <	0.05
Cu			<	0.01 <	0.01	< 0.005 <	0.005 <	0.005 <	0.01 <	0.01			<	0.01 <	0.01
Fe	0.06	0.02	0.04 <	0.05 <	0.05	0.57	0.08	0.02 <	0.05 <	0.05	0.37	0.53	0.23 <	0.05 <	0.05
Pb			<	0.05 <	0.05	0.035	0.03	0.03 <	0.05 <	0.05			<	0.05 <	0.05
Mn			<	0.01 <	0.01	0.006 <	0.005 <	0.005 <	0.01 <	0.01			<	0.01 <	0.01
Hg			<	0.001 <	0.001	< 0.0002 <	0.0002 <	0.0002 <	0.001 <	0.001			<	0.001 <	0.001
Mo			<	0.10 <	0.10	< 0.05 <	0.05 <	0.05 <	0.10 <	0.10			<	0.10 <	0.10
Ni			<	0.05 <	0.05	< 0.01 <	0.01 <	0.01 <	0.05 <	0.05			<	0.05 <	0.05
Se	0.004 <	0.002 <	0.002 <	0.001 <	0.001	< 0.002 <	0.002 <	0.002 <	0.001 <	0.001	< 0.002 <	0.002	0.005 <	0.001 <	0.001
V			<	0.10 <	0.10	< 0.05 <	0.05 <	0.05 <	0.10 <	0.10			<	0.10 <	0.10
Zn			<	0.01 <	0.01	< 0.01 <	0.01 <	0.01 <	0.01 <	0.01				0.03	0.01
Radiometric pCi/l:															
U (mg/l)	0.0169	0.0169	0.0084	0.0287	0.0183	0.0508	0.0339	0.0254	0.0459	0.031	0.1187	0.1187	0.0593	0.24	0.0366
Ra 226	18	20.1	14	17.5	12	75	71	75	85.4	53.7	40	38	28	14.2	10.7
Ra 226 +/-	1.3	1.3	1.1	1.5	0.9	11	9	11	2.8	1.8	1.9	1.9	1.6	1	0.8

APPENDIX A
TABLE A-1

Individual Well Baseline Water Quality for Irigaray Units 1 through 9

Well I.D.:	LP-24					LP-22				
Production Unit:	UNIT 9					UNIT 9				
Sample Date:	21-Oct-80	28-Oct-80	05-Nov-80	19-Nov-87	09-Dec-87	21-Oct-80	28-Oct-80	05-Nov-80	11-Sep-87	09-Oct-87
Major Ions mg/l:										
Ca	8.4	7.7	7.2	4.7	4.4	7.2	6.8	6.1	4.9	4.7
Mg	0.31	0.34	0.43	0.47	0.5	0.44	0.5	0.55	0.63	0.62
Na	124	124	123	132	126	125	125	126	127	128
K	1.9	2	1.9	1.4	2.2	2.3	2.8	2.3	1.8	1.7
CO3	16.9	15.9	9.9	0	2.9	20.4	20.4	14.4	5.2	0
HC03	87.4	86.3	95.9	114	106	73.2	73.2	86.4	105	122
SO4	174	183	183	180	171	180	183	183	174	166
Cl	10.6	11.1	11.2	12.2	11	10.7	11	11.1	11	10.2
NH4	< 0.5	< 0.5	< 0.5	0.16	0.13	< 0.5	< 0.5	< 0.5	0.18	0.33
NO2 (N)	< 1	< 1	< 1	< 0.04	< 0.02	< 1	< 1	< 1	0.02	0.03
NO3 (N)										
F				0.26	0.26	0.2	0.2	0.2	0.22	0.26
SiO2				9.6	9.8	9.01	8.82	9.01	10.1	9.6
TDS	446.4	411.4	395.2	396	404	436	418	383	392	402
Cond. (umho/cm)	644	645	742	645	634	630	637	621	601	625
Alk. (as CaC03)	99.8	97.3	95.2	93.6	92.2	94	94	94.8	95.6	99.8
pH (units)	9.2	9	8.9	8.9	8.77	9.3	9.1	9.1	9.03	8.22
Trace Metals mg/l:										
Al			<	0.10	< 0.10			<	0.10	< 0.10
As				0.001	< 0.001	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001
Ba			<	0.10	< 0.10			<	0.10	< 0.10
B			<	0.1	< 0.1			<	0.1	< 0.1
Cd			<	0.01	< 0.01			<	0.01	< 0.01
Cr			<	0.05	< 0.05			<	0.05	< 0.05
Cu			<	0.01	< 0.01			<	0.01	< 0.01
Fe			<	0.05	< 0.05	1.05	0.83	< 0.02	< 0.05	< 0.05
Pb			<	0.05	< 0.05			<	0.05	< 0.05
Mn			<	0.01	< 0.01			<	0.01	< 0.01
Hg			<	0.001	< 0.001			<	0.001	< 0.001
Mo			<	0.10	< 0.10			<	0.10	< 0.10
Ni			<	0.05	< 0.05			<	0.05	< 0.05
Se			<	0.001	< 0.001	< 0.002	< 0.002	< 0.002	< 0.001	< 0.001
V			<	0.10	< 0.10			<	0.10	< 0.10
Zn			<	0.01	< 0.01				0.02	0.03
Radiometric pCi/l:										
U (mg/l)				0.0688	0.0711	0.0508	0.0508	0.0508	0.0794	0.0437
Ra 226				87.1	57.7	35	33	27	21.9	36.8
Ra 226 +/-				2.8	1.9	6	9	10	1.2	1.5

APPENDIX A
TABLE A-1

Individual Well Baseline Water Quality for Irigaray Units 1 through 9

Well I.D.:	LP-43					LP-63				
Production Unit:	UNIT 9					UNIT 9				
Sample Date:	03-Dec-80	10-Dec-80	16-Dec-80	12-Nov-87	02-Dec-87	28-Oct-80	12-Nov-80	18-Nov-80	12-Nov-87	02-Dec-87
Major Ions mg/l:										
Ca	16.4	10.9	11.6	4.7	5	8.8	7.8	7.5	6.6	6.5
Mg	2.9	2.42	2.9	0.68	0.77	0.72	0.77	0.77	0.71	0.77
Na	139	131	137	127	131	124	129	122	123	124
K	2.4	2.1	2.2	1.7	2.4	2.1	1.8	1.7	1.2	2.9
CO3	15.1	20.4	14.9	5.3	5	28.8	15.6	12.2	3.7	2.2
HC03	75.8	41.5	75.8	104	106	59.5	82.4	90.4	109	108
SO4	243	243	231	171	181	183	192	189	177	178
Cl	10.9	11.3	11.1	11.8	12.2	10.6	11.4	10.9	11.5	11.2
NH4	< 0.5	< 0.5	0.5	0.17	0.13	< 0.5	< 0.5	< 0.5	0.26	0.29
NO2 (N)	< 1	< 1	< 1	0.02	< 0.03	< 1	< 1	< 1	0.02	< 0.03
NO3 (N)										
F	0.3	0.3	0.3	0.27	0.29	0.2	0.2	0.2	0.29	0.30
SiO2	6.46	7.23	7.51	9.8	9.4	9.01	8.65	8.17	8.8	9
TDS	427	464.4	442	386	412	422.8	397.6	424.6	416	416
Cond. (umho/cm)	751	712	707	675	634	651	640	634	661	634
Alk. (as CaC03)	87.3	68	86.9	95	96	96.8	93.5	94.5	96	92
pH (units)	8.6	9.5	9.1	9.04	9.01	9.2	9	9	8.86	8.64
Trace Metals mg/l:										
Al			<	0.10	< 0.10			<	0.10	< 0.10
As	0.006	0.01	0.006	0.001	< 0.001	< 0.002	< 0.002	< 0.002	0.001	< 0.001
Ba			<	0.10	< 0.10			<	0.10	< 0.10
B			<	0.1	< 0.1			<	0.1	< 0.1
Cd			<	0.01	< 0.01			<	0.01	< 0.01
Cr			<	0.05	< 0.05			<	0.05	< 0.05
Cu			<	0.01	< 0.01			<	0.01	< 0.01
Fe	3.3	0.2	0.87	< 0.05	< 0.05	< 0.02	0.23	1.72	< 0.05	< 0.05
Pb			<	0.05	< 0.05			<	0.05	< 0.05
Mn			<	0.01	< 0.01			<	0.01	< 0.01
Hg			<	0.001	< 0.001			<	0.001	< 0.001
Mo			<	0.10	< 0.10			<	0.10	< 0.10
Ni			<	0.05	< 0.05			<	0.05	< 0.05
Se	< 0.002	< 0.002	< 0.002	0.001	< 0.001	< 0.002	< 0.002	< 0.002	0.001	< 0.001
V			<	0.10	< 0.10			<	0.10	< 0.10
Zn				0.02	0.07			<	0.01	0.03
Radiometric pCi/l:										
U (mg/l)	0.195	0.254	0.2035	0.042	0.0447	0.025	0.025	0.017	< 0.0003	0.0023
Ra 226	86.4	105	78.4	26.9	28.5	44	40	90	38.9	35.4
Ra 226 +/-	3.1	3.5	3.1	1.5	1.4	14	11	18	1.8	1.6

A A
T ·2

POST-MINING RESULTS
IRIGARAY DESIGNATED RESTORATION WELLS

POST - MINING

Well I.D.:	AP-4	BP-4	CP-10	DI-27	DI-90	DP-2B	DP-29	FP-5	FI-62	FI-132	GI-76	GI-82	GP-9	GI-134	HI-53	HI-57
Production Unit:	Unit 1	Unit 1	Unit 2	Unit 3	Unit 2	Unit 2	Unit 3	Unit 3	Unit 4	Unit 4	Unit 5	Unit 5	Unit 5	Unit 5	UNIT 6	UNIT 6
Sample Date:	05/18/90	05/18/90	05/18/90	05/21/90	05/18/90	05/18/90	05/21/90	05/18/90	05/21/90	05/21/90	05/21/90	05/18/90	05/21/90	05/21/90	04/15/95	04/15/95
Major Ions mg/l:																
Ca	150.0	137.0	17.4	210.0	190.0	138.0	200.0	160.0	154	107	117	40.4	210	230	262	240
Mg	49.5	39.8	3.9	51.9	45.1	40.9	50.3	48.8	49.1	22.7	30.3	9.8	46.4	40.4	60	54
Na	570	587	239	655	690	582	614	610	610	417	511	262	619	760	771	732
K	8.0	9.3	17.0	10.8	15.1	9.2	10.2	10.8	9.5	6.3	6.5	10.8	8.8	14.4	9.2	8.8
CO_3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 1.0	< 1.0
HCO_3	1337	1244	297	1371	1098	1152	1298	1252	1264	913	996	469	1391	1879	1731	1692
SO_4	551	604	175	638	708	504	659	532	646	413	431	264	554	487	784	738
Cl	426	378	141	414	437.0	419	433	425	429	224	275	86.2	371	303	287	260
NH_4	91.4	84.3	6.7	69.8	52.8	66.9	68.5	66.3	82.5	60.2	44.8	23.5	29.0	0.35	0.91	0.98
NO_2 (N)	0.03	0.02	0.01	0.58	0.80	0.02	0.09	0.37	0.03	0.01	0.01	0.01	0.01	0.01	< 0.10	< 0.10
NO_3 (N)	0.34	0.08	0.04	17.70	23.00	6.40	2.82	6.25	2.88	< 0.01	0.01	1.41	0.03	0.49	< 0.10	< 0.10
F	< 0.10	< 0.10	0.17	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.1	< 0.1	0.13	< 0.1	< 0.10	< 0.10	< 0.10
SiO_2	9.8	10.1	12.0	9.2	10.9	9.6	14.1	8.8	12.8	8.6	6.8	7.3	11.1	20.1	13.6	11
TDS	2314	2248	721	2637	2579	2198	2507	2289	2404	1664	1781	863	2400	2624	3027	2912
Cond. (mmho/cm)	4208	4118	1421	4468	4432	3984	4435	4062	4402	2989	3239	1690	4062	4292	4326	4187
Alk. (as $CaCO_3$)	1096	1020	244	1124	900	944	1064	1026	1036	748	816	384	1140	1540	1419	1387
pH (units)	6.88	6.82	8.14	6.98	6.86	7.02	7.00	6.98	7.20	7.54	7.32	7.43	7.42	6.76	7.19	6.90
Trace Metals mg/l:																
Al	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.12	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
As	0.003	0.028	0.012	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.003	0.007	0.003	0.004	0.074	< 0.001	< 0.001	< 0.001
Ba	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
B	< 0.10	< 0.10	< 0.10	0.11	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.11	0.14	0.12
Cd	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Cr	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Cu	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01
Fe	6.90	5.40	0.07	0.22	0.44	< 0.05	0.51	0.07	0.12	0.40	0.05	0.06	2.30	0.06	< 0.050	< 0.050
Pb	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Mn	4.4	1.4	0.03	1.10	0.81	0.79	1.10	0.64	0.01	0.55	0.48	0.14	2.30	0.96	1.420	1.330
Hg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Mo	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.10	< 0.10
Ni	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Se	0.068	0.015	< 0.001	1.054	0.387	0.824	1.054	0.368	0.008	0.002	0.012	0.035	0.003	0.703	0.043	0.027
V	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Zn	0.03	0.03	0.02	0.05	0.08	0.03	0.05	0.04	0.01	0.05	0.04	0.05	0.04	0.27	< 0.01	0.02
Radiometric pCi/l:																
U (mg/l)	4.952	8.865	0.785	8.254	1.636	3.485	8.254	10.394	4.158	17.425	2.935	0.459	24.456	3.546	5.271	5.835
Ra 226	429	464	14.1	210.0	118	71.2	210	58.3	170	118	100	43	57.8	262	127	276
Ra 226+/-	9.0	9.2	0.9	5.8	4.7	3.6	5.8	3.3	5.2	4.4	4.0	2.9	3.1	6.5	3.8	5.6

A A
T 2

POST-MINING RESULTS
IRIGARAY DESIGNATED RESTORATION WELLS

POST - MINING

Well I.D.:	HI-62	HP-59	HP-87	JI-91	JP-26	JP-53	JP-57	JP-63	KP70B	KI-128	KP-44	LI-51	LP-13	LP-22	LP-63	LP43	MEAN
Production Unit:	UNIT 6	UNIT 6	UNIT 6	UNIT 7	UNIT 7	UNIT 7	UNIT 7	UNIT 7	UNIT 7	UNIT 8	UNIT 8	Unit 9	Unit 9	Unit 9	Unit 9	Unit 9	Units 1-9
Sample Date:	04/15/95	04/15/95	04/15/95	04/15/95	04/15/95	04/15/95	04/15/95	04/15/95	04/15/95	04/15/95	04/15/95	04/15/95	04/15/95	04/15/95	04/15/95	04/15/95	
Major Ions mg/l:																	
Ca	175	212	232	239	242	257	267	276	290	168	267	262	231	274	356	262	199.2
Mg	36	40	53	54	54	56	50	60	61	34.5	59	62	39	67	77	64	45.7
Na	551	714	711	700	711	796	828	780	787	489	730	759	569	768	840	714	627
K	9.2	8.3	8.8	8.8	9.1	8.7	9	10	9.6	5.9	9	9.3	9	9.3	10.3	8.7	9.3
CO_3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.6
HCO_3	1151	1592	1725	1578	1529	1384	1737	1744	1478	1077	1704	1882	1370	1812	1617	1543	1342.6
SO_4	533	620	621	723	771	873	884	877	850	560	777	681	617	840	1249	920	638.9
Cl	211	264	244	238	227	265	266	258	274	135	260	266	174	260	261	241	277.3
NH_4	0.81	1.49	0.87	1.32	2.01	0.88	0.8	1.27	0.71	0.64	1.2	0.73	1.39	0.97	1.21	1.07	23.2
NO_2 (N)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.7
NO_3 (N)	0.11	< 0.10	0.37	< 0.10	< 0.10	0.11	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 2.4
F	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 1.0
SiO_2	13	18.4	13.4	12.4	15.6	11	15.4	14.2	13.2	9.4	14.5	12	15.4	12.2	16.9	12	12.0
TDS	2126	2611	2726	2866	2866	3167	3120	3107	3185	1878	2907	2975	2342	3199	3614	3013	2450.6
Cond. (mmho/cm)	3161	3856	3984	4027	4080	4411	4336	4411	4465	2798	4198	4294	3386	4411	4881	4208	3794.6
Alk. (as $CaCO_3$)	943	1305	1414	1294	1254	1135	1424	1429	1212	885	1397	1543	1123	1485	1325	1265	1100.6
pH (units)	7.33	7.26	7.43	7.16	7.15	7.77	7.10	7.15	7.99	7.46	7.32	7.54	7.44	7.43	7.43	7.55	7.1
Trace Metals mg/l:																	
Al	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 1.04
As	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	0.008	< 0.001	< 0.001	0.002	< 0.641
Ba	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 1.07
B	0.11	0.17	0.18	0.11	0.12	0.12	0.12	0.13	0.12	0.09	0.11	0.1	0.1	0.11	0.11	0.1	< 0.4
Cd	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.979
Cr	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 1.02
Cu	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.83
Fe	< 0.050	3.680	< 0.050	< 0.050	< 0.050	< 0.050	0.300	< 0.050	< 0.050	0.570	< 0.050	< 0.050	< 0.050	< 0.050	0.090	0.310	< 1.10
Pb	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 1.02
Mn	1.160	0.810	0.930	1.650	2.780	1.570	1.020	2.480	1.600	0.990	1.380	0.960	1.290	1.260	2.120	1.750	1.25
Hg	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.971
Mo	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 1.07
Ni	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 1.02
Se	0.097	0.005	0.3	0.054	0.028	0.21	0.032	0.025	0.211	0.067	0.702	0.294	0.022	0.162	0.234	0.099	< 0.25
V	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 1.07
Zn	0.03	0.01	0.01	0.02	0.03	0.02	0.02	0.02	0.01	0.02	0.02	0.01	0.02	0.02	0.03	0.02	< 0.06
Radiometric pCi/l:																	
U (mg/l)	10.71	2.614	1.583	1.536	0.71	17.44	21.75	3.054	14.2	7.027	0.596	5.961	13.32	5.501	13.39	7.048	7.41
Ra 226	134	510	27.1	145	178	160	465	278	236	213	141	57.2	565	196	173	208	200.5
Ra 226+/-	3.9	7.6	1.8	4	4.5	5.6	8.3	5.6	5.1	4.9	4	2.4	8.4	4.5	4.2	4.6	4.9

Christensen Ranch Project

Source: COGEMA Mining, Inc., 2008, Wellfield Restoration Report, Christensen Ranch Project, Wyoming, Prepared by COGEMA Mining, Inc. and Petrotek Engineering Corporation, March 5, 2008. Available from the NRC ADAMS document server under accession nos. ML081060131, ML081060132 and ML081060140.

Table 4.2 Target Restoration Values for Mine Unit 2, North and South, Christensen Ranch, Wyoming

Parameter	TRV MU2 North	TRV MU2 South	Average TRV	% Difference avg to south
Major Cations/Anions				
Ca (mg/l)	9.04	11.45	10.25	-10.5
Mg (mg/l)	0.56	0.98	0.77	**-21.4**
Na (mg/l)	155.5	173.4	164.4	-5.2
K (mg/l)	5.75	4.34	5.1	17.5
CO3 (mg/l)	32.86	15.06	24.0	**59.4**
HC03 (mg/l)	262.1	148.2	205.1	**38.4**
SO4 (mg/l)	253.5	349.7	301.6	-13.8
Cl (mg/l)	9.7	10.5	10.1	-3.8
NH4 (mg/l)	0.08	0.16	0.12	**-25.0**
NO2 (N) (mg/l)	0.1	0.1	0.10	0.0
NO3 (N) (mg/l)	0.1	0.14	0.12	-14.3
F (mg/l)	0.28	0.2	0.24	**20.0**
SiO2 (mg/l)	8.77	7	7.9	12.9
General Water Quality Parameters				
TDS (mg/l)	795.6	822	808.8	-1.6
Cond. (umho/cm)	1090.3	1640.5	1365.4	-16.8
Alk. (as CaC03 (mg/l))	127.5	115.4	121.4	5.2
pH (units)	9.2	8.9	9.1	2.2
Trace Metals				
Al (mg/l)	0.1	0.1	0.1	0.0
As (mg/l)	0.002	0.002	0.002	0.0
Ba (mg/l)	0.1	0.1	0.1	0.0
B (mg/l)	0.1	0.1	0.1	0.0
Cd (mg/l)	0.010	0.010	0.01	0.0
Cr (mg/l)	0.05	0.05	0.05	0.0
Cu (mg/l)	0.01	0.01	0.01	0.0
Fe (mg/l)	0.05	0.05	0.05	0.0
Pb (mg/l)	0.05	0.05	0.05	0.0
Mn (mg/l)	0.01	0.01	0.01	0.0
Hg (mg/l)	0.001	0.001	0.001	0.0
Mo (mg/l)	0.1	0.1	0.1	0.0
Ni (mg/l)	0.05	0.05	0.05	0.0
Se (mg/l)	0.004	0.002	0.003	**50.0**
V (mg/l)	0.1	0.1	0.1	0.0
Zn (mg/l)	0.01	0.01	0.01	0.0
Radionuclides				
U (mg/l)	0.04	0.028	0.034	**21.4**
Ra 226 (pCi/l)	214	214	214	0.0

Table 5-1. Restoration and Stability Monitoring Water Quality Results, Mine Unit 2, Christensen Ranch, Wyoming

	Active Restoration Monitoring				Stability Monitoring			
	Post Mining	Post GWS	Post RO	Post Reductant	Round 1	Round 2	Round 3	Round 4
Major Ions mg/l:								
Ca	285.8	160.0	36.4	32.3	52.6	64.6	65.7	63.3
Mg	53.1	33.7	6.7	3.9	5.7	7.5	8.0	7.9
Na	696.4	522.6	140.7	63.2	88.7	105.5	106.4	109.2
K	9.4	6.5	2.0	1.2	1.2	1.4	1.4	1.5
CO3	1.0	1.0	1.0	1.0	1.2	1.2	1.0	1.0
HC03	1898.8	1376.0	365.3	172.4	210.1	237.5	260.5	273.0
SO4	784.1	504.9	108.8	78.4	155.6	194.2	191.8	175.7
Cl	122.9	77.1	15.0	7.4	7.8	8.5	8.5	8.6
NH4	0.52	0.35	0.08	0.17	0.14	0.10	0.10	0.10
NO2 (N)	0.12	0.10	0.11	0.10	0.10	0.10	0.10	0.10
NO3 (N)	0.22	0.39	0.10	0.10	0.10	0.31	0.10	0.10
F	0.10	0.12	0.12	0.10	0.10	0.10	0.10	0.10
SiO2	12.6	7.8	6.2	7.4	4.8	10.8	10.5	10.8
TDS	3054.6	2143.6	509.4	297.5	435.4	542.4	569.2	548.4
Cond. (umho/cm)	4007.8	3032.2	806.8	464.4	627.8	796.9	786.0	792.6
Alk. (as CaC03)	1484.9	1128.4	302.0	143.8	170.9	195.0	213.7	224.2
pH (units)	7.51	7.90	7.85	7.69	7.51	7.77	7.82	7.76
Trace Metals mg/l:								
Al	0.10	0.10	0.13	0.18	0.10	0.10	0.10	0.10
As	0.12	0.09	0.01	0.02	0.01	0.01	0.01	0.01
Ba	0.10	0.10	0.12	0.37	0.49	0.50	0.50	0.50
B	0.10	0.11	0.10	0.07	0.06	0.04	0.06	0.06
Cd	0.010	0.005	0.005	0.003	0.002	0.002	0.002	0.002
Cr	0.05	0.05	0.05	0.02	0.01	0.01	0.01	0.01
Cu	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Fe	0.14	0.40	0.14	0.43	1.19	1.06	0.66	0.57
Pb	0.05	0.05	0.05	0.03	0.02	0.02	0.02	0.02
Mn	0.66	0.37	0.17	0.27	0.38	0.41	0.39	0.34
Hg	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Mo	0.10	0.11	0.10	0.05	0.02	0.02	0.02	0.02
Ni	0.12	0.05	0.05	0.03	0.01	0.01	0.01	0.01
Se	6.33	2.40	1.29	0.01	0.01	0.01	0.01	0.01
V	0.24	0.10	0.10	0.10	0.10	0.10	0.09	0.10
Zn	0.05	0.02	0.01	0.01	0.01	0.01	0.01	0.01
Radiometric								
U (mg/l)	11.75	12.58	3.33	0.76	0.28	0.26	0.27	0.36
Ra 226 (pCi/l)	257.7	191.4	161.2	219.6	228.2	351.3	295.3	223.9

Numeric values represent the mean of all designated restoration wells for the specified phase of restoration

Table 5-1. Restoration and Stability Monitoring Water Quality Results, Mine Unit 3, Christensen Ranch, Wyoming

	Active Restoration Monitoring			Stability Monitoring			
	Post Mining	Post GWS	Post RO	Round 1	Round 2	Round 3	Round 4
Major Ions mg/l:							
Ca	325.0	248.8	47.8	34.2	44.6	46.5	46.6
Mg	60.4	55.5	10.4	4.6	6.1	6.3	6.2
Na	863.1	748.1	227.5	89.8	102.1	109.1	109.0
K	9.7	13.1	3.2	1.2	1.5	1.5	1.6
CO3	0.5	1.0	1.2	5.0	5.0	5.0	5.0
HC03	2280.4	1996.0	622.6	164.1	182.3	208.1	222.6
SO4	909.9	735.2	127.7	147.8	189.8	184.7	174.8
Cl	155.4	119.2	23.8	5.8	5.8	6.4	5.6
NH4	1.14	0.68	0.11	0.10	0.13	0.36	0.11
NO2 (N)	0.10	0.10	0.12	0.05	0.07	0.05	0.16
NO3 (N)	0.10	0.11	0.10	0.05	0.05	0.05	0.05
F	0.10	0.10	0.12	0.10	0.10	0.10	0.10
SiO2	16.2	10.7	8.0	16.1	16.5	17.2	16.3
TDS	3773.7	3122.0	772.0	408.9	544.7	492.6	492.6
Cond. (umho/cm	4787.9	4338.0	1162.9	588.4	683.6	707.1	713.3
Alk. (as CaC03)	1869.3	1637.8	510.6	134.6	149.5	170.4	182.2
pH (units)	7.40	7.49	7.84	7.64	7.63	7.59	7.67
Trace Metals mg/l:							
Al	0.10	0.10	0.11	0.10	0.10	0.10	0.10
As	0.02	0.08	0.00	0.01	0.01	0.01	0.01
Ba	0.10	0.10	0.10	0.46	0.46	0.46	0.50
B	0.10	0.10	0.10	0.06	0.07	0.07	0.07
Cd	0.010	0.005	0.005	0.002	0.002	0.002	0.002
Cr	0.05	0.05	0.05	0.01	0.01	0.01	0.01
Cu	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Fe	2.81	0.85	0.16	0.50	0.53	0.39	0.28
Pb	0.05	0.05	0.05	0.02	0.02	0.02	0.02
Mn	0.69	0.58	0.14	0.12	0.13	0.13	0.12
Hg	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Mo	0.10	0.10	0.10	0.02	0.02	0.02	0.02
Ni	0.05	0.05	0.05	0.01	0.01	0.01	0.01
Se	4.34	2.18	1.36	0.01	0.02	0.02	0.01
V	0.61	0.25	0.15	0.02	0.03	0.04	0.03
Zn	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Radiometric							
U (mg/l)	15.58	17.45	3.70	0.21	0.12	0.13	0.12
Ra 226 (pCi/l)	516.1	280.1	192.9	205.2	209.0	209.2	195.6

Numeric values represent the mean of all
designated restoration wells for the specified phase of restoration

Table A-1-Stability Monitoring Water Quality Results for Designated Restoration Wells, MU 3, Christensen Ranch, Wyoming

MU-3 Ore Zone Baseline Well
Water Quality - Round 1 Stability

Well ID:		MU-3	3D12-1	3G13-1	3J26-1	3L16-1	3L20-1	3N25-1	3O37-2
Location:		Baseline	Mod 32	Mod 32	Mod 32	Mod 31	Mod 31	Mod 31	Mod 33
Sample Date:		Mean	10/19/2004	10/19/2004	10/20/2004	10/19/2004	10/19/2004	10/19/2004	10/20/2004
Major Ions	**Units**								
Ca	mg/L	7.85	67	35	23	36	23	11	49
Mg	mg/L	0.9	12	4	5	3.0	2.0	2	3
Na	mg/L	134.69	101	90	116	84	62	71	73
K	mg/L	3.52	2.0	1.0	1.0	< 1.0	< 1.0	< 1.0	< 1.0
CO3	mg/L	119.57	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
HCO3	mg/L	108.62	188	221	115	186	118	110	111
So4	mg/L	198.2	257	96	222	104	89	91	181
Cl	mg/L	9.1	4.0	8.0	6	9.0	5.0	5.0	4.0
NH4	mg/L	0.07	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
NO2 (N)	mg/L	0.04	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
NO3 (N)	mg/L	0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
F	mg/L	0.21	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1
SiO2	mg/L	8.33	19.3	17.7	19.5	12.2	9.7	14.1	22.9
TDS	mg/L	411.58	610	390	490	370	260	270	430
Cond.	umhos/cm	681.72	819	576	731	546	412	398	605
Alk.	mg/L	99.16	154	181	95	153	96	90	91
pH	s.u.	8.89	7.6	7.7	7.3	7.8	7.6	7.7	7.8
Trace Metals, Dissolved									
Al	mg/L	0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
As	mg/L	0.0026	0.021	< 0.005	< 0.005	< 0.005	< 0.005	0.008	< 0.005
Ba	mg/L	0.1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
B	mg/L	0.1	0.04	0.06	0.07	0.05	0.06	0.05	0.10
Cd	mg/L	0.01	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Cr	mg/L	0.05	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Cu	mg/L	0.0103	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fe	mg/L	0.069	1.59	0.34	0.17	0.15	< 0.05	0.39	1.10
Pb	mg/L	0.05	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Mn	mg/L	0.01	0.18	0.05	0.08	0.03	0.02	0.04	0.10
Hg	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Mo	mg/L	0.1	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Ni	mg/L	0.05	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Se	mg/L	0.0019	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.006	< 0.005
V	mg/L	0.1015	0.02	0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Zn	mg/L	0.0125	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Radionuclides, Dissolved									
Uranium	mg/L	0.00011	0.0488	0.202	0.0224	0.264	0.0185	0.0296	0.0634
Ra 226	pCi/L	81.3	570	174.3	108.4	110.9	21.4	147.2	235
Ra 226 =/-	pCi/L		17	9.0	5.0	5.1	3.2	8.4	11
Data Quality									
A/C Baland	%		1.29	1.59	0.48	1.56	1.59	0.28	1.22
Anions	meq		8.53	5.83	6.68	5.47	5.83	3.83	5.71
Cations	meq		8.75	6.02	6.62	5.65	6.02	3.80	5.85
TDS Calc.	mg/L		530	340	430	330	340	230	370
TDS Balan	dec %		1.15	1.15	1.14	1.12	1.15	1.17	1.162

Table 4.2 Target Restoration Values for Mine Unit 4, Christensen Ranch, Wyoming

Parameter	Target Restoration Value
Major Cations/Anions	
Ca (mg/l)	14.5
Mg (mg/l)	1.64
Na (mg/l)	151.7
K (mg/l)	10.3
CO3 (mg/l)	24.1
HC03 (mg/l)	152.9
SO4 (mg/l)	238.2
Cl (mg/l)	11.1
NH4 (mg/l)	1.20
NO2 (N) (mg/l)	0.10
NO3 (N) (mg/l)	0.21
F (mg/l)	0.30
SiO2 (mg/l)	12.7
General Water Quality Parameters	
TDS (mg/l)	508.2
Cond. (umho/cm)	802.7
Alk. (as CaC03 (mg/l))	119.0
pH (units)	10.05
Trace Metals	
Al (mg/l)	0.1
As (mg/l)	0.007
Ba (mg/l)	0.1
B (mg/l)	0.1
Cd (mg/l)	0.01
Cr (mg/l)	0.05
Cu (mg/l)	0.01
Fe (mg/l)	0.05
Pb (mg/l)	0.05
Mn (mg/l)	0.01
Hg (mg/l)	0.001
Mo (mg/l)	0.1
Ni (mg/l)	0.050
Se (mg/l)	0.010
V (mg/l)	0.1
Zn (mg/l)	0.228
Radionuclides	
U (mg/l)	0.23
Ra 226 (pCi/l)	83.0

Table 5-1. Restoration and Stability Monitoring Water Quality Results, Mine Unit 4, Christensen Ranch, Wyoming

	Active Restoration Monitoring			Stability Monitoring			
	Post Mining	Post GWS	Post RO	Round 1	Round 2	Round 3	Round 4
Major Ions mg/l:							
Ca	320.8	153.2	21.4	39.8	42.7	44.1	42.7
Mg	57.9	33.3	4.5	8.5	9.0	9.1	9.1
Na	690.8	442.9	139.3	221.5	241.1	220.5	226.6
K	12.5	7.0	2.8	6.7	4.0	3.9	3.6
CO3	1.0	3.4	1.9	0.9	1.2	1.5	1.7
HC03	1881.7	1133.5	255.4	434.3	453.3	452.1	446.5
SO4	886.3	511.4	144.3	219.1	225.8	213.4	210.5
Cl	176.9	77.9	14.5	19.2	20.4	19.6	19.3
NH4	0.74	0.32	0.15	0.13	0.12	0.17	0.20
NO2 (N)	0.10	0.10	0.10	0.10	0.10	0.10	0.09
NO3 (N)	0.15	0.35	0.10	0.11	0.10	0.10	0.12
F	0.10	0.12	0.13	0.13	0.12	0.12	0.12
SiO2	13.1	10.6	10.0	14.3	9.3	9.2	9.3
General Water Quality							
TDS (mg/l)	3225.8	1944.3	463.9	760.0	805.3	772.0	774.7
Cond. (umho/cm)	4276.7	2712.3	699.6	1151.9	1180.5	1073.8	1124.5
Alk. (mg/l as CaC03)	1548.3	933.2	211.2	356.7	372.1	370.8	366.4
pH (units)	7.69	7.94	7.84	8.02	7.89	8.07	8.01
Trace Metals mg/l:							
Al	0.10	0.10	0.10	0.11	0.10	0.10	0.11
As	0.011	0.059	0.013	0.006	0.005	0.006	0.006
Ba	0.10	0.10	0.10	0.50	0.50	0.50	0.50
B	0.10	0.10	0.10	0.09	0.12	0.06	0.06
Cd	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Cr	0.05	0.05	0.05	0.01	0.01	0.01	0.01
Cu	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Fe	0.22	0.34	0.11	0.87	0.35	0.20	0.36
Pb	0.05	0.05	0.05	0.02	0.02	0.02	0.02
Mn	0.65	0.33	0.12	0.18	0.13	0.15	0.14
Hg	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Mo	0.10	0.10	0.10	0.02	0.02	0.02	0.02
Ni	0.05	0.05	0.05	0.01	0.01	0.01	0.01
Se	3.04	2.12	0.30	0.28	0.26	0.21	0.21
V	0.27	0.31	0.17	0.12	0.13	0.09	0.07
Zn	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Radiometric							
U (mg/l)	17.55	13.19	2.85	3.71	3.53	3.91	3.83
Ra 226 (pCi/l)	286.2	198.7	71.2	107.8	170.2	141.3	114.1

Numeric values represent the mean of all designated restoration wells for the specified phase of restoration

Table 5-1. Restoration and Stability Monitoring Water Quality Results, Mine Unit 5, Christensen Ranch, Wyoming

	Active Restoration Monitoring			Stability Monitoring			
	Post Mining	Post GWS	Post RO	Round 1	Round 2	Round 3	Round 4
Major Ions mg/l:							
Ca	267.6	263.4	23.3	33.9	31.4	32.9	35.6
Mg	54.3	49.4	5.1	7.0	6.3	6.4	7.2
Na	598.4	605.2	118.7	146.7	151.3	161.4	157.0
K	12.7	26.4	2.9	3.2	3.8	3.4	4.0
CO3	1.0	1.1	1.5	1.4	2.3	1.8	1.2
HC03	1392.9	1296.2	248.8	316.8	331.1	333.9	356.6
SO4	981.0	905.8	119.1	144.5	145.1	151.6	159.0
Cl	129.4	110.7	7.8	11.0	10.8	11.0	11.4
NH4	0.39	0.39	0.12	0.18	0.21	0.16	0.10
NO2 (N)	0.10	0.15	0.10	0.10	0.10	0.10	0.09
NO3 (N)	0.11	0.10	0.10	0.10	0.11	0.10	0.12
F	0.12	0.12	0.15	0.13	0.15	0.13	0.10
SiO2	10.5	10.5	6.0	6.7	3.0	3.0	7.1
General Water Quality							
TDS (mg/l)	3074.4	2607.2	418.8	529.2	552.8	567.6	589.2
Cond. (umho/cm)	4047.3	3517.1	659.0	839.6	817.8	821.7	944.6
Alk. (mg/l as CaC03)	1143.9	1062.8	205.1	260.7	274.4	275.5	293.1
pH (units)	7.63	7.50	8.01	7.98	8.07	8.11	8.10
Trace Metals mg/l:							
Al	0.10	0.12	0.10	0.10	0.10	0.10	0.11
As	0.011	0.003	0.015	0.020	0.013	0.010	0.008
Ba	0.10	0.10	0.28	0.50	0.50	0.50	0.50
B	0.10	0.10	0.08	0.05	0.06	0.06	0.07
Cd	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Cr	0.05	0.05	0.03	0.01	0.01	0.01	0.01
Cu	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Fe	0.55	0.71	0.05	0.05	0.14	0.09	0.10
Pb	0.05	0.05	0.04	0.02	0.02	0.02	0.02
Mn	0.55	0.56	0.04	0.06	0.09	0.07	0.08
Hg	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Mo	0.10	0.10	0.06	0.02	0.02	0.02	0.02
Ni	0.05	0.05	0.03	0.01	0.01	0.01	0.01
Se	0.55	0.51	0.53	0.49	0.52	0.35	0.41
V	0.22	0.22	0.23	0.18	0.16	0.15	0.12
Zn	0.01	0.02	0.01	0.01	0.01	0.01	0.01
Radiometric							
U (mg/l)	12.61	18.09	1.43	2.16	2.43	2.39	2.05
Ra 226 (pCi/l)	475.7	356.9	217.7	194.4	218.8	210.6	238.0

Numeric values represent the mean of all designated restoration wells for the specified phase of restoration

Table A-1. Stability Monitoring Water Quality Results for Designated Restoration Wells, Mine Unit 5, Christensen Ranch, Wyoming

Ore Zone Baseline Well
Groundwater Quality - Stability Round #1

Round one consists of all Nov-2003 results.

Well I.D.	BASELINE		BASELINE		BASELINE		5AM78-2		5AE80-1		5AG68-1		5AL66-1		AP-02	
Production Unit:	MU-5		MU-5		MU-5		Mod 51		Mod 51		Mod 51		Mod 51		Mod 52	
Sample Date:	MINUMUM		MAXIMUM		MEAN		11/11/03		11/11/03		11/11/03		11/11/03		11/12/03	
Major Ions mg/l:																
Ca	<	0.05		24.117		10.219		15.3		59.6		23.5		34.2		48.5
Mg	<	0.01		3.721		1.371		3.5		10.8		5.1		7.6		10.2
Na		101.1		191.68		146.39		70.9		207		104		124		214
K	<	0.1		19.851		4.22		1.3		3.8		2.5		2.1		4.3
CO3	<	0.1		61.85		7.255	<	1.0	<	1.0	<	1.0	<	1.0	<	1.0
HC03		29.444		217.596		123.52		149		472		265		309		409
SO4		82.859		348.161		215.51		69.2		229		68.2		104		248
Cl		3.502		11.942		7.722		7		20.7		6.9		12		14.7
NH4	<	0.05		0.722		0.143		0.1	<	0.1	<	0.1		0.20		0.2
NO2 (N)	<	0.10	<	0.10	<	0.10	<	0.1	<	0.1	<	0.1	<	0.1	<	0.1
NO3 (N)	<	0.10		16.793		0.125	<	0.10	<	0.10	<	0.10	<	0.10	<	0.10
F	<	0.10		0.307		0.184		0.1	<	0.1		0.1		0.1	<	0.1
SiO2		4.549		12.271		8.41		5.4		8.4		3.7		4.6		7.4
TDS		276.942		619.338		448.14		250		790		370		470		780
Cond. (umho/cm)		405.757		1095.003		750.38		408		1180		573		724		1270
Alk. (as CaC03)		54.896		158.403		106.649		122		387		218		253		336
pH (units)		7.349		10.157		8.753		7.7		7.90		7.70		7.80		8.1
Trace Metals mg/l:																
Al	<	0.10	<	0.10	<	0.1	<	0.1	<	0.1	<	0.1	<	0.1	<	0.1
As	<	0.001		0.006		0.002		0.014		0.029		0.040		0.026	<	0.005
Ba	<	0.10	<	0.10	<	0.10	<	0.5	<	0.5	<	0.5	<	0.5	<	0.5
B	<	0.10	<	0.10	<	0.10		0.05		0.06		0.04		0.05		0.04
Cd	<	0.01	<	0.01	<	0.01	<	0.002	<	0.002	<	0.002	<	0.002	<	0.002
Cr	<	0.05	<	0.05	<	0.05	<	0.01	<	0.01	<	0.01	<	0.01	<	0.01
Cu	<	0.01	<	0.01	<	0.01	<	0.01	<	0.01	<	0.01	<	0.01	<	0.01
Fe	<	0.05	<	0.05	<	0.05	<	0.05	<	0.05	<	0.05	<	0.05	<	0.05
Pb	<	0.05	<	0.05	<	0.05	<	0.02	<	0.02	<	0.02	<	0.02	<	0.02
Mn	<	0.01	<	0.01	<	0.01		0.05		0.15		0.05		0.07		0.05
Hg	<	0.001	<	0.001	<	0.001	<	0.001	<	0.001	<	0.001	<	0.001	<	0.001
Mo	<	0.10	<	0.10	<	0.10	<	0.02	<	0.02	<	0.02	<	0.02	<	0.02
Ni	<	0.05	<	0.05	<	0.05	<	0.01	<	0.01	<	0.01	<	0.01	<	0.01
Se	<	0.001		0.026		0.002		0.457		0.190		0.688		0.961		0.007
V	<	0.10		0.14		0.14		0.3		0.5		0.4		0.1	<	0.1
Zn	<	0.01		0.107		0.015		0.02	<	0.01	<	0.01		0.02	<	0.01
Radiometric pCi/l:																
U (mg/l)	<	0.0003		0.0763		0.0232		0.73		1		1.82		1.17		1.250
Ra 226	<	0.2		289.79		67.588		205		97		89.7		61.6		68.5
Ra 226+/-								8.7		4.5		4.2		3.5		3.8
Data Quality																
A/C Balance(+-5)				%				0.970		0.420		1.65		1.3		1.480
Anions				meq				4.09		13.09		5.97		7.57		12.29
Cations				meq				4.17		12.98		6.17		7.77		12.66
TDS Calculated				mg/L				240		760		340		440		740
TDS Balance (0.80 - 1.20)				dec %				1.040		1.04		1.09		1.07		1.050

Table 5-1. Restoration and Stability Monitoring Water Quality Results, Mine Unit 6, Christensen Ranch, Wyoming

	Active Restoration Monitorin		Stability Monitoring			
	Post Mining	Post GWS	Round 1	Round 2	Round 3	Round 4
Major Ions mg/l:						
Ca	292.2	406.0	41.6	51.7	54.6	54.8
Mg	61.6	109.0	9.3	11.2	11.6	12.0
Na	662.6	829.0	159.5	176.0	186.4	188.5
K	11.8	19.8	3.4	3.7	3.7	4.0
CO3	1.0	1.0	5.0	5.0	5.0	5.0
HC03	1420.4	1870.0	286.8	311.9	336.6	337.6
SO4	1089.1	1600.0	216.6	254.1	267.5	296.1
Cl	120.6	155.0	8.2	9.4	8.9	10.4
NH4	0.38	0.56	0.10	0.26	0.12	0.13
NO2 (N)	0.10	1.30	0.05	0.05	0.05	0.05
NO3 (N)	0.17	0.12	0.06	0.08	0.08	0.06
F	0.10	0.30	0.11	0.11	0.11	0.10
SiO2	12.14	15.10	8.89	9.76	10.02	9.84
TDS	3292.2	4070.0	598.3	686.8	718.3	717.7
Cond. (umho/cm	4297.2	5220.0	856.6	978.5	1054.1	1082.8
Alk. (as CaC03)	1165.2	1530.0	235.1	256.0	275.9	277.1
pH (units)	7.34	8.07	7.79	7.80	7.85	7.98
Trace Metals mg/l:						
Al	0.10	0.40	0.10	0.10	0.10	0.10
As	0.03	0.12	0.01	0.01	0.01	0.01
Ba	0.10	0.10	0.50	0.50	0.50	0.50
B	0.10	0.10	0.07	0.08	0.08	0.07
Cd	0.005	0.005	0.002	0.002	0.002	0.002
Cr	0.05	0.05	0.01	0.01	0.01	0.01
Cu	0.01	0.01	0.01	0.01	0.01	0.01
Fe	0.70	1.89	0.37	0.43	0.42	0.45
Pb	0.05	0.05	0.02	0.02	0.02	0.02
Mn	0.61	1.43	0.20	0.27	0.29	0.30
Hg	0.001	0.001	0.001	0.001	0.001	0.001
Mo	0.10	0.10	0.02	0.02	0.02	0.02
Ni	0.05	0.21	0.01	0.01	0.01	0.01
Se	1.09	3.71	0.10	0.11	0.09	0.08
V	0.49	1.30	0.08	0.08	0.06	0.06
Zn	0.02	0.04	0.01	0.01	0.01	0.01
Radiometric						
U (mg/l)	12.57	49.00	0.85	0.97	1.05	1.18
Ra 226 (pCi/l)	526.4	1120.0	179.2	192.2	171.5	181.0

Numeric values represent the mean of all
designated restoration wells for the specified phase of restoration

Table A-1. Stability Monitoring Water Quality Results for Designated Restoration Wells, MU6, Christensen Ranch, Wyoming

Ore Zone Baseline Well Groundwater Quality - Stability Round 1

Well I.D.		BLW MEAN	6M29-1	6M34-1	6O26-1	6P30-2	6R21-1	6T17-1	6T23-4	6T35-1	6U20-2	6V24-1
Module		Revised	MOD 61	MOD 61	MOD61	MOD 61	MOD61	MOD61	MOD 61	MOD 61	MOD 61	MOD61
Sample Date:		6/25/1999	06/21/05	06/21/05	06/21/05	06/28/05	06/21/05	06/21/05	06/21/05	06/21/05	06/27/05	06/22/05
Major Ions mg/l:	**Units**											
Ca	mg/L	26.28	100	15	21	25	32	15	34	22	15	6
Mg	mg/L	4.52	24	2.0	3.0	6.0	6.0	3.0	7.0	3.0	3.0	1.0
Na	mg/L	240.40	373	35	35	124	176	116	76	36	87	38
K	mg/L	6.21	7.0	< 1.0	< 1.0	3.0	4.0	3.0	1.0	< 1.0	2.0	< 1.0
CO3	mg/L	4.50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 1.0
HC03	mg/L	74.21	629	56	33	293	262	295	179	27	218	8.0
SO4	mg/L	533.14	499	66	101	104	232	51	108	122	57	91
Cl	mg/L	4.58	18	1.0	1.0	8.0	10	3.0	7.0	1.0	4.0	1.0
NH4	mg/L	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1
NO2 (N)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
NO3 (N)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.31	< 0.05
F	mg/L	0.14	< 0.1	< 0.1	< 0.1	0.1	< 0.1	0.3	< 0.1	< 0.1	< 0.1	< 0.1
SiO2	mg/L	4.50	6.0	11.2	14.3	4.5	6.7	4.6	9.4	10.6	4	17.6
TDS	mg/L	859.84	1350	170	220	420	580	260	410	120	260	150
Cond. (umho/cm)	umhos/cm	1263.25	1800	247	303	661	852	518	522	300	454	238
Alk. (as CaC03)	mg/L	70.09	516	46	27	240	214	241	147	22	179	7.0
pH (units)	s.u.	8.59	8.1	7.5	7.3	8.0	8.1	8.1	7.9	7.30	8.1	6.8
Trace Metals mg/l:												
Al	mg/L	< 0.050	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
As	mg/L	0.002	< 0.005	< 0.005	0.019	0.017	< 0.005	0.006	< 0.005	< 0.005	0.018	< 0.005
Ba	mg/L	< 0.050	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
B	mg/L	< 0.100	0.08	0.05	0.06	0.06	0.06	0.07	0.06	0.07	0.07	0.07
Cd	mg/L	< 0.050	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Cr	mg/L	< 0.050	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Cu	mg/L	< 0.050	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fe	mg/L	< 0.050	< 0.05	0.21	1.08	< 0.05	< 0.05	< 0.05	1.89	0.71	< 0.05	0.5
Pb	mg/L	< 0.005	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Mn	mg/L	< 0.050	0.29	0.12	0.22	0.06	0.08	0.05	0.87	0.68	0.03	0.03
Hg	mg/L	< 0.00020	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Mo	mg/L	< 0.050	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Ni	mg/L	< 0.050	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Se	mg/L	< 0.001	0.008	< 0.005	< 0.005	0.659	0.015	0.096	< 0.005	< 0.005	0.187	< 0.005
V	mg/L	< 0.050	< 0.02	< 0.02	0.03	0.28	0.03	0.10	0.03	< 0.02	0.52	< 0.02
Zn	mg/L	< 0.010	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Radiometric pCi/l:												
U (mg/l)	mg/L	0.0112	4.96	0.0139	0.0188	0.828	0.684	1.71	0.192	0.0272	0.541	0.0081
Ra 226	pCi/L	103.8	261.3	87.6	880	93.1	80.1	50.7	26.4	302	54.1	142.9
Ra 226+/-	pCi/L		9.6	5.5	17	5.6	5.2	4.2	3.2	10.0	4.5	7.3
Data Quality												
A/C Balance(+-5)	%		4.770	0.100	0.150	0.360	2.410	1.250	1.930	1.210	0.810	0.010
Anions	meq		21.22	2.31	2.69	7.19	9.40	5.98	5.37	3.02	4.91	2.07
Cations	meq		23.35	2.42	2.84	7.14	9.86	6.13	5.58	2.95	4.83	2.08
TDS Calculated	mg/L		1330	150	180	410	590	340	320	200	280	140
TDS Balance (0.80 - 1.20)	dec %		1.015	1.133	1.222	1.024	0.983	0.765	1.281	0.600	0.928	1.071

Smith Ranch/Highland Project

Source: CAMECO Resources, 2009, Mine Unit B Ground Water Restoration Report, Smith Ranch-Highland Uranium Project, August 5, 2004. Available from the NRC ADAMS document server under accession no. ML091831100.

Table 4: Groups of Mine Unit B Post Restoration Water Quality

Group I – Meet Baseline								
Parameter	Units	BASELINE (Oct/Nov 1987)	END MINING (July 1991)	MU-B AVG of MPs (June 28, 2004)	CLASS I	CLASS II	CLASS III	HUP MP-Well Baseline AVG
Ca *	mg/l	49.5	349	80.7				82.1
Mg *	mg/l	10.2	65.5	16.7				16.8
Na	mg/l	57.2	83.4	43.4				43.0
K	mg/l	8.0	16.7	5.8				9.8
CO3	mg/l	0.15	0.0	< 1				0.072
SO4	mg/l	117	402	64.2	250.0	200.0	3000.0	207
NO2	mg/l	0.01	0.1	< 0.1	1.0		10.0	0.04
NO3	mg/l	0.14	0.3	< 0.1	10.0			0.09
F	mg/l	0.22	0.1	0.17	1.4-2.4			0.22
SiO2	mg/l	15.8	18.8	14.2				17.2
COND *	µmho/cm	564	2580	665				728
Al	mg/l	< 0.1	0.1	< 0.1		5.0	5.0	< 0.1
Ba	mg/l	< 0.1	0.1	< 0.1	1.0			< 0.1
B	mg/l	< 0.1	0.1	< 0.1	0.75	0.75	5.0	< 0.1
Cd	mg/l	< 0.01	0.01	< 0.005	0.01	0.010	0.050	< 0.01
Cr	mg/l	< 0.05	0.1	< 0.05	0.05	0.10	0.05	< 0.05
Cu	mg/l	< 0.01	0.01	< 0.01	1.00	0.20	0.50	< 0.01
Pb	mg/l	< 0.05	0.1	< 0.05	0.05	5.00	0.10	< 0.05
Hg	mg/l	< 0.001	0.0	< 0.001	0.002		0.00005	< 0.001
Mo	mg/l	< 0.1	0.1	< 0.1				< 0.1
Ni	mg/l	< 0.05	0.07	< 0.05		0.20		< 0.05
Ra 226 *	pCi/l	316	1478	437	5	5	5	480
V	mg/l	< 0.1	0.1	< 0.1		0.10	0.10	< 0.1
Zn	mg/l	< 0.01	0.11	< 0.01	5.00	2.00	25.00	< 0.01

* Parameter Meets Project Wide MP - Well Baseline Average

Group II - Meet Class I or Class II								
NH4	mg/l	0.16	0.52	0.46	0.5			0.13
Cl	mg/l	5.3	232	16.8	250.0	100.0	2000.0	3.7
TDS	mg/l	350	1672	397	500	2000	5000	477
pH	std. units	8.12	6.9	7.1	6.5-9.0	4.5-9.0	6.5-8.5	7.9
As	mg/l	< 0.001	0.008	0.058	0.050	0.100	0.200	0.002
Fe	mg/l	0.052	0.1	1.3	0.30	5.00		0.05
Se	mg/l	< 0.001	0.806	0.009	0.01	0.020	0.050	0.004
U nat	mg/l	0.062	22.3	1.79	5.00	5.00	5.00	0.492

Group III - Exceed Class I or Class II or no Standard								
HCO3	mg/l	206	824	319				200
ALK	mg/l	171	686	261				165
Mn	mg/l	0.032	0.9	0.36	0.05	0.20		0.03

Crow Butte Project

Source: Crow Butte Resources, Inc., 2007, Application for Amendment of USNRC Source Materials License SUA-1534, North Trend Expansion Area, Technical Report, May 30, 2007. Available from the NRC ADAMS document server under accession no. ML071760349.

Table 2.7-15: Anticipated Changes in Water Quality During Mining

Average Ore Zone Water Quality			
Analyte	**Units**	**Pre-Mining (Well W-007)**	**Typical Water Quality During Mining at CSA**
Alkalinity, Total as CaCO3	mg/L	328	1,600
Carbonate as CO3	mg/L	0	<1.0
Bicarbonate as HCO3	mg/L	401	2,050
Calcium	mg/L	29.6	77
Chloride	mg/L	202	600
Fluoride	mg/L	1.23	0.6
Magnesium	mg/L	5.3	23
Ammonia as N	mg/L	0.74	<0.05
Nitrate+Nitrite as N	mg/L		0.46
Potassium	mg/L	15.0	35
Silica	mg/L	11.3	21
Sodium	mg/L	567	1,310
Sulfate	mg/L	737	900
Conductivity	umhos/cm	2,723	6,000
pH	s.u.	8.1	7.8
TDS	mg/L	1,804	4,080
Aluminum	mg/L	<0.10	<0.1
Arsenic	mg/L	<0.002	0.06
Barium	mg/L	<0.10	<0.1
Boron	mg/L	1.61	1.1
Cadmium	mg/L	<0.01	<0.005
Chromium	mg/L	<0.05	<0.05
Copper	mg/L	<0.01	0.04
Iron	mg/L	<0.05	<0.030
Lead	mg/L	<0.05	<0.05
Manganese	mg/L	0.01	0.05
Mercury	mg/L	<0.001	<0.001
Molybdenum	mg/L	<0.10	0.5
Nickel	mg/L	<0.05	<0.05
Selenium	mg/L	<0.175	0.07
Uranium	mg/L	<0.0032	44
Vanadium	mg/L	<0.10	2.5
Zinc	mg/L	<0.02	0.02
Radium 226	pCi/L	11.9	1,090