Humidity Cell Sample Data

HC 22 - Processed Kimberlite Fines

Weeks	#	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
Date		7-Feb-06	14-Feb-06	21-Feb-06	28-Feb-06	7-Mar-06	14-Mar-06	21-Mar-06	28-Mar-06	4-Apr-06	11-Apr-06	18-Apr-06	25-Apr-06	2-May-06	9-May-06	16-May-06	23-May-06	30-May-06	6-Jun-06	13-Jun-06	20-Jun-06	27-Jun-06	4-Jul-06
Leachate Volume Added (mL)		375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375
Leachate Volume Recovered (mL)		355	360	380	385	360	355	380	375	385	390	380	365	380	375	360	380	360	360	360	370	370	375
pH	Effluent (units)	7.19	7.44	7.80	7.85	7.69	8.25	7.56	7.85	7.73	7.72	7.09	7.60	7.62	7.29	7.31	7.76	7.54	7.30	7.37	7.29	7.24	7.41
Cond.	(umhos/cm)	17	19	42	91	24	48	75	71	70	38	26	30	28	24	23	22	24	30	20	16	17	16
ORP	mV	170	225	175	145	140	115	160	120	160	190	160	185	145	190	120	185	190	190	155	190	190	220
Sulphate	(mg/L)	1	1	4	9	1	1	10	9	8	6	2	4	3	2	2	2	2	2	3	2	2	1
Acidity	(mg CaCO3/L)	1	1	1	1	< 1	< 1	3	< 1	1	2	2	< 1	1	1	1	< 1	1	1	1	1	1	1
Alkalinity	(mg CaCO3/L)	6	5	9	26	9	20	18	16	16	11	10	12	12	9	11	8	7	10	7	10	10	9
Total P	mg/L																						
TDP	mgP/L																						
Fluoride	mg/L				0.14				0.18				0.11				< 0.1				< 0.1		
Chloride	mg/L				4.0				2.6				0.8				0.5				0.6		
TDS	mg/L				85				48				24				245				< 1		
Al	mg/L				0.180				0.055				0.043				< 0.005				0.010		
Sb	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
As	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Ba	mg/L				0.034				0.015				0.011				0.011				0.010		
Be	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Bi	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
B	mg/L				0.32				0.39				0.14				0.10				0.06		
Cd	mg/L				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002		
Ca	mg/L				5.24				3.15				1.58				1.07				0.87		
Cr	mg/L				0.003				< 0.001				0.001				< 0.001				< 0.001		
Co	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Cu	mg/L				0.004				< 0.001				< 0.001				< 0.001				< 0.001		
Fe	mg/L				0.20				< 0.05				< 0.05				< 0.05				0.05		
Pb	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Li	mg/L				0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Mg	mg/L				2.21				0.91				0.53				0.32				0.27		
Mn	mg/L				0.003				< 0.001				< 0.001				0.006				< 0.001		
Hg	ug/L				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02		
Mo	mg/L				0.003				0.0038				0.0012				0.0008				0.0005		
Ni	mg/L				0.009				0.002				< 0.001				< 0.001				< 0.001		
P	mg/L				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15		
K	mg/L				5.9				5.9				3.6				2.4				1.8		
Se	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Si	mg/L				2.6				2.2				1.3				0.8				0.6		
Ag	mg/L				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025		
Na	mg/L				6.26				5.94				2.43				1.53				1.21		
Sr	mg/L				0.050				0.028				0.018				0.011				0.009		
Te	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Tl	mg/L				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001		
Th	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005		
Sn	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Ti	mg/L				0.002				< 0.001				< 0.001				< 0.001				< 0.001		
U	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005		
V	mg/L				0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Zn	mg/L				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005		
Zr	mg/L				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01		

Humidity Cell Sample Data

HC 22 - Processed Kimberlite Fines

Weeks	#	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65
Date		11-Jul-06	18-Jul-06	25-Jul-06	1-Aug-06	8-Aug-06	15-Aug-06	22-Aug-06	29-Aug-06	5-Sep-06	12-Sep-06	19-Sep-06	26-Sep-06	3-Oct-06	10-Oct-06	17-Oct-06	24-Oct-06	31-Oct-06	7-Nov-06	14-Nov-06	21-Nov-06	28-Nov-06	5-Dec-06	12-Dec-06	19-Dec-06	26-Dec-06	2-Jan-07
Leachate Volume Added (mL)		375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375
Leachate Volume Recovered (mL)		365	385	390	395	375	370	390	350	400	375	375	365	380	370	375	380	365	380	360	380	380	370	375	390	375	380
pH	Effluent (units)	7.45	7.41	7.54	7.49	7.56	7.43	7.30	7.26	7.35	7.47	7.39	7.01	7.22	7.13	6.97	7.58	7.49	7.35	7.18	7.38	7.21	7.21	7.39	7.33	7.17	7.29
Cond.	(umhos/cm)	17	20	16	18	17	18	16	18	25	21	19	10	20	19	23	19	20	21	16	18	18	18	20	20	18	16
ORP	mV	195	170	145	160	190	200	140	135	110	155	160	145	160	155	100	105	110	110	115	110	120	125	110	100	100	100
Sulphate	(mg/L)	2	2	2	< 1	2	3	2	2	3	3	3	1	2	2	2	3	1	3	3	1	1	2	1	2	1	2
Acidity	(mg CaCO3/L)	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Alkalinity	(mg CaCO3/L)	8	9	9	9	8	9	8	9	12	10	9	9	9	9	8	10	10	9	8	9	8	8	9	9	8	9
Total P	mg/L																										
TDP	mgP/L																										
Fluoride	mg/L		< 0.1				< 0.1				< 0.1				< 0.1	-06 previously entered as 5, shou			< 0.1				< 0.05				< 0.05
Chloride	mg/L		0.3				0.6				0.6				0.5				0.3				< 0.2				< 0.2
TDS	mg/L		5				< 1				3				75				92				< 10				< 10
Al	mg/L		0.008				0.022				0.01				0.044				0.018				0.005				0.007
Sb	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
As	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Ba	mg/L		0.011				0.011				0.01				0.011				0.018				0.008				0.012
Be	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Bi	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
B	mg/L		0.09				0.13				0.09				0.1				0.15				0.07				0.09
Cd	mg/L		< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Ca	mg/L		1.06				0.96				0.91				0.96				1.36				0.71				0.9
Cr	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Co	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Cu	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Fe	mg/L		< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05
Pb	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Li	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Mg	mg/L		0.44				0.33				0.33				0.45				0.38				0.24				0.29
Mn	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Hg	ug/L		< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02
Mo	mg/L		0.0008				0.0008				0.0008				0.0007				0.0009				0.0006				0.0007
Ni	mg/L		0.001				< 0.001				< 0.001				0.001				< 0.001				< 0.001				< 0.001
P	mg/L		< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15
K	mg/L		2.5				2.4				2.1				2.3				2.8				1.8				1.9
Se	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Si	mg/L		1.1				1.1				1				1.1				0.9				0.7				0.8
Ag	mg/L		< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025
Na	mg/L		1.78				1.73				1.65				1.67				1.81				1.27				1.48
Sr	mg/L		0.015				0.01				0.011				0.02				0.014				0.008				0.011
Te	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Tl	mg/L		< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
Th	mg/L		< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
Sn	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Ti	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
U	mg/L		< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
V	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Zn	mg/L		< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005
Zr	mg/L		< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01

Humidity Cell Sample Data

HC 22 - Processed Kimberlite Fines

Weeks	#	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92
Date		9-Jan-07	16-Jan-07	23-Jan-07	30-Jan-07	6-Feb-07	13-Feb-07	20-Feb-07	27-Feb-07	6-Mar-07	13-Mar-07	20-Mar-07	27-Mar-07	3-Apr-07	10-Apr-07	17-Apr-07	24-Apr-07	1-May-07	8-May-07	########	########	########	5-Jun-07	12-Jun-07	19-Jun-07	26-Jun-07	3-Jul-07	10-Jul-07
Leachate Volume Added (mL)		375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375
Leachate Volume Recovered (mL)		380	370	380	380	370	380	380	375	380	360	380	380	375	375	380	375	385	365	380	360	380	370	380	365	380	380	380
pH	Effluent (units)	7.35	7.38	7.33	7.23	7.14	7.38	7.32	7.17	7.38	7.17	7.42	7.32	7.21	7.43	7.25	7.25	7.16	7.28	7.35	7.17	7.33	7.20	7.43	7.30	7.29	7.35	7.45
Cond.	(umhos/cm)	19	22	15	18	15	19	17	17	17	16	16	16	16	19	19	23	18	19	20	16	18	17	21	18	16	17	20
ORP	mV	100	110	100	105	105	110	110	110	110	110	105	105	110	100	105	100	100	115	105	105	100	105	105	105	110	105	100
Sulphate	(mg/L)	2	2	3	2	1	1	1	2	1	2	< 1	2	2	2	2	2	1	1	2	1	2	2	< 1	1	2	2	2
Acidity	(mg CaCO3/L)	1	< 1	< 1	1	1	1	1	1	< 1	1	< 1	1	< 1	< 1	< 1	< 1	1	1	< 1	1	< 1	1	< 1	1	< 1	< 1	< 1
Alkalinity	(mg CaCO3/L)	9	10	9	10	8	8	9	8	9	8	9	8	9	9	8	9	8	9	10	8	10	10	9	9	9	9	9
Total P	mg/L																											
TDP	mgP/L																											
Fluoride	mg/L				0.09				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05			
Chloride	mg/L				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2			
TDS	mg/L				< 10				16				20				11				17				92			
Al	mg/L				0.008				0.024				0.035				0.006				< 0.005				0.009			
Sb	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
As	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Ba	mg/L				0.011				0.009				0.011				0.013				0.01				0.009			
Be	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Bi	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
B	mg/L				0.1				0.07				0.09				0.11				0.07				0.08			
Cd	mg/L				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002			
Ca	mg/L				0.88				0.69				0.83				0.85				0.69				0.7			
Cr	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Co	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Cu	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				0.001			
Fe	mg/L				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05			
Pb	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Li	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.005				< 0.005			
Mg	mg/L				0.31				0.34				0.28				0.29				0.21				0.24			
Mn	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Hg	ug/L				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02			
Mo	mg/L				0.0007				0.0007				0.0007				0.0008				0.0007				0.0006			
Ni	mg/L				< 0.001				0.001				< 0.001				< 0.001				< 0.001				< 0.001			
P	mg/L				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15			
K	mg/L				2.4				1.9				2				2.3				1.9				2.1			
Se	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Si	mg/L				1				0.8				0.9				0.9				0.7				0.8			
Ag	mg/L				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025			
Na	mg/L				1.87				1.31				1.45				1.63				1.28				1.37			
Sr	mg/L				0.009				0.007				0.008				0.009				0.007				0.007			
Te	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Tl	mg/L				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001			
Th	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005			
Sn	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Ti	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
U	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005			
V	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Zn	mg/L				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005			
Zr	mg/L				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01			

Humidity Cell Sample Data

HC 22 - Processed Kimberlite Fines

Weeks	#	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119
Date		17-Jul-07	24-Jul-07	31-Jul-07	7-Aug-07	14-Aug-07	21-Aug-07	28-Aug-07	4-Sep-07	11-Sep-07	18-Sep-07	25-Sep-07	2-Oct-07	9-Oct-07	16-Oct-07	23-Oct-07	30-Oct-07	6-Nov-07	13-Nov-07	20-Nov-07	27-Nov-07	4-Dec-07	11-Dec-07	18-Dec-07	25-Dec-07	1-Jan-08	8-Jan-08	15-Jan-08
Leachate Volume Added (mL)		375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375
Leachate Volume Recovered (mL)		365	360	380	380	380	380	380	380	380	365	375	370	370	370	370	365	380	370	380	380	370	365	380	365	390	365	380
pH	Effluent (units)	7.34	7.18	7.27	7.19	7.35	7.35	7.24	7.40	7.30	7.39	7.37	7.31	7.29	7.39	7.14	7.28	7.31	7.29	7.30	7.33	6.88	7.21	7.10	7.12	7.15	7.15	7.38
Cond.	(umhos/cm)	21	14	17	18	16	17	17	17	17	18	18	16	16	17	12	16	20	16	16	18	12	20	14	13	16	13	26
ORP	mV	105	110	140	150	155	135	135	145	135	140	130	130	120	110	100	105	110	110	115	110	105	100	100	110	110	110	100
Sulphate	(mg/L)	2	2	1	1	2	< 1	3	< 1	1	1	2	2	< 1	1	2	1	2	2	2	2	2	2	2	1	< 1	2	2
Acidity	(mg CaCO3/L)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1	1	< 1	1
Alkalinity	(mg CaCO3/L)	8	7	9	8	7	8	8	7	8	8	8	8	8	8	6	7	11	8	9	9	6	9	7	7	7	7	11
Total P	mg/L																											
TDP	mgP/L																											
Fluoride	mg/L	0.13				< 0.05				0.07				0.08				0.06				< 0.05				0.06		
Chloride	mg/L	< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2		
TDS	mg/L	20				< 10				16				10				< 10				32				< 10		
Al	mg/L	0.009				0.024				0.043				0.01				0.11				0.027				0.032		
Sb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
As	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Ba	mg/L	0.012				0.007				0.011				0.008				0.023				0.009				0.011		
Be	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Bi	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
B	mg/L	0.09				0.07				0.09				0.08				0.08				0.06				0.1		
Cd	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002		
Ca	mg/L	0.83				0.54				0.77				0.71				1.28				0.63				0.75		
Cr	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Co	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Cu	mg/L	< 0.001				< 0.001				< 0.001				0.001				< 0.001				< 0.001				< 0.001		
Fe	mg/L	< 0.05				< 0.05				0.06				< 0.05				< 0.05				< 0.05				< 0.05		
Pb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Li	mg/L	< 0.005				< 0.005				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Mg	mg/L	0.3				0.27				0.47				0.27				0.41				0.3				0.45		
Mn	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Hg	ug/L	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02		
Mo	mg/L	0.0008				< 0.0005				0.0006				0.0006				0.0006				< 0.0005				0.0006		
Ni	mg/L	< 0.001				< 0.001				0.002				0.001				< 0.001				< 0.001				0.002		
P	mg/L	< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15		
K	mg/L	2.2				1.8				2.1				2				2				1.6				2		
Se	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Si	mg/L	1				0.8				0.9				0.8				0.9				0.7				1		
Ag	mg/L	< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025		
Na	mg/L	1.5				1.21				1.38				1.26				1.3				0.85				1.56		
Sr	mg/L	0.009				0.002				0.009				0.008				0.012				0.009				0.009		
Te	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Tl	mg/L	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001		
Th	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005		
Sn	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Ti	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
U	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005		
V	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Zn	mg/L	< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005		
Zr	mg/L	< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01		

Humidity Cell Sample Data

HC 22 - Processed Kimberlite Fines

Weeks	#	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146
Date		22-Jan-08	29-Jan-08	5-Feb-08	12-Feb-08	19-Feb-08	26-Feb-08	4-Mar-08	11-Mar-08	18-Mar-08	25-Mar-08	1-Apr-08	8-Apr-08	15-Apr-08	22-Apr-08	29-Apr-08	6-May-08	########	########	########	3-Jun-08	10-Jun-08	17-Jun-08	24-Jun-08	1-Jul-08	8-Jul-08	15-Jul-08	22-Jul-08
Leachate Volume Added (mL)		375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	500	500
Leachate Volume Recovered (mL)		380	370	370	385	365	375	375	370	365	365	385	350	405	360	360	350	360	370	370	380	350	370	365	380	385	370	380
pH	Effluent (units)	7.13	7.07	7.05	7.09	7.39	7.22	7.18	7.22	7.23	7.29	7.31	7.25	7.41	7.16	7.26	7.38	7.63	7.35	7.49	7.51	7.51	7.34	7.45	7.50	7.25	7.30	7.45
Cond.	(umhos/cm)	15	14	12	13	24	15	26	16	13	17	17	14	20	12	15	21	32	25	28	21	23	19	23	22	21	20	23
ORP	mV	110	125	110	105	105	105	120	120	140	160	140	130	135	130	130	135	125	140	135	160	130	160	160	135	140	135	140
Sulphate	(mg/L)	3	< 1	2	2	3	2	1	1	2	2	2	3	2	< 1	1	1	2	< 1	2	2	< 1	< 1	1	1	1	< 1	2
Acidity	(mg CaCO3/L)	1	1	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1	1	1
Alkalinity	(mg CaCO3/L)	8	6	6	6	12	8	6	8	8	9	9	8	10	8	9	10	15	11	13	11	11	9	11	11	11	10	11
Total P	mg/L										-				0.05				0.06				0.1				0.1	0.08
TDP	mgP/L										-				-				0.06				0.03				< 0.02	0.07
Fluoride	mg/L		< 0.05				< 0.05				0.05				< 0.05				0.07				< 0.05				< 0.05	< 0.05
Chloride	mg/L		< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2	< 0.2
TDS	mg/L		20				25				28	CCME DL			40	CCME DL			< 10	CCME DL			14	CCME DL			12	14
Al	mg/L		0.012				0.05				0.044	0.018			0.023	0.017			0.052	0.032			0.018	0.016			0.01	0.059
Sb	mg/L		< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002
As	mg/L		< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002
Ba	mg/L		0.008				0.01				0.02	0.014			0.009	0.0088			0.017	0.014			0.017	0.014			0.011	0.014
Be	mg/L		< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002
Bi	mg/L		< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002
B	mg/L		< 0.05				0.1				0.08	0.08			0.07	0.07			0.11	0.12			0.09	0.07			0.11	0.07
Cd	mg/L		< 0.0002				< 0.0002				< 0.0002	< 0.00004			< 0.0002	< 0.00004			< 0.0002	< 0.00004			< 0.0002	< 0.00004			< 0.00004	< 0.00004
Ca	mg/L		0.57				0.79				1.05	1.02			0.62	0.61			1.02	1.01			0.89	0.79			0.76	1.03
Cr	mg/L		< 0.001				< 0.001				< 0.001	0.0003			< 0.001	0.0005			< 0.001	0.0004			< 0.001	0.0003			0.0002	0.0007
Co	mg/L		< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002
Cu	mg/L		< 0.001				< 0.001				< 0.001	0.0007			< 0.001	0.0003			< 0.001	0.0005			< 0.001	0.0009			0.0005	0.0014
Fe	mg/L		< 0.05				0.05				0.07	0.05			< 0.05	0.05			0.08	0.04			< 0.05	0.03			0.01	0.06
Pb	mg/L		< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002
Li	mg/L		< 0.001				0.005				< 0.001	0.0003			< 0.001	0.0004			< 0.001	0.0004			< 0.001	< 0.0002			< 0.0002	< 0.0002
Mg	mg/L		0.29				0.63				0.67	0.36			0.35	0.33			0.73	0.57			0.41	0.44			0.29	0.67
Mn	mg/L		< 0.001				0.001				0.002	0.0003			< 0.001	0.0005			0.001	0.0004			< 0.001	0.0005			0.0003	0.0012
Hg	ug/L		< 0.02				< 0.02				< 0.02	< 0.02			< 0.02	< 0.02			< 0.02	< 0.02			< 0.02	< 0.02			< 0.02	< 0.02
Mo	mg/L		< 0.0005				0.0006				0.0006	0.0005			< 0.0005	0.0004			0.0005	0.0004			0.0005	0.0005			0.0005	0.0005
Ni	mg/L		0.001				0.002				0.003	0.0013			0.001	0.0019			0.003	0.0014			< 0.001	0.0013			0.0009	0.003
P	mg/L		< 0.15				< 0.15				< 0.15	< 0.03			< 0.15	0.04			< 0.15	< 0.03			< 0.15	< 0.03			< 0.03	0.03
K	mg/L		1.7				2.3				2.1	1.8			1.7	1.66			2.4	2.45			2.1	2.2			2.06	2.21
Se	mg/L		< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002
Si	mg/L		0.8				1.1				1	0.9			0.9	0.95			1.2	1.31			1	1.07			0.8	1.26
Ag	mg/L		< 0.00025				< 0.00025				< 0.00025	< 0.00025			< 0.00025	< 0.00005			< 0.00025	< 0.00005			< 0.00025	< 0.00005			< 0.00005	< 0.00005
Na	mg/L		1.1				1.45				1.33	1.21			1.01	1.03			1.81	1.56			1.17	1.13			1.16	1.22
Sr	mg/L		0.007				0.009				0.013	0.011			0.007	0.0069			0.011	0.012			0.01	0.0095			0.0096	0.012
Te	mg/L		< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002
Tl	mg/L		< 0.0001				< 0.0001				< 0.0001	< 0.00002			< 0.0001	< 0.00002			< 0.0001	< 0.00002			< 0.0001	< 0.00002			< 0.00002	< 0.00002
Th	mg/L		< 0.0005				< 0.0005				< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0001	< 0.0001
Sn	mg/L		< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002
Ti	mg/L		< 0.001				< 0.001				< 0.001	0.0002			< 0.001	0.0004			0.001	0.0004			< 0.001	< 0.0002			0.0002	0.0009
U	mg/L		< 0.0005				< 0.0005				< 0.0005	< 0.0005			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0001	< 0.0001
V	mg/L		< 0.001				< 0.001				< 0.001	0.0001			< 0.001	0.0002			< 0.001	0.0003			< 0.001	0.0002			0.0002	0.0002
Zn	mg/L		< 0.005				< 0.005				< 0.005	< 0.001			< 0.005	0.001			< 0.005	0.002			< 0.005	< 0.001			< 0.001	0.001
Zr	mg/L		< 0.01				< 0.01				< 0.01	< 0.002			< 0.01	< 0.002			< 0.01	< 0.002			< 0.01	< 0.002			< 0.002	< 0.002

Humidity Cell Sample Data

HC 22 - Processed Kimberlite Fines

Weeks	#	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165
Date		29-Jul-08	5-Aug-08	12-Aug-08	19-Aug-08	26-Aug-08	2-Sep-08	9-Sep-08	16-Sep-08	23-Sep-08	30-Sep-08	7-Oct-08	14-Oct-08	21-Oct-08	28-Oct-08	4-Nov-08	11-Nov-08	18-Nov-08	25-Nov-08	2-Dec-08
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		340	360	375	330	335	315	355	350	3.55	370	355	370	350	335	320	320	360	340	340
pH	Effluent (units)	7.34	7.58	7.40	7.71	7.56	7.68	7.32	7.28	7.42	7.37	7.46	7.52	7.21	7.52	7.62	7.5	7.35	7.45	7.45
Cond.	(umhos/cm)	35	53	22	34	22	39	14	18	19	19	23	21	22	35	46	39	23	32	34
ORP	mV	145	145	160	140	135	125	130	135	125	125	145	130	140	130	130	135	120	125	150
Sulphate	(mg/L)	2	< 1	1	1	< 1	< 1	< 1	< 1	3	< 1	1	2	< 1	3	2	< 1	1	< 1	< 1
Acidity	(mg CaCO3/L)	< 1	< 1	< 1	< 1	< 1	< 1	1	< 1	< 1	< 1	< 1	< 1	1	< 1	< 3	1	< 1	1	< 3
Alkalinity	(mg CaCO3/L)	10	24	10	17	12	19	10	10	11	13	13	11	12	18	23	17	12	15	15
Total P	mg/L	0.17	0.19	0.18				0.19				0.1				< 0.02				0.07
TDP	mgP/L	< 0.02	0.06	0.02				0.08				0.06				< 0.02				0.02
Fluoride	mg/L	< 0.05	< 0.05	< 0.05				< 0.05				< 0.05				< 0.05				0.08
Chloride	mg/L	< 0.2	< 0.2	< 0.2				< 0.2				< 0.2				0.3				0.2
TDS	mg/L	< 10	89	22				13				30				37				21
Al	mg/L	0.018	0.16	0.092				0.043				0.054				0.068				0.022
Sb	mg/L	< 0.0002	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
As	mg/L	0.0002	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Ba	mg/L	0.039	0.045	0.025				0.016				0.024				0.047				0.025
Be	mg/L	< 0.0002	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Bi	mg/L	< 0.0002	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
B	mg/L	0.12	0.14	0.06				0.07				0.09				0.14				0.11
Cd	mg/L	< 0.00004	< 0.00004	< 0.00004				< 0.00004				< 0.00004				< 0.00004				< 0.00004
Ca	mg/L	1.78	3.19	1.37				1.1				1.43				2.62				1.8
Cr	mg/L	0.0003	0.002	0.001				0.0006				0.0008				0.0008				0.0004
Co	mg/L	< 0.0002	0.0005	0.0002				< 0.0002				0.0002				< 0.0002				< 0.0002
Cu	mg/L	0.0012	0.014	0.0006				< 0.0002				0.0031				0.0046				0.0009
Fe	mg/L	0.02	0.23	0.12				0.07				0.08				0.1				0.03
Pb	mg/L	< 0.0002	0.0003	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Li	mg/L	0.0004	0.0009	0.0004				0.0003				0.0005				0.0005				0.0005
Mg	mg/L	0.7	1.9	1.02				0.67				0.78				1.45				0.9
Mn	mg/L	0.0004	0.003	0.0017				0.0017				0.0012				0.0014				0.0007
Hg	ug/L	< 0.02	< 0.02	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02
Mo	mg/L	0.0007	0.001	0.0003				0.0004				0.0005				0.0008				0.0006
Ni	mg/L	0.0009	0.0084	0.0049				0.0026				0.0033				0.0035				0.0015
P	mg/L	< 0.03	0.06	0.03				< 0.03				0.06				< 0.03				< 0.03
K	mg/L	3.78	4.18	2.4				2.31				2.58				4.11				3.3
Se	mg/L	< 0.0002	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Si	mg/L	1.77	2.39	1.3				1.16				1.38				2.74				1.77
Ag	mg/L	< 0.00005	< 0.00005	< 0.00005				< 0.00005				< 0.00005				< 0.00005				< 0.00005
Na	mg/L	2.09	2.34	1.23				1.19				1.39				2.51				2.03
Sr	mg/L	0.02	0.031	0.015				0.012				0.016				0.028				0.019
Te	mg/L	< 0.0002	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Tl	mg/L	< 0.00002	< 0.00002	< 0.00002				< 0.00002				< 0.00002				< 0.00002				< 0.00002
Th	mg/L	< 0.0001	< 0.0001	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
Sn	mg/L	< 0.0002	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Ti	mg/L	0.0002	0.0017	0.0013				0.0012				0.0009				0.0008				0.0004
U	mg/L	< 0.0001	< 0.0001	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
V	mg/L	0.0003	0.0005	0.0003				0.0002				0.0003				0.0003				0.0003
Zn	mg/L	0.003	0.004	< 0.001				0.005				0.002				0.001				< 0.001
Zr	mg/L	< 0.002	< 0.002	< 0.002				< 0.002				< 0.002				< 0.002				< 0.002

Humidity Cell Sample Data

HC 23 - Processed Kimberlite Fines

S-Total:	0.05	%
S^{2-}:	0.04	%
NP:	121.80	t $CaCO_3$/1000 t
CaNP:	12.73	t $CaCO_3$/1000 t
AP:	1.25	t $CaCO_3$/1000 t

Weeks	#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Date		11-Oct-05	18-Oct-05	25-Oct-05	1-Nov-05	8-Nov-05	15-Nov-05	22-Nov-05	29-Nov-05	6-Dec-05	13-Dec-05	20-Dec-05	27-Dec-05	3-Jan-06	10-Jan-06	17-Jan-06	24-Jan-06	31-Jan-06	7-Feb-06
Leachate Volume Added (mL)		750	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		420	500	480	485	500	485	490	475	495	480	475	490	495	495	485	480	480	475
pH	Effluent (units)	7.94	8.34	8.71	8.73	8.75	8.96	8.56	8.95	8.79	8.24	8.45	8.43	8.41	8.33	8.82	8.60	8.70	8.67
Cond.	(umhos/cm)	760	246	127	87	134	73	91	66	121	96	59	89	69	52	86	78	50	32
ORP	mV	160	130	135	90	110	170	95	100	100	145	140	130	155	190	145	150	130	160
Sulphate	(mg/L)	20	25	13	13	18	6	8	5	16	13	5	10	10	5	15	10	2	1
Acidity	(mg CaCO3/L)	3									< 1								
Alkalinity	(mg CaCO3/L)	118	41	27	28	29	19	20	22	35	28	20	25	21	18	25	23	19	15
Total P	mg/L																		
TDP	mgP/L																		
Fluoride	mg/L	0.28				0.14				0.32				0.17				0.06	
Chloride	mg/L	145				6.3				2.6				0.6				< 0.2	
TDS	mg/L	546				89				16				40				53	
Al	mg/L	0.01				0.029				0.021				0.010				0.100	
Sb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
As	mg/L	0.01				0.002				0.001				< 0.001				< 0.001	
Ba	mg/L	0.28				0.055				0.037				0.031				0.036	
Be	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Bi	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
B	mg/L	1.94				0.63				0.95				0.38				0.11	
Cd	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002	
Ca	mg/L	59.2				7.38				7.74				3.91				3.69	
Cr	mg/L	0.003				0.002				< 0.001				< 0.001				0.001	
Co	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Cu	mg/L	0.002				0.001				< 0.001				< 0.001				< 0.001	
Fe	mg/L	< 0.05				< 0.05				< 0.05				< 0.05				0.17	
Pb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Li	mg/L	0.013				< 0.001				< 0.001				< 0.001				< 0.001	
Mg	mg/L	13				1.80				2.08				1.04				1.47	
Mn	mg/L	0.002				0.001				0.001				< 0.001				0.003	
Hg	ug/L	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02	
Mo	mg/L	0.0038				0.007				0.011				0.003				0.001	
Ni	mg/L	0.006				0.004				0.003				0.002				0.006	
P	mg/L	< 0.15				< 0.15				< 0.15				< 0.15				< 0.15	
K	mg/L	29.8				7.1				8.5				3.8				2.2	
Se	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Si	mg/L	23.7				3.8				6.2				3.2				2.0	
Ag	mg/L	< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025	
Na	mg/L	58.6				11.4				14.2				5.07				2.12	
Sr	mg/L	1.01				0.09				0.09				0.04				0.04	
Te	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Tl	mg/L	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001	
Th	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
Sn	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Ti	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				0.003	
U	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
V	mg/L	< 0.001				0.001				0.002				0.001				< 0.001	
Zn	mg/L	< 0.005				0.008				< 0.005				< 0.005				< 0.005	
Zr	mg/L	< 0.01				< 0.01				< 0.01				< 0.01				< 0.01	

Humidity Cell Sample Data

HC 23 - Processed Kimberlite Fines

Weeks	#	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Date		14-Feb-06	21-Feb-06	28-Feb-06	7-Mar-06	14-Mar-06	21-Mar-06	28-Mar-06	4-Apr-06	11-Apr-06	18-Apr-06	25-Apr-06	2-May-06	9-May-06	16-May-06	23-May-06	30-May-06	6-Jun-06	13-Jun-06	20-Jun-06	27-Jun-06	4-Jul-06	11-Jul-06
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		485	500	485	460	510	495	505	455	505	505	495	505	480	495	500	490	450	455	505	445	490	435
pH	Effluent (units)	7.80	8.70	8.77	8.87	8.49	8.66	9.41	9.03	8.48	9.01	8.83	8.83	9.20	8.87	8.98	8.82	8.70	8.71	8.88	8.88	8.94	8.88
Cond.	(umhos/cm)	39	47	71	41	67	121	67	69	50	42	49	47	50	54	70	37	54	48	79	61	70	53
ORP	mV	220	120	115	90	110	110	70	110	120	150	145	120	100	110	110	100	130	150	140	140	120	130
Sulphate	(mg/L)	1	3	7	2	4	22	8	5	6	3	5	4	4	5	6	3	4	4	8	5	4	3
Acidity	(mg CaCO3/L)	< 1																					
Alkalinity	(mg CaCO3/L)	16	17	25	18	25	37	32	24	20	18	22	22	30	22	28	17	22	20	35	35	34	23
Total P	mg/L																						
TDP	mgP/L																						
Fluoride	mg/L			0.15				0.24				0.16				0.23				0.28			
Chloride	mg/L			0.8				0.6				0.5				0.5				0.7			
TDS	mg/L			51				65				39				270				208			
Al	mg/L			0.044				0.200				0.040				< 0.005				0.011			
Sb	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
As	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				0.001			
Ba	mg/L			0.036				0.026				0.032				0.044				0.091			
Be	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Bi	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
B	mg/L			0.33				0.44				0.28				0.39				0.5			
Cd	mg/L			< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002			
Ca	mg/L			4.54				4.49				3.49				4.54				4.53			
Cr	mg/L			< 0.001				0.003				0.001				< 0.001				< 0.001			
Co	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Cu	mg/L			0.001				0.002				< 0.001				< 0.001				< 0.001			
Fe	mg/L			< 0.05				0.26				< 0.05				< 0.05				< 0.05			
Pb	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Li	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Mg	mg/L			1.18				1.98				0.91				1.04				1.04			
Mn	mg/L			0.001				0.004				< 0.001				0.004				< 0.001			
Hg	ug/L			< 0.02				< 0.02				< 0.02				< 0.02				< 0.02			
Mo	mg/L			0.003				0.0028				0.0017				0.0026				0.0031			
Ni	mg/L			0.002				0.011				0.001				< 0.001				0.001			
P	mg/L			< 0.15				< 0.15				< 0.15				< 0.15				< 0.15			
K	mg/L			4.0				4.0				4.1				5.9				6.8			
Se	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Si	mg/L			3.2				4.0				3.2				4.7				5.9			
Ag	mg/L			< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025			
Na	mg/L			5.18				8.48				4.05				5.69				7.07			
Sr	mg/L			0.05				0.046				0.042				0.056				0.056			
Te	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Tl	mg/L			< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001			
Th	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005			
Sn	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Ti	mg/L			< 0.001				0.002				< 0.001				< 0.001				< 0.001			
U	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005			
V	mg/L			0.001				0.002				0.001				0.001				0.002			
Zn	mg/L			< 0.005				< 0.005				< 0.005				< 0.005				< 0.005			
Zr	mg/L			< 0.01				< 0.01				< 0.01				< 0.01				< 0.01			

Humidity Cell Sample Data

HC 23 - Processed Kimberlite Fines

Weeks	#	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
Date		18-Jul-06	25-Jul-06	1-Aug-06	8-Aug-06	15-Aug-06	22-Aug-06	29-Aug-06	5-Sep-06	12-Sep-06	19-Sep-06	26-Sep-06	3-Oct-06	10-Oct-06	17-Oct-06	24-Oct-06	31-Oct-06	7-Nov-06	14-Nov-06	21-Nov-06	28-Nov-06	5-Dec-06	12-Dec-06	19-Dec-06	26-Dec-06	2-Jan-07	9-Jan-07
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		505	500	480	490	455	450	500	500	505	505	505	505	500	485	500	505	500	480	490	500	495	500	495	475	500	495
pH	Effluent (units)	8.61	9.12	8.86	8.82	8.71	8.93	9.01	8.94	9.16	9.17	8.88	9.11	9.20	9.19	9.16	9.15	9.15	9.01	9.06	9.04	8.71	8.80	8.69	8.78	8.83	8.92
Cond.	(umhos/cm)	90	78	59	50	41	74	97	88	101	95	67	96	86	49	74	102	83	78	73	80	73	66	63	40	58	68
ORP	mV	150	100	140	150	100	65	120	125	110	100	105	90	85	85	100	110	100	100	85	80	110	115	95	105	105	100
Sulphate	(mg/L)	10	8	4	4	3	6	9	8	10	8	4	6	8	6	4	4	6	5	3	4	3	3	3	< 1	1	2
Acidity	(mg CaCO3/L)																										
Alkalinity	(mg CaCO3/L)	33	34	28	25	21	31	36	36	37	39	28	37	40	18	24	34	35	35	35	35	31	31	28	36	39	32
Total P	mg/L																										
TDP	mgP/L																										
Fluoride	mg/L	0.35				0.15				0.40				0.42				0.38				0.14				0.19	
Chloride	mg/L	0.2				0.5				0.5				0.5				0.5				< 0.2				< 0.2	
TDS	mg/L	77				6				14				102				98				78				18	
Al	mg/L	< 0.005				0.025				0.006				0.032				0.023				< 0.005				0.007	
Sb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
As	mg/L	0.001				< 0.001				0.001				0.001				0.002				< 0.001				< 0.001	
Ba	mg/L	0.071				0.046				0.053				0.069				0.085				0.079				0.1	
Be	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Bi	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
B	mg/L	0.59				0.29				0.69				0.75				0.68				0.26				0.23	
Cd	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002	
Ca	mg/L	4.73				3.12				4.66				5.34				5.7				4.39				4.37	
Cr	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Co	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Cu	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				0.002	
Fe	mg/L	< 0.05				< 0.05				< 0.05				0.05				< 0.05				< 0.05				< 0.05	
Pb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Li	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Mg	mg/L	1.21				0.78				1.14				1.47				1.23				1.02				1.05	
Mn	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Hg	ug/L	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02	
Mo	mg/L	0.0035				0.001				0.0031				0.0028				0.0026				0.001				0.0008	
Ni	mg/L	0.001				0.001				< 0.001				0.002				< 0.001				< 0.001				< 0.001	
P	mg/L	< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15	
K	mg/L	7.8				4.6				8				9.3				10.1				6.2				5.8	
Se	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Si	mg/L	7				3.8				7.9				8.3				6.8				4.5				4.5	
Ag	mg/L	< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025	
Na	mg/L	7.76				3.29				7.39				7.7				6.39				3.05				3.02	
Sr	mg/L	0.063				0.038				0.062				0.077				0.076				0.058				0.13	
Te	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Tl	mg/L	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001	
Th	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
Sn	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Ti	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
U	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
V	mg/L	0.002				0.001				0.003				0.003				0.003				0.002				0.002	
Zn	mg/L	< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				0.007				< 0.005	
Zr	mg/L	< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01	

Humidity Cell Sample Data

HC 23 - Processed Kimberlite Fines

Weeks	#	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93
Date		16-Jan-07	23-Jan-07	30-Jan-07	6-Feb-07	13-Feb-07	20-Feb-07	27-Feb-07	6-Mar-07	13-Mar-07	20-Mar-07	27-Mar-07	3-Apr-07	10-Apr-07	17-Apr-07	24-Apr-07	1-May-07	8-May-07	########	########	########	5-Jun-07	12-Jun-07	19-Jun-07	26-Jun-07	3-Jul-07	10-Jul-07	17-Jul-07
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		495	485	505	505	470	505	500	470	495	500	495	500	500	505	495	495	480	495	495	490	485	480	480	485	495	500	485
pH	Effluent (units)	8.90	8.91	8.96	8.93	9.05	8.97	8.97	8.98	8.80	8.83	8.95	8.95	8.70	8.99	8.97	8.88	8.72	8.95	8.93	8.93	8.82	8.80	8.78	8.85	8.89	8.73	8.44
Cond.	(umhos/cm)	62	67	67	65	67	78	60	65	73	60	63	65	69	71	63	67	71	71	78	83	69	55	58	50	56	52	46
ORP	mV	115	100	100	100	105	105	100	100	100	100	105	100	95	110	115	100	100	95	95	90	100	100	100	100	100	110	100
Sulphate	(mg/L)	4	4	2	3	2	4	4	2	2	2	3	2	2	3	2	4	2	3	3	3	3	2	3	2	2	2	< 1
Acidity	(mg CaCO3/L)																											
Alkalinity	(mg CaCO3/L)	28	33	33	33	33	34	26	33	35	28	31	30	34	35	29	33	34	33	33	36	25	23	27	24	25	25	20
Total P	mg/L																											
TDP	mgP/L																											
Fluoride	mg/L			0.22				0.13				0.2				0.13				0.1				0.14				0.15
Chloride	mg/L			< 0.2				< 0.2				< 0.2				< 0.2				0.21				< 0.2				< 0.2
TDS	mg/L			57				54				47				77				54				42				30
Al	mg/L			0.009				0.016				< 0.005				< 0.005				0.014				< 0.005				0.013
Sb	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
As	mg/L			< 0.001				0.001				< 0.001				< 0.001				0.002				0.001				< 0.001
Ba	mg/L			0.11				0.1				0.11				0.1				0.11				0.096				0.08
Be	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Bi	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
B	mg/L			0.26				0.27				0.26				0.27				0.32				0.21				0.14
Cd	mg/L			< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Ca	mg/L			5.1				5.04				5.1				4.47				5.04				4.17				3.11
Cr	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Co	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Cu	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Fe	mg/L			< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05
Pb	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Li	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.005				< 0.005				< 0.005
Mg	mg/L			1.44				1.29				1.2				1.02				1.17				0.94				0.81
Mn	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Hg	ug/L			< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02
Mo	mg/L			0.001				0.0011				0.001				0.0011				0.0014				0.0008				0.0006
Ni	mg/L			< 0.001				0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
P	mg/L			< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15
K	mg/L			6.9				6.7				6.4				6.5				7.1				6				4.2
Se	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Si	mg/L			7				5.4				5.5				5				6				4.8				3.3
Ag	mg/L			< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025
Na	mg/L			3.79				3.21				2.95				2.88				3.28				2.41				1.65
Sr	mg/L			0.07				0.069				0.068				0.061				0.072				0.055				0.042
Te	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Tl	mg/L			< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
Th	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
Sn	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Ti	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
U	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
V	mg/L			0.002				0.002				0.002				0.002				0.002				0.002				< 0.001
Zn	mg/L			< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005
Zr	mg/L			< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01

Humidity Cell Sample Data

HC 23 - Processed Kimberlite Fines

Weeks	#	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Date		24-Jul-07	31-Jul-07	7-Aug-07	14-Aug-07	21-Aug-07	28-Aug-07	4-Sep-07	11-Sep-07	18-Sep-07	25-Sep-07	2-Oct-07	9-Oct-07	16-Oct-07	23-Oct-07	30-Oct-07	6-Nov-07	13-Nov-07	20-Nov-07	27-Nov-07	4-Dec-07	11-Dec-07	18-Dec-07	25-Dec-07	1-Jan-08	8-Jan-08	15-Jan-08	22-Jan-08
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		500	490	505	480	485	490	495	505	485	500	465	465	495	465	470	490	485	490	500	475	495	500	500	480	510	475	500
pH	Effluent (units)	9.01	8.63	9.02	8.61	8.81	8.98	8.79	9.01	8.96	8.99	8.94	8.95	8.88	8.83	8.54	8.84	8.80	8.82	8.81	8.58	8.90	8.91	8.47	8.57	8.78	8.62	8.68
Cond.	(umhos/cm)	69	47	73	41	54	56	48	73	42	66	65	68	67	62	61	72	69	52	71	48	55	54	62	60	60	64	57
ORP	mV	95	105	90	130	120	110	105	80	100	105	90	90	80	85	85	70	70	95	95	100	90	110	100	105	90	95	95
Sulphate	(mg/L)	4	2	2	2	< 1	2	2	5	1	2	4	3	1	3	3	1	2	3	3	3	4	2	3	2	4	3	2
Acidity	(mg CaCO3/L)																											
Alkalinity	(mg CaCO3/L)	30	27	31	21	25	24	23	29	21	31	29	32	30	27	28	32	34	29	31	23	25	25	28	29	28	29	29
Total P	mg/L																											
TDP	mgP/L																											
Fluoride	mg/L				0.2				0.24				0.32				0.29				0.23				0.22			
Chloride	mg/L				< 0.2				0.2				< 0.2				< 0.2				< 0.2				< 0.2			
TDS	mg/L				17				63				27				69				49				71			
Al	mg/L				0.022				0.022				0.019				0.018				0.011				0.026			
Sb	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
As	mg/L				< 0.001				0.001				< 0.001				0.001				0.001				< 0.001			
Ba	mg/L				0.083				0.12				0.099				0.12				0.08				0.09			
Be	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Bi	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
B	mg/L				0.15				0.31				0.25				0.27				0.23				0.21			
Cd	mg/L				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002			
Ca	mg/L				3.17				4.96				4.64				5.61				4.08				4.82			
Cr	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Co	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Cu	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Fe	mg/L				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05			
Pb	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Li	mg/L				< 0.005				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Mg	mg/L				0.83				1.29				1.08				1.35				0.75				1.06			
Mn	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Hg	ug/L				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02			
Mo	mg/L				< 0.0005				0.0011				0.0012				0.0014				0.0011				0.0011			
Ni	mg/L				0.001				0.002				0.002				0.001				< 0.001				0.001			
P	mg/L				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15			
K	mg/L				4.3				7.2				6.8				7				5.7				6.1			
Se	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Si	mg/L				3.6				6.1				6				6.9				4.4				5.8			
Ag	mg/L				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025			
Na	mg/L				1.62				2.91				2.48				2.62				1.66				2			
Sr	mg/L				0.039				0.074				0.063				0.078				0.057				0.067			
Te	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Tl	mg/L				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001			
Th	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005			
Sn	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Ti	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
U	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005			
V	mg/L				< 0.001				0.002				0.002				0.003				0.002				0.002			
Zn	mg/L				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005			
Zr	mg/L				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01			

Humidity Cell Sample Data

HC 23 - Processed Kimberlite Fines

Weeks	#	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147
Date		29-Jan-08	5-Feb-08	12-Feb-08	19-Feb-08	26-Feb-08	4-Mar-08	11-Mar-08	18-Mar-08	25-Mar-08	1-Apr-08	8-Apr-08	15-Apr-08	22-Apr-08	29-Apr-08	6-May-08	########	########	########	3-Jun-08	10-Jun-08	17-Jun-08	24-Jun-08	1-Jul-08	8-Jul-08	15-Jul-08	22-Jul-08	29-Jul-08
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		490	440	500	500	400	460	475	475	500	500	490	505	485	490	475	475	490	495	490	485	475	460	490	510	485	475	495
pH	Effluent (units)	8.64	8.64	8.70	8.65	7.74	8.34	8.17	8.56	8.87	8.37	8.42	8.96	8.14	8.88	8.71	8.52	8.85	8.87	8.88	8.63	8.59	8.90	8.98	8.97	9.02	9.00	8.87
Cond.	(umhos/cm)	57	65	64	62	41	58	42	51	67	48	49	67	37	65	52	45	57	62	58	50	45	68	64	62	64	65	65
ORP	mV	90	90	95	70	110	115	115	145	100	160	140	160	160	150	150	160	140	150	150	145	155	135	120	125	130	130	135
Sulphate	(mg/L)	3	3	1	3	1	2	2	3	2	2	3	5	< 1	2	2	< 1	< 1	3	3	< 1	< 1	1	1	1	3	2	1
Acidity	(mg CaCO3/L)					< 1		< 1						< 1														
Alkalinity	(mg CaCO3/L)	28	27	29	30	22	28	22	28	32	25	26	31	22	31	27	23	26	28	28	23	22	31	29	32	30	29	28
Total P	mg/L									< 0.02				0.05				< 0.02				0.02				< 0.02	< 0.02	< 0.02
TDP	mgP/L									< 0.02				0.02				< 0.02				< 0.02				< 0.02	< 0.02	< 0.02
Fluoride	mg/L	0.22				0.17				0.23				0.13				0.21				0.11				0.24	0.21	0.19
Chloride	mg/L	< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2	1.75	< 0.2
TDS	mg/L	46				40				61	CCME DL			46	CCME DL			20	CCME DL			28	CCME DL			49	42	37
Al	mg/L	< 0.005				0.018				0.007	0.006			0.016	0.015			< 0.005	0.003			0.034	0.03			0.008	0.008	0.011
Sb	mg/L	< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002
As	mg/L	< 0.001				< 0.001				< 0.001	0.0004			< 0.001	0.0006			< 0.001	0.0009			< 0.001	0.0006			0.0011	0.0011	0.001
Ba	mg/L	0.10				0.1				0.14	0.13			0.092	0.09			0.13	0.129			0.1	0.099			0.136	0.135	0.149
Be	mg/L	< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002
Bi	mg/L	< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002
B	mg/L	0.18				0.14				0.21	0.21			0.12	0.13			0.17	0.18			0.11	0.1			0.2	0.13	0.15
Cd	mg/L	< 0.0002				< 0.0002				< 0.0002	< 0.00004			< 0.0002	< 0.00004			< 0.0002	< 0.00004			< 0.0002	< 0.00004			< 0.00004	< 0.00004	< 0.00004
Ca	mg/L	4.55				3.88				5.84	5.7			3.61	3.65			4.09	4.94			4.05	3.62			5.24	5.23	5.56
Cr	mg/L	< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	0.0004			< 0.001	0.0002			< 0.001	0.0005			0.0002	< 0.0002	0.0002
Co	mg/L	< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002
Cu	mg/L	< 0.001				< 0.001				0.001	0.0005			< 0.001	0.0007			< 0.001	0.0006			< 0.001	0.0012			0.0005	0.0005	0.0005
Fe	mg/L	< 0.05				< 0.05				< 0.05	< 0.01			< 0.05	0.02			< 0.05	< 0.01			0.05	0.04			0.01	< 0.01	0.01
Pb	mg/L	< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002
Li	mg/L	< 0.001				0.004				< 0.001	0.0004			< 0.001	0.0005			< 0.001	0.0004			< 0.001	< 0.0002			0.0002	< 0.0002	0.0002
Mg	mg/L	0.96				1.05				1.39	1.3			0.91	1.02			1.05	1.11			0.89	0.91			1.02	1.06	1.23
Mn	mg/L	< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	0.0004			< 0.001	< 0.0002			< 0.001	0.0007			0.0003	0.0003	0.0003
Hg	ug/L	< 0.02				< 0.02				< 0.02	< 0.02			< 0.02	< 0.02			< 0.02	< 0.02			< 0.02	< 0.02			< 0.02	< 0.02	< 0.02
Mo	mg/L	0.0009				0.0006				0.001	0.0007			0.0006	0.0006			0.0007	0.0008			0.0006	0.0007			0.0009	0.0009	0.0009
Ni	mg/L	< 0.001				0.002				< 0.001	0.0005			< 0.001	0.0006			< 0.001	0.0005			0.001	0.0008			0.0007	0.0006	0.0008
P	mg/L	< 0.15				< 0.15				< 0.15	< 0.03			< 0.15	< 0.03			< 0.15	< 0.03			< 0.15	< 0.03			< 0.03	< 0.03	< 0.03
K	mg/L	6.1				4.2				7.1	6.85			4.4	4.08			5.4	5.32			4.6	4.76			5.92	6.09	6.55
Se	mg/L	< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002
Si	mg/L	5.3				3.6				7.1	7.07			4.2	4.16			5.2	5.15			4.4	4.32			5.71	6.3	6.78
Ag	mg/L	< 0.00025				< 0.00025				< 0.00025	< 0.00005			< 0.00025	< 0.00005			< 0.00025	< 0.00005			< 0.00025	< 0.00005			< 0.00005	< 0.00005	< 0.00005
Na	mg/L	1.94				1.35				2.27	1.99			1.25	1.24			1.89	1.55			1.19	1.11			1.5	1.49	1.68
Sr	mg/L	0.063				0.052				0.084	0.081			0.052	0.052			0.058	0.061			0.053	0.054			0.086	0.081	0.081
Te	mg/L	< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002
Tl	mg/L	< 0.0001				< 0.0001				< 0.0001	< 0.00002			< 0.0001	< 0.00002			< 0.0001	< 0.00002			< 0.0001	< 0.00002			< 0.00002	< 0.00002	< 0.00002
Th	mg/L	< 0.0005				< 0.0005				< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0001	< 0.0001	< 0.0001
Sn	mg/L	< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002
Ti	mg/L	< 0.001				< 0.001				< 0.001	0.0004			< 0.001	0.0005			< 0.001	0.0003			< 0.001	0.0006			0.0004	0.0004	0.0004
U	mg/L	< 0.0005				< 0.0005				< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0001	< 0.0001	< 0.0001
V	mg/L	0.002				< 0.001				0.002	0.0026			0.002	0.0013			0.002	0.0022			0.002	0.0017			0.0026	0.0024	0.0026
Zn	mg/L	< 0.005				< 0.005				< 0.005	0.003			< 0.005	0.001			< 0.005	0.001			< 0.005	< 0.001			< 0.001	< 0.001	< 0.001
Zr	mg/L	< 0.01				< 0.01				< 0.01	< 0.002			< 0.01	< 0.002			< 0.01	< 0.002			< 0.01	< 0.002			< 0.002	< 0.002	< 0.002

Humidity Cell Sample Data

HC 23 - Processed Kimberlite Fines

Weeks	#	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165
Date		5-Aug-08	12-Aug-08	19-Aug-08	26-Aug-08	2-Sep-08	9-Sep-08	16-Sep-08	23-Sep-08	30-Sep-08	7-Oct-08	14-Oct-08	21-Oct-08	28-Oct-08	4-Nov-08	11-Nov-08	18-Nov-08	25-Nov-08	2-Dec-08
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		500	500	485	500	480	500	495	475	500	400	500	500	500	500	500	500	485	500
pH	Effluent (units)	7.59	7.60	7.60	8.56	8.01	8.27	8.66	8.45	8.73	8.35	8.86	7.79	8.70	8.5	8.1	8.42	8.59	8.32
Cond.	(umhos/cm)	26	25	26	31	34	30	36	45	47	52	52	62	64	60	72	68	68	64
ORP	mV	135	140	145	140	140	135	140	135	125	145	120	140	130	135	160	130	150	170
Sulphate	(mg/L)	< 1	1	< 1	< 1	< 1	1	1	3	< 1	1	1	1	3	2	2	1	1	< 1
Acidity	(mg CaCO3/L)	< 1	< 1	< 1		< 1	< 1						< 1			1			
Alkalinity	(mg CaCO3/L)	15	14	14	17	17	21	24	22	26	26	25	32	29	28	32	31	30	30
Total P	mg/L	0.02	0.02				< 0.02				< 0.02				< 0.02				< 0.02
TDP	mgP/L	< 0.02	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02
Fluoride	mg/L	< 0.05	< 0.05				< 0.05				0.14				0.13				0.25
Chloride	mg/L	< 0.2	< 0.2				< 0.2				0.66				< 0.2				< 0.2
TDS	mg/L	< 10	18				33				53				38				50
Al	mg/L	0.011	0.04				0.027				0.022				0.027				0.014
Sb	mg/L	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
As	mg/L	0.0003	< 0.0002				0.0006				0.0007				0.0009				0.001
Ba	mg/L	0.072	0.079				0.104				0.147				0.154				0.171
Be	mg/L	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Bi	mg/L	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
B	mg/L	0.06	0.04				0.1				0.14				0.13				0.16
Cd	mg/L	< 0.00004	< 0.00004				< 0.00004				< 0.00004				< 0.00004				< 0.00004
Ca	mg/L	2.4	2.48				3.6				5.23				5.28				6.06
Cr	mg/L	0.0002	0.0005				0.0005				0.0003				0.0004				0.0003
Co	mg/L	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Cu	mg/L	0.0015	0.0003				< 0.0002				0.0015				0.0014				0.0011
Fe	mg/L	0.01	0.06				0.05				0.03				0.04				0.03
Pb	mg/L	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Li	mg/L	< 0.0002	< 0.0002				0.0003				0.0004				< 0.0002				0.0003
Mg	mg/L	0.6	0.86				1.05				1.16				1.31				1.38
Mn	mg/L	0.0004	0.001				0.0007				0.0007				0.0006				0.0005
Hg	ug/L	< 0.02	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02
Mo	mg/L	0.0003	< 0.0001				0.0004				0.0008				0.0007				0.0008
Ni	mg/L	0.0011	0.0026				0.0019				0.0015				0.0017				0.001
P	mg/L	< 0.03	< 0.03				< 0.03				< 0.03				< 0.03				< 0.03
K	mg/L	2.7	2.62				4.04				5.59				5.57				6.05
Se	mg/L	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Si	mg/L	2.1	2.04				3.73				5.69				6.69				8.03
Ag	mg/L	< 0.00005	< 0.00005				< 0.00005				< 0.00005				< 0.00005				< 0.00005
Na	mg/L	0.61	0.61				1.2				1.54				1.62				1.85
Sr	mg/L	0.033	0.033				0.052				0.083				0.079				0.092
Te	mg/L	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Tl	mg/L	< 0.00002	< 0.00002				< 0.00002				< 0.00002				< 0.00002				< 0.00002
Th	mg/L	< 0.0001	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
Sn	mg/L	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Ti	mg/L	0.0003	0.0007				0.0006				0.0007				0.0005				0.0004
U	mg/L	< 0.0001	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
V	mg/L	0.0007	0.0006				0.0012				0.0022				0.0019				0.0023
Zn	mg/L	< 0.001	< 0.001				0.006				< 0.001				< 0.001				< 0.001
Zr	mg/L	< 0.002	< 0.002				< 0.002				< 0.002				< 0.002				< 0.002

Humidity Cell Sample Data

HC 24 - Processed Kimberlite Fines

S-Total:	0.02	%
S^{2-}:	0.02	%
NP:	127.00	t $CaCO_3$/1000 t
CaNP:	9.55	t $CaCO_3$/1000 t
AP:	0.63	t $CaCO_3$/1000 t

Weeks	#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Date		11-Oct-05	18-Oct-05	25-Oct-05	1-Nov-05	8-Nov-05	15-Nov-05	22-Nov-05	29-Nov-05	6-Dec-05	13-Dec-05	20-Dec-05	27-Dec-05	3-Jan-06	10-Jan-06	17-Jan-06	24-Jan-06	31-Jan-06	7-Feb-06
Leachate Volume Added (mL)		750	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		470	470	440	515	510	505	490	430	515	490	500	500	500	500	485	495	490	500
pH	Effluent (units)	8.25	8.83	9.05	9.19	9.30	9.42	9.34	9.41	9.46	9.36	9.10	9.33	8.93	8.81	9.35	9.16	9.30	9.25
Cond.	(umhos/cm)	578	330	234	131	142	131	135	125	111	105	101	93	69	85	81	86	105	87
ORP	mV	140	120	115	90	85	160	95	90	80	45	165	65	130	110	105	120	60	120
Sulphate	(mg/L)	3	2	2	3	3	3	4	3	3	< 1	2	3	3	2	2	2	2	2
Acidity	(mg CaCO3/L)	< 1																	
Alkalinity	(mg CaCO3/L)	65	33	26	28	28	35	36	40	43	25	40	38	33	35	35	36	38	42
Total P	mg/L																		
TDP	mgP/L																		
Fluoride	mg/L	0.14				0.24				0.41				0.31				0.02	
Chloride	mg/L	126				20.2				6.2				3.0				2.0	
TDS	mg/L	359				116				104				78				91	
Al	mg/L	< 0.005				< 0.005				0.016				< 0.005				0.007	
Sb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
As	mg/L	0.002				0.001				0.001				< 0.001				0.001	
Ba	mg/L	0.45				0.08				0.08				0.07				0.08	
Be	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Bi	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
B	mg/L	0.93				0.88				0.85				0.52				0.37	
Cd	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002	
Ca	mg/L	29.1				6.34				6.96				5.87				6.57	
Cr	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Co	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Cu	mg/L	0.003				0.001				0.001				< 0.001				< 0.001	
Fe	mg/L	< 0.05				< 0.05				< 0.05				< 0.05				< 0.05	
Pb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Li	mg/L	0.003				< 0.001				< 0.001				< 0.001				< 0.001	
Mg	mg/L	2.58				0.41				0.46				0.42				0.35	
Mn	mg/L	< 0.001				< 0.001				0.001				< 0.001				< 0.001	
Hg	ug/L	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02	
Mo	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
Ni	mg/L	0.003				< 0.001				0.001				< 0.001				< 0.001	
P	mg/L	< 0.15				< 0.15				< 0.15				< 0.15				< 0.15	
K	mg/L	31.6				10.9				10.2				8.5				7.8	
Se	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Si	mg/L	19.3				12.8				18.9				13.5				14.5	
Ag	mg/L	< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025	
Na	mg/L	56.8				13.10				8.37				5.06				4.33	
Sr	mg/L	0.98				0.18				0.18				0.15				0.17	
Te	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Tl	mg/L	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001	
Th	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
Sn	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Ti	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
U	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
V	mg/L	< 0.001				0.002				0.003				0.003				0.002	
Zn	mg/L	< 0.005				< 0.005				< 0.005				< 0.005				< 0.005	
Zr	mg/L	< 0.01				< 0.01				< 0.01				< 0.01				< 0.01	

Humidity Cell Sample Data

HC 24 - Processed Kimberlite Fines

Weeks	#	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Date		14-Feb-06	21-Feb-06	28-Feb-06	7-Mar-06	14-Mar-06	21-Mar-06	28-Mar-06	4-Apr-06	11-Apr-06	18-Apr-06	25-Apr-06	2-May-06	9-May-06	16-May-06	23-May-06	30-May-06	6-Jun-06	13-Jun-06	20-Jun-06	27-Jun-06	4-Jul-06	11-Jul-06
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		490	500	485	480	510	505	505	475	485	505	505	505	500	495	475	490	500	505	485	505	485	505
pH	Effluent (units)	9.02	9.24	9.19	9.22	8.84	9.15	9.31	9.34	9.04	9.47	9.41	9.40	9.41	9.32	9.39	9.35	9.26	9.27	9.28	9.31	9.19	9.30
Cond.	(umhos/cm)	96	94	88	73	97	89	94	106	84	84	79	82	76	70	90	78	98	99	80	87	87	88
ORP	mV	145	90	70	100	120	130	120	115	135	110	90	80	80	120	90	110	130	130	120	110	95	90
Sulphate	(mg/L)	2	2	2	2	1	1	2	1	2	1	2	2	1	1	2	2	1	3	2	1	1	1
Acidity	(mg CaCO3/L)																						
Alkalinity	(mg CaCO3/L)	40	39	42	40	44	43	41	42	43	42	42	45	39	41	43	41	46	45	51	48	46	45
Total P	mg/L																						
TDP	mgP/L																						
Fluoride	mg/L			0.20				0.20				0.22				0.20				0.15			
Chloride	mg/L			1.5				1.2				1.1				0.9				1.0			
TDS	mg/L			92				66				100				176				88			
Al	mg/L			0.008				0.04				0.023				< 0.005				< 0.005			
Sb	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
As	mg/L			< 0.001				0.001				0.002				0.001				0.001			
Ba	mg/L			0.10				0.11				0.11				0.13				0.12			
Be	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Bi	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
B	mg/L			0.35				0.35				0.32				0.26				0.20			
Cd	mg/L			< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002			
Ca	mg/L			7.27				8.23				7.91				9.32				8.40			
Cr	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Co	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Cu	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Fe	mg/L			< 0.05				< 0.05				< 0.05				< 0.05				< 0.05			
Pb	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Li	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Mg	mg/L			0.41				0.6				0.53				0.54				0.54			
Mn	mg/L			< 0.001				< 0.001				< 0.001				0.003				< 0.001			
Hg	ug/L			< 0.02				< 0.02				< 0.02				< 0.02				< 0.02			
Mo	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005			
Ni	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
P	mg/L			< 0.15				< 0.15				< 0.15				< 0.15				< 0.15			
K	mg/L			8.3				8.6				8.3				9.6				7.9			
Se	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Si	mg/L			16.5				19.5				19.3				19.9				18.2			
Ag	mg/L			< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025			
Na	mg/L			4.41				4.37				3.60				3.64				3.51			
Sr	mg/L			0.19				0.21				0.21				0.26				0.21			
Te	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Tl	mg/L			< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001			
Th	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005			
Sn	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Ti	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
U	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005			
V	mg/L			0.002				0.003				0.003				0.003				0.002			
Zn	mg/L			< 0.005				0.007				< 0.005				< 0.005				< 0.005			
Zr	mg/L			< 0.01				< 0.01				< 0.01				< 0.01				< 0.01			

Humidity Cell Sample Data

HC 24 - Processed Kimberlite Fines

Weeks	#	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
Date		18-Jul-06	25-Jul-06	1-Aug-06	8-Aug-06	15-Aug-06	22-Aug-06	29-Aug-06	5-Sep-06	12-Sep-06	19-Sep-06	26-Sep-06	3-Oct-06	10-Oct-06	17-Oct-06	24-Oct-06	31-Oct-06	7-Nov-06	14-Nov-06	21-Nov-06	28-Nov-06	5-Dec-06	12-Dec-06	19-Dec-06	26-Dec-06	2-Jan-07	9-Jan-07
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		505	455	505	505	480	495	505	505	470	505	485	500	495	460	460	505	495	470	445	505	470	410	505	505	480	495
pH	Effluent (units)	9.28	9.28	9.29	9.29	9.27	9.13	9.29	9.09	9.16	9.27	9.07	9.16	9.20	9.19	9.30	9.30	9.20	9.13	9.19	9.21	9.06	9.09	9.14	9.16	9.07	9.04
Cond.	(umhos/cm)	89	92	89	82	87	82	86	84	102	90	94	107	97	111	91	84	100	84	87	95	106	110	92	94	100	101
ORP	mV	90	90	80	100	80	60	135	140	120	80	95	85	85	115	85	90	85	85	75	75	75	100	110	95	110	110
Sulphate	(mg/L)	1	2	1	1	2	2	1	2	2	1	1	1	2	1	2	1	2	1	< 1	1	1	1	2	1	1	1
Acidity	(mg CaCO3/L)																										
Alkalinity	(mg CaCO3/L)	47	51	46	49	44	45	44	42	52	44	47	50	54	53	46	36	49	46	54	45	52	56	47	50	55	52
Total P	mg/L																										
TDP	mgP/L																										
Fluoride	mg/L	0.19				0.18				0.17				0.16				0.17				< 0.05				< 0.05	
Chloride	mg/L	0.6				1.1				1.0				0.7				0.7				0.4				0.4	
TDS	mg/L	89				80				82				147				87				80				63	
Al	mg/L	< 0.005				0.011				0.012				0.016				0.015				< 0.005				< 0.005	
Sb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
As	mg/L	0.001				0.001				0.001				0.001				0.002				0.001				0.001	
Ba	mg/L	0.15				0.16				0.18				0.19				0.24				0.2				0.23	
Be	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Bi	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
B	mg/L	0.22				0.31				0.21				0.24				0.26				0.16				0.17	
Cd	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002	
Ca	mg/L	8.6				9.22				10.8				10.9				12.5				9.96				10.8	
Cr	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Co	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Cu	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				0.001				< 0.001				< 0.001	
Fe	mg/L	< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05	
Pb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Li	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Mg	mg/L	0.6				0.62				0.85				0.94				0.88				0.86				0.98	
Mn	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Hg	ug/L	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02	
Mo	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
Ni	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
P	mg/L	< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15	
K	mg/L	9.1				9.7				8.9				10.3				11.3				8.7				8.9	
Se	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Si	mg/L	22.3				22.4				24.2				24.8				22.0				19.1				20.6	
Ag	mg/L	< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025	
Na	mg/L	4.1				3.9				3.57				4.53				4.41				3.91				4.77	
Sr	mg/L	0.24				0.23				0.28				0.29				0.32				0.26				0.29	
Te	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Tl	mg/L	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001	
Th	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
Sn	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Ti	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				0.001	
U	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
V	mg/L	0.003				0.003				0.002				0.003				0.003				0.002				0.002	
Zn	mg/L	< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005	
Zr	mg/L	< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01	

Humidity Cell Sample Data

HC 24 - Processed Kimberlite Fines

Weeks	#	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93
Date		16-Jan-07	23-Jan-07	30-Jan-07	6-Feb-07	13-Feb-07	20-Feb-07	27-Feb-07	6-Mar-07	13-Mar-07	20-Mar-07	27-Mar-07	3-Apr-07	10-Apr-07	17-Apr-07	24-Apr-07	1-May-07	8-May-07	########	########	########	5-Jun-07	12-Jun-07	19-Jun-07	26-Jun-07	3-Jul-07	10-Jul-07	17-Jul-07
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		495	425	505	500	485	500	515	451	505	490	440	505	505	480	505	465	500	480	505	440	500	490	435	505	485	490	495
pH	Effluent (units)	8.99	8.73	9.08	9.01	8.98	9.05	9.01	9.00	9.10	9.10	8.99	9.07	9.10	9.00	8.98	8.94	9.01	8.95	8.95	8.96	9.04	8.98	8.83	9.04	8.94	8.90	8.99
Cond.	(umhos/cm)	122	121	88	108	102	94	115	107	92	114	109	111	108	112	99	106	93	106	111	108	99	110	120	100	109	114	98
ORP	mV	115	105	105	90	100	95	105	95	100	95	105	90	90	100	90	85	100	90	90	90	90	90	95	90	90	90	90
Sulphate	(mg/L)	2	2	< 1	2	1	1	2	1	2	1	1	1	3	1	1	1	1	1	1	2	1	2	1	1	1	1	< 1
Acidity	(mg CaCO3/L)																											
Alkalinity	(mg CaCO3/L)	54	54	44	57	54	53	58	57	49	57	59	52	56	55	54	59	55	55	56	58	49	65	61	50	56	60	51
Total P	mg/L																											
TDP	mgP/L																											
Fluoride	mg/L			< 0.05				0.16				0.2				< 0.05				< 0.05				0.09				0.12
Chloride	mg/L			0.34				0.37				0.39				0.36				0.41				< 0.2				0.32
TDS	mg/L			69				134				111				93				133				116				116
Al	mg/L			0.007				0.007				0.011				< 0.005				< 0.005				< 0.005				< 0.005
Sb	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
As	mg/L			0.001				0.001				0.001				0.001				0.001				0.001				0.001
Ba	mg/L			0.17				0.26				0.27				0.25				0.27				0.29				0.24
Be	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Bi	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
B	mg/L			0.15				0.19				0.19				0.17				0.17				0.15				0.14
Cd	mg/L			< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Ca	mg/L			8.48				11.4				11.2				9.6				9.96				11.1				8.75
Cr	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Co	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Cu	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Fe	mg/L			< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05
Pb	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Li	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.005				< 0.005				< 0.005
Mg	mg/L			0.96				1.26				1.38				1.17				1.25				1.47				1.12
Mn	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Hg	ug/L			< 0.02				< 0.02				< 0.02				< 0.02				0.02				< 0.02				< 0.02
Mo	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
Ni	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
P	mg/L			< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15
K	mg/L			8.6				10.5				10				9.5				9.6				10.2				8.6
Se	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Si	mg/L			26.3				28.2				28.8				25.4				26.1				29.5				24.6
Ag	mg/L			< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025
Na	mg/L			5.19				5.98				5.81				5.22				5.17				5.24				4.65
Sr	mg/L			0.22				0.32				0.3				0.28				0.29				0.3				0.23
Te	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Tl	mg/L			< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
Th	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
Sn	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Ti	mg/L			< 0.001				0.001				0.001				< 0.001				< 0.001				< 0.001				0.001
U	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
V	mg/L			0.002				0.002				0.002				0.002				0.002				0.002				0.002
Zn	mg/L			< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005
Zr	mg/L			< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01

Humidity Cell Sample Data

HC 24 - Processed Kimberlite Fines

Weeks	#	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Date		24-Jul-07	31-Jul-07	7-Aug-07	14-Aug-07	21-Aug-07	28-Aug-07	4-Sep-07	11-Sep-07	18-Sep-07	25-Sep-07	2-Oct-07	9-Oct-07	16-Oct-07	23-Oct-07	30-Oct-07	6-Nov-07	13-Nov-07	20-Nov-07	27-Nov-07	4-Dec-07	11-Dec-07	18-Dec-07	25-Dec-07	1-Jan-08	8-Jan-08	15-Jan-08	22-Jan-08
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		505	490	465	500	475	505	505	505	475	500	480	500	480	500	485	490	485	505	470	480	505	480	500	490	500	515	485
pH	Effluent (units)	8.89	8.87	8.91	8.99	8.94	8.95	8.94	8.91	8.93	9.00	9.03	8.96	8.95	8.95	8.97	8.89	8.87	8.89	8.59	8.55	8.98	8.94	8.88	8.90	8.97	9.01	9.02
Cond.	(umhos/cm)	117	110	125	103	109	109	106	116	108	102	98	92	112	108	104	116	109	106	117	101	101	87	85	98	95	89	95
ORP	mV	90	90	90	70	75	80	75	80	80	90	75	80	90	90	80	90	80	80	75	75	80	85	80	80	80	65	60
Sulphate	(mg/L)	< 1	1	1	2	< 1	2	1	3	1	1	1	1	< 1	2	2	< 1	< 1	1	1	< 1	< 1	< 1	1	1	2	< 1	< 1
Acidity	(mg CaCO3/L)																											
Alkalinity	(mg CaCO3/L)	61	57	61	51	54	57	54	59	53	52	51	50	55	54	53	53	53	53	53	50	50	45	44	45	43	45	46
Total P	mg/L																											
TDP	mgP/L																											
Fluoride	mg/L				< 0.05				0.11				0.1				0.13				0.15				0.16			
Chloride	mg/L				0.28				0.29				0.26				0.28				0.44				0.29			
TDS	mg/L				89				109				92				100				118				62			
Al	mg/L				0.013				0.019				0.008				0.006				0.005				0.048			
Sb	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
As	mg/L				< 0.001				0.001				< 0.001				0.001				0.001				0.001			
Ba	mg/L				0.24				0.29				0.24				0.3				0.26				0.22			
Be	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Bi	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
B	mg/L				0.13				0.17				0.11				0.11				0.13				0.12			
Cd	mg/L				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002			
Ca	mg/L				8.23				11.1				8.5				10.4				9.58				8.15			
Cr	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Co	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Cu	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Fe	mg/L				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05			
Pb	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Li	mg/L				< 0.005				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Mg	mg/L				1.15				1.88				1.09				1.5				1.08				1.03			
Mn	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Hg	ug/L				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02			
Mo	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005			
Ni	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
P	mg/L				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15			
K	mg/L				8.3				10.3				7.9				8.6				8.2				7.2			
Se	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Si	mg/L				24.6				27.7				21.1				23.9				23.9				22.7			
Ag	mg/L				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025			
Na	mg/L				4.75				6.12				4.05				4.83				4				3.69			
Sr	mg/L				0.22				0.32				0.24				0.28				0.25				0.21			
Te	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Tl	mg/L				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001			
Th	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005			
Sn	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Ti	mg/L				< 0.001				< 0.001				< 0.001				0.001				< 0.001				0.001			
U	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005			
V	mg/L				0.002				0.003				0.002				0.002				0.003				0.003			
Zn	mg/L				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				0.005			
Zr	mg/L				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01			

Humidity Cell Sample Data

HC 24 - Processed Kimberlite Fines

Weeks	#	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147
Date		29-Jan-08	5-Feb-08	12-Feb-08	19-Feb-08	26-Feb-08	4-Mar-08	11-Mar-08	18-Mar-08	25-Mar-08	1-Apr-08	8-Apr-08	15-Apr-08	22-Apr-08	29-Apr-08	6-May-08	########	########	########	3-Jun-08	10-Jun-08	17-Jun-08	24-Jun-08	1-Jul-08	8-Jul-08	15-Jul-08	22-Jul-08	29-Jul-08
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		475	505	480	500	490	485	485	495	495	495	490	480	480	500	445	490	480	515	510	480	485	500	460	495	495	495	490
pH	Effluent (units)	9.02	8.96	8.98	9.04	8.96	8.80	8.86	8.88	8.92	8.80	8.88	8.87	8.90	8.86	8.85	8.75	8.90	8.99	9.01	9.02	9.02	9.03	8.98	9.07	9.06	9.00	8.88
Cond.	(umhos/cm)	95	90	92	90	99	109	113	91	104	118	124	118	118	119	112	121	102	97	103	100	91	93	93	90	97	84	109
ORP	mV	70	70	60	55	60	70	75	120	80	130	100	115	110	110	110	140	120	90	110	90	70	90	90	100	105	110	115
Sulphate	(mg/L)	< 1	2	2	< 1	1	< 1	1	1	1	1	< 1	< 1	< 1	1	< 1	< 1	< 1	2	1	< 1	< 1	1	2	< 1	1	< 1	< 1
Acidity	(mg CaCO3/L)																											
Alkalinity	(mg CaCO3/L)	49	42	46	47	51	54	57	49	53	58	63	58	58	58	60	61	48	49	48	48	48	48	46	46	46	42	52
Total P	mg/L									0.02				0.03				0.03				< 0.02				< 0.02	< 0.02	< 0.02
TDP	mgP/L									< 0.02				0.03				< 0.02				< 0.02				< 0.02	< 0.02	< 0.02
Fluoride	mg/L	0.11				0.12				0.12				0.1				0.09				0.1				0.1	0.11	< 0.05
Chloride	mg/L	0.31				0.28				0.29				< 0.2				0.22				0.23				0.22	0.83	0.26
TDS	mg/L	< 10				107				106	CCME DL			115	CCME DL			64	CCME DL			100	CCME DL			89	86	78
Al	mg/L	< 0.005				0.012				< 0.005	0.004			0.009	0.004			0.008	0.009			0.017	0.012			0.008	0.01	0.005
Sb	mg/L	< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002
As	mg/L	< 0.001				< 0.001				< 0.001	0.0008			< 0.001	0.0008			< 0.001	0.0009			< 0.001	0.0009			0.001	0.001	0.0009
Ba	mg/L	0.27				0.3				0.32	0.298			0.34	0.345			0.27	0.279			0.25	0.245			0.261	0.231	0.342
Be	mg/L	< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002
Bi	mg/L	< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002
B	mg/L	0.11				0.13				0.11	0.11			0.1	0.11			0.12	0.12			0.08	0.08			0.12	0.07	0.09
Cd	mg/L	< 0.0002				< 0.0002				< 0.0002	< 0.00004			< 0.0002	< 0.00004			< 0.0002	< 0.00004			< 0.0002	< 0.00004			< 0.00004	< 0.00004	< 0.00004
Ca	mg/L	9.69				11.3				10.5	9.88			11.3	11			7.86	7.87			8.89	8.02			8.49	7.33	10.1
Cr	mg/L	< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002
Co	mg/L	< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002
Cu	mg/L	< 0.001				< 0.001				0.001	0.0004			< 0.001	0.0004			< 0.001	0.0008			< 0.001	0.0011			0.0005	0.0006	0.0017
Fe	mg/L	< 0.05				< 0.05				< 0.05	< 0.01			< 0.05	< 0.01			< 0.05	< 0.01			0.06	0.02			0.01	< 0.01	< 0.01
Pb	mg/L	< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002
Li	mg/L	< 0.001				0.005				< 0.001	< 0.0002			< 0.001	0.0002			< 0.001	0.0003			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002
Mg	mg/L	1.18				1.6				1.5	1.44			1.76	1.71			1.45	1.33			1.43	1.41			1.11	1.03	1.54
Mn	mg/L	< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	0.0005			0.0005	0.0006	0.0003
Hg	ug/L	< 0.02				< 0.02				< 0.02	< 0.02			< 0.02	< 0.02			< 0.02	< 0.02			< 0.02	< 0.02			< 0.02	< 0.02	< 0.02
Mo	mg/L	< 0.0005				< 0.0005				< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	0.0003			< 0.0001	< 0.0001	< 0.0001
Ni	mg/L	< 0.001				< 0.001				< 0.001	0.0002			< 0.001	0.0003			< 0.001	0.0004			< 0.001	0.0006			0.0005	0.0005	< 0.0002
P	mg/L	< 0.15				< 0.15				< 0.15	< 0.03			< 0.15	< 0.03			< 0.15	< 0.03			< 0.15	< 0.03			< 0.03	< 0.03	< 0.03
K	mg/L	8.2				8.3				8.6	7.79			8.7	8.09			6.9	6.92			6.6	6.59			6.53	6.14	8.03
Se	mg/L	< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002
Si	mg/L	22.2				21.7				23.4	21.6			24	23.8			22.8	22.7			21.1	21.7			19.2	18.5	21.5
Ag	mg/L	< 0.00025				< 0.00025				< 0.00025	< 0.00005			< 0.00025	< 0.00005			< 0.00025	< 0.00005			< 0.00025	< 0.00005			< 0.00005	< 0.00005	< 0.00005
Na	mg/L	3.61				4.09				4.68	4.57			5.29	5.34			5.74	4.73			3.96	3.92			3.34	3.03	4.17
Sr	mg/L	0.24				0.27				0.28	0.246			0.28	0.281			0.2	0.225			0.2	0.208			0.228	0.189	0.26
Te	mg/L	< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002
Tl	mg/L	< 0.0001				< 0.0001				< 0.0001	< 0.00002			< 0.0001	< 0.00002			< 0.0001	< 0.00002			< 0.0001	< 0.00002			< 0.00002	< 0.00002	< 0.00002
Th	mg/L	< 0.0005				< 0.0005				< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0001	< 0.0001	< 0.0001
Sn	mg/L	< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002
Ti	mg/L	0.001				0.001				0.001	0.0008			0.002	0.0008			< 0.001	0.0009			0.002	0.001			0.0011	0.0012	0.0009
U	mg/L	< 0.0005				< 0.0005				< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0001	< 0.0001	< 0.0001
V	mg/L	0.003				< 0.001				0.002	0.0025			0.002	0.0023			0.002	0.0028			0.003	0.0029			0.0035	0.003	0.0027
Zn	mg/L	< 0.005				< 0.005				< 0.005	< 0.001			< 0.005	< 0.001			< 0.005	0.001			< 0.005	< 0.001			< 0.001	< 0.001	< 0.001
Zr	mg/L	< 0.01				< 0.01				< 0.01	< 0.002			< 0.01	< 0.002			< 0.01	< 0.002			< 0.01	< 0.002			< 0.002	< 0.002	< 0.002

Humidity Cell Sample Data

HC 24 - Processed Kimberlite Fines

Weeks	#	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165
Date		5-Aug-08	12-Aug-08	19-Aug-08	26-Aug-08	2-Sep-08	9-Sep-08	16-Sep-08	23-Sep-08	30-Sep-08	7-Oct-08	14-Oct-08	21-Oct-08	28-Oct-08	4-Nov-08	11-Nov-08	18-Nov-08	25-Nov-08	2-Dec-08
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		450	490	490	490	500	500	485	500	490	490	500	500	485	500	500	495	490	485
pH	Effluent (units)	8.66	8.73	8.90	9.02	8.85	8.94	8.87	8.92	8.81	8.85	8.99	8.79	8.73	8.79	8.71	8.73	8.81	8.53
Cond.	(umhos/cm)	104	110	117	91	101	89	103	96	103	106	110	119	132	110	117	116	125	111
ORP	mV	130	90	110	100	110	110	90	105	100	120	115	120	125	130	130	130	120	80
Sulphate	(mg/L)	< 1	1	1	< 1	2	1	1	2	1	1	< 1	< 1	< 1	1	1	2	< 1	< 1
Acidity	(mg CaCO3/L)																		
Alkalinity	(mg CaCO3/L)	55	57	57	47	54	51	54	51	56	54	50	58	60	52	56	55	58	55
Total P	mg/L	< 0.02	< 0.02				0.02				0.02				< 0.02				< 0.02
TDP	mgP/L	< 0.02	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02
Fluoride	mg/L	< 0.05	0.17				< 0.05				0.09				0.07				0.17
Chloride	mg/L	0.28	0.28				0.26				0.35				0.42				0.33
TDS	mg/L	94	117				105				95				102				116
Al	mg/L	0.003	0.009				0.014				0.009				0.004				0.007
Sb	mg/L	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
As	mg/L	0.0009	0.0009				0.0008				0.0007				0.0009				0.0011
Ba	mg/L	0.381	0.355				0.303				0.337				0.351				0.387
Be	mg/L	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Bi	mg/L	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
B	mg/L	0.09	0.11				0.15				0.1				0.1				0.13
Cd	mg/L	< 0.00004	< 0.00004				< 0.00004				< 0.00004				< 0.00004				< 0.00004
Ca	mg/L	11.3	10.6				9.67				9.87				9.79				10.9
Cr	mg/L	< 0.0002	< 0.0002				0.0003				0.0002				< 0.0002				< 0.0002
Co	mg/L	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Cu	mg/L	0.0025	0.0006				0.001				0.0027				0.0018				0.0012
Fe	mg/L	< 0.01	< 0.01				0.04				< 0.01				< 0.01				< 0.01
Pb	mg/L	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Li	mg/L	< 0.0002	0.0002				0.0004				0.0004				< 0.0002				0.0003
Mg	mg/L	1.83	1.81				1.86				1.54				1.61				1.97
Mn	mg/L	0.0002	0.0005				0.0008				0.0005				0.0003				0.0005
Hg	ug/L	< 0.02	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02
Mo	mg/L	< 0.0001	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
Ni	mg/L	0.0002	0.0004				0.0006				0.0005				0.0002				0.0004
P	mg/L	< 0.03	< 0.03				< 0.03				< 0.03				< 0.03				< 0.03
K	mg/L	8.79	8.66				7.46				7.05				7.25				7.77
Se	mg/L	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Si	mg/L	23.6	24.5				23.5				22				26.1				30.4
Ag	mg/L	< 0.00005	< 0.00005				< 0.00005				< 0.00005				< 0.00005				< 0.00005
Na	mg/L	4.68	5.2				5.98				4.45				5.2				6.18
Sr	mg/L	0.289	0.27				0.223				0.262				0.236				0.268
Te	mg/L	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Tl	mg/L	< 0.00002	< 0.00002				< 0.00002				< 0.00002				< 0.00002				< 0.00002
Th	mg/L	< 0.0001	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
Sn	mg/L	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Ti	mg/L	0.0008	0.0011				0.002				0.0017				0.0006				0.0009
U	mg/L	< 0.0001	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
V	mg/L	0.0025	0.0028				0.0029				0.0027				0.0025				0.0027
Zn	mg/L	< 0.001	< 0.001				0.009				< 0.001				< 0.001				< 0.001
Zr	mg/L	< 0.002	< 0.002				< 0.002				< 0.002				< 0.002				< 0.002

Humidity Cell Sample Data

HC 25 - Processed Kimberlite Fine

S-Total:	0.08	%
S^{2-}:	0.07	%
NP:	81.50	t $CaCO_3$/1000 t
CaNP:	14.77	t $CaCO_3$/1000 t
AP:	2.03	t $CaCO_3$/1000 t

Weeks	#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Date		11-Oct-05	18-Oct-05	25-Oct-05	1-Nov-05	8-Nov-05	15-Nov-05	22-Nov-05	29-Nov-05	6-Dec-05	13-Dec-05	20-Dec-05	27-Dec-05	3-Jan-06	10-Jan-06	17-Jan-06	24-Jan-06	31-Jan-06	7-Feb-06
Leachate Volume Added (mL)		750	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		450	440	465	505	515	475	440	425	275	500	490	500	485	500	510	465	485	475
pH	Effluent (units)	8.12	8.26	8.35	8.48	8.63	8.80	8.47	8.68	8.57	8.42	8.41	8.49	8.43	8.42	8.49	8.73	8.72	8.71
Cond.	(umhos/cm)	667	525	256	195	199	150	150	146	133	133	110	112	97	110	95	103	119	97
ORP	mV	150	145	150	115	100	185	135	110	90	115	80	90	145	135	110	125	125	110
Sulphate	(mg/L)	36	41	28	28	28	26	22	18	16	15	11	11	11	10	9	9	9	8
Acidity	(mg CaCO3/L)	2	< 1																
Alkalinity	(mg CaCO3/L)	109	49	45	43	43	40	36	46	46	46	41	41	39	40	38	37	40	42
Total P	mg/L																		
TDP	mgP/L																		
Fluoride	mg/L	0.66				0.53				0.72				0.50				0.50	
Chloride	mg/L	110				10.2				1.5				0.7				0.5	
TDS	mg/L	449				116				89				66				94	
Al	mg/L	0.006				< 0.005				0.059				0.007				0.026	
Sb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
As	mg/L	0.009				0.002				0.001				< 0.001				< 0.001	
Ba	mg/L	0.075				0.021				0.022				0.021				0.026	
Be	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Bi	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
B	mg/L	1.57				1.27				0.97				0.65				0.52	
Cd	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002	
Ca	mg/L	54.8				11.60				8.04				6.86				7.32	
Cr	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Co	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Cu	mg/L	0.005				< 0.001				0.001				< 0.001				< 0.001	
Fe	mg/L	< 0.05				< 0.05				0.06				< 0.05				< 0.05	
Pb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Li	mg/L	0.01				0.001				0.001				< 0.001				< 0.001	
Mg	mg/L	14.6				3.61				2.65				2.20				2.53	
Mn	mg/L	0.003				< 0.001				0.002				< 0.001				< 0.001	
Hg	ug/L	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02	
Mo	mg/L	0.0095				0.013				0.009				0.0054				0.0047	
Ni	mg/L	0.008				0.003				0.005				0.002				0.002	
P	mg/L	< 0.15				< 0.15				< 0.15				< 0.15				< 0.15	
K	mg/L	17.8				7.7				6.2				5.3				5.3	
Se	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Si	mg/L	15.2				7.5				7.3				6.0				6.3	
Ag	mg/L	< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025	
Na	mg/L	42.6				15.9				10.6				6.71				5.58	
Sr	mg/L	0.59				0.110				0.077				0.064				0.069	
Te	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Tl	mg/L	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001	
Th	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
Sn	mg/L	< 0.001				< 0.001				< 0.001				0.004				< 0.001	
Ti	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
U	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
V	mg/L	< 0.001				0.002				0.002				0.002				0.001	
Zn	mg/L	< 0.005				< 0.005				< 0.005				< 0.005				< 0.005	
Zr	mg/L	< 0.01				< 0.01				< 0.01				< 0.01				< 0.01	

Humidity Cell Sample Data

HC 25 - Processed Kimberlite Fine

Weeks	#	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
Date		14-Feb-06	21-Feb-06	28-Feb-06	7-Mar-06	14-Mar-06	21-Mar-06	28-Mar-06	4-Apr-06	11-Apr-06	18-Apr-06	25-Apr-06	2-May-06	9-May-06	16-May-06	23-May-06	30-May-06	6-Jun-06	13-Jun-06	20-Jun-06	27-Jun-06	4-Jul-06	11-Jul-06	18-Jul-06
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		505	485	500	495	505	440	500	495	460	450	505	500	495	500	425	410	490	505	490	505	500	465	505
pH	Effluent (units)	8.68	8.78	8.60	8.77	8.76	8.36	8.75	8.87	8.95	8.91	8.95	8.93	8.90	8.99	8.83	8.94	8.95	8.81	8.91	8.95	8.83	8.99	8.90
Cond.	(umhos/cm)	109	106	94	98	102	86	93	105	86	77	75	96	76	76	86	90	88	85	82	83	75	92	80
ORP	mV	155	110	90	100	90	135	130	105	120	140	90	80	95	115	95	105	100	140	130	120	110	100	110
Sulphate	(mg/L)	6	8	8	6	6	6	7	7	6	5	5	7	5	4	5	6	5	6	5	4	2	5	5
Acidity	(mg CaCO3/L)																							
Alkalinity	(mg CaCO3/L)	41	40	40	37	39	34	38	38	38	36	36	44	36	36	37	43	40	38	41	41	42	41	40
Total P	mg/L																							
TDP	mgP/L																							
Fluoride	mg/L			0.51				0.47				0.39				0.40				0.37				0.39
Chloride	mg/L			0.7				0.5				0.4				0.5				0.6				0.2
TDS	mg/L			57				112				63				115				68				82
Al	mg/L			0.026				0.065				0.023				< 0.005				0.013				0.027
Sb	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
As	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Ba	mg/L			0.031				0.037				0.041				0.056				0.052				0.061
Be	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Bi	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
B	mg/L			0.45				0.4				0.31				0.43				0.26				0.24
Cd	mg/L			< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Ca	mg/L			7.27				8.02				7.33				5.38				9.04				8.56
Cr	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Co	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Cu	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Fe	mg/L			< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				0.07
Pb	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Li	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Mg	mg/L			2.40				2.74				2.37				0.70				2.62				2.84
Mn	mg/L			< 0.001				< 0.001				< 0.001				0.002				< 0.001				< 0.001
Hg	ug/L			< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02
Mo	mg/L			0.0039				0.0036				0.0027				0.0019				0.0023				0.0026
Ni	mg/L			0.002				0.003				0.002				< 0.001				0.002				0.003
P	mg/L			< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15
K	mg/L			5.1				5.2				5.3				6.6				5.6				6.2
Se	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Si	mg/L			6.3				6.4				5.4				5.4				5.9				6.7
Ag	mg/L			< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025
Na	mg/L			3.91				3.80				2.02				2.84				1.35				1.27
Sr	mg/L			0.071				0.075				0.074				0.048				0.076				0.083
Te	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Tl	mg/L			< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
Th	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
Sn	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Ti	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
U	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
V	mg/L			0.001				0.001				0.001				0.001				0.001				0.001
Zn	mg/L			< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005
Zr	mg/L			< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01

Humidity Cell Sample Data

HC 25 - Processed Kimberlite Fine

Weeks	#	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67
Date		25-Jul-06	1-Aug-06	8-Aug-06	15-Aug-06	22-Aug-06	29-Aug-06	5-Sep-06	12-Sep-06	19-Sep-06	26-Sep-06	3-Oct-06	10-Oct-06	17-Oct-06	24-Oct-06	31-Oct-06	7-Nov-06	14-Nov-06	21-Nov-06	28-Nov-06	5-Dec-06	12-Dec-06	19-Dec-06	26-Dec-06	2-Jan-07	9-Jan-07	16-Jan-07
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		500	495	505	485	505	510	495	495	505	480	505	485	505	490	505	495	485	495	470	505	480	505	495	490	485	500
pH	Effluent (units)	9.03	8.91	8.97	8.91	8.85	8.82	8.60	8.83	8.88	8.60	8.72	8.73	8.76	8.71	8.70	8.60	8.52	8.64	8.37	8.52	8.55	8.48	8.55	8.52	8.57	8.52
Cond.	(umhos/cm)	79	80	76	80	84	99	95	111	96	98	122	116	121	122	117	124	110	110	134	120	134	122	128	130	124	146
ORP	mV	100	110	120	100	90	80	70	105	95	90	95	100	100	90	95	100	95	90	100	100	105	115	100	100	100	110
Sulphate	(mg/L)	5	3	3	4	4	4	4	4	4	4	4	4	4	5	3	4	4	2	3	4	3	3	2	3	2	4
Acidity	(mg CaCO3/L)																										
Alkalinity	(mg CaCO3/L)	42	38	42	38	44	46	43	52	44	45	56	58	56	61	52	60	54	54	63	54	66	60	61	67	61	63
Total P	mg/L																										
TDP	mgP/L																										
Fluoride	mg/L				0.32				0.28				0.24				0.27				0.20				0.28		
Chloride	mg/L				0.6				0.4				0.46				0.44				< 0.2				0.24		
TDS	mg/L				14				19				108				115				70				68		
Al	mg/L				0.013				0.016				0.025				0.007				< 0.005				0.005		
Sb	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
As	mg/L				< 0.001				< 0.001				< 0.001				0.001				< 0.001				< 0.001		
Ba	mg/L				0.072				0.086				0.11				0.14				0.11				0.15		
Be	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Bi	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
B	mg/L				0.28				0.21				0.24				0.28				0.19				0.2		
Cd	mg/L				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002		
Ca	mg/L				8.9				11				13.5				15.2				11.1				14.6		
Cr	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Co	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Cu	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Fe	mg/L				< 0.05				< 0.05				0.05				< 0.05				< 0.05				< 0.05		
Pb	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Li	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Mg	mg/L				2.53				3.40				4.51				4.41				3.41				4.67		
Mn	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Hg	ug/L				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02		
Mo	mg/L				0.0021				0.0021				0.002				0.0024				0.0018				0.0016		
Ni	mg/L				< 0.001				0.001				0.003				0.001				0.001				0.001		
P	mg/L				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15		
K	mg/L				6.8				6.6				8.1				9.3				7.2				8.1		
Se	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Si	mg/L				6				6.7				7.9				7.6				7.3				8.2		
Ag	mg/L				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025		
Na	mg/L				1.14				1.05				1.38				1.48				1.24				1.47		
Sr	mg/L				0.081				0.1				0.13				0.14				0.1				0.14		
Te	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Tl	mg/L				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001		
Th	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005		
Sn	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Ti	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
U	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005		
V	mg/L				0.001				0.001				0.001				0.001				0.001				< 0.001		
Zn	mg/L				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005		
Zr	mg/L				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01		

Humidity Cell Sample Data

HC 25 - Processed Kimberlite Fine

Weeks	#	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
Date		23-Jan-07	30-Jan-07	6-Feb-07	13-Feb-07	20-Feb-07	27-Feb-07	6-Mar-07	13-Mar-07	20-Mar-07	27-Mar-07	3-Apr-07	10-Apr-07	17-Apr-07	24-Apr-07	1-May-07	8-May-07	#########	#########	#########	5-Jun-07	12-Jun-07	19-Jun-07	26-Jun-07	3-Jul-07	10-Jul-07	17-Jul-07	24-Jul-07
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		450	505	500	490	505	470	505	505	480	500	500	495	470	505	470	500	505	500	495	490	500	494	505	485	480	505	470
pH	Effluent (units)	8.51	8.56	8.53	8.58	8.62	8.45	8.48	8.52	8.56	8.53	8.47	8.59	8.49	8.49	8.43	8.43	8.54	8.51	8.57	8.48	8.48	8.50	8.50	8.50	8.49	8.52	8.45
Cond.	(umhos/cm)	123	120	104	127	109	128	118	131	127	127	115	124	137	116	119	118	105	117	124	140	134	118	133	132	126	115	120
ORP	mV	110	105	110	115	115	105	100	105	105	110	110	95	105	90	95	105	105	100	95	100	105	110	100	100	110	100	110
Sulphate	(mg/L)	3	3	3	2	2	4	3	3	3	4	2	3	2	2	3	1	2	2	2	4	1	2	3	2	3	1	1
Acidity	(mg CaCO3/L)																											
Alkalinity	(mg CaCO3/L)	60	59	54	65	55	61	60	65	64	65	62	63	65	57	60	60	52	60	63	68	61	57	58	63	64	56	58
Total P	mg/L																											
TDP	mgP/L																											
Fluoride	mg/L		0.23				0.22				0.24				0.2				< 0.05				0.14				0.27	
Chloride	mg/L		< 0.2				< 0.2				< 0.2				< 0.2				0.22				0.2				< 0.2	
TDS	mg/L		81				70				87				67				62				73				75	
Al	mg/L		0.006				0.019				0.013				0.006				< 0.005				0.01				0.023	
Sb	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
As	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Ba	mg/L		0.12				0.14				0.15				0.14				0.16				0.14				0.15	
Be	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Bi	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
B	mg/L		0.17				0.19				0.17				0.17				0.13				0.12				0.12	
Cd	mg/L		< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002	
Ca	mg/L		12.3				13.6				13.2				11.7				12.6				11.4				10.7	
Cr	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Co	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Cu	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Fe	mg/L		< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05	
Pb	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Li	mg/L		< 0.001				< 0.001				< 0.001				0.001				< 0.005				< 0.005				< 0.005	
Mg	mg/L		4.74				5.06				4.86				4.27				4.25				3.78				3.91	
Mn	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				0.001	
Hg	ug/L		< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02	
Mo	mg/L		0.0014				0.0019				0.0016				0.0015				0.0013				0.0011				0.0016	
Ni	mg/L		0.001				0.002				0.002				0.001				0.001				0.001				0.002	
P	mg/L		< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15	
K	mg/L		8.1				8.5				8.4				8				7.8				7.6				7.4	
Se	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Si	mg/L		9.7				10.2				9.1				8.8				6.6				7				7.5	
Ag	mg/L		< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025	
Na	mg/L		1.55				1.51				1.42				1.35				1.23				1.13				1.26	
Sr	mg/L		0.11				0.13				0.13				0.11				0.12				0.1				0.11	
Te	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Tl	mg/L		< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001	
Th	mg/L		< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
Sn	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Ti	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
U	mg/L		< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
V	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				0.001	
Zn	mg/L		< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005	
Zr	mg/L		< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01	

Humidity Cell Sample Data

HC 25 - Processed Kimberlite Fine

Weeks	#	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121
Date		31-Jul-07	7-Aug-07	14-Aug-07	21-Aug-07	28-Aug-07	4-Sep-07	11-Sep-07	18-Sep-07	25-Sep-07	2-Oct-07	9-Oct-07	16-Oct-07	23-Oct-07	30-Oct-07	6-Nov-07	13-Nov-07	20-Nov-07	27-Nov-07	4-Dec-07	11-Dec-07	18-Dec-07	25-Dec-07	1-Jan-08	8-Jan-08	15-Jan-08	22-Jan-08	29-Jan-08
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		505	490	505	500	485	500	500	500	500	485	495	500	505	500	495	495	500	475	495	505	480	490	485	485	500	500	455
pH	Effluent (units)	8.53	8.42	8.48	8.52	8.55	8.59	8.49	8.55	8.48	8.56	8.44	8.55	8.57	8.54	8.47	8.52	8.56	8.32	8.10	8.56	8.48	8.46	8.09	8.48	8.48	8.47	8.38
Cond.	(umhos/cm)	110	128	110	111	125	109	130	104	105	103	99	101	110	112	125	113	113	118	93	87	83	94	95	111	96	89	87
ORP	mV	130	100	115	100	105	100	105	110	100	95	110	100	100	95	90	90	100	95	110	90	105	90	100	90	95	90	95
Sulphate	(mg/L)	2	2	2	< 1	2	2	4	2	4	2	1	2	2	2	1	1	2	1	1	1	1	1	2	2	3	4	2
Acidity	(mg CaCO3/L)																			< 1				< 1				
Alkalinity	(mg CaCO3/L)	54	61	54	52	53	53	61	51	52	51	47	49	52	54	60	54	56	55	45	42	42	46	43	49	45	42	43
Total P	mg/L																											
TDP	mgP/L																											
Fluoride	mg/L			0.29				0.17				0.2				0.18				0.18				0.18				0.16
Chloride	mg/L			< 0.2				< 0.2				< 0.2				< 0.2				0.21				< 0.2				< 0.2
TDS	mg/L			63				63				47				76				50				95				49
Al	mg/L			0.008				0.006				0.007				0.006				0.013				0.017				0.008
Sb	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
As	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Ba	mg/L			0.15				0.17				0.14				0.18				0.14				0.13				0.14
Be	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Bi	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
B	mg/L			0.11				0.13				0.08				0.09				0.09				0.08				0.06
Cd	mg/L			< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Ca	mg/L			10.4				12.8				9.08				11.5				9.4				8.34				8.35
Cr	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Co	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Cu	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Fe	mg/L			< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05
Pb	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Li	mg/L			< 0.005				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Mg	mg/L			3.88				4.87				3.09				3.96				2.76				2.85				3.03
Mn	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				0.002
Hg	ug/L			< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02
Mo	mg/L			0.001				0.0012				0.0009				0.0012				0.0009				0.001				0.001
Ni	mg/L			0.001				0.001				< 0.001				0.001				< 0.001				0.001				0.001
P	mg/L			< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15
K	mg/L			7.3				8.4				6.5				6.6				6.4				5.6				5.6
Se	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Si	mg/L			7.2				8				5.6				6.6				5.6				5.9				4.9
Ag	mg/L			< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025
Na	mg/L			1.16				1.34				1				1.11				0.84				0.99				1.02
Sr	mg/L			0.1				0.13				0.087				0.12				0.089				0.087				0.083
Te	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Tl	mg/L			< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
Th	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
Sn	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Ti	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
U	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
V	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Zn	mg/L			< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005
Zr	mg/L			< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01

Humidity Cell Sample Data

HC 25 - Processed Kimberlite Fine

Weeks	#	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148
Date		5-Feb-08	12-Feb-08	19-Feb-08	26-Feb-08	4-Mar-08	11-Mar-08	18-Mar-08	25-Mar-08	1-Apr-08	8-Apr-08	15-Apr-08	22-Apr-08	29-Apr-08	6-May-08	########	########	########	3-Jun-08	10-Jun-08	17-Jun-08	24-Jun-08	1-Jul-08	8-Jul-08	15-Jul-08	22-Jul-08	29-Jul-08	5-Aug-08
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		490	490	480	495	490	490	495	495	485	490	485	445	495	490	460	490	505	490	505	510	480	460	505	495	500	490	460
pH	Effluent (units)	8.52	8.56	8.41	8.43	8.33	8.36	8.36	8.50	8.52	8.50	8.49	8.47	8.55	8.50	8.38	8.32	8.51	8.54	8.59	8.54	8.44	8.55	8.56	8.61	8.39	8.46	8.29
Cond.	(umhos/cm)	91	93	90	102	122	104	102	94	127	129	127	131	102	117	129	113	105	107	98	96	102	87	85	100	97	93	135
ORP	mV	85	80	85	90	90	95	130	105	150	130	140	145	145	140	160	135	130	130	145	145	135	140	140	145	150	130	140
Sulphate	(mg/L)	1	1	2	2	1	2	3	1	1	< 1	< 1	< 1	2	1	< 1	< 1	2	2	2	1	< 1	2	2	2	< 1	1	< 1
Acidity	(mg CaCO3/L)																											< 1
Alkalinity	(mg CaCO3/L)	43	40	40	49	62	50	52	47	63	64	63	64	52	57	64	54	51	48	48	45	49	42	42	47	46	41	63
Total P	mg/L								0.04				0.04				0.02				0.04				0.02	< 0.02	< 0.02	0.02
TDP	mgP/L								< 0.02				< 0.02				< 0.02				< 0.02				< 0.02	< 0.02	< 0.02	< 0.02
Fluoride	mg/L				0.16				0.18				0.17				0.13				0.12				0.17	0.18	0.14	0.19
Chloride	mg/L				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2	< 0.2	< 0.2	1.19
TDS	mg/L				75				68	CCME DL			90	CCME DL			58	CCME DL			59	CCME DL			57	61	51	75
Al	mg/L				0.029				0.009	0.004			0.014	0.017	perhaps sample cont		0.72	0.022			0.017	0.016			0.007	0.01	0.039	0.009
Sb	mg/L				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002	< 0.0002
As	mg/L				< 0.001				< 0.001	0.0005			< 0.001	0.0006			< 0.001	0.0005			< 0.001	0.0004			0.0005	0.0006	0.0005	0.0005
Ba	mg/L				0.17				0.18	0.164			0.24	0.241			0.22	0.211			0.18	0.174			0.189	0.178	0.187	0.313
Be	mg/L				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002	< 0.0002
Bi	mg/L				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002	< 0.0002
B	mg/L				0.1				0.08	0.09			0.09	0.1			0.09	0.09			0.07	0.06			0.09	0.06	0.06	0.07
Cd	mg/L				< 0.0002				< 0.0002	< 0.00004			< 0.0002	< 0.00004			< 0.0002	< 0.00004			< 0.0002	< 0.00004			< 0.00004	< 0.00004	< 0.00004	< 0.00004
Ca	mg/L				10.4				9.57	9.18			13.4	13.7			10.4	10.9			9.41	9.24			9.46	8.88	9.04	15.1
Cr	mg/L				< 0.001				< 0.001	< 0.0002			< 0.001	0.0004			0.005	0.0003			< 0.001	0.0003			< 0.0002	< 0.0002	0.0004	< 0.0002
Co	mg/L				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			0.003	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002	< 0.0002
Cu	mg/L				< 0.001				0.001	0.0004			< 0.001	0.0005			0.002	0.0008			< 0.001	0.0008			0.003	0.0006	0.0008	0.0034
Fe	mg/L				< 0.05				< 0.05	< 0.01			< 0.05	0.02			1.01	0.03			0.06	0.02			< 0.01	< 0.01	0.05	< 0.01
Pb	mg/L				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002	< 0.0002
Li	mg/L				0.005				< 0.001	0.0006			< 0.001	0.0008			0.001	0.0009			< 0.001	0.0004			0.0005	0.0003	0.0005	0.0006
Mg	mg/L				3.97				3.48	3.57			5.07	5.24			8.03	4.19			3.33	4.13			3.02	3.01	3.37	5.46
Mn	mg/L				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			0.018	< 0.0002			< 0.001	0.0003			0.0004	0.0004	0.0005	0.0006
Hg	ug/L				< 0.02				< 0.02	< 0.02			< 0.02	< 0.02			< 0.02	< 0.02			< 0.02	< 0.02			< 0.02	< 0.02	< 0.02	< 0.02
Mo	mg/L				0.001				0.001	0.001			0.0011	0.0012			0.0005	0.0009			0.0008	0.001			0.001	0.0009	0.0009	0.0011
Ni	mg/L				0.002				0.002	0.0007			0.001	0.0018			0.033	0.0018			0.001	0.0017			0.001	0.0014	0.0029	0.0016
P	mg/L				< 0.15				< 0.15	< 0.03			< 0.15	< 0.03			< 0.15	< 0.03			< 0.15	< 0.03			< 0.03	< 0.03	< 0.03	< 0.03
K	mg/L				6.1				6.2	6.06			7.2	6.61			5.8	5.78			5.2	5.62			5.28	5.27	5.5	7.01
Se	mg/L				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002	< 0.0002
Si	mg/L				5.8				6.4	6.36			7.8	7.72			8.6	7.01			6.3	6.28			5.88	6.12	6.44	7.15
Ag	mg/L				< 0.00025				< 0.00025	< 0.00005			< 0.00025	< 0.00005			< 0.00025	< 0.00005			< 0.00025	< 0.00005			< 0.00005	< 0.00005	< 0.00005	< 0.00005
Na	mg/L				0.98				1.04	0.99			1.2	1.13			1.32	1			1.03	1.09			0.84	0.83	0.91	1.15
Sr	mg/L				0.1				0.1	0.096			0.14	0.144			0.11	0.117			0.099	0.097			0.112	0.103	0.098	0.164
Te	mg/L				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002	< 0.0002
Tl	mg/L				< 0.0001				< 0.0001	< 0.00002			< 0.0001	0.00003			< 0.0001	< 0.00002			< 0.0001	< 0.00002			< 0.00002	0.00002	< 0.00002	< 0.00002
Th	mg/L				< 0.0005				< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sn	mg/L				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002	< 0.0002
Ti	mg/L				< 0.001				< 0.001	0.0003			< 0.001	0.0005			0.015	0.0005			0.001	0.0003			0.0003	0.0004	0.0006	0.0003
U	mg/L				< 0.0005				< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0001	< 0.0001	< 0.0001	< 0.0001
V	mg/L				< 0.001				< 0.001	0.001			0.001	0.001			0.002	0.0009			0.001	0.0009			0.001	0.0009	0.0011	0.0009
Zn	mg/L				< 0.005				< 0.005	0.001			< 0.005	0.002			< 0.005	0.001			< 0.005	< 0.001			< 0.001	< 0.001	< 0.001	0.001
Zr	mg/L				< 0.01				< 0.01	< 0.002			< 0.01	< 0.002			< 0.01	< 0.002			< 0.01	< 0.002			< 0.002	< 0.002	< 0.002	< 0.002

Humidity Cell Sample Data

HC 25 - Processed Kimberlite Fine

Weeks	#	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165
Date		12-Aug-08	19-Aug-08	26-Aug-08	2-Sep-08	9-Sep-08	16-Sep-08	23-Sep-08	30-Sep-08	7-Oct-08	14-Oct-08	21-Oct-08	28-Oct-08	4-Nov-08	11-Nov-08	18-Nov-08	25-Nov-08	2-Dec-08
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		470	490	500	500	480	500	500	455	500	500	495	480	500	465	500	510	470
pH	Effluent (units)	8.24	8.42	8.51	8.25	8.36	8.41	8.44	8.43	8.36	8.54	8.16	8.17	8.23	8.13	8.21	8.27	8.14
Cond.	(umhos/cm)	128	134	101	112	103	93	107	114	121	108	127	152	124	145	130	131	138
ORP	mV	150	140	130	140	140	130	130	130	135	135	145	140	160	160	165	165	150
Sulphate	(mg/L)	2	2	1	1	2	1	3	2	1	2	< 1	2	< 1	2	1	1	< 1
Acidity	(mg CaCO3/L)	< 1			< 1							< 1	< 1	< 1	< 1	< 1	< 1	1
Alkalinity	(mg CaCO3/L)	65	64	51	59	51	49	56	56	57	47	62	70	58	69	61	60	70
Total P	mg/L	0.02				0.05				0.02				< 0.02				< 0.02
TDP	mgP/L	< 0.02				< 0.02				0.02				< 0.02				< 0.02
Fluoride	mg/L	0.16				< 0.05				0.12				0.08				0.2
Chloride	mg/L	< 0.2				< 0.2				0.2				0.39				0.54
TDS	mg/L	72				62				83				70				92
Al	mg/L	0.014				0.011				0.011				0.017				0.02
Sb	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
As	mg/L	0.0004				0.0005				0.0003				0.0004				0.0005
Ba	mg/L	0.273				0.213				0.265				0.296				0.346
Be	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Bi	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
B	mg/L	0.08				0.1				0.07				0.07				0.09
Cd	mg/L	< 0.00004				< 0.00004				< 0.00004				< 0.00004				< 0.00004
Ca	mg/L	13.3				10.4				12.2				12.6				16
Cr	mg/L	< 0.0002				0.0002				< 0.0002				0.0002				0.0003
Co	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Cu	mg/L	0.0016				0.0019				0.0013				0.0021				0.001
Fe	mg/L	< 0.01				0.03				< 0.01				0.02				0.03
Pb	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Li	mg/L	0.0006				0.0007				0.0007				0.0005				0.0008
Mg	mg/L	5.33				4.3				4.21				4.83				6.32
Mn	mg/L	0.0006				0.0005				0.0005				0.0003				0.0009
Hg	ug/L	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02
Mo	mg/L	0.001				0.0008				0.0009				0.0008				0.0009
Ni	mg/L	0.0021				0.0015				0.0017				0.0019				0.0024
P	mg/L	< 0.03				< 0.03				< 0.03				< 0.03				< 0.03
K	mg/L	6.65				5.46				5.27				5.71				6.4
Se	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Si	mg/L	7.35				6.77				6.72				7.8				10.2
Ag	mg/L	< 0.00005				< 0.00005				< 0.00005				< 0.00005				< 0.00005
Na	mg/L	1.2				1.19				0.9				1.08				1.31
Sr	mg/L	0.145				0.109				0.145				0.137				0.184
Te	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Tl	mg/L	< 0.00002				< 0.00002				< 0.00002				< 0.00002				< 0.00002
Th	mg/L	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
Sn	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Ti	mg/L	0.0004				0.0004				0.0005				0.0003				0.0004
U	mg/L	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
V	mg/L	0.0008				0.0009				0.0009				0.0008				0.0007
Zn	mg/L	0.001				0.008				< 0.001				< 0.001				< 0.001
Zr	mg/L	< 0.002				< 0.002				< 0.002				< 0.002				< 0.002

Humidity Cell Sample Data

HC 26 - Processed Kimberlite Fines

S-Total:	0.04	%
S^{2-}:	0.03	%
NP:	75.00	t $CaCO_3$/1000 t
CaNP:	10.00	t $CaCO_3$/1000 t
AP:	0.84	t $CaCO_3$/1000 t

Weeks	#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Date		11-Oct-05	18-Oct-05	25-Oct-05	1-Nov-05	8-Nov-05	15-Nov-05	22-Nov-05	29-Nov-05	6-Dec-05	13-Dec-05	20-Dec-05	27-Dec-05	3-Jan-06	10-Jan-06	17-Jan-06	24-Jan-06	31-Jan-06
Leachate Volume Added (mL)		750	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		500	505	505	490	470	505	450	490	510	430	500	500	470	450	510	470	500
pH	Effluent (units)	8.36	8.31	8.66	8.83	8.82	8.86	8.90	9.00	9.00	8.83	8.73	8.97	8.46	8.36	9.05	8.95	9.00
Cond.	(umhos/cm)	224	333	129	122	199	158	113	131	119	120	77	69	54	69	69	74	88
ORP	mV	130	130	150	105	100	185	125	100	85	120	85	85	135	160	130	120	150
Sulphate	(mg/L)	10	4	3	4	5	3	5	4	7	7	5	5	5	4	5	5	6
Acidity	(mg CaCO3/L)																	
Alkalinity	(mg CaCO3/L)	37	22	19	19	22	22	18	26	28	30	22	23	19	23	23	24	27
Total P	mg/L																	
TDP	mgP/L																	
Fluoride	mg/L	0.22				0.24				0.43				0.20				0.40
Chloride	mg/L	39.5				36.7				12.3				2.0				1.7
TDS	mg/L	165				71				80				72				85
Al	mg/L	0.01				< 0.005				0.033				< 0.005				0.015
Sb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
As	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Ba	mg/L	0.14				0.092				0.052				0.041				0.047
Be	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Bi	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
B	mg/L	0.72				0.73				0.82				0.36				0.55
Cd	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Ca	mg/L	19.4				13.5				6.90				4.26				5.15
Cr	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Co	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Cu	mg/L	0.002				< 0.001				0.001				< 0.001				< 0.001
Fe	mg/L	< 0.05				< 0.05				< 0.05				< 0.05				< 0.05
Pb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Li	mg/L	0.01				< 0.001				< 0.001				< 0.001				< 0.001
Mg	mg/L	1.84				1.75				1.08				0.70				0.80
Mn	mg/L	< 0.001				< 0.001				0.001				< 0.001				< 0.001
Hg	ug/L	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02
Mo	mg/L	0.0009				0.0018				0.0029				0.0014				0.0026
Ni	mg/L	0.002				0.002				0.003				< 0.001				0.001
P	mg/L	< 0.15				< 0.15				< 0.15				< 0.15				< 0.15
K	mg/L	11.4				10.2				8.2				4.6				5.6
Se	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Si	mg/L	7.2				4.6				5.5				3.8				5.1
Ag	mg/L	< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025
Na	mg/L	14.1				12.5				8.62				3.33				4.77
Sr	mg/L	0.18				0.130				0.063				0.036				0.046
Te	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Tl	mg/L	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
Th	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
Sn	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Ti	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
U	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
V	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Zn	mg/L	< 0.005				< 0.005				< 0.005				< 0.005				< 0.005
Zr	mg/L	< 0.01				< 0.01				< 0.01				< 0.01				< 0.01

Humidity Cell Sample Data

HC 26 - Processed Kimberlite Fines

Weeks	#	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
Date		7-Feb-06	14-Feb-06	21-Feb-06	28-Feb-06	7-Mar-06	14-Mar-06	21-Mar-06	28-Mar-06	4-Apr-06	11-Apr-06	18-Apr-06	25-Apr-06	2-May-06	9-May-06	16-May-06	23-May-06	30-May-06	6-Jun-06	13-Jun-06	20-Jun-06	27-Jun-06	4-Jul-06
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		460	510	475	485	505	480	490	510	505	490	500	505	490	505	465	500	470	500	495	480	445	505
pH	Effluent (units)	9.05	8.72	8.97	8.76	9.06	8.69	7.51	9.24	9.02	8.85	9.04	8.99	9.18	8.96	9.17	9.12	9.16	9.10	9.12	9.18	9.22	9.22
Cond.	(umhos/cm)	77	91	69	69	67	88	62	77	74	51	46	35	48	50	58	64	45	43	59	63	50	50
ORP	mV	120	155	130	85	110	120	140	140	100	85	120	90	80	100	150	100	115	130	120	110	120	100
Sulphate	(mg/L)	6	5	6	6	5	7	2	6	6	4	2	2	3	3	4	5	3	2	5	5	4	3
Acidity	(mg CaCO3/L)							2															
Alkalinity	(mg CaCO3/L)	28	29	25	26	22	34	18	31	24	22	20	16	21	22	26	24	17	15	22	29	30	25
Total P	mg/L																						
TDP	mgP/L																						
Fluoride	mg/L				0.45				0.43				0.19				0.52				0.50		
Chloride	mg/L				1.1				2.9				0.5				0.8				0.9		
TDS	mg/L				64				62				34				98				48		
Al	mg/L				0.028				0.074				0.031				< 0.005				< 0.005		
Sb	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
As	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Ba	mg/L				0.042				0.044				0.032				0.046				0.068		
Be	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Bi	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
B	mg/L				0.54				0.63				0.20				0.27				0.47		
Cd	mg/L				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002		
Ca	mg/L				4.56				5.14				3.08				8.81				5.55		
Cr	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Co	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Cu	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Fe	mg/L				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05		
Pb	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Li	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Mg	mg/L				0.77				0.91				0.49				2.45				0.71		
Mn	mg/L				< 0.001				< 0.001				< 0.001				0.002				< 0.001		
Hg	ug/L				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02		
Mo	mg/L				0.0022				0.0024				0.0008				0.0025				0.002		
Ni	mg/L				0.001				0.003				< 0.001				< 0.001				< 0.001		
P	mg/L				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15		
K	mg/L				5.7				6.6				3.3				5.8				6.4		
Se	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Si	mg/L				5.2				6.1				2.3				5.2				6.1		
Ag	mg/L				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025		
Na	mg/L				4.21				6.28				1.43				1.64				2.91		
Sr	mg/L				0.041				0.045				0.028				0.079				0.046		
Te	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Tl	mg/L				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001		
Th	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005		
Sn	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Ti	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
U	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005		
V	mg/L				0.001				0.001				< 0.001				0.001				0.001		
Zn	mg/L				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005		
Zr	mg/L				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01		

Humidity Cell Sample Data

HC 26 - Processed Kimberlite Fines

Weeks	#	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
Date		11-Jul-06	18-Jul-06	25-Jul-06	1-Aug-06	8-Aug-06	15-Aug-06	22-Aug-06	29-Aug-06	5-Sep-06	12-Sep-06	19-Sep-06	26-Sep-06	3-Oct-06	10-Oct-06	17-Oct-06	24-Oct-06	31-Oct-06	7-Nov-06	14-Nov-06	21-Nov-06	28-Nov-06	5-Dec-06	12-Dec-06	19-Dec-06	26-Dec-06
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		505	480	505	475	490	505	500	505	500	505	505	465	505	495	490	505	505	495	485	465	430	495	490	495	495
pH	Effluent (units)	9.28	9.12	9.26	9.34	9.33	9.37	9.07	9.33	8.96	9.36	9.25	8.87	9.19	9.24	9.19	9.33	9.39	9.21	9.23	9.23	9.14	9.23	8.93	8.96	8.99
Cond.	(umhos/cm)	54	51	46	58	56	54	44	64	56	68	59	44	58	55	62	73	51	55	61	67	65	56	30	39	35
ORP	mV	100	110	115	75	85	90	60	70	110	90	90	85	90	95	100	90	90	95	90	85	80	80	110	110	100
Sulphate	(mg/L)	4	3	3	3	3	4	4	4	4	4	4	3	3	4	3	4	2	4	3	4	3	3	2	1	1
Acidity	(mg CaCO3/L)																									
Alkalinity	(mg CaCO3/L)	24	24	25	26	26	24	22	27	24	28	27	20	29	26	25	25	25	25	25	30	27	24	15	16	14
Total P	mg/L																									
TDP	mgP/L																									
Fluoride	mg/L		0.37				0.44				0.42				0.38				0.42				0.29			
Chloride	mg/L		0.3				0.7				0.7				0.6				0.5				< 0.2			
TDS	mg/L		24				72				39				82				78				43			
Al	mg/L		0.033				0.017				0.009				0.025				0.013				0.006			
Sb	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
As	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				0.001				< 0.001			
Ba	mg/L		0.061				0.064				0.069				0.083				0.087				0.068			
Be	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Bi	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
B	mg/L		0.3				0.51				0.37				0.37				0.4				0.25			
Cd	mg/L		< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002			
Ca	mg/L		4.85				4.99				5.35				5.4				5.94				4.59			
Cr	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Co	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Cu	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Fe	mg/L		< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05			
Pb	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Li	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Mg	mg/L		0.81				0.6				0.65				0.85				0.67				0.55			
Mn	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Hg	ug/L		< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02			
Mo	mg/L		0.0014				0.0016				0.0017				0.0013				0.0017				0.0011			
Ni	mg/L		0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
P	mg/L		< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15			
K	mg/L		5.7				6.7				6.4				6.6				7.8				6			
Se	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Si	mg/L		5.1				6				6.5				6.3				5.4				4.6			
Ag	mg/L		< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025			
Na	mg/L		2.1				2.32				2.03				2.03				2.25				1.45			
Sr	mg/L		0.043				0.043				0.049				0.048				0.053				0.04			
Te	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Tl	mg/L		< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001			
Th	mg/L		< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005			
Sn	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Ti	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
U	mg/L		< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005			
V	mg/L		0.001				0.001				0.001				0.001				0.001				0.001			
Zn	mg/L		< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005			
Zr	mg/L		< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01			

Humidity Cell Sample Data

HC 26 - Processed Kimberlite Fines

Weeks	#	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Date		2-Jan-07	9-Jan-07	16-Jan-07	23-Jan-07	30-Jan-07	6-Feb-07	13-Feb-07	20-Feb-07	27-Feb-07	6-Mar-07	13-Mar-07	20-Mar-07	27-Mar-07	3-Apr-07	10-Apr-07	17-Apr-07	24-Apr-07	1-May-07	8-May-07	15-May-07	22-May-07	29-May-07	5-Jun-07	12-Jun-07	19-Jun-07	26-Jun-07
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		495	505	480	500	485	450	505	505	505	500	500	490	500	505	490	505	500	480	500	505	505	495	500	445	505	500
pH	Effluent (units)	9.19	9.28	9.26	9.36	9.27	9.23	9.31	9.38	9.13	9.21	9.31	9.4	9.17	9.21	9.33	9.33	9.31	9.20	9.18	9.33	9.23	9.32	9.16	9.22	9.21	9.22
Cond.	(umhos/cm)	43	43	47	43	47	50	49	41	51	48	55	56	51	46	50	49	54	55	46	54	55	55	52	62	56	60
ORP	mV	95	110	100	100	95	95	95	105	100	105	110	100	100	90	90	90	85	90	90	100	90	90	90	95	90	100
Sulphate	(mg/L)	2	2	5	4	3	3	1	2	3	3	3	3	2	2	3	2	2	1	2	2	3	2	2	3	2	3
Acidity	(mg CaCO3/L)																										
Alkalinity	(mg CaCO3/L)	24	21	20	24	23	23	22	19	23	24	25	21	24	23	23	22	24	22	21	25	25	24	23	26	25	25
Total P	mg/L																										
TDP	mgP/L																										
Fluoride	mg/L	0.25				0.34				0.26				0.32				0.24				0.3				0.25	
Chloride	mg/L	0.3				0.22				0.26				0.22				0.23				0.3				0.26	
TDS	mg/L	20				36				43				36				38				40				38	
Al	mg/L	< 0.005				0.007				0.011				< 0.005				< 0.005				0.006				0.032	
Sb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
As	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Ba	mg/L	0.071				0.077				0.077				0.088				0.09				0.1				0.094	
Be	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Bi	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
B	mg/L	0.19				0.24				0.24				0.23				0.25				0.25				0.21	
Cd	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002	
Ca	mg/L	4.2				4.56				4.69				4.86				4.69				5.39				5.85	
Cr	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Co	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Cu	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				0.003	
Fe	mg/L	< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05	
Pb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Li	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.005				< 0.005	
Mg	mg/L	0.53				0.64				0.58				0.58				0.56				0.62				0.84	
Mn	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Hg	ug/L	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02	
Mo	mg/L	0.0007				0.001				0.0011				0.001				0.0011				0.0014				0.0011	
Ni	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				0.002	
P	mg/L	< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15	
K	mg/L	5.1				6.3				5.9				5.9				6.2				6.6				6.2	
Se	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Si	mg/L	3.8				5.6				5.1				5.1				4.9				5.6				5.6	
Ag	mg/L	< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025	
Na	mg/L	1.19				1.56				1.35				1.25				1.29				1.36				1.52	
Sr	mg/L	0.037				0.041				0.044				0.043				0.043				0.051				0.049	
Te	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Tl	mg/L	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001	
Th	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
Sn	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Ti	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
U	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
V	mg/L	< 0.001				0.001				0.001				0.001				0.001				0.001				0.001	
Zn	mg/L	< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005	
Zr	mg/L	< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01	

Humidity Cell Sample Data

HC 26 - Processed Kimberlite Fines

Weeks	#	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116
Date		3-Jul-07	10-Jul-07	17-Jul-07	24-Jul-07	31-Jul-07	7-Aug-07	14-Aug-07	21-Aug-07	28-Aug-07	4-Sep-07	11-Sep-07	18-Sep-07	25-Sep-07	2-Oct-07	9-Oct-07	16-Oct-07	23-Oct-07	30-Oct-07	6-Nov-07	13-Nov-07	20-Nov-07	27-Nov-07	4-Dec-07	11-Dec-07	18-Dec-07	25-Dec-07
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		500	490	480	495	495	505	475	505	505	485	505	475	500	492	495	500	490	490	500	505	480	505	505	495	480	490
pH	Effluent (units)	9.26	9.20	9.13	9.15	9.29	9.25	8.86	9.22	9.36	9.09	9.23	9.22	9.26	9.20	9.10	9.18	9.06	9.04	9.19	9.20	9.05	8.51	8.77	9.13	8.98	8.82
Cond.	(umhos/cm)	54	49	65	60	62	58	43	55	59	48	62	54	52	63	60	60	63	55	54	57	56	40	35	39	49	54
ORP	mV	90	95	90	90	90	70	100	85	80	85	75	70	70	75	75	80	85	75	80	70	75	80	95	90	95	80
Sulphate	(mg/L)	3	1	2	2	3	3	2	1	2	3	3	1	2	2	2	3	3	2	2	2	3	2	1	< 1	2	2
Acidity	(mg CaCO3/L)																										
Alkalinity	(mg CaCO3/L)	24	24	30	26	26	25	18	23	26	21	25	24	23	28	27	26	27	25	23	23	26	21	19	19	22	25
Total P	mg/L																										
TDP	mgP/L																										
Fluoride	mg/L			0.43				0.37				0.33				0.38				0.3				0.23			
Chloride	mg/L			0.2				< 0.2				0.22				< 0.2				< 0.2				0.22			
TDS	mg/L			56				29				42				12				45				24			
Al	mg/L			0.024				0.028				0.092				0.027				0.01				0.019			
Sb	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
As	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Ba	mg/L			0.12				0.074				0.11				0.12				0.10				0.08			
Be	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Bi	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
B	mg/L			0.23				0.12				0.23				0.19				0.14				0.12			
Cd	mg/L			< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002			
Ca	mg/L			5.66				3.23				5.37				5.51				4.76				3.75			
Cr	mg/L			< 0.001				< 0.001				0.001				< 0.001				< 0.001				< 0.001			
Co	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Cu	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Fe	mg/L			< 0.05				< 0.05				0.17				< 0.05				< 0.05				< 0.05			
Pb	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Li	mg/L			< 0.005				< 0.005				< 0.001				< 0.001				< 0.001				< 0.001			
Mg	mg/L			0.81				0.71				1.22				0.7				0.6				0.46			
Mn	mg/L			< 0.001				< 0.001				0.003				< 0.001				< 0.001				< 0.001			
Hg	ug/L			< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02			
Mo	mg/L			0.0012				0.0005				0.001				0.0011				0.0009				0.0005			
Ni	mg/L			0.001				0.002				0.005				0.001				< 0.001				< 0.001			
P	mg/L			< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15			
K	mg/L			7.1				4.2				7.1				6.6				5.1				4.7			
Se	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Si	mg/L			6.6				4				6.7				6.3				5.4				3.7			
Ag	mg/L			< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025			
Na	mg/L			1.35				0.76				1.23				1.12				0.89				0.61			
Sr	mg/L			0.052				0.026				0.05				0.049				0.043				0.033			
Te	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Tl	mg/L			< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001			
Th	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005			
Sn	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Ti	mg/L			< 0.001				< 0.001				0.003				< 0.001				< 0.001				< 0.001			
U	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005			
V	mg/L			0.001				< 0.001				0.002				0.002				0.001				< 0.001			
Zn	mg/L			< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005			
Zr	mg/L			< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01			

Humidity Cell Sample Data

HC 26 - Processed Kimberlite Fines

Weeks	#	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142
Date		1-Jan-08	8-Jan-08	15-Jan-08	22-Jan-08	29-Jan-08	5-Feb-08	12-Feb-08	19-Feb-08	26-Feb-08	4-Mar-08	11-Mar-08	18-Mar-08	25-Mar-08	1-Apr-08	8-Apr-08	15-Apr-08	22-Apr-08	29-Apr-08	6-May-08	13-May-08	20-May-08	27-May-08	3-Jun-08	10-Jun-08	17-Jun-08	24-Jun-08
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		475	503	510	495	495	490	480	495	490	500	495	490	495	495	500	495	500	480	470	510	510	515	500	500	495	500
pH	Effluent (units)	8.98	9.01	8.99	8.96	8.86	8.84	8.96	8.89	8.97	8.98	9.02	9.07	9.10	9.12	9.10	9.20	9.15	9.17	9.05	9.12	9.05	9.19	9.14	9.20	9.20	9.15
Cond.	(umhos/cm)	52	51	54	56	56	47	60	55	52	53	50	49	49	41	40	42	36	39	39	37	38	37	36	40	43	40
ORP	mV	90	90	70	70	70	75	65	55	70	75	80	120	80	120	90	135	140	125	125	135	135	150	120	130	110	95
Sulphate	(mg/L)	2	3	2	1	3	2	2	2	2	1	2	2	1	1	< 1	1	< 1	1	< 1	< 1	< 1	2	2	1	2	< 1
Acidity	(mg CaCO3/L)																										
Alkalinity	(mg CaCO3/L)	23	23	24	25	25	22	26	25	25	25	23	23	24	20	20	21	20	20	20	19	17	17	18	18	18	18
Total P	mg/L													< 0.02				0.07				0.02				0.02	
TDP	mgP/L													< 0.02				< 0.02				< 0.02				0.02	
Fluoride	mg/L	0.27				0.31				0.24				0.23				0.16				0.17				0.16	
Chloride	mg/L	< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2	
TDS	mg/L	33				46				43				61	CCME DL			36	CCME DL			11	CCME DL			24	CCME DL
Al	mg/L	0.018				0.016				0.053				0.009	0.007			0.015	0.012			< 0.005	0.005			0.025	0.021
Sb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002
As	mg/L	< 0.001				< 0.001				< 0.001				< 0.001	0.0006			< 0.001	0.0005			< 0.001	0.0004			< 0.001	0.0004
Ba	mg/L	0.11				0.12				0.12				0.13	0.122			0.097	0.096			0.083	0.085			0.1	0.097
Be	mg/L	< 0.001				< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002
Bi	mg/L	< 0.001				< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002
B	mg/L	0.15				0.18				0.2				0.12	0.14			0.1	0.11			0.09	0.07			0.09	0.08
Cd	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002	< 0.00004			< 0.0002	< 0.00004			< 0.0002	< 0.00004			< 0.0002	< 0.00004
Ca	mg/L	4.84				5.25				5.61				5.03	5.01			3.89	3.82			2.93	3.4			4.25	3.72
Cr	mg/L	< 0.001				< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	0.0003			< 0.001	0.0003			< 0.001	0.0003
Co	mg/L	< 0.001				< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002
Cu	mg/L	< 0.001				< 0.001				< 0.001				< 0.001	0.0005			< 0.001	0.0006			< 0.001	0.0008			< 0.001	0.0008
Fe	mg/L	< 0.05				< 0.05				0.08				< 0.05	< 0.01			< 0.05	0.02			< 0.05	< 0.01			< 0.05	0.03
Pb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002
Li	mg/L	< 0.001				< 0.001				0.005				< 0.001	0.0004			< 0.001	0.0003			< 0.001	0.0003			< 0.001	< 0.0002
Mg	mg/L	0.6				0.71				1.01				0.66	0.68			0.56	0.59			0.43	0.42			0.6	0.58
Mn	mg/L	< 0.001				< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	0.0002			< 0.001	0.0004
Hg	ug/L	< 0.02				< 0.02				< 0.02				< 0.02	< 0.02			< 0.02	< 0.02			< 0.02	< 0.02			< 0.02	< 0.02
Mo	mg/L	0.0009				0.001				0.0009				0.0007	0.0007			0.0005	0.0005			< 0.0005	0.0004			0.0005	0.0006
Ni	mg/L	< 0.001				0.001				0.002				< 0.001	0.0004			< 0.001	0.0008			< 0.001	0.0007			< 0.001	0.0009
P	mg/L	< 0.15				< 0.15				< 0.15				< 0.15	< 0.03			< 0.15	< 0.03			< 0.15	< 0.03			< 0.15	< 0.03
K	mg/L	5.6				6.7				6				5.5	5.39			4.4	4.31			3.7	3.79			4.4	4.47
Se	mg/L	< 0.001				< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002
Si	mg/L	5.7				6.2				6.6				5.5	5.55			4.5	4.37			3.2	3.23			4.2	4.2
Ag	mg/L	< 0.00025				< 0.00025				< 0.00025				< 0.00025	< 0.00005			< 0.00025	< 0.00005			< 0.00025	< 0.00005			< 0.00025	0.00009
Na	mg/L	0.99				1.19				1.16				1.01	0.97			0.76	0.75			0.8	0.7			0.85	0.95
Sr	mg/L	0.045				0.047				0.053				0.047	0.048			0.037	0.037			0.025	0.023			0.038	0.037
Te	mg/L	< 0.001				< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002
Tl	mg/L	< 0.0001				< 0.0001				< 0.0001				< 0.0001	< 0.00002			< 0.0001	< 0.00002			< 0.0001	< 0.00002			< 0.0001	< 0.00002
Th	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001
Sn	mg/L	< 0.001				< 0.001				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002
Ti	mg/L	< 0.001				< 0.001				0.001				< 0.001	0.0003			< 0.001	0.0004			< 0.001	0.0003			< 0.001	0.0004
U	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001
V	mg/L	0.002				0.002				< 0.001				< 0.001	0.0015			0.001	0.0012			< 0.001	0.0011			0.002	0.0013
Zn	mg/L	< 0.005				< 0.005				< 0.005				< 0.005	0.001			< 0.005	< 0.001			< 0.005	0.002			< 0.005	< 0.001
Zr	mg/L	< 0.01				< 0.01				< 0.01				< 0.01	< 0.002			< 0.01	< 0.002			< 0.01	< 0.002			< 0.01	< 0.002

Humidity Cell Sample Data

HC 26 - Processed Kimberlite Fines

Weeks	#	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165
Date		1-Jul-08	8-Jul-08	15-Jul-08	22-Jul-08	29-Jul-08	5-Aug-08	12-Aug-08	19-Aug-08	26-Aug-08	2-Sep-08	9-Sep-08	16-Sep-08	23-Sep-08	30-Sep-08	7-Oct-08	14-Oct-08	21-Oct-08	28-Oct-08	4-Nov-08	11-Nov-08	18-Nov-08	25-Nov-08	2-Dec-08
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		505	500	490	500	495	445	425	455	500	500	475	500	485	500	500	495	500	500	500	495	510	500	465
pH	Effluent (units)	9.26	9.21	9.27	8.96	8.96	7.54	7.62	7.64	8.05	7.69	7.70	7.99	7.79	7.66	7.86	8.00	7.59	7.96	7.77	7.72	7.64	7.86	7.52
Cond.	(umhos/cm)	44	41	46	48	45	27	29	26	30	30	24	31	26	21	22	42	38	32	35	40	30	34	34
ORP	mV	120	110	115	120	120	140	160	145	135	140	130	130	130	130	130	130	140	140	130	140	140	155	180
Sulphate	(mg/L)	1	1	< 1	2	2	< 1	1	< 1	< 1	< 1	< 1	1	2	< 1	1	1	< 1	1	< 1	< 1	2	1	< 1
Acidity	(mg CaCO3/L)						< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1	1	< 1	< 3
Alkalinity	(mg CaCO3/L)	20	19	21	20	20	15	16	15	16	16	15	16	14	15	14	22	21	18	18	18	15	17	15
Total P	mg/L			< 0.02	< 0.02	< 0.02	0.06	0.1				< 0.02				0.12				< 0.02				< 0.02
TDP	mgP/L			< 0.02	< 0.02	< 0.02	0.02	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02
Fluoride	mg/L			0.2	0.2	0.18	< 0.05	< 0.05				< 0.05				< 0.05				0.06				0.08
Chloride	mg/L			< 0.2	< 0.2	< 0.2	< 0.2	< 0.2				< 0.2				< 0.2				< 0.2				< 0.2
TDS	mg/L			33	33	19	< 10	22				29				27				34				31
Al	mg/L			0.012	0.011	0.012	0.018	0.027				0.027				0.015				0.037				0.029
Sb	mg/L			< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
As	mg/L			0.0005	0.0006	0.0006	< 0.0002	< 0.0002				< 0.0002				< 0.0002				0.0003				0.0003
Ba	mg/L			0.108	0.108	0.119	0.083	0.089				0.082				0.073				0.096				0.091
Be	mg/L			< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Bi	mg/L			< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
B	mg/L			0.12	0.08	0.1	0.02	0.02				0.05				0.04				0.06				0.06
Cd	mg/L			< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004				< 0.00004				< 0.00004				< 0.00004				< 0.00004
Ca	mg/L			4.11	4.04	4.44	3.16	3.01				2.83				2.46				3.3				3.14
Cr	mg/L			0.0002	< 0.0002	< 0.0002	0.0002	0.0003				0.0004				0.0003				0.0004				0.0003
Co	mg/L			< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Cu	mg/L			0.0005	0.0004	0.0008	0.0025	0.0017				0.0016				0.0038				0.0023				0.0005
Fe	mg/L			0.01	< 0.01	< 0.01	0.02	0.03				0.04				0.02				0.05				0.04
Pb	mg/L			< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Li	mg/L			< 0.0002	< 0.0002	0.0002	< 0.0002	0.0002				0.0004				0.0003				0.0002				0.0004
Mg	mg/L			0.47	0.49	0.55	0.63	0.77				0.86				0.54				0.86				0.82
Mn	mg/L			0.0003	0.0003	< 0.0002	0.0007	0.0009				0.0007				0.0006				0.0006				0.0006
Hg	ug/L			< 0.02	< 0.02	< 0.02	< 0.02	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02
Mo	mg/L			0.0006	0.0005	0.0006	< 0.0001	< 0.0001				< 0.0001				< 0.0001				0.0002				0.0003
Ni	mg/L			0.0008	0.0006	0.0006	0.0011	0.0019				0.0017				0.0009				0.002				0.0016
P	mg/L			< 0.03	< 0.03	< 0.03	< 0.03	0.04				< 0.03				< 0.03				< 0.03				< 0.03
K	mg/L			4.46	4.49	4.92	2.07	3.05				2.84				2.43				3.38				3.19
Se	mg/L			< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Si	mg/L			4.12	4.58	4.97	1.25	1.81				3.02				2.71				4.71				4.66
Ag	mg/L			< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005				< 0.00005				< 0.00005				< 0.00005				< 0.00005
Na	mg/L			0.75	0.76	0.88	0.35	0.62				0.85				0.58				0.94				0.95
Sr	mg/L			0.04	0.039	0.04	0.026	0.028				0.026				0.025				0.031				0.03
Te	mg/L			< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Tl	mg/L			< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002				< 0.00002				< 0.00002				< 0.00002				< 0.00002
Th	mg/L			< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
Sn	mg/L			< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Ti	mg/L			0.0004	0.0003	0.0003	0.0003	0.0003				0.0006				0.0005				0.0004				0.0008
U	mg/L			< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
V	mg/L			0.0013	0.0012	0.0014	< 0.0002	< 0.0002				0.0003				0.0003				0.0005				0.0004
Zn	mg/L			< 0.001	< 0.001	< 0.001	0.001	0.008				0.005				0.001				< 0.001				< 0.001
Zr	mg/L			< 0.002	< 0.002	< 0.002	< 0.002	< 0.002				< 0.002				< 0.002				< 0.002				< 0.002

Humidity Cell Sample Data

HC 27 - Processed Kimberlite Fines

S-Total:	0.06	%
S^{2-}:	0.05	%
NP:	100.50	t $CaCO_3$/1000 t
CaNP:	12.04545416	t $CaCO_3$/1000 t
AP:	1.5	t $CaCO_3$/1000 t

Weeks	#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Date		11-Oct-05	18-Oct-05	25-Oct-05	1-Nov-05	8-Nov-05	15-Nov-05	22-Nov-05	29-Nov-05	6-Dec-05	13-Dec-05	20-Dec-05	27-Dec-05	3-Jan-06	10-Jan-06	17-Jan-06	24-Jan-06	31-Jan-06	7-Feb-06
Leachate Volume Added (mL)		750	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		495	490	500	485	510	475	500	445	515	480	505	495	460	400	485	485	500	470
pH	Effluent (units)	8.37	8.85	8.79	8.85	9.01	9.15	9.01	9.19	9.28	8.99	8.76	9.00	8.61	8.79	9.15	8.99	9.04	9.03
Cond.	(umhos/cm)	177	223	124	199	224	146	157	146	127	131	84	92	75	93	94	88	109	71
ORP	mV	125	120	95	100	90	170	90	90	75	110	80	90	130	150	120	110	75	85
Sulphate	(mg/L)	9	5	3	9	17	14	4	14	11	13	5	5	5	5	6	5	6	4
Acidity	(mg CaCO3/L)																		
Alkalinity	(mg CaCO3/L)	42	34	28	36	46	39	22	46	43	45	36	39	39	37	39	38	40	33
Total P	mg/L																		
TDP	mgP/L																		
Fluoride	mg/L	0.12				0.43				0.43				0.30				0.30	
Chloride	mg/L	23.3				0.4				2.9				1.0				0.7	
TDS	mg/L	107				141				70				50				93	
Al	mg/L	0.006				< 0.005				0.028				0.005				0.03	
Sb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
As	mg/L	0.001				0.003				0.002				0.001				0.001	
Ba	mg/L	0.12				0.063				0.045				0.066				0.072	
Be	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Bi	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
B	mg/L	0.89				2.83				2.17				1.08				1.07	
Cd	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002	
Ca	mg/L	12.5				8.00				4.94				5.81				5.91	
Cr	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Co	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Cu	mg/L	0.002				0.001				< 0.001				< 0.001				< 0.001	
Fe	mg/L	< 0.05				< 0.05				< 0.05				< 0.05				< 0.05	
Pb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Li	mg/L	0.002				< 0.001				< 0.001				< 0.001				< 0.001	
Mg	mg/L	1.16				1.24				0.86				0.99				1.03	
Mn	mg/L	< 0.001				< 0.001				0.001				< 0.001				< 0.001	
Hg	ug/L	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02	
Mo	mg/L	< 0.0005				0.002				0.0014				0.0006				0.0007	
Ni	mg/L	0.001				0.002				0.003				0.001				0.002	
P	mg/L	< 0.15				< 0.15				< 0.15				< 0.15				< 0.15	
K	mg/L	9.2				13				8.9				7.4				7.4	
Se	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Si	mg/L	6.6				10.2				8.4				8.1				9.3	
Ag	mg/L	< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025	
Na	mg/L	14.9				25.1				13.8				7.17				7.03	
Sr	mg/L	0.180				0.120				0.073				0.087				0.088	
Te	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Tl	mg/L	< 0.0001				< 0.0001				< 0.0001				< 0.0001				0.0001	
Th	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
Sn	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Ti	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
U	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
V	mg/L	< 0.001				0.003				0.004				0.002				0.003	
Zn	mg/L	< 0.005				< 0.005				< 0.005				< 0.005				< 0.005	
Zr	mg/L	< 0.01				< 0.01				< 0.01				< 0.01				< 0.01	

Humidity Cell Sample Data

HC 27 - Processed Kimberlite Fines

Weeks	#	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
Date		14-Feb-06	21-Feb-06	28-Feb-06	7-Mar-06	14-Mar-06	21-Mar-06	28-Mar-06	4-Apr-06	11-Apr-06	18-Apr-06	25-Apr-06	2-May-06	9-May-06	16-May-06	23-May-06	30-May-06	6-Jun-06	13-Jun-06	20-Jun-06	27-Jun-06	4-Jul-06	11-Jul-06	18-Jul-06
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		495	500	510	480	485	490	510	485	505	500	495	500	490	505	475	490	505	505	490	430	505	470	485
pH	Effluent (units)	8.86	9.07	9.01	9.02	8.82	8.08	8.78	9.17	9.14	9.15	9.26	9.25	9.16	9.22	9.08	9.26	9.20	9.18	9.25	9.27	9.40	9.38	9.33
Cond.	(umhos/cm)	94	99	86	90	90	65	77	94	75	70	79	79	75	71	72	68	86	80	74	62	70	70	70
ORP	mV	150	150	90	120	110	140	130	100	125	120	100	80	105	150	105	100	120	110	110	110	90	80	90
Sulphate	(mg/L)	4	5	5	5	4	< 1	4	4	4	4	4	5	4	3	4	4	5	5	4	3	4	4	4
Acidity	(mg CaCO3/L)						1																	
Alkalinity	(mg CaCO3/L)	38	39	37	37	35	26	32	35	36	35	38	37	36	36	30	29	35	35	37	33	35	24	35
Total P	mg/L																							
TDP	mgP/L																							
Fluoride	mg/L			0.33				0.24				0.30				0.32				0.29				0.32
Chloride	mg/L			0.9				1.8				0.7				0.6				0.7				0.3
TDS	mg/L			65				74				81				64				64				48
Al	mg/L			0.044				0.035				0.019				< 0.005				0.006				< 0.005
Sb	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
As	mg/L			< 0.001				0.001				< 0.001				0.001				0.001				0.001
Ba	mg/L			0.074				0.074				0.100				0.091				0.110				0.1
Be	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Bi	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
B	mg/L			1.03				0.73				0.77				0.69				0.66				0.73
Cd	mg/L			< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Ca	mg/L			5.41				5.27				6.43				5.78				6.37				5.6
Cr	mg/L			< 0.001				< 0.001				0.001				< 0.001				< 0.001				< 0.001
Co	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Cu	mg/L			0.005				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Fe	mg/L			< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05
Pb	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Li	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Mg	mg/L			1.14				0.92				1.06				0.91				0.94				0.85
Mn	mg/L			0.001				< 0.001				< 0.001				0.002				< 0.001				< 0.001
Hg	ug/L			< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02
Mo	mg/L			0.0006				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
Ni	mg/L			0.002				0.001				< 0.001				< 0.001				< 0.001				0.001
P	mg/L			< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15
K	mg/L			6.8				5.9				7.0				6.3				6.8				7.5
Se	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Si	mg/L			8.6				7.0				8.6				7.1				8.7				9.2
Ag	mg/L			< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025
Na	mg/L			6.33				4.52				4.64				3.98				3.93				4.08
Sr	mg/L			0.082				0.077				0.100				0.080				0.086				0.085
Te	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Tl	mg/L			< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
Th	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
Sn	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Ti	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
U	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
V	mg/L			0.003				0.002				0.003				0.003				0.003				0.003
Zn	mg/L			< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005
Zr	mg/L			< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01

Humidity Cell Sample Data

HC 27 - Processed Kimberlite Fines

Weeks	#	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67
Date		25-Jul-06	1-Aug-06	8-Aug-06	15-Aug-06	22-Aug-06	29-Aug-06	5-Sep-06	12-Sep-06	19-Sep-06	26-Sep-06	3-Oct-06	10-Oct-06	17-Oct-06	24-Oct-06	31-Oct-06	7-Nov-06	14-Nov-06	21-Nov-06	28-Nov-06	5-Dec-06	12-Dec-06	19-Dec-06	26-Dec-06	2-Jan-07	9-Jan-07	16-Jan-07
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		505	475	465	505	485	505	505	505	475	505	500	500	490	495	505	505	475	500	495	475	500	490	470	500	485	500
pH	Effluent (units)	9.37	9.34	9.40	9.42	9.13	9.27	9.19	9.45	9.31	9.30	9.41	9.43	9.16	9.39	9.42	9.31	9.19	9.38	9.25	9.32	9.16	9.20	9.27	9.26	9.23	9.35
Cond.	(umhos/cm)	69	77	75	74	69	77	75	74	77	76	80	76	67	70	62	65	73	65	76	76	73	71	70	61	67	65
ORP	mV	90	100	75	90	55	155	150	100	90	100	100	130	100	100	90	90	90	90	110	90	110	90	100	100	110	95
Sulphate	(mg/L)	4	3	4	5	5	4	4	5	4	4	5	4	3	3	< 1	3	4	2	3	4	3	3	3	2	2	3
Acidity	(mg CaCO3/L)																										
Alkalinity	(mg CaCO3/L)	35	34	35	34	35	38	34	36	35	36	35	36	28	34	30	30	34	34	35	34	34	34	32	33	32	32
Total P	mg/L																										
TDP	mgP/L																										
Fluoride	mg/L				0.37				0.34				0.34				0.25				0.20				0.23		
Chloride	mg/L				0.7				0.5				0.5				0.6				0.3				0.2		
TDS	mg/L				58				54				109				89				66				15		
Al	mg/L				0.007				0.008				0.012				0.06				< 0.005				< 0.005		
Sb	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
As	mg/L				0.002				0.002				0.002				0.002				0.001				0.001		
Ba	mg/L				0.11				0.1				0.12				0.15				0.13				0.14		
Be	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Bi	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
B	mg/L				1.13				0.77				0.76				0.53				0.52				0.44		
Cd	mg/L				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002		
Ca	mg/L				6.24				6.02				6.34				6.77				6.21				5.59		
Cr	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Co	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Cu	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				0.001		
Fe	mg/L				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05		
Pb	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Li	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Mg	mg/L				0.7				0.73				0.9				0.82				0.74				0.75		
Mn	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Hg	ug/L				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02		
Mo	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005		
Ni	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
P	mg/L				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15		
K	mg/L				8.9				7.9				8.7				7.9				7.7				7		
Se	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Si	mg/L				10.4				10.8				11.3				7.2				8.5				8.2		
Ag	mg/L				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025		
Na	mg/L				4.38				3.69				3.82				2.74				2.9				2.73		
Sr	mg/L				0.089				0.089				0.096				0.096				0.089				0.084		
Te	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Tl	mg/L				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001		
Th	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005		
Sn	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Ti	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
U	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005		
V	mg/L				0.004				0.004				0.004				0.003				0.003				0.003		
Zn	mg/L				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005		
Zr	mg/L				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01		

Humidity Cell Sample Data

HC 27 - Processed Kimberlite Fines

Weeks	#	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
Date		23-Jan-07	30-Jan-07	6-Feb-07	13-Feb-07	20-Feb-07	27-Feb-07	6-Mar-07	13-Mar-07	20-Mar-07	27-Mar-07	3-Apr-07	10-Apr-07	17-Apr-07	24-Apr-07	1-May-07	8-May-07	########	########	########	5-Jun-07	12-Jun-07	19-Jun-07	26-Jun-07	3-Jul-07	10-Jul-07	17-Jul-07	24-Jul-07
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		465	505	505	505	500	505	480	495	505	500	505	480	505	500	500	505	495	505	480	500	505	470	500	495	480	495	470
pH	Effluent (units)	9.37	9.22	9.32	9.38	9.28	9.30	9.26	9.33	9.43	9.26	9.28	9.39	9.32	9.15	9.28	9.25	9.33	9.28	9.18	9.33	9.35	9.29	9.31	9.35	9.33	9.31	9.24
Cond.	(umhos/cm)	60	62	62	67	71	68	67	66	67	63	63	69	66	69	66	67	63	63	68	64	66	65	63	66	53	65	62
ORP	mV	95	95	95	95	95	105	95	95	90	85	50	90	95	95	100	110	115	110	90	100	95	95	100	100	90	95	90
Sulphate	(mg/L)	3	4	4	2	2	3	1	2	3	2	3	3	2	3	1	2	2	2	4	4	1	2	3	2	1	< 1	2
Acidity	(mg CaCO3/L)																											
Alkalinity	(mg CaCO3/L)	30	30	32	32	33	32	33	32	31	31	31	33	31	32	29	32	30	31	32	30	30	31	30	30	27	31	28
Total P	mg/L																											
TDP	mgP/L																											
Fluoride	mg/L		0.33				0.18				0.14				< 0.05				0.11				0.15				0.27	
Chloride	mg/L		< 0.2				0.2				< 0.2				< 0.2				0.25				0.24				< 0.2	
TDS	mg/L		47				49				70				40				43				52				61	
Al	mg/L		< 0.005				0.011				0.007				< 0.005				< 0.005				0.018				0.01	
Sb	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
As	mg/L		0.001				0.001				0.001				0.001				0.002				0.001				0.001	
Ba	mg/L		0.15				0.15				0.16				0.18				0.16				0.17				0.16	
Be	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Bi	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
B	mg/L		0.39				0.4				0.4				0.4				0.39				0.3				0.3	
Cd	mg/L		< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002	
Ca	mg/L		5.69				5.76				5.76				5.78				5.55				5.44				5	
Cr	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Co	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Cu	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Fe	mg/L		< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05	
Pb	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Li	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.005				< 0.005				< 0.005	
Mg	mg/L		0.89				0.83				0.76				0.77				0.68				0.67				0.68	
Mn	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Hg	ug/L		< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02	
Mo	mg/L		< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
Ni	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
P	mg/L		< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15	
K	mg/L		7.3				7.2				6.9				7.3				7.2				6.6				6.5	
Se	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Si	mg/L		9.7				9.1				8.8				8.8				7.8				7.5				7.5	
Ag	mg/L		< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025	
Na	mg/L		2.94				2.65				2.57				2.67				2.51				2.19				2.26	
Sr	mg/L		0.085				0.092				0.085				0.089				0.088				0.078				0.079	
Te	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Tl	mg/L		< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001	
Th	mg/L		< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
Sn	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Ti	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
U	mg/L		< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
V	mg/L		0.003				0.003				0.003				0.003				0.003				0.003				0.003	
Zn	mg/L		< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005	
Zr	mg/L		< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01	

Humidity Cell Sample Data

HC 27 - Processed Kimberlite Fines

Weeks	#	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121
Date		31-Jul-07	7-Aug-07	14-Aug-07	21-Aug-07	28-Aug-07	4-Sep-07	11-Sep-07	18-Sep-07	25-Sep-07	2-Oct-07	9-Oct-07	16-Oct-07	23-Oct-07	30-Oct-07	6-Nov-07	13-Nov-07	20-Nov-07	27-Nov-07	4-Dec-07	11-Dec-07	18-Dec-07	25-Dec-07	1-Jan-08	8-Jan-08	15-Jan-08	22-Jan-08	29-Jan-08
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		460	505	505	500	505	505	500	465	495	490	500	500	490	490	490	500	480	500	505	495	490	470	490	490	505	465	490
pH	Effluent (units)	9.31	9.31	9.28	9.25	9.36	9.31	9.30	9.20	9.31	9.28	9.29	9.29	9.23	9.23	9.07	9.18	8.90	8.99	9.03	9.17	9.13	9.02	8.90	9.08	9.24	9.18	9.13
Cond.	(umhos/cm)	70	62	61	67	65	64	64	53	58	62	62	66	77	70	72	74	62	74	54	60	61	61	66	65	65	67	65
ORP	mV	90	75	80	80	75	70	70	80	70	80	70	80	80	85	80	70	70	70	65	70	70	70	70	70	60	60	60
Sulphate	(mg/L)	2	2	2	1	4	3	3	3	2	2	2	2	3	2	2	2	2	2	1	3	2	3	1	3	2	2	1
Acidity	(mg CaCO3/L)																											
Alkalinity	(mg CaCO3/L)	31	28	30	31	31	29	31	25	29	29	30	31	33	32	32	35	29	24	27	30	28	29	29	29	30	31	30
Total P	mg/L																											
TDP	mgP/L																											
Fluoride	mg/L			0.28				0.19				0.22				0.26				0.21				0.21				0.2
Chloride	mg/L			< 0.2				< 0.2				< 0.2				< 0.2				0.23				< 0.2				< 0.2
TDS	mg/L			42				59				47				75				59				108				64
Al	mg/L			0.018				0.027				0.01				0.008				0.02				0.016				< 0.005
Sb	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
As	mg/L			< 0.001				0.002				0.001				0.001				0.001				0.001				0.001
Ba	mg/L			0.17				0.15				0.19				0.19				0.16				0.17				0.18
Be	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Bi	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
B	mg/L			0.28				0.31				0.27				0.33				0.28				0.27				0.26
Cd	mg/L			< 0.0002				0.0005				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Ca	mg/L			5.01				4.91				5.34				6.06				5.21				5.44				5.57
Cr	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Co	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Cu	mg/L			< 0.001				0.003				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Fe	mg/L			< 0.05				0.06				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05
Pb	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Li	mg/L			< 0.005				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Mg	mg/L			0.71				0.85				0.69				0.79				0.64				0.66				0.71
Mn	mg/L			< 0.001				0.002				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Hg	ug/L			< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02
Mo	mg/L			< 0.0005				0.0006				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
Ni	mg/L			< 0.001				0.002				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
P	mg/L			< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15
K	mg/L			6.1				6.5				6.5				7.4				6.8				6.2				7.1
Se	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Si	mg/L			8				8.2				8.5				10.6				8.3				8.6				9.3
Ag	mg/L			< 0.00025				0.0005				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025
Na	mg/L			2.12				2.46				2.22				2.66				1.89				2.21				2.58
Sr	mg/L			0.074				0.079				0.08				0.09				0.073				0.082				0.083
Te	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Tl	mg/L			< 0.0001				0.0004				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
Th	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
Sn	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Ti	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
U	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
V	mg/L			0.003				0.004				0.003				0.004				0.003				0.004				0.004
Zn	mg/L			< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				0.012				< 0.005
Zr	mg/L			< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01

Humidity Cell Sample Data

HC 27 - Processed Kimberlite Fines

Weeks	#	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148
Date		5-Feb-08	12-Feb-08	19-Feb-08	26-Feb-08	4-Mar-08	11-Mar-08	18-Mar-08	25-Mar-08	1-Apr-08	8-Apr-08	15-Apr-08	22-Apr-08	29-Apr-08	6-May-08	########	########	########	3-Jun-08	10-Jun-08	17-Jun-08	24-Jun-08	1-Jul-08	8-Jul-08	15-Jul-08	22-Jul-08	29-Jul-08	5-Aug-08
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		505	510	475	495	485	485	490	495	485	500	505	465	495	500	505	500	500	500	495	495	500	500	495	480	495	490	465
pH	Effluent (units)	9.12	9.21	9.20	9.25	9.21	9.18	9.14	9.17	9.02	8.88	9.01	9.05	9.18	9.12	8.12	9.01	9.23	9.16	9.25	9.19	9.18	9.13	9.23	9.22	9.00	8.99	7.95
Cond.	(umhos/cm)	66	68	67	66	66	63	65	67	52	61	53	49	51	51	49	57	58	58	61	62	55	57	58	58	54	58	50
ORP	mV	60	60	45	45	50	60	70	50	100	100	135	135	110	120	125	135	110	120	80	60	80	110	110	135	140	120	150
Sulphate	(mg/L)	3	2	2	3	1	2	3	3	2	1	< 1	1	1	< 1	< 1	3	4	2	1	< 1	1	1	2	< 1	2	< 1	< 1
Acidity	(mg CaCO3/L)																											< 1
Alkalinity	(mg CaCO3/L)	30	31	31	31	31	32	30	32	27	32	27	21	27	27	25	25	27	28	28	27	26	27	28	27	26	26	26
Total P	mg/L								0.03				0.07				0.12				0.05				0.02	< 0.02	< 0.02	0.02
TDP	mgP/L								< 0.02				< 0.02				< 0.02				0.02				< 0.02	< 0.02	< 0.02	0.02
Fluoride	mg/L				0.21				0.19				0.08				0.14				0.14				0.12	0.1	0.14	< 0.05
Chloride	mg/L				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2	< 0.2	< 0.2	< 0.2
TDS	mg/L				77				69	CCME DL			40	CCME DL			30	CCME DL			45	CCME DL			46	39	34	41
Al	mg/L				0.11				< 0.005	0.004			0.012	0.003			< 0.005	0.002			0.026	0.022			0.014	0.022	0.013	0.008
Sb	mg/L				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002	< 0.0002
As	mg/L				0.001				0.001	0.0013			< 0.001	0.0008			< 0.001	0.0007			< 0.001	0.0008			0.0009	0.0008	0.0009	0.0005
Ba	mg/L				0.19				0.22	0.205			0.18	0.157			0.17	0.161			0.21	0.201			0.191	0.188	0.205	0.227
Be	mg/L				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002	< 0.0002
Bi	mg/L				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002	< 0.0002
B	mg/L				0.37				0.25	0.22			0.17	0.16			0.17	0.14			0.15	0.13			0.18	0.09	0.15	0.09
Cd	mg/L				< 0.0002				< 0.0002	< 0.00004			< 0.0002	< 0.00004			< 0.0002	< 0.00004			< 0.0002	< 0.00004			< 0.00004	< 0.00004	< 0.00004	< 0.00004
Ca	mg/L				5.86				5.84	5.83			5.14	4.97			4.03	4.41			5.31	4.93			4.76	4.55	4.92	5.17
Cr	mg/L				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	0.0004			< 0.001	0.0004			0.0003	0.0003	0.0002	0.0002
Co	mg/L				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002	< 0.0002
Cu	mg/L				< 0.001				< 0.001	0.0008			< 0.001	0.0004			< 0.001	0.0005			< 0.001	0.0009			0.0005	0.0004	0.0008	0.0038
Fe	mg/L				0.2				< 0.05	< 0.01			< 0.05	< 0.01			< 0.05	0.02			< 0.05	0.04			0.02	0.03	0.02	0.01
Pb	mg/L				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002	< 0.0002
Li	mg/L				0.005				< 0.001	0.0002			< 0.001	< 0.0002			< 0.001	0.0003			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002	< 0.0002
Mg	mg/L				1.55				0.74	0.76			0.83	0.8			0.72	0.73			0.92	0.94			0.7	0.78	0.74	0.96
Mn	mg/L				0.003				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	0.0004			< 0.001	0.0006			0.0005	0.0008	0.0004	0.0004
Hg	ug/L				< 0.02				< 0.02	< 0.02			< 0.02	< 0.02			< 0.02	< 0.02			< 0.02	< 0.02			< 0.02	< 0.02	< 0.02	< 0.02
Mo	mg/L				< 0.0005				< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0001	< 0.0001	< 0.0001	< 0.0001
Ni	mg/L				0.006				< 0.001	0.0002			< 0.001	0.0003			< 0.001	0.0015			< 0.001	0.0014			0.0012	0.0015	0.0008	0.0007
P	mg/L				< 0.15				< 0.15	< 0.03			< 0.15	< 0.03			< 0.15	0.12			< 0.15	< 0.03			< 0.03	< 0.03	< 0.03	< 0.03
K	mg/L				8				7.6	7.48			5.6	4.66			4.9	5.05			5.2	5.17			5.25	4.75	5.72	4.77
Se	mg/L				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002	< 0.0002
Si	mg/L				10.7				10.3	10.7			7.2	6.6			6.9	6.79			7.6	7.51			6.75	6.39	7.67	4.9
Ag	mg/L				< 0.00025				< 0.00025	< 0.00005			< 0.00025	< 0.00005			< 0.00025	< 0.00005			< 0.00025	< 0.00005			< 0.00005	< 0.00005	< 0.00005	< 0.00005
Na	mg/L				2.94				2.78	2.59			1.96	1.71			2.17	1.98			2.02	2.01			1.78	1.59	2.03	1.65
Sr	mg/L				0.089				0.097	0.095			0.077	0.068			0.06	0.069			0.083	0.08			0.083	0.075	0.078	0.08
Te	mg/L				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002	< 0.0002
Tl	mg/L				< 0.0001				< 0.0001	< 0.00002			< 0.0001	< 0.00002			< 0.0001	< 0.00002			< 0.0001	< 0.00002			< 0.00002	< 0.00002	< 0.00002	< 0.00002
Th	mg/L				< 0.0005				< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0001	< 0.0001	< 0.0001	< 0.0001
Sn	mg/L				< 0.001				< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.001	< 0.0002			< 0.0002	< 0.0002	< 0.0002	< 0.0002
Ti	mg/L				0.005				< 0.001	0.0004			< 0.001	0.0003			< 0.001	0.0005			0.001	0.0006			0.0007	0.001	0.0005	0.0003
U	mg/L				< 0.0005				< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0005	< 0.0001			< 0.0001	< 0.0001	< 0.0001	< 0.0001
V	mg/L				0.002				0.003	0.0032			0.003	0.0023			0.002	0.0024			0.003	0.0028			0.0028	0.0021	0.003	0.0008
Zn	mg/L				< 0.005				< 0.005	0.001			< 0.005	< 0.001			< 0.005	< 0.001			< 0.005	< 0.001			< 0.001	< 0.001	< 0.001	< 0.001
Zr	mg/L				< 0.01				< 0.01	< 0.002			< 0.01	< 0.002			< 0.01	< 0.002			< 0.01	< 0.002			< 0.002	< 0.002	< 0.002	< 0.002

Humidity Cell Sample Data

HC 27 - Processed Kimberlite Fines

Weeks	#	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165
Date		12-Aug-08	19-Aug-08	26-Aug-08	2-Sep-08	9-Sep-08	16-Sep-08	23-Sep-08	30-Sep-08	7-Oct-08	14-Oct-08	21-Oct-08	28-Oct-08	4-Nov-08	11-Nov-08	18-Nov-08	25-Nov-08	2-Dec-08
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		480	500	495	500	490	500	475	500	500	495	500	500	495	495	470	500	470
pH	Effluent (units)	7.88	8.95	9.04	8.85	8.86	9.07	9.04	9.01	9.06	9.10	8.55	8.97	8.73	8.64	7.95	8.44	7.74
Cond.	(umhos/cm)	52	55	48	47	40	53	47	51	45	62	68	58	50	61	53	50	51
ORP	mV	150	130	150	120	130	110	120	120	125	125	135	130	145	155	130	155	180
Sulphate	(mg/L)	1	1	1	< 1	2	3	3	1	1	3	< 1	1	2	< 1	1	< 1	< 1
Acidity	(mg CaCO3/L)	< 1																1
Alkalinity	(mg CaCO3/L)	26	27	24	24	25	26	24	28	26	28	35	28	24	28	27	24	25
Total P	mg/L	0.06				< 0.02				0.02				< 0.02				0.02
TDP	mgP/L	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02
Fluoride	mg/L	0.17				< 0.05				0.1				0.07				0.1
Chloride	mg/L	< 0.2				< 0.2				< 0.2				< 0.2				< 0.2
TDS	mg/L	40				43				50				31				42
Al	mg/L	0.021				0.014				0.015				0.02				0.033
Sb	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
As	mg/L	0.0005				0.0009				0.0005				0.0007				0.0006
Ba	mg/L	0.204				0.177				0.192				0.186				0.209
Be	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Bi	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
B	mg/L	0.11				0.19				0.13				0.11				0.11
Cd	mg/L	< 0.00004				< 0.00004				< 0.00004				< 0.00004				< 0.00004
Ca	mg/L	4.88				4.41				4.53				4.43				4.77
Cr	mg/L	0.0002				0.0003				0.0003				0.0003				0.0005
Co	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Cu	mg/L	0.0004				0.001				0.0015				0.0048				0.0005
Fe	mg/L	0.02				0.03				0.02				0.03				0.06
Pb	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Li	mg/L	< 0.0002				0.0003				0.0003				< 0.0002				0.0003
Mg	mg/L	1.09				0.89				0.75				0.91				1.22
Mn	mg/L	0.0006				0.0037				0.0005				0.0006				0.0011
Hg	ug/L	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02
Mo	mg/L	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
Ni	mg/L	0.0013				0.0013				0.0011				0.0012				0.0019
P	mg/L	< 0.03				< 0.03				< 0.03				< 0.03				< 0.03
K	mg/L	5.06				4.86				4.68				4.35				3.87
Se	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Si	mg/L	6.6				7.18				6.69				7.39				7.25
Ag	mg/L	< 0.00005				< 0.00005				< 0.00005				< 0.00005				< 0.00005
Na	mg/L	2.02				2.54				1.87				2.06				2.12
Sr	mg/L	0.076				0.067				0.078				0.07				0.076
Te	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Tl	mg/L	< 0.00002				< 0.00002				< 0.00002				< 0.00002				< 0.00002
Th	mg/L	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
Sn	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Ti	mg/L	0.0007				0.0006				0.0008				0.0005				0.0013
U	mg/L	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
V	mg/L	0.0013				0.0023				0.0024				0.0019				0.0012
Zn	mg/L	< 0.001				0.006				< 0.001				< 0.001				< 0.001
Zr	mg/L	< 0.002				< 0.002				< 0.002				< 0.002				< 0.002

Humidity Cell Sample Data

HC 28 - Pre-Leached Granite
04-ARD-142-007
04-ARD-142-008

S-Total:	0.02	%
S^{2-}:	0.02	%
NP:	0.00	$CaCO_3$/1000 t
CaNP:	0.23	$CaCO_3$/1000 t
AP:	0.63	$CaCO_3$/1000 t

Weeks	#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Date		15-Nov-05	22-Nov-05	29-Nov-05	6-Dec-05	13-Dec-05	20-Dec-05	27-Dec-05	3-Jan-06	10-Jan-06	17-Jan-06	24-Jan-06	31-Jan-06	7-Feb-06	14-Feb-06	21-Feb-06	28-Feb-06	7-Mar-06
Leachate Volume Added (mL)		675	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
Leachate Volume Recovered (mL)		525	435	450	445	460	450	450	445	440	445	440	445	440	450	450	440	450
pH	Effluent (units)	2.87	3.12	3.53	3.91	4.16	4.10	4.13	4.19	4.54	4.79	4.40	4.91	5.28	6.03	5.11	5.90	5.36
Cond.	(umhos/cm)	4700	1751	494	119	33	18	16	10	13	13	13	13	9	11	10	8	8
ORP	mV	510	490	380	400	345	190	260	290	285	240	160	155	210	255	220	170	140
Sulphate	(mg/L)	1	2	1	1	1	< 1	< 1	< 1	1	1	< 1	2	1	1	1	1	1
Acidity	(mg CaCO3/L)	713	263	68	18	5	6	8	9	9	6	5	5	5	3	5	4	6
Alkalinity	(mg CaCO3/L)									< 1	< 1		< 1	< 1	< 1	< 1	< 1	1
Total P	mg/L																	
TDP	mgP/L																	
Fluoride	mg/L	25				0.7				0.6				0.7				0.6
Chloride	mg/L	1430				6.0				1.0				0.7				0.8
TDS	mg/L	2376				18				44				43				14
Al	mg/L	73.60				0.42				0.14				0.15				0.09
Sb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
As	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Ba	mg/L	0.69				0.004				0.002				0.002				< 0.001
Be	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Bi	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
B	mg/L	< 0.05				< 0.05				< 0.05				< 0.05				< 0.05
Cd	mg/L	0.0003				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Ca	mg/L	365				1.18				0.35				0.53				0.38
Cr	mg/L	0.051				< 0.001				< 0.001				< 0.001				< 0.001
Co	mg/L	0.035				< 0.001				< 0.001				< 0.001				< 0.001
Cu	mg/L	0.043				< 0.001				< 0.001				< 0.001				0.001
Fe	mg/L	87.8				0.28				< 0.05				0.11				< 0.05
Pb	mg/L	0.038				< 0.001				< 0.001				< 0.001				< 0.001
Li	mg/L	0.46				0.002				< 0.001				< 0.001				< 0.001
Mg	mg/L	67				0.22				0.10				0.27				0.13
Mn	mg/L	2.54				0.011				0.003				0.004				0.004
Hg	ug/L	0.03				< 0.02				< 0.02				< 0.02				< 0.02
Mo	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
Ni	mg/L	0.068				< 0.001				< 0.001				0.001				< 0.001
P	mg/L	1.4				< 0.15				< 0.15				< 0.15				< 0.15
K	mg/L	49.5				0.6				0.2				0.2				0.1
Se	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				0.002
Si	mg/L	0.9				9.4				7.0				7.6				7.5
Ag	mg/L	0.0004				< 0.00025				< 0.00025				< 0.00025				< 0.00025
Na	mg/L	1.58				< 0.05				0.36				0.11				0.29
Sr	mg/L	0.11				0.003				0.001				0.004				0.002
Te	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Tl	mg/L	0.0009				< 0.0001				< 0.0001				< 0.0001				< 0.0001
Th	mg/L	0.015				< 0.0005				< 0.0005				< 0.0005				< 0.0005
Sn	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Ti	mg/L	0.84				0.009				0.003				0.003				0.002
U	mg/L	0.0028				< 0.0005				< 0.0005				< 0.0005				< 0.0005
V	mg/L	0.04				< 0.001				< 0.001				< 0.001				< 0.001
Zn	mg/L	0.67				< 0.005				< 0.005				< 0.005				< 0.005
Zr	mg/L	< 0.01				< 0.01				< 0.01				< 0.01				< 0.01

Humidity Cell Sample Data

HC 28 - Pre-Leached Granite
04-ARD-142-007
04-ARD-142-008

Weeks	#	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Date		14-Mar-06	21-Mar-06	28-Mar-06	4-Apr-06	11-Apr-06	18-Apr-06	25-Apr-06	2-May-06	9-May-06	16-May-06	23-May-06	30-May-06	6-Jun-06	13-Jun-06	20-Jun-06	27-Jun-06	4-Jul-06	11-Jul-06	18-Jul-06	25-Jul-06	1-Aug-06
Leachate Volume Added (mL)		450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
Leachate Volume Recovered (mL)		440	465	435	450	445	430	460	445	450	445	460	460	430	450	455	450	455	460	440	440	455
pH	Effluent (units)	4.84	4.69	5.73	5.97	5.20	5.79	6.35	5.12	5.23	5.24	5.25	5.14	5.37	5.40	5.25	5.25	5.47	5.37	5.40	5.24	5.33
Cond.	(umhos/cm)	9	10	9	9	7	6	6	6	6	5	4	7	6	6	5	5	4	5	4	4	4
ORP	mV	200	130	100	95	125	100	100	75	130	150	95	130	120	120	120	130	120	135	150	145	145
Sulphate	(mg/L)	< 1	< 1	1	< 1	< 1	< 1	1	1	< 1	< 1	< 1	< 1	< 1	1	< 1	< 1	1	1	1	< 1	< 1
Acidity	(mg CaCO3/L)	5	6	2	2	3	3	3	3	3	2	3	2	3	3	3	3	3	3	2	2	2
Alkalinity	(mg CaCO3/L)	1	< 1	< 1	< 1	1	1	1	1	< 1	< 1	< 1	< 1	1	< 1	2	2	1	2	2	2	2
Total P	mg/L																					
TDP	mgP/L																					
Fluoride	mg/L				0.53				0.48				0.44				0.36				0.37	
Chloride	mg/L				0.6				0.6				0.5				0.5				0.2	
TDS	mg/L				<25*				27				71				28				16	
Al	mg/L				0.06				0.02				0.03				0.05				0.02	
Sb	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
As	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Ba	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Be	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Bi	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
B	mg/L				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05	
Cd	mg/L				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002	
Ca	mg/L				0.32				0.20				0.19				0.28				0.22	
Cr	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Co	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Cu	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Fe	mg/L				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05	
Pb	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Li	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Mg	mg/L				0.10				0.08				0.07				0.09				0.07	
Mn	mg/L				0.004				0.002				0.004				0.003				0.002	
Hg	ug/L				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02	
Mo	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
Ni	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
P	mg/L				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15	
K	mg/L				0.2				0.1				< 0.1				0.1				< 0.1	
Se	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Si	mg/L				6.3				6.0				4.6				5.9				5.3	
Ag	mg/L				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025	
Na	mg/L				0.09				< 0.05				< 0.05				< 0.05				< 0.05	
Sr	mg/L				0.001				< 0.001				0.001				0.001				< 0.001	
Te	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Tl	mg/L				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001	
Th	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
Sn	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Ti	mg/L				0.001				0.001				< 0.001				< 0.001				< 0.001	
U	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
V	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Zn	mg/L				0.017				< 0.005				< 0.005				< 0.005				< 0.005	
Zr	mg/L				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01	

Humidity Cell Sample Data

HC 28 - Pre-Leached Granite
04-ARD-142-007
04-ARD-142-008

Weeks	#	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
Date		8-Aug-06	15-Aug-06	22-Aug-06	29-Aug-06	5-Sep-06	12-Sep-06	19-Sep-06	26-Sep-06	3-Oct-06	10-Oct-06	17-Oct-06	24-Oct-06	31-Oct-06	7-Nov-06	14-Nov-06	21-Nov-06	28-Nov-06	5-Dec-06	12-Dec-06	19-Dec-06	26-Dec-06	2-Jan-07	9-Jan-07	16-Jan-07	23-Jan-07
Leachate Volume Added (mL)		450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
Leachate Volume Recovered (mL)		455	435	440	450	450	405	450	440	425	400	420	425	440	410	410	425	440	410	405	410	430	400	430	410	420
pH	Effluent (units)	5.93	5.18	5.08	5.30	5.01	5.20	5.30	5.30	5.29	5.32	5.66	5.33	5.29	5.34	5.36	5.33	5.26	5.25	5.24	5.31	5.23	5.29	5.25	5.55	5.34
Cond.	(umhos/cm)	4	4	4	4	4	4	5	4	4	4	4	5	4	4	4	4	4	4	4	3	3	5	3	3	5
ORP	mV	160	120	125	160	190	190	165	145	145	145	100	130	120	120	115	115	125	135	105	110	115	105	100	100	100
Sulphate	(mg/L)	1	< 1	< 1	1	1	1	< 1	1	1	1	1	2	1	< 1	< 1	< 1	< 1	< 1	1	1	< 1	1	< 1	2	2
Acidity	(mg CaCO3/L)	2	3	3	3	2	2	2	2	2	2	2	3	2	1	2	2	2	2	2	2	2	2	2	2	2
Alkalinity	(mg CaCO3/L)	2	2	2	2	1	1	3	2	2	2	2	2	2	2	2	1	2	2	2	2	1	2	2	2	3
Total P	mg/L																									
TDP	mgP/L																									
Fluoride	mg/L			0.32				0.29				0.23				0.28				0.2				0.14		
Chloride	mg/L			0.2				0.6				0.5				0.4				1.4				0.21		
TDS	mg/L			19				23				26				14				56				17		
Al	mg/L			0.009				0.006				0.091				0.014				0.024				0.008		
Sb	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001		
As	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001		
Ba	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001		
Be	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001		
Bi	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001		
B	mg/L			<0.05				<0.05				<0.05				< 0.05				< 0.05				< 0.05		
Cd	mg/L			<0.0002				<0.0002				<0.0002				< 0.0002				< 0.0002				< 0.0002		
Ca	mg/L			0.25				0.21				0.17				0.25				0.19				0.19		
Cr	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001		
Co	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001		
Cu	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001		
Fe	mg/L			<0.05				<0.05				<0.05				< 0.05				< 0.05				< 0.05		
Pb	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001		
Li	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001		
Mg	mg/L			0.08				0.05				0.08				0.11				0.06				0.06		
Mn	mg/L			0.002				0.002				0.003				0.002				0.002				0.002		
Hg	ug/L			<0.02				<0.02				<0.02				< 0.02				< 0.02				< 0.02		
Mo	mg/L			<0.0005				<0.0005				<0.0005				< 0.0005				< 0.0005				< 0.0005		
Ni	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001		
P	mg/L			<0.15				<0.15				<0.15				< 0.15				< 0.15				< 0.15		
K	mg/L			<0.1				<0.1				<0.1				< 0.1				0.1				< 0.1		
Se	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001		
Si	mg/L			4.9				4.8				5.7				4.6				4.4				4.3		
Ag	mg/L			<0.00025				<0.00025				<0.00025				< 0.00025				< 0.00025				< 0.00025		
Na	mg/L			<0.05				<0.05				<0.05				0.09				< 0.05				0.07		
Sr	mg/L			<0.001				0.004				<0.001				< 0.001				0.002				< 0.001		
Te	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001		
Tl	mg/L			<0.0001				<0.0001				<0.0001				< 0.0001				< 0.0001				< 0.0001		
Th	mg/L			<0.0005				<0.0005				<0.0005				< 0.0005				< 0.0005				< 0.0005		
Sn	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001		
Ti	mg/L			<0.001				<0.001				0.001				< 0.001				< 0.001				< 0.001		
U	mg/L			<0.0005				<0.0005				<0.0005				< 0.0005				< 0.0005				< 0.0005		
V	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001		
Zn	mg/L			0.015				<0.005				<0.005				< 0.005				< 0.005				< 0.005		
Zr	mg/L			<0.01				<0.01				<0.01				< 0.01				< 0.01				< 0.01		

Humidity Cell Sample Data

HC 28 - Pre-Leached Granite
04-ARD-142-007
04-ARD-142-008

Weeks	#	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89
Date		30-Jan-07	6-Feb-07	13-Feb-07	20-Feb-07	27-Feb-07	6-Mar-07	13-Mar-07	20-Mar-07	27-Mar-07	3-Apr-07	10-Apr-07	17-Apr-07	24-Apr-07	1-May-07	8-May-07	15-May-07	22-May-07	29-May-07	5-Jun-07	12-Jun-07	19-Jun-07	26-Jun-07	3-Jul-07	10-Jul-07	17-Jul-07	24-Jul-07
Leachate Volume Added (mL)		450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
Leachate Volume Recovered (mL)		410	415	410	425	425	420	430	420	445	440	410	410	420	420	440	405	435	410	410	400	390	410	425	440	430	420
pH	Effluent (units)	5.26	5.32	5.40	5.38	5.65	5.43	5.35	5.46	5.44	5.39	5.44	5.41	5.30	5.37	5.47	5.39	5.29	5.61	5.39	5.38	5.45	5.46	5.41	5.67	5.37	5.38
Cond.	(umhos/cm)	3	5	3	4	4	3	3	3	3	3	4	3	3	3	3	3	3	3	3	4	3	3	3	3	3	3
ORP	mV	110	110	110	110	100	100	100	100	100	95	115	105	100	100	105	105	105	105	100	100	100	105	100	100	100	100
Sulphate	(mg/L)	1	1	1	1	1	< 1	3	1	2	1	< 1	1	< 1	2	1	1	1	3	1	< 1	< 1	2	< 1	1	< 1	1
Acidity	(mg CaCO3/L)	2	2	2	2	1	1	2	1	2	2	2	2	2	3	2	2	2	1	2	2	2	1	2	1	1	1
Alkalinity	(mg CaCO3/L)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	3	1
Total P	mg/L																										
TDP	mgP/L																										
Fluoride	mg/L		0.25				0.17				0.18				0.17				0.13				0.13				0.12
Chloride	mg/L		< 0.2				< 0.2				0.23				< 0.2				0.22				< 0.2				< 0.2
TDS	mg/L		68				< 10				25				26				11				17				< 10
Al	mg/L		0.004				< 0.005				< 0.005				< 0.005				0.003				0.001				0.015
Sb	mg/L		< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002				< 0.001
As	mg/L		< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002				< 0.001
Ba	mg/L		< 0.0002				< 0.001				< 0.001				< 0.001				0.0008				0.0002				< 0.001
Be	mg/L		< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002				< 0.001
Bi	mg/L		< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002				< 0.001
B	mg/L		< 0.01				< 0.05				< 0.05				< 0.05				< 0.01				< 0.01				< 0.05
Cd	mg/L		< 0.00004				< 0.0002				< 0.0002				< 0.0002				< 0.00004				< 0.00004				< 0.0002
Ca	mg/L		0.14				0.15				0.1				0.12				0.11				0.12				0.15
Cr	mg/L		< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002				< 0.001
Co	mg/L		< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002				< 0.001
Cu	mg/L		0.0006				< 0.001				< 0.001				< 0.001				0.0019				0.0048				0.003
Fe	mg/L		< 0.01				< 0.05				< 0.05				< 0.05				< 0.01				< 0.01				< 0.05
Pb	mg/L		< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002				< 0.001
Li	mg/L		0.0002				< 0.001				< 0.001				< 0.005				< 0.001				< 0.001				< 0.005
Mg	mg/L		0.05				< 0.05				< 0.05				< 0.05				0.04				0.03				< 0.05
Mn	mg/L		0.0016				0.002				0.001				0.001				0.0012				0.0014				0.007
Hg	ug/L		< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02
Mo	mg/L		< 0.0001				< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0001				< 0.0005
Ni	mg/L		< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002				< 0.001
P	mg/L		0.07				< 0.15				< 0.15				< 0.15				0.07				0.08				< 0.15
K	mg/L		0.05				< 0.1				< 0.1				< 0.1				0.06				0.05				< 0.1
Se	mg/L		< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002				< 0.001
Si	mg/L		3.99				4.1				3.9				3.7				2.82				3.8				4.5
Ag	mg/L		< 0.00005				< 0.00025				< 0.00025				< 0.00025				< 0.00005				< 0.00005				< 0.00025
Na	mg/L		0.01				< 0.05				< 0.05				< 0.05				0.02				< 0.01				< 0.05
Sr	mg/L		0.0005				< 0.001				< 0.001				< 0.001				0.0005				0.0013				< 0.001
Te	mg/L		< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002				< 0.001
Tl	mg/L		< 0.00002				< 0.0001				< 0.0001				< 0.0001				< 0.00002				< 0.00002				< 0.0001
Th	mg/L		< 0.0001				< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0001				< 0.0005
Sn	mg/L		< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002				< 0.001
Ti	mg/L		0.0005				< 0.001				< 0.001				< 0.001				< 0.0002				0.0004				< 0.001
U	mg/L		< 0.0001				< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0001				< 0.0005
V	mg/L		< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002				< 0.001
Zn	mg/L		< 0.001				< 0.005				< 0.005				< 0.005				0.002				0.001				< 0.005
Zr	mg/L		< 0.002				< 0.01				< 0.01				< 0.01				< 0.002				< 0.002				< 0.01

Humidity Cell Sample Data

HC 28 - Pre-Leached Granite
04-ARD-142-007
04-ARD-142-008

Weeks	#	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115
Date		31-Jul-07	7-Aug-07	14-Aug-07	21-Aug-07	28-Aug-07	4-Sep-07	11-Sep-07	18-Sep-07	25-Sep-07	2-Oct-07	9-Oct-07	16-Oct-07	23-Oct-07	30-Oct-07	6-Nov-07	13-Nov-07	20-Nov-07	27-Nov-07	4-Dec-07	11-Dec-07	18-Dec-07	25-Dec-07	1-Jan-08	8-Jan-08	15-Jan-08	22-Jan-08
Leachate Volume Added (mL)		450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
Leachate Volume Recovered (mL)		410	435	425	430	425	420	435	430	450	435	435	445	410	430	435	430	425	440	435	425	425	415	415	450	430	415
pH	Effluent (units)	5.43	5.40	5.37	5.50	5.36	5.49	5.41	5.46	5.41	5.49	5.42	5.43	5.47	5.74	5.49	5.50	5.52	5.38	5.36	5.47	5.49	5.62	5.77	5.80	5.65	5.63
Cond.	(umhos/cm)	3	3	3	3	3	3	3	3	3	3	3	3	2	2	3	2	2	3	3	3	3	3	3	3	3	3
ORP	mV	190	190	165	155	150	170	155	130	135	120	125	110	110	120	125	120	130	110	130	120	125	120	110	110	115	90
Sulphate	(mg/L)	1	< 1	< 1	< 1	1	1	< 1	< 1	1	1	1	1	1	1	< 1	< 1	< 1	1	1	1	1	< 1	1	2	2	< 1
Acidity	(mg CaCO3/L)	2	1	2	< 1	2	2	2	1	1	2	1	1	1	2	2	2	2	2	2	1	2	2	2	2	2	2
Alkalinity	(mg CaCO3/L)	2	2	1	1	1	2	2	2	2	2	2	1	2	2	2	2	2	1	2	2	2	2	2	2	2	2
Total P	mg/L																										
TDP	mgP/L																										
Fluoride	mg/L				0.12				0.14				0.15				0.11				0.1				0.12		
Chloride	mg/L				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2		
TDS	mg/L				< 10				16				27				< 10				43				< 10		
Al	mg/L				< 0.005				< 0.005				0.011				0.011				0.006				< 0.005		
Sb	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
As	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Ba	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Be	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Bi	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
B	mg/L				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05		
Cd	mg/L				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002		
Ca	mg/L				0.1				0.09				0.13				0.13				0.31				0.15		
Cr	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Co	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Cu	mg/L				< 0.001				< 0.001				0.001				0.002				0.003				0.001		
Fe	mg/L				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05		
Pb	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Li	mg/L				< 0.005				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Mg	mg/L				< 0.05				0.05				< 0.05				< 0.05				0.05				< 0.05		
Mn	mg/L				0.001				0.004				0.001				0.001				0.002				< 0.001		
Hg	ug/L				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02		
Mo	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005		
Ni	mg/L				< 0.001				0.001				< 0.001				< 0.001				< 0.001				< 0.001		
P	mg/L				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15		
K	mg/L				< 0.1				< 0.1				< 0.1				< 0.1				< 0.1				0.5		
Se	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Si	mg/L				4				4.2				4.4				4.4				5.1				6		
Ag	mg/L				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025		
Na	mg/L				< 0.05				0.14				< 0.05				< 0.05				< 0.05				0.13		
Sr	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				0.011				< 0.001		
Te	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Tl	mg/L				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001		
Th	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005		
Sn	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Ti	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
U	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005		
V	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Zn	mg/L				< 0.005				< 0.005				< 0.005				< 0.005				0.061				0.005		
Zr	mg/L				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01		

Humidity Cell Sample Data

HC 28 - Pre-Leached Granite
04-ARD-142-007
04-ARD-142-008

Weeks	#	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141
Date		29-Jan-08	5-Feb-08	12-Feb-08	19-Feb-08	26-Feb-08	4-Mar-08	11-Mar-08	18-Mar-08	25-Mar-08	1-Apr-08	8-Apr-08	15-Apr-08	22-Apr-08	29-Apr-08	6-May-08	13-May-08	20-May-08	27-May-08	3-Jun-08	10-Jun-08	17-Jun-08	24-Jun-08	1-Jul-08	8-Jul-08	15-Jul-08	22-Jul-08
Leachate Volume Added (mL)		450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
Leachate Volume Recovered (mL)		405	385	400	420	420	420	425	445	440	430	420	420	425	440	430	450	450	455	445	445	470	460	450	445	430	445
pH	Effluent (units)	5.71	5.58	5.63	5.61	5.64	5.76	5.75	5.90	5.73	5.72	5.78	5.96	5.96	6.15	5.92	5.81	5.84	5.82	5.82	5.79	5.79	5.81	5.87	5.98	5.77	5.88
Cond.	(umhos/cm)	3	3	3	3	3	3	3	2	2	3	3	3	2	3	2	2	3	3	3	3	3	3	2	2	2	2
ORP	mV	105	110	110	100	110	110	115	110	120	110	115	110	100	115	110	90	98	95	100	95	115	100	90	110	110	110
Sulphate	(mg/L)	1	1	1	1	1	< 1	1	1	1	1	2	< 1	< 1	1	< 1	< 1	< 1	1	1	< 1	< 1	1	1	< 1	< 1	< 1
Acidity	(mg CaCO3/L)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	1	1	1	1	1	2
Alkalinity	(mg CaCO3/L)	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	3	2	2	2	2	2	2	3	3	3
Total P	mg/L																										
TDP	mgP/L																										
Fluoride	mg/L		0.16				0.12				0.1				0.1				0.08				< 0.05				< 0.05
Chloride	mg/L		< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2
TDS	mg/L		10				19				20				< 10				< 10				14				< 10
Al	mg/L		< 0.005				0.008				< 0.005				0.003				0.015				< 0.001				< 0.001
Sb	mg/L		< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002				< 0.0002
As	mg/L		< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002				< 0.0002
Ba	mg/L		< 0.001				< 0.001				< 0.001				0.0004				< 0.001				0.0003				0.0002
Be	mg/L		< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002				< 0.0002
Bi	mg/L		< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002				< 0.0002
B	mg/L		< 0.05				< 0.05				< 0.05				< 0.01				< 0.05				< 0.01				< 0.01
Cd	mg/L		< 0.0002				< 0.0002				< 0.0002				< 0.00004				< 0.0002				< 0.00004				< 0.00004
Ca	mg/L		< 0.05				0.1				0.08				0.07				0.5				0.07				0.07
Cr	mg/L		< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002				< 0.0002
Co	mg/L		< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002				< 0.0002
Cu	mg/L		< 0.001				0.001				0.001				0.0013				0.01				0.0008				0.0008
Fe	mg/L		< 0.05				< 0.05				< 0.05				< 0.01				< 0.05				< 0.01				< 0.01
Pb	mg/L		< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002				< 0.0002
Li	mg/L		< 0.001				< 0.001				0.002				< 0.0002				< 0.001				0.0002				< 0.0002
Mg	mg/L		< 0.05				< 0.05				< 0.05				0.02				< 0.05				0.03				0.03
Mn	mg/L		< 0.001				< 0.001				< 0.001				0.0007				0.003				0.0008				0.0008
Hg	ug/L		< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02
Mo	mg/L		< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0005				< 0.0001				< 0.0001
Ni	mg/L		< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002				< 0.0002
P	mg/L		< 0.15				0.2				0.2				0.12				< 0.15				0.11				0.09
K	mg/L		< 0.1				< 0.1				0.1				0.06				< 0.1				0.06				0.05
Se	mg/L		< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002				< 0.0002
Si	mg/L		2.8				5.8				5.5				5.66				5.2				5.58				4.86
Ag	mg/L		< 0.00025				< 0.00025				< 0.00025				< 0.00005				< 0.00025				< 0.00005				< 0.00005
Na	mg/L		0.05				< 0.05				< 0.05				< 0.01				< 0.05				0.01				0.02
Sr	mg/L		< 0.001				< 0.001				< 0.001				0.0003				0.002				0.0003				0.0003
Te	mg/L		< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002				< 0.0002
Tl	mg/L		< 0.0001				< 0.0001				< 0.0001				< 0.00002				< 0.0001				< 0.00002				< 0.00002
Th	mg/L		< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0005				< 0.0001				< 0.0001
Sn	mg/L		< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002				< 0.0002
Ti	mg/L		< 0.001				< 0.001				< 0.001				0.0004				< 0.001				0.0005				0.0003
U	mg/L		< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0005				< 0.0001				< 0.0001
V	mg/L		< 0.001				< 0.001				< 0.001				0.0003				< 0.001				0.0002				< 0.0002
Zn	mg/L		< 0.005				< 0.005				< 0.005				< 0.001				< 0.005				< 0.001				< 0.001
Zr	mg/L		< 0.01				< 0.01				< 0.01				< 0.002				< 0.01				< 0.002				< 0.002

Humidity Cell Sample Data

HC 28 - Pre-Leached Granite
04-ARD-142-007
04-ARD-142-008

Weeks	#	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
Date		29-Jul-08	5-Aug-08	12-Aug-08	19-Aug-08	26-Aug-08	2-Sep-08	9-Sep-08	16-Sep-08	23-Sep-08	30-Sep-08	7-Oct-08	14-Oct-08	21-Oct-08	28-Oct-08	4-Nov-08	11-Nov-08	18-Nov-08	25-Nov-08	2-Dec-08
Leachate Volume Added (mL)		450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
Leachate Volume Recovered (mL)		420	400	395	415	425	420	425	445	435	465	450	455	425	410	410	410	420	440	410
pH	Effluent (units)	5.62	6.39	5.94	6.42	5.94	6.27	5.80	5.84	5.93	5.93	5.83	6.02	5.99	6.03	6.27	6.30	6.11	6.25	6.22
Cond.	(umhos/cm)	3	2	2	2	2	2	2	2	2	2	2	3	3	3	4	4	4	4	4
ORP	mV	105	90	110	105	110	100	100	110	100	100	100	105	100	95	100	120	120	130	140
Sulphate	(mg/L)	1	< 1	< 1	< 1	< 1	< 1	1	1	2	< 1	2	1	< 1	1	2	< 1	1	< 1	< 1
Acidity	(mg CaCO3/L)	2	2	1	1	1	1	2	1	1	2	2	< 1	2	2	2	2	2	2	2
Alkalinity	(mg CaCO3/L)	2	3	2	3	2	2	2	2	2	2	2	2	2	2	3	2	3	3	2
Total P	mg/L																			0.13
TDP	mgP/L																			0.11
Fluoride	mg/L				0.07				< 0.05				< 0.05				0.09			0.14
Chloride	mg/L				< 0.2				< 0.2				< 0.2				< 0.2			< 0.2
TDS	mg/L				< 10				23				13				19			18
Al	mg/L				< 0.005				< 0.001				0.009				< 0.001			0.002
Sb	mg/L				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
As	mg/L				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Ba	mg/L				< 0.001				0.0004				< 0.001				< 0.0002			0.0003
Be	mg/L				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Bi	mg/L				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
B	mg/L				< 0.05				< 0.01				< 0.05				< 0.01			< 0.01
Cd	mg/L				< 0.0002				< 0.00004				< 0.0002				< 0.00004			< 0.00004
Ca	mg/L				0.1				0.06				0.09				0.04			0.08
Cr	mg/L				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Co	mg/L				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Cu	mg/L				0.001				0.0016				0.007				0.0012			0.013
Fe	mg/L				< 0.05				< 0.01				< 0.05				< 0.01			< 0.01
Pb	mg/L				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Li	mg/L				< 0.001				< 0.0002				< 0.001				< 0.0002			0.0002
Mg	mg/L				< 0.05				0.02				< 0.05				0.01			0.02
Mn	mg/L				< 0.001				0.0007				< 0.001				0.0004			0.0005
Hg	ug/L				< 0.02				< 0.02				< 0.02				< 0.02			< 0.02
Mo	mg/L				< 0.0005				< 0.0001				< 0.0005				< 0.0001			< 0.0001
Ni	mg/L				< 0.001				< 0.0002				< 0.001				< 0.0002			0.0002
P	mg/L				< 0.15				0.1				< 0.15				0.09			0.19
K	mg/L				< 0.1				0.05				< 0.1				0.05			0.06
Se	mg/L				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Si	mg/L				4				5.49				5.5				4.51			6.05
Ag	mg/L				< 0.00025				< 0.00005				< 0.00025				< 0.00005			< 0.00005
Na	mg/L				< 0.05				0.01				< 0.05				< 0.01			0.05
Sr	mg/L				< 0.001				0.0003				< 0.001				< 0.0002			0.0003
Te	mg/L				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Tl	mg/L				< 0.0001				< 0.00002				< 0.0001				< 0.00002			< 0.00002
Th	mg/L				< 0.0005				< 0.0001				< 0.0005				< 0.0001			< 0.0001
Sn	mg/L				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Ti	mg/L				< 0.001				0.0003				< 0.001				0.0002			0.0005
U	mg/L				< 0.0005				< 0.0001				< 0.0005				< 0.0001			< 0.0001
V	mg/L				< 0.001				< 0.0002				< 0.001				0.0003			0.0003
Zn	mg/L				< 0.005				0.001				< 0.005				0.001			0.002
Zr	mg/L				< 0.01				< 0.002				< 0.01				< 0.002			< 0.002

Humidity Cell Sample Data

HC 29 - Pre-Leached Granite
04-ARD-139-008
04-ARD-139 -035

S-Total:	0.06	%
S^{2-}:	0.05	%
NP:	0.00	$CaCO_3$/1000 t
CaNP:	0.80	$CaCO_3$/1000 t
AP:	1.56	$CaCO_3$/1000 t

Weeks	#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Date		15-Nov-05	22-Nov-05	29-Nov-05	6-Dec-05	13-Dec-05	20-Dec-05	27-Dec-05	3-Jan-06	10-Jan-06	17-Jan-06	24-Jan-06	31-Jan-06	7-Feb-06	14-Feb-06	21-Feb-06	28-Feb-06	7-Mar-06	14-Mar-06
Leachate Volume Added (mL)		600	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
Leachate Volume Recovered (mL)		415	475	375	400	480	400	385	500	400	385	400	400	400	375	420	385	390	390
pH	Effluent (units)	3.08	3.33	3.78	4.05	4.15	4.19	4.15	4.00	3.91	3.88	4.74	4.50	4.51	4.62	4.60	5.02	4.80	4.52
Cond.	(umhos/cm)	2760	1356	319	107	55	33	32	19	28	25	25	23	20	24	22	17	20	18
ORP	mV	460	430	390	355	310	305	290	335	300	290	245	230	250	310	210	230	210	260
Sulphate	(mg/L)	3	2	3	4	5	5	4	4	5	3	4	5	< 1	3	3	3	4	3
Acidity	(mg CaCO3/L)	380	185	38	21	12	10	10	9	11	19	6	7	7	5	7	6	5	6
Alkalinity	(mg CaCO3/L)											< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Total P	mg/L																		
TDP	mgP/L																		
Fluoride	mg/L	13.00				0.50				0.30				0.30				0.26	
Chloride	mg/L	756				7.0				2.0				0.9				0.9	
TDS	mg/L	1309				35				53				52				22	
Al	mg/L	44.4				0.54				0.20				0.18				0.15	
Sb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
As	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Ba	mg/L	0.63				0.023				0.018				0.018				0.016	
Be	mg/L	0.002				< 0.001				< 0.001				< 0.001				< 0.001	
Bi	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
B	mg/L	< 0.05				< 0.05				< 0.05				< 0.05				< 0.05	
Cd	mg/L	0.0016				< 0.0002				< 0.0002				< 0.0002				< 0.0002	
Ca	mg/L	141				1.12				0.38				0.41				0.27	
Cr	mg/L	0.015				< 0.001				< 0.001				< 0.001				< 0.001	
Co	mg/L	0.034				0.002				0.001				0.001				0.001	
Cu	mg/L	0.14				0.003				0.002				0.002				0.002	
Fe	mg/L	24.9				0.42				0.10				0.15				0.10	
Pb	mg/L	0.023				< 0.001				< 0.001				< 0.001				< 0.001	
Li	mg/L	0.31				0.006				0.002				0.002				0.002	
Mg	mg/L	79.3				0.86				0.33				0.30				0.34	
Mn	mg/L	1.34				0.012				0.004				0.004				0.004	
Hg	ug/L	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02	
Mo	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
Ni	mg/L	0.065				< 0.001				0.001				< 0.001				0.001	
P	mg/L	< 0.15				< 0.15				< 0.15				< 0.15				< 0.15	
K	mg/L	19				1.2				0.5				0.5				0.3	
Se	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				0.001	
Si	mg/L	1				10.7				8.1				7.7				7.7	
Ag	mg/L	< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025	
Na	mg/L	1.58				0.25				0.38				0.09				0.22	
Sr	mg/L	0.17				0.005				0.003				0.004				0.003	
Te	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Tl	mg/L	0.0002				< 0.0001				< 0.0001				< 0.0001				< 0.0001	
Th	mg/L	0.0008				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
Sn	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Ti	mg/L	0.14				0.003				0.001				0.001				< 0.001	
U	mg/L	0.0023				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
V	mg/L	0.011				< 0.001				< 0.001				< 0.001				< 0.001	
Zn	mg/L	0.7				0.039				0.020				0.021				0.019	
Zr	mg/L	< 0.01				< 0.01				< 0.01				< 0.01				< 0.01	

Humidity Cell Sample Data

HC 29 - Pre-Leached Granite
04-ARD-139-008
04-ARD-139 -035

Weeks	#	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
Date		21-Mar-06	28-Mar-06	4-Apr-06	11-Apr-06	18-Apr-06	25-Apr-06	2-May-06	9-May-06	16-May-06	23-May-06	30-May-06	6-Jun-06	13-Jun-06	20-Jun-06	27-Jun-06	4-Jul-06	11-Jul-06	18-Jul-06	25-Jul-06	1-Aug-06	8-Aug-06
Leachate Volume Added (mL)		400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
Leachate Volume Recovered (mL)		405	370	395	400	385	395	405	400	410	385	400	395	400	420	405	415	390	385	410	380	400
pH	Effluent (units)	4.37	5.02	5.31	4.18	4.82	4.87	4.66	4.68	4.67	4.67	4.69	4.63	4.71	4.72	4.70	4.69	4.71	4.75	4.78	4.71	4.70
Cond.	(umhos/cm)	18	20	20	17	13	13	14	14	14	12	12	16	17	13	12	11	12	12	12	12	13
ORP	mV	160	220	115	195	210	200	130	260	250	210	220	210	205	200	210	245	265	270	300	290	315
Sulphate	(mg/L)	2	4	4	4	2	3	4	3	3	4	4	3	4	2	3	3	2	3	4	3	3
Acidity	(mg CaCO3/L)	6	4	6	8	4	3	4	4	4	4	4	5	4	4	4	4	3	4	4	3	3
Alkalinity	(mg CaCO3/L)		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1	1	< 1	1	1	1	1	1
Total P	mg/L																					
TDP	mgP/L																					
Fluoride	mg/L			0.18				0.19				0.19				0.15				0.15		
Chloride	mg/L			0.7				0.7				0.6				0.5				0.2		
TDS	mg/L			<25*				47				81				14				17		
Al	mg/L			0.13				0.084				0.076				0.082				0.084		
Sb	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
As	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Ba	mg/L			0.016				0.014				0.012				0.012				0.013		
Be	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Bi	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
B	mg/L			< 0.05				< 0.05				< 0.05				< 0.05				< 0.05		
Cd	mg/L			< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002		
Ca	mg/L			0.29				0.20				0.17				0.17				0.23		
Cr	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Co	mg/L			0.001				0.001				0.001				0.001				0.001		
Cu	mg/L			0.002				0.001				0.001				0.002				0.002		
Fe	mg/L			0.10				0.09				0.08				0.1				0.13		
Pb	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Li	mg/L			0.001				0.001				0.001				< 0.001				< 0.001		
Mg	mg/L			0.29				0.29				0.26				0.29				0.32		
Mn	mg/L			0.004				0.003				0.003				0.004				0.004		
Hg	ug/L			< 0.02				< 0.02				< 0.02				< 0.02				< 0.02		
Mo	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005		
Ni	mg/L			0.001				0.001				< 0.001				0.001				0.002		
P	mg/L			< 0.15				< 0.15				< 0.15				< 0.15				< 0.15		
K	mg/L			0.4				0.3				0.2				0.3				0.3		
Se	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Si	mg/L			7.4				6.9				5.4				5.9				6.9		
Ag	mg/L			< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025		
Na	mg/L			0.14				< 0.05				< 0.05				< 0.05				0.06		
Sr	mg/L			0.002				0.003				0.002				0.002				0.003		
Te	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Tl	mg/L			< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001		
Th	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005		
Sn	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Ti	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
U	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005		
V	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001		
Zn	mg/L			0.032				0.021				0.022				0.025				0.029		
Zr	mg/L			< 0.01				< 0.01				< 0.01				< 0.01				< 0.01		

Humidity Cell Sample Data

HC 29 - Pre-Leached Granite
04-ARD-139-008
04-ARD-139 -035

Weeks	#	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
Date		15-Aug-06	22-Aug-06	29-Aug-06	5-Sep-06	12-Sep-06	19-Sep-06	26-Sep-06	3-Oct-06	10-Oct-06	17-Oct-06	24-Oct-06	31-Oct-06	7-Nov-06	14-Nov-06	21-Nov-06	28-Nov-06	5-Dec-06	12-Dec-06	19-Dec-06	26-Dec-06	2-Jan-07	9-Jan-07	16-Jan-07	23-Jan-07	30-Jan-07
Leachate Volume Added (mL)		400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
Leachate Volume Recovered (mL)		395	395	405	405	400	380	405	400	355	395	370	405	360	390	400	395	360	385	385	400	380	380	380	395	395
pH	Effluent (units)	4.64	4.62	4.60	4.49	4.64	4.69	4.72	4.68	4.94	4.96	4.74	4.74	4.72	4.69	4.74	4.69	4.70	4.71	4.72	4.79	4.73	4.72	4.77	4.77	4.77
Cond.	(umhos/cm)	14	13	13	14	12	13	11	15	13	12	14	14	14	13	12	13	13	12	13	10	12	12	14	10	10
ORP	mV	300	300	310	290	265	295	290	300	300	260	270	280	290	275	275	275	265	265	260	260	255	250	240	260	250
Sulphate	(mg/L)	3	3	3	4	3	4	3	3	3	3	4	3	3	5	1	3	3	3	3	2	3	2	5	4	2
Acidity	(mg CaCO3/L)	4	4	5	4	4	4	4	4	4	4	7	4	4	3	4	4	4	4	4	2	4	4	5	5	3
Alkalinity	(mg CaCO3/L)	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	< 1	1	1	< 1	1	1	1	1	1
Total P	mg/L																									
TDP	mgP/L																									
Fluoride	mg/L		0.15				0.14				0.10				0.12				< 0.05				0.17			
Chloride	mg/L		0.2				0.6				0.5				0.5				< 0.2				0.25			
TDS	mg/L		22				23				37				15				98				50			
Al	mg/L		0.056				0.052				0.140				0.056				0.055				0.12			
Sb	mg/L		<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001			
As	mg/L		<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001			
Ba	mg/L		0.012				0.011				0.011				0.01				0.01				0.01			
Be	mg/L		<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001			
Bi	mg/L		<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001			
B	mg/L		<0.05				<0.05				<0.05				< 0.05				< 0.05				< 0.05			
Cd	mg/L		<0.0002				<0.0002				<0.0002				< 0.0002				< 0.0002				< 0.0002			
Ca	mg/L		0.2				0.21				0.44				0.22				0.18				0.21			
Cr	mg/L		<0.001				<0.001				0.005				< 0.001				< 0.001				< 0.001			
Co	mg/L		0.001				0.001				0.001				0.001				0.001				0.001			
Cu	mg/L		0.002				0.002				0.006				0.002				0.002				0.002			
Fe	mg/L		0.09				0.13				0.16				0.16				0.12				0.16			
Pb	mg/L		0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001			
Li	mg/L		<0.001				<0.001				0.001				< 0.001				< 0.001				< 0.001			
Mg	mg/L		0.3				0.27				0.35				0.33				0.3				0.31			
Mn	mg/L		0.003				0.003				0.005				0.003				0.003				0.003			
Hg	ug/L		<0.02				<0.02				<0.02				< 0.02				< 0.02				< 0.02			
Mo	mg/L		<0.0005				<0.0005				<0.0005				< 0.0005				< 0.0005				< 0.0005			
Ni	mg/L		0.001				0.002				0.007				0.002				0.001				0.001			
P	mg/L		<0.15				<0.15				<0.15				< 0.15				< 0.15				< 0.15			
K	mg/L		0.2				0.3				0.1				0.1				0.2				0.2			
Se	mg/L		<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001			
Si	mg/L		6.3				5.8				7.2				6.1				5.6				5.3			
Ag	mg/L		<0.00025				<0.00025				<0.00025				< 0.00025				< 0.00025				< 0.00025			
Na	mg/L		<0.05				<0.05				0.07				0.11				< 0.05				0.11			
Sr	mg/L		0.002				0.003				0.002				0.002				0.002				0.002			
Te	mg/L		<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001			
Tl	mg/L		<0.0001				<0.0001				<0.0001				< 0.0001				< 0.0001				< 0.0001			
Th	mg/L		<0.0005				<0.0005				<0.0005				< 0.0005				< 0.0005				< 0.0005			
Sn	mg/L		<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001			
Ti	mg/L		<0.001				<0.001				0.003				< 0.001				< 0.001				< 0.001			
U	mg/L		<0.0005				<0.0005				<0.0005				< 0.0005				< 0.0005				< 0.0005			
V	mg/L		<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001			
Zn	mg/L		0.028				0.029				0.025				0.033				0.034				0.039			
Zr	mg/L		<0.01				<0.01				<0.01				< 0.01				< 0.01				< 0.01			

Humidity Cell Sample Data

HC 29 - Pre-Leached Granite
04-ARD-139-008
04-ARD-139 -035

Weeks	#	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Date		6-Feb-07	13-Feb-07	20-Feb-07	27-Feb-07	6-Mar-07	13-Mar-07	20-Mar-07	27-Mar-07	3-Apr-07	10-Apr-07	17-Apr-07	24-Apr-07	1-May-07	8-May-07	15-May-07	22-May-07	29-May-07	5-Jun-07	12-Jun-07	19-Jun-07	26-Jun-07	3-Jul-07	10-Jul-07	17-Jul-07	24-Jul-07	31-Jul-07
Leachate Volume Added (mL)		400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
Leachate Volume Recovered (mL)		400	340	390	375	390	370	380	375	390	405	370	405	385	390	380	385	380	380	390	380	370	395	375	405	385	385
pH	Effluent (units)	4.75	4.74	4.79	4.89	4.80	4.74	4.86	4.82	4.76	4.78	4.79	4.77	4.76	4.73	4.78	4.77	4.78	4.79	4.71	4.79	4.79	4.75	4.82	4.80	4.70	4.74
Cond.	(umhos/cm)	13	11	11	12	11	11	12	12	13	10	12	11	11	11	10	11	9	11	13	11	10	11	12	13	13	13
ORP	mV	245	255	245	240	250	235	230	245	245	225	240	250	250	250	245	250	230	250	230	240	250	230	250	250	240	230
Sulphate	(mg/L)	2	2	3	3	3	2	4	3	2	2	3	2	3	3	2	2	1	4	2	2	3	2	2	2	1	3
Acidity	(mg CaCO3/L)	3	3	4	3	3	4	4	4	4	3	3	4	4	3	3	3	3	3	4	4	3	3	3	3	3	3
Alkalinity	(mg CaCO3/L)	1	1	1	< 1	1	1	1	1	1	1	1	< 1	< 1	1	1	1	1	1	1	1	1	1	< 1	1	< 1	< 1
Total P	mg/L																										
TDP	mgP/L																										
Fluoride	mg/L	< 0.05				0.11				< 0.05				< 0.05				0.1				0.06				0.12	
Chloride	mg/L	< 0.2				< 0.2				0.23				< 0.2				0.23				< 0.2				< 0.2	
TDS	mg/L	27				< 10				< 10				16				23				16				< 10	
Al	mg/L	0.038				0.033				0.024				0.03				0.027				0.021				0.031	
Sb	mg/L	< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002				< 0.001	
As	mg/L	< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002				< 0.001	
Ba	mg/L	0.0077				0.008				0.006				0.006				0.0064				0.0058				0.007	
Be	mg/L	< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002				< 0.001	
Bi	mg/L	< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002				< 0.001	
B	mg/L	< 0.01				< 0.05				< 0.05				< 0.05				< 0.01				< 0.01				< 0.05	
Cd	mg/L	0.0001				< 0.0002				< 0.0002				< 0.0002				0.00011				0.00011				< 0.0002	
Ca	mg/L	0.15				0.16				0.11				0.13				0.13				0.2				0.17	
Cr	mg/L	< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002				< 0.001	
Co	mg/L	0.0011				0.001				< 0.001				< 0.001				0.0009				0.0009				0.001	
Cu	mg/L	0.0051				0.002				0.002				0.003				0.0078				0.0073				0.005	
Fe	mg/L	0.14				0.15				0.13				0.08				0.14				0.15				0.19	
Pb	mg/L	< 0.0002				< 0.001				< 0.001				< 0.001				0.0006				< 0.0002				< 0.001	
Li	mg/L	0.0007				< 0.001				< 0.001				< 0.005				< 0.001				< 0.001				< 0.005	
Mg	mg/L	0.27				0.27				0.2				0.23				0.24				0.21				0.3	
Mn	mg/L	0.0029				0.003				0.003				0.003				0.0028				0.0027				0.005	
Hg	ug/L	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02	
Mo	mg/L	< 0.0001				< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0001				< 0.0005	
Ni	mg/L	0.0014				< 0.001				< 0.001				0.001				0.0012				0.0013				0.001	
P	mg/L	< 0.03				< 0.15				< 0.15				< 0.15				< 0.03				< 0.03				< 0.15	
K	mg/L	0.16				0.1				0.1				0.1				0.15				0.14				0.2	
Se	mg/L	< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002				< 0.001	
Si	mg/L	5.59				5.1				4.8				4.9				6.04				5.45				6.2	
Ag	mg/L	< 0.00005				< 0.00025				< 0.00025				< 0.00025				< 0.00005				< 0.00005				< 0.00025	
Na	mg/L	0.05				< 0.05				< 0.05				< 0.05				0.04				0.03				< 0.05	
Sr	mg/L	0.0015				0.001				0.001				0.001				0.0013				0.0075				0.001	
Te	mg/L	< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002				< 0.001	
Tl	mg/L	< 0.00002				< 0.0001				< 0.0001				< 0.0001				< 0.00002				< 0.00002				< 0.0001	
Th	mg/L	< 0.0001				< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0001				< 0.0005	
Sn	mg/L	< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002				< 0.001	
Ti	mg/L	0.0007				< 0.001				< 0.001				< 0.001				0.0003				0.0005				< 0.001	
U	mg/L	< 0.0001				< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0001				< 0.0005	
V	mg/L	< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002				< 0.001	
Zn	mg/L	0.029				0.033				0.029				0.036				0.041				0.041				0.048	
Zr	mg/L	< 0.002				< 0.01				< 0.01				< 0.01				< 0.002				< 0.002				< 0.01	

Humidity Cell Sample Data

HC 29 - Pre-Leached Granite
04-ARD-139-008
04-ARD-139 -035

Weeks	#	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116
Date		7-Aug-07	14-Aug-07	21-Aug-07	28-Aug-07	4-Sep-07	11-Sep-07	18-Sep-07	25-Sep-07	2-Oct-07	9-Oct-07	16-Oct-07	23-Oct-07	30-Oct-07	6-Nov-07	13-Nov-07	20-Nov-07	27-Nov-07	4-Dec-07	11-Dec-07	18-Dec-07	25-Dec-07	1-Jan-08	8-Jan-08	15-Jan-08	22-Jan-08	29-Jan-08
Leachate Volume Added (mL)		400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
Leachate Volume Recovered (mL)		395	380	395	390	405	375	405	390	390	385	390	355	390	350	360	370	350	370	365	380	375	355	380	365	355	370
pH	Effluent (units)	4.71	4.75	4.73	4.74	4.76	4.79	4.78	4.80	4.74	4.80	4.77	4.82	5.02	4.79	4.74	4.71	4.72	4.50	4.67	4.64	4.62	4.92	4.64	4.64	4.65	4.64
Cond.	(umhos/cm)	13	13	13	13	13	12	12	12	12	11	12	10	10	10	12	11	11	15	15	13	14	12	13	14	14	14
ORP	mV	230	250	230	225	230	240	260	235	220	255	240	260	240	235	225	230	210	250	260	240	260	240	250	270	270	235
Sulphate	(mg/L)	2	3	< 1	3	5	4	2	3	2	2	2	3	2	< 1	2	3	3	3	3	2	< 1	2	4	3	2	< 1
Acidity	(mg CaCO3/L)	3	4	2	3	3	2	3	2	3	3	3	2	2	3	3	3	2	4	3	3	5	4	4	3	3	3
Alkalinity	(mg CaCO3/L)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Total P	mg/L																										
TDP	mgP/L																										
Fluoride	mg/L			< 0.05				0.06				< 0.05				0.06				0.08				0.06			
Chloride	mg/L			< 0.2				< 0.2				< 0.2				< 0.2				0.2				< 0.2			
TDS	mg/L			10				16				25				< 10				39				28			
Al	mg/L			0.018				0.012				0.028				0.027				0.022				0.016			
Sb	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
As	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Ba	mg/L			0.006				0.006				0.005				0.005				0.007				0.006			
Be	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Bi	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
B	mg/L			< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05			
Cd	mg/L			< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002			
Ca	mg/L			0.11				0.08				0.15				0.13				0.14				0.13			
Cr	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Co	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				0.001			
Cu	mg/L			0.003				0.007				0.004				0.007				0.006				0.005			
Fe	mg/L			0.13				0.14				0.14				< 0.05				0.17				< 0.05			
Pb	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Li	mg/L			< 0.005				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Mg	mg/L			0.24				0.21				0.23				0.25				0.28				0.21			
Mn	mg/L			0.003				0.003				0.003				0.003				0.003				0.002			
Hg	ug/L			< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02			
Mo	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005			
Ni	mg/L			0.004				0.002				0.002				< 0.001				0.001				0.001			
P	mg/L			< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15			
K	mg/L			0.1				0.1				0.2				0.1				0.2				0.2			
Se	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Si	mg/L			5.4				4.9				5.2				5.5				6.7				6.7			
Ag	mg/L			< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025			
Na	mg/L			< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				0.07			
Sr	mg/L			0.001				0.001				0.001				0.001				0.002				0.001			
Te	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Tl	mg/L			< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001			
Th	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005			
Sn	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Ti	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
U	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005			
V	mg/L			< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001			
Zn	mg/L			0.043				0.04				0.05				0.039				0.049				0.052			
Zr	mg/L			< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01			

Humidity Cell Sample Data

HC 29 - Pre-Leached Granite
04-ARD-139-008
04-ARD-139 -035

Weeks	#	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142
Date		5-Feb-08	12-Feb-08	19-Feb-08	26-Feb-08	4-Mar-08	11-Mar-08	18-Mar-08	25-Mar-08	1-Apr-08	8-Apr-08	15-Apr-08	22-Apr-08	29-Apr-08	6-May-08	13-May-08	20-May-08	27-May-08	3-Jun-08	10-Jun-08	17-Jun-08	24-Jun-08	1-Jul-08	8-Jul-08	15-Jul-08	22-Jul-08	29-Jul-08
Leachate Volume Added (mL)		400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
Leachate Volume Recovered (mL)		345	350	360	375	370	375	375	380	365	385	365	380	360	380	370	385	375	380	375	370	350	370	360	375	380	370
pH	Effluent (units)	4.68	4.65	4.63	4.73	4.80	4.81	4.81	4.81	4.98	4.92	4.93	4.87	4.87	4.87	4.82	4.81	4.84	4.85	4.89	4.83	4.86	4.84	4.88	4.93	4.88	4.78
Cond.	(umhos/cm)	12	13	15	13	11	10	9	9	9	7	9	9	8	9	8	11	10	10	10	11	10	10	10	10	10	11
ORP	mV	280	260	235	250	260	255	250	275	265	255	260	240	235	265	270	250	235	250	260	280	275	275	245	270	245	235
Sulphate	(mg/L)	2	3	4	3	2	2	2	1	1	2	< 1	2	2	2	< 1	< 1	2	1	2	1	2	2	2	2	1	2
Acidity	(mg CaCO3/L)	4	3	3	3	3	3	3	3	3	2	2	3	2	2	3	4	3	3	3	2	2	2	3	2	3	2
Alkalinity	(mg CaCO3/L)	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total P	mg/L																										
TDP	mgP/L																										
Fluoride	mg/L	0.05				< 0.05				0.05				< 0.05				< 0.05				< 0.05				< 0.05	
Chloride	mg/L	< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2	
TDS	mg/L	< 10				23				22				< 10				34				18				14	
Al	mg/L	0.009				0.04				0.009				0.01				0.016				0.009				0.007	
Sb	mg/L	< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002				< 0.0002	
As	mg/L	< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002				< 0.0002	
Ba	mg/L	0.005				0.006				0.002				0.0044				0.004				0.0037				0.0035	
Be	mg/L	< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002				< 0.0002	
Bi	mg/L	< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002				< 0.0002	
B	mg/L	< 0.05				< 0.05				< 0.05				< 0.01				< 0.05				< 0.01				< 0.01	
Cd	mg/L	< 0.0002				< 0.0002				< 0.0002				0.00008				< 0.0002				0.00011				0.00011	
Ca	mg/L	0.08				0.12				0.06				0.08				0.1				0.09				0.09	
Cr	mg/L	< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002				< 0.0002	
Co	mg/L	< 0.001				< 0.001				< 0.001				0.0006				< 0.001				0.0006				0.0006	
Cu	mg/L	0.004				0.005				0.002				0.0054				0.003				0.0066				0.0035	
Fe	mg/L	0.13				0.12				0.08				0.12				0.09				0.12				0.11	
Pb	mg/L	< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002				< 0.0002	
Li	mg/L	< 0.001				< 0.001				0.003				0.0004				0.001				0.0005				0.0003	
Mg	mg/L	0.19				0.26				0.12				0.18				0.18				0.17				0.17	
Mn	mg/L	0.003				0.002				0.001				0.0022				0.002				0.0022				0.0022	
Hg	ug/L	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02	
Mo	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0005				< 0.0001				< 0.0001	
Ni	mg/L	0.001				< 0.001				< 0.001				0.0008				< 0.001				0.0009				0.0008	
P	mg/L	< 0.15				< 0.15				< 0.15				< 0.03				< 0.15				0.04				< 0.03	
K	mg/L	0.2				0.2				0.2				0.12				0.1				0.11				0.11	
Se	mg/L	< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002				< 0.0002	
Si	mg/L	4.7				7				5.4				5.76				5.6				5.79				5.4	
Ag	mg/L	< 0.00025				< 0.00025				< 0.00025				< 0.00005				< 0.00025				< 0.00005				< 0.00005	
Na	mg/L	0.08				0.05				< 0.05				< 0.01				< 0.05				0.05				0.04	
Sr	mg/L	< 0.001				0.001				< 0.001				0.0008				< 0.001				0.0008				0.0009	
Te	mg/L	< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002				< 0.0002	
Tl	mg/L	< 0.0001				< 0.0001				< 0.0001				< 0.00002				< 0.0001				< 0.00002				< 0.00002	
Th	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0005				< 0.0001				< 0.0001	
Sn	mg/L	< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002				< 0.0002	
Ti	mg/L	< 0.001				< 0.001				< 0.001				0.0004				< 0.001				0.0005				0.0004	
U	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0005				< 0.0001				< 0.0001	
V	mg/L	< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002				< 0.0002	
Zn	mg/L	0.036				0.039				0.018				0.035				0.033				0.039				0.038	
Zr	mg/L	< 0.01				< 0.01				< 0.01				< 0.002				< 0.01				< 0.002				< 0.002	

Humidity Cell Sample Data

HC 29 - Pre-Leached Granite
04-ARD-139-008
04-ARD-139 -035

Weeks	#	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
Date		5-Aug-08	12-Aug-08	19-Aug-08	26-Aug-08	2-Sep-08	9-Sep-08	16-Sep-08	23-Sep-08	30-Sep-08	7-Oct-08	14-Oct-08	21-Oct-08	28-Oct-08	4-Nov-08	11-Nov-08	18-Nov-08	25-Nov-08	2-Dec-08
Leachate Volume Added (mL)		400	400	400	400	400	400	400	400	400	400	450	450	450	450	450	450	450	450
Leachate Volume Recovered (mL)		350	365	370	370	370	265	360	375	380	360	385	370	360	330	360	360	340	360
pH	Effluent (units)	5.10	5.08	4.99	4.85	4.88	4.93	5.02	5.00	4.95	4.92	5.05	5.01	5.07	4.97	5.13	5.05	5.27	5.07
Cond.	(umhos/cm)	9	11	9	10	10	7	9	10	8	8	9	9	9	10	13	10	10	10
ORP	mV	225	240	270	250	255	265	270	280	265	275	285	270	275	270	255	250	280	210
Sulphate	(mg/L)	1	2	2	1	2	2	1	3	2	3	2	< 1	2	< 1	1	3	1	2
Acidity	(mg CaCO3/L)	3	2	2	2	2	3	2	2	2	2	2	3	2	3	2	2	2	2
Alkalinity	(mg CaCO3/L)	2	1	1	1	1	1	1	2	1	2	1	1	1	2	2	1	2	2
Total P	mg/L																		< 0.02
TDP	mgP/L																		< 0.02
Fluoride	mg/L			< 0.05				< 0.05				< 0.05				< 0.05			< 0.05
Chloride	mg/L			< 0.2				< 0.2				< 0.2				< 0.2			< 0.2
TDS	mg/L			< 10				19				31				10			23
Al	mg/L			0.008				0.008				0.02				0.005			0.007
Sb	mg/L			< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
As	mg/L			< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Ba	mg/L			0.004				0.0042				0.004				0.0042			0.0037
Be	mg/L			< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Bi	mg/L			< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
B	mg/L			< 0.05				< 0.01				< 0.05				< 0.01			< 0.01
Cd	mg/L			< 0.0002				0.00013				< 0.0002				0.00009			< 0.00004
Ca	mg/L			0.11				0.08				0.11				0.06			0.13
Cr	mg/L			< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Co	mg/L			< 0.001				0.0006				< 0.001				0.0005			0.0004
Cu	mg/L			0.006				0.0092				0.012				0.0089			0.027
Fe	mg/L			0.12				0.12				0.15				0.1			0.06
Pb	mg/L			< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Li	mg/L			< 0.001				0.0004				< 0.001				0.0003			0.0005
Mg	mg/L			0.17				0.17				0.19				0.15			0.13
Mn	mg/L			0.003				0.0023				0.003				0.0022			0.0016
Hg	ug/L			< 0.02				< 0.02				< 0.02				< 0.02			< 0.02
Mo	mg/L			< 0.0005				< 0.0001				< 0.0005				< 0.0001			< 0.0001
Ni	mg/L			< 0.001				0.001				0.001				0.0007			0.0009
P	mg/L			< 0.15				< 0.03				< 0.15				< 0.03			0.1
K	mg/L			0.1				0.11				0.1				0.16			0.16
Se	mg/L			< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Si	mg/L			4.7				5.2				6.1				5.83			6.94
Ag	mg/L			< 0.00025				< 0.00005				< 0.00025				< 0.00005			< 0.00005
Na	mg/L			< 0.05				0.02				< 0.05				0.02			0.1
Sr	mg/L			< 0.001				0.0008				< 0.001				0.0007			0.0007
Te	mg/L			< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Tl	mg/L			< 0.0001				< 0.00002				< 0.0001				< 0.00002			< 0.00002
Th	mg/L			< 0.0005				< 0.0001				< 0.0005				< 0.0001			< 0.0001
Sn	mg/L			< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Ti	mg/L			< 0.001				0.0003				< 0.001				< 0.0002			0.0002
U	mg/L			< 0.0005				< 0.0001				< 0.0005				< 0.0001			< 0.0001
V	mg/L			< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Zn	mg/L			0.038				0.041				0.041				0.038			0.031
Zr	mg/L			< 0.01				< 0.002				< 0.01				< 0.002			< 0.002

Humidity Cell Sample Data

HC 30 - Pre-Leached Granite
04-ARD-168-010
04-ARD-168 -011

S-Total:	0.03	%
S^{2-}:	0.03	%
NP:	0.80	t $CaCO_3$/1000 t
CaNP:	0.11	t $CaCO_3$/1000 t
AP:	0.94	t $CaCO_3$/1000 t

Weeks	#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Date		15-Nov-05	22-Nov-05	29-Nov-05	6-Dec-05	13-Dec-05	20-Dec-05	27-Dec-05	3-Jan-06	10-Jan-06	17-Jan-06	24-Jan-06	31-Jan-06	7-Feb-06	14-Feb-06	21-Feb-06	28-Feb-06
Leachate Volume Added (mL)		675	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
Leachate Volume Recovered (mL)		520	505	440	455	445	455	425	445	485	455	450	450	450	445	440	455
pH	Effluent (units)	3.81	4.07	4.52	4.61	4.79	4.86	4.92	4.55	5.71	4.43	4.34	5.01	5.03	5.45	5.41	5.04
Cond.	(umhos/cm)	1947	709	118	26	17	13	12	6	8	7	9	8	6	6	5	5
ORP	mV	400	340	350	320	270	235	280	315	290	285	245	200	145	270	180	270
Sulphate	(mg/L)	11	1	2	1	1	1	1	1	1	1	1	< 1	< 1	1	1	1
Acidity	(mg CaCO3/L)	60	30	7	5	5	5	6	6	12	6	6	4	5	3	4	4
Alkalinity	(mg CaCO3/L)			< 1	< 1	< 1	< 1	< 1	< 1	< 1			< 1	< 1	< 1	< 1	< 1
Total P	mg/L																
TDP	mgP/L																
Fluoride	mg/L	2.00				0.20				0.20				0.20			
Chloride	mg/L	584				2.0				1.00				0.50			
TDS	mg/L	1250				20				43				44			
Al	mg/L	6.47				0.035				0.048				0.039			
Sb	mg/L	0.006				0.006				0.009				0.009			
As	mg/L	< 0.001				0.001				< 0.001				< 0.001			
Ba	mg/L	0.031				0.012				0.001				< 0.001			
Be	mg/L	< 0.001				< 0.001				< 0.001				< 0.001			
Bi	mg/L	< 0.001				< 0.001				< 0.001				< 0.001			
B	mg/L	< 0.05				< 0.05				< 0.05				< 0.05			
Cd	mg/L	0.0019				< 0.0002				< 0.0002				< 0.0002			
Ca	mg/L	248				1.62				0.31				0.25			
Cr	mg/L	< 0.001				< 0.001				< 0.001				< 0.001			
Co	mg/L	0.013				< 0.001				< 0.001				< 0.001			
Cu	mg/L	0.065				< 0.001				< 0.001				< 0.001			
Fe	mg/L	0.82				< 0.05				< 0.05				< 0.05			
Pb	mg/L	0.43				< 0.001				< 0.001				< 0.001			
Li	mg/L	0.067				0.002				< 0.001				< 0.001			
Mg	mg/L	32.1				0.30				0.07				0.05			
Mn	mg/L	0.81				0.002				0.001				0.001			
Hg	ug/L	< 0.02				< 0.02				< 0.02				< 0.02			
Mo	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005			
Ni	mg/L	0.029				< 0.001				< 0.001				< 0.001			
P	mg/L	< 0.15				< 0.15				< 0.15				< 0.15			
K	mg/L	1.6				0.7				< 0.1				0.1			
Se	mg/L	< 0.001				< 0.001				< 0.001				< 0.001			
Si	mg/L	1.3				7.8				7.3				6.8			
Ag	mg/L	< 0.00025				< 0.00025				< 0.00025				< 0.00025			
Na	mg/L	4.03				0.52				0.37				0.10			
Sr	mg/L	0.078				0.011				< 0.001				0.001			
Te	mg/L	< 0.001				< 0.001				< 0.001				< 0.001			
Tl	mg/L	< 0.0001				< 0.0001				< 0.0001				< 0.0001			
Th	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005			
Sn	mg/L	< 0.001				< 0.001				< 0.001				< 0.001			
Ti	mg/L	0.001				< 0.001				< 0.001				< 0.001			
U	mg/L	0.0022				< 0.0005				< 0.0005				< 0.0005			
V	mg/L	< 0.001				< 0.001				< 0.001				< 0.001			
Zn	mg/L	0.2				< 0.005				< 0.005				< 0.005			
Zr	mg/L	< 0.01				< 0.01				< 0.01				< 0.01			

Humidity Cell Sample Data

HC 30 - Pre-Leached Granite
04-ARD-168-010
04-ARD-168 -011

Weeks	#	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Date		7-Mar-06	14-Mar-06	21-Mar-06	28-Mar-06	4-Apr-06	11-Apr-06	18-Apr-06	25-Apr-06	2-May-06	9-May-06	16-May-06	23-May-06	30-May-06	6-Jun-06	13-Jun-06	20-Jun-06	27-Jun-06	4-Jul-06	11-Jul-06	18-Jul-06	25-Jul-06
Leachate Volume Added (mL)		450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
Leachate Volume Recovered (mL)		435	445	450	445	445	470	440	450	455	440	435	450	435	460	455	450	450	455	430	470	435
pH	Effluent (units)	5.30	5.16	5.15	5.30	6.01	5.38	6.39	5.51	5.14	5.31	5.39	5.30	5.26	5.33	5.42	5.38	5.23	5.36	5.30	5.24	5.35
Cond.	(umhos/cm)	4	5	5	6	5	5	5	3	4	3	3	5	4	5	5	3	3	2	3	3	3
ORP	mV	250	235	140	190	115	230	120	190	130	220	180	200	120	130	160	140	130	160	210	130	275
Sulphate	(mg/L)	1	< 1	< 1	1	1	< 1	< 1	< 1	1	< 1	< 1	< 1	< 1	< 1	1	1	< 1	1	1	1	< 1
Acidity	(mg CaCO3/L)	3	3	4	4	2	4	4	2	3	2	3	2	2	3	3	2	2	2	3	2	2
Alkalinity	(mg CaCO3/L)	< 1	1	< 1	< 1	< 1	1	1	< 1	1	< 1	< 1	< 1	< 1	< 1	< 1	2	2	1	2	1	2
Total P	mg/L																					
TDP	mgP/L																					
Fluoride	mg/L	0.16				0.12				0.13				0.12				<0.1				<0.1
Chloride	mg/L	0.62				0.56				0.54				0.46				0.41				0.14
TDS	mg/L	11				<25*				30				120				32				30
Al	mg/L	0.035				0.02				< 0.005				0.006				0.014				0.01
Sb	mg/L	0.01				0.009				0.012				0.011				0.011				0.01
As	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Ba	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Be	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Bi	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
B	mg/L	< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05
Cd	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Ca	mg/L	0.16				0.15				0.09				0.09				0.06				0.08
Cr	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Co	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Cu	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Fe	mg/L	< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05
Pb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Li	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Mg	mg/L	0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05
Mn	mg/L	< 0.001				0.001				< 0.001				< 0.001				< 0.001				< 0.001
Hg	ug/L	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02
Mo	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
Ni	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
P	mg/L	< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15
K	mg/L	< 0.1				< 0.1				< 0.1				< 0.1				< 0.1				< 0.1
Se	mg/L	0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Si	mg/L	7.3				6.0				6.6				5.2				5.4				5.1
Ag	mg/L	< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025
Na	mg/L	0.15				0.09				< 0.05				< 0.05				< 0.05				< 0.05
Sr	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				0.006
Te	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Tl	mg/L	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
Th	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
Sn	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Ti	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
U	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
V	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Zn	mg/L	< 0.005				0.007				< 0.005				< 0.005				< 0.005				< 0.005
Zr	mg/L	< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01

Humidity Cell Sample Data

HC 30 - Pre-Leached Granite
04-ARD-168-010
04-ARD-168 -011

Weeks	#	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61
Date		1-Aug-06	8-Aug-06	15-Aug-06	22-Aug-06	29-Aug-06	5-Sep-06	12-Sep-06	19-Sep-06	26-Sep-06	3-Oct-06	10-Oct-06	17-Oct-06	24-Oct-06	31-Oct-06	7-Nov-06	14-Nov-06	21-Nov-06	28-Nov-06	5-Dec-06	12-Dec-06	19-Dec-06	26-Dec-06	2-Jan-07	9-Jan-07
Leachate Volume Added (mL)		450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
Leachate Volume Recovered (mL)		460	440	455	445	450	450	435	350	455	450	440	445	440	445	440	435	445	445	435	410	450	440	435	435
pH	Effluent (units)	5.37	5.39	5.25	5.10	5.26	5.01	5.25	5.31	5.38	5.21	5.23	5.48	5.32	5.35	5.40	5.3	5.5	5.29	5.34	5.25	5.30	5.27	5.35	5.34
Cond.	(umhos/cm)	3	3	3	3	4	4	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	2	5	3
ORP	mV	255	280	270	260	290	270	260	280	265	260	255	220	225	220	210	205	190	180	200	175	165	150	110	110
Sulphate	(mg/L)	< 1	1	1	1	2	1	1	< 1	1	1	1	1	1	< 1	< 1	< 1	< 1	1	< 1	1	1	< 1	1	1
Acidity	(mg CaCO3/L)	2	2	2	2	2	3	3	2	2	3	2	2	2	2	2	2	3	2	2	2	2	1	3	2
Alkalinity	(mg CaCO3/L)	1	2	2	2	2	2	2	2	2	1	2	2	1	1	1	2	3	2	2	2	2	1	2	2
Total P	mg/L																								
TDP	mgP/L																								
Fluoride	mg/L				<0.1				<0.1				<0.1				<0.1				< 0.05				< 0.05
Chloride	mg/L				0.17				0.54				0.43				0.42				< 0.2				0.2
TDS	mg/L				39				14				11				17				11				32
Al	mg/L				<0.005				0.007				0.022				0.008				0.022				0.007
Sb	mg/L				0.012				0.011				0.013				0.013				0.012				0.015
As	mg/L				<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001
Ba	mg/L				<0.001				<0.001				0.002				< 0.001				< 0.001				< 0.001
Be	mg/L				<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001
Bi	mg/L				<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001
B	mg/L				<0.05				<0.05				<0.05				< 0.05				< 0.05				< 0.05
Cd	mg/L				<0.0002				<0.0002				<0.0002				< 0.0002				< 0.0002				< 0.0002
Ca	mg/L				0.08				0.47				0.09				0.17				0.07				0.12
Cr	mg/L				<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001
Co	mg/L				<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001
Cu	mg/L				<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001
Fe	mg/L				<0.05				<0.05				<0.05				< 0.05				< 0.05				< 0.05
Pb	mg/L				<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001
Li	mg/L				<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001
Mg	mg/L				<0.05				<0.05				<0.05				0.11				< 0.05				< 0.05
Mn	mg/L				<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001
Hg	ug/L				<0.02				<0.02				<0.02				< 0.02				< 0.02				< 0.02
Mo	mg/L				<0.0005				<0.0005				<0.0005				< 0.0005				< 0.0005				< 0.0005
Ni	mg/L				<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001
P	mg/L				<0.15				<0.15				<0.15				< 0.15				< 0.15				< 0.15
K	mg/L				<0.1				<0.1				<0.1				< 0.1				< 0.1				< 0.1
Se	mg/L				<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001
Si	mg/L				4.9				5.5				6.9				5.6				4.2				4.8
Ag	mg/L				<0.00025				<0.00025				<0.00025				< 0.00025				< 0.00025				< 0.00025
Na	mg/L				<0.05				<0.05				<0.05				0.11				< 0.05				0.09
Sr	mg/L				0.001				0.001				<0.001				< 0.001				< 0.001				< 0.001
Te	mg/L				<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001
Tl	mg/L				<0.0001				<0.0001				<0.0001				< 0.0001				< 0.0001				< 0.0001
Th	mg/L				<0.0005				<0.0005				<0.0005				< 0.0005				< 0.0005				< 0.0005
Sn	mg/L				<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001
Ti	mg/L				<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001
U	mg/L				<0.0005				<0.0005				<0.0005				< 0.0005				< 0.0005				< 0.0005
V	mg/L				<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001
Zn	mg/L				<0.005				0.009				<0.005				< 0.005				< 0.005				0.009
Zr	mg/L				<0.01				<0.01				<0.01				< 0.01				< 0.01				< 0.01

Humidity Cell Sample Data

HC 30 - Pre-Leached Granite
04-ARD-168-010
04-ARD-168 -011

Weeks	#	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87
Date		16-Jan-07	23-Jan-07	30-Jan-07	6-Feb-07	13-Feb-07	20-Feb-07	27-Feb-07	6-Mar-07	13-Mar-07	20-Mar-07	27-Mar-07	3-Apr-07	10-Apr-07	17-Apr-07	24-Apr-07	1-May-07	8-May-07	15-May-07	22-May-07	29-May-07	5-Jun-07	12-Jun-07	19-Jun-07	26-Jun-07	3-Jul-07	10-Jul-07
Leachate Volume Added (mL)		450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
Leachate Volume Recovered (mL)		440	440	440	445	455	430	450	440	460	410	445	420	445	450	440	440	440	445	445	415	415	430	420	450	440	435
pH	Effluent (units)	5.31	5.36	5.43	5.46	5.4	5.41	5.56	5.40	5.37	5.57	5.75	5.42	5.40	5.49	5.36	5.33	5.31	5.44	5.35	5.39	5.45	5.38	5.39	5.42	5.40	5.55
Cond.	(umhos/cm)	3	4	3	3	3	3	3	2	3	3	3	3	2	3	3	4	3	2	2	2	2	3	2	2	2	3
ORP	mV	100	95	100	100	105	110	100	105	100	100	100	110	105	105	100	100	100	105	100	95	100	100	100	100	100	100
Sulphate	(mg/L)	1	2	< 1	1	< 1	< 1	2	1	1	1	1	1	1	1	1	2	< 1	1	1	1	1	1	< 1	2	1	1
Acidity	(mg CaCO3/L)	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	1	1	< 1	2	2	2	1	1	1
Alkalinity	(mg CaCO3/L)	2	2	2	2	2	2	2	1	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1
Total P	mg/L																										
TDP	mgP/L																										
Fluoride	mg/L				< 0.05				0.08				< 0.05				< 0.05				< 0.05				< 0.05		
Chloride	mg/L				< 0.2				< 0.2				< 0.2				0.78				0.21				< 0.2		
TDS	mg/L				< 10				< 10				16				16				21				11		
Al	mg/L				0.003				< 0.005				< 0.005				< 0.005				0.003				0.002		
Sb	mg/L				0.012				0.012				0.012				0.014				0.01				0.014		
As	mg/L				0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002		
Ba	mg/L				< 0.0002				< 0.001				< 0.001				< 0.001				0.0003				< 0.0002		
Be	mg/L				< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002		
Bi	mg/L				< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002		
B	mg/L				< 0.01				< 0.05				< 0.05				< 0.05				< 0.01				< 0.01		
Cd	mg/L				< 0.00004				< 0.0002				< 0.0002				< 0.0002				< 0.00004				< 0.00004		
Ca	mg/L				0.07				0.07				< 0.05				< 0.05				0.05				0.07		
Cr	mg/L				< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002		
Co	mg/L				< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002		
Cu	mg/L				0.0047				< 0.001				< 0.001				< 0.001				0.0023				0.0066		
Fe	mg/L				< 0.01				< 0.05				< 0.05				< 0.05				< 0.01				< 0.01		
Pb	mg/L				< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002		
Li	mg/L				0.0003				< 0.001				< 0.001				< 0.005				< 0.001				< 0.001		
Mg	mg/L				0.02				< 0.05				< 0.05				< 0.05				0.02				0.02		
Mn	mg/L				0.0005				< 0.001				< 0.001				< 0.001				0.0005				0.0005		
Hg	ug/L				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02		
Mo	mg/L				< 0.0001				< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0001		
Ni	mg/L				< 0.0002				< 0.001				< 0.001				< 0.001				0.0043				< 0.0002		
P	mg/L				0.05				< 0.15				< 0.15				< 0.15				0.04				0.04		
K	mg/L				0.04				< 0.1				< 0.1				< 0.1				0.05				0.04		
Se	mg/L				< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002		
Si	mg/L				5.24				4.7				4.4				4.8				3.98				5.45		
Ag	mg/L				< 0.00005				< 0.00025				< 0.00025				< 0.00025				< 0.00005				< 0.00005		
Na	mg/L				0.03				< 0.05				< 0.05				< 0.05				0.03				0.02		
Sr	mg/L				0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				0.0014		
Te	mg/L				< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002		
Tl	mg/L				< 0.00002				< 0.0001				< 0.0001				< 0.0001				< 0.00002				< 0.00002		
Th	mg/L				< 0.0001				< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0001		
Sn	mg/L				< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002		
Ti	mg/L				0.0003				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002		
U	mg/L				< 0.0001				< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0001		
V	mg/L				< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002		
Zn	mg/L				< 0.001				< 0.005				< 0.005				< 0.005				0.002				0.002		
Zr	mg/L				< 0.002				< 0.01				< 0.01				< 0.01				< 0.002				< 0.002		

Humidity Cell Sample Data

HC 30 - Pre-Leached Granite
04-ARD-168-010
04-ARD-168 -011

Weeks	#	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113
Date		17-Jul-07	24-Jul-07	31-Jul-07	7-Aug-07	14-Aug-07	21-Aug-07	28-Aug-07	4-Sep-07	11-Sep-07	18-Sep-07	25-Sep-07	2-Oct-07	9-Oct-07	16-Oct-07	23-Oct-07	30-Oct-07	6-Nov-07	13-Nov-07	20-Nov-07	27-Nov-07	4-Dec-07	11-Dec-07	18-Dec-07	25-Dec-07	1-Jan-08	8-Jan-08
Leachate Volume Added (mL)		450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
Leachate Volume Recovered (mL)		435	440	435	445	440	440	450	460	450	435	450	450	415	450	430	435	455	435	435	445	450	415	440	440	410	425
pH	Effluent (units)	5.45	5.39	5.39	5.41	5.37	5.45	5.39	5.42	5.50	5.43	5.41	5.50	5.39	5.52	5.47	5.51	5.48	5.51	5.46	5.42	4.84	5.18	5.21	5.24	5.31	5.32
Cond.	(umhos/cm)	2	3	3	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	5	4	3	3	2	2
ORP	mV	95	100	195	200	145	140	150	165	110	120	120	120	110	105	100	105	120	120	120	110	145	125	110	130	125	120
Sulphate	(mg/L)	< 1	< 1	1	< 1	< 1	< 1	2	3	< 1	1	1	2	< 1	1	2	2	< 1	< 1	1	< 1	1	3	1	1	1	2
Acidity	(mg CaCO3/L)	2	2	2	1	2	1	1	1	1	1	1	1	1	2	1	2	1	1	1	1	2	2	2	3	2	2
Alkalinity	(mg CaCO3/L)	2	1	1	2	2	1	2	2	2	1	2	2	2	2	2	2	2	2	2	1	< 1	2	2	2	1	1
Total P	mg/L																										
TDP	mgP/L																										
Fluoride	mg/L		< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05
Chloride	mg/L		< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2
TDS	mg/L		< 10				11				14				17				16				39				18
Al	mg/L		0.037				< 0.005				< 0.005				0.007				0.007				< 0.005				< 0.005
Sb	mg/L		0.015				0.015				0.013				0.013				0.012				0.016				0.017
As	mg/L		0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Ba	mg/L		0.003				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Be	mg/L		0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Bi	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
B	mg/L		< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05
Cd	mg/L		0.0011				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Ca	mg/L		1.33				0.06				< 0.05				0.06				0.07				0.06				< 0.05
Cr	mg/L		0.002				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Co	mg/L		0.002				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Cu	mg/L		0.003				0.002				< 0.001				0.001				0.003				0.004				< 0.001
Fe	mg/L		0.22				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05
Pb	mg/L		< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Li	mg/L		< 0.005				< 0.005				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Mg	mg/L		0.44				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05
Mn	mg/L		0.039				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Hg	ug/L		< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02
Mo	mg/L		0.0013				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
Ni	mg/L		0.003				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
P	mg/L		< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15
K	mg/L		0.3				< 0.1				< 0.1				< 0.1				< 0.1				< 0.1				< 0.1
Se	mg/L		0.003				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Si	mg/L		5.5				5.3				4.4				5				5				6.2				7.3
Ag	mg/L		0.0009				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025
Na	mg/L		0.66				0.09				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05
Sr	mg/L		0.006				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Te	mg/L		0.002				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Tl	mg/L		0.0008				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
Th	mg/L		0.0008				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
Sn	mg/L		0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Ti	mg/L		0.002				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
U	mg/L		0.0007				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
V	mg/L		0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Zn	mg/L		0.006				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005				0.006
Zr	mg/L		< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01

Humidity Cell Sample Data

HC 30 - Pre-Leached Granite
04-ARD-168-010
04-ARD-168 -011

Weeks	#	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139
Date		15-Jan-08	22-Jan-08	29-Jan-08	5-Feb-08	12-Feb-08	19-Feb-08	26-Feb-08	4-Mar-08	11-Mar-08	18-Mar-08	25-Mar-08	1-Apr-08	8-Apr-08	15-Apr-08	22-Apr-08	29-Apr-08	6-May-08	13-May-08	20-May-08	27-May-08	3-Jun-08	10-Jun-08	17-Jun-08	24-Jun-08	1-Jul-08	8-Jul-08
Leachate Volume Added (mL)		450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
Leachate Volume Recovered (mL)		435	440	440	425	395	430	440	445	450	440	450	445	445	440	455	435	445	455	455	455	460	450	455	470	460	455
pH	Effluent (units)	5.26	5.52	5.48	4.65	5.45	5.41	5.34	5.51	5.55	5.62	5.62	5.75	5.70	5.76	5.68	5.60	5.82	5.56	5.63	5.46	5.57	5.53	5.46	5.56	5.62	5.76
Cond.	(umhos/cm)	3	3	2	2	2	2	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
ORP	mV	115	110	110	130	125	105	105	115	110	115	125	110	120	110	100	105	110	100	100	100	110	100	110	115	100	100
Sulphate	(mg/L)	< 1	< 1	< 1	1	1	< 1	1	1	1	2	< 1	< 1	< 1	< 1	< 1	1	< 1	< 1	< 1	2	< 1	< 1	< 1	2	2	< 1
Acidity	(mg CaCO3/L)	2	2	2	3	2	2	2	1	2	1	2	2	2	2	1	1	1	1	2	1	2	1	1	2	1	1
Alkalinity	(mg CaCO3/L)	1	2	2	< 1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2
Total P	mg/L																										
TDP	mgP/L																										
Fluoride	mg/L				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05		
Chloride	mg/L				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2		
TDS	mg/L				22				22				30				13				41				19		
Al	mg/L				< 0.005				0.018				< 0.005				< 0.001				0.009				< 0.001		
Sb	mg/L				0.017				0.017				0.015				0.014				0.013				0.013		
As	mg/L				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002		
Ba	mg/L				< 0.001				< 0.001				< 0.001				0.0003				< 0.001				0.0008		
Be	mg/L				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002		
Bi	mg/L				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002		
B	mg/L				< 0.05				< 0.05				< 0.05				< 0.01				< 0.05				< 0.01		
Cd	mg/L				< 0.0002				< 0.0002				< 0.0002				< 0.00004				< 0.0002				< 0.00004		
Ca	mg/L				< 0.05				0.07				< 0.05				0.04				< 0.05				0.06		
Cr	mg/L				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002		
Co	mg/L				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002		
Cu	mg/L				< 0.001				0.001				< 0.001				0.0027				< 0.001				0.002		
Fe	mg/L				< 0.05				< 0.05				< 0.05				< 0.01				< 0.05				0.02		
Pb	mg/L				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				0.0003		
Li	mg/L				< 0.001				< 0.001				0.003				< 0.0002				< 0.001				0.0004		
Mg	mg/L				< 0.05				< 0.05				< 0.05				0.02				< 0.05				0.04		
Mn	mg/L				< 0.001				< 0.001				< 0.001				0.0004				< 0.001				0.0013		
Hg	ug/L				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02		
Mo	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0005				< 0.0001		
Ni	mg/L				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				0.0002		
P	mg/L				< 0.15				< 0.15				< 0.15				< 0.03				< 0.15				< 0.03		
K	mg/L				< 0.1				< 0.1				< 0.1				0.03				< 0.1				0.05		
Se	mg/L				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002		
Si	mg/L				6				7.5				7.6				5.25				5.5				5.72		
Ag	mg/L				< 0.00025				< 0.00025				< 0.00025				< 0.00005				< 0.00025				< 0.00005		
Na	mg/L				0.06				< 0.05				< 0.05				< 0.01				< 0.05				0.02		
Sr	mg/L				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				0.0003		
Te	mg/L				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002		
Tl	mg/L				< 0.0001				< 0.0001				< 0.0001				< 0.00002				< 0.0001				< 0.00002		
Th	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0005				< 0.0001		
Sn	mg/L				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002		
Ti	mg/L				< 0.001				< 0.001				< 0.001				0.0002				< 0.001				0.0002		
U	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0005				< 0.0001		
V	mg/L				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002		
Zn	mg/L				< 0.005				< 0.005				< 0.005				0.003				< 0.005				0.002		
Zr	mg/L				< 0.01				< 0.01				< 0.01				< 0.002				< 0.01				< 0.002		

Humidity Cell Sample Data

HC 30 - Pre-Leached Granite
04-ARD-168-010
04-ARD-168 -011

Weeks	#	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
Date		15-Jul-08	22-Jul-08	29-Jul-08	5-Aug-08	12-Aug-08	19-Aug-08	26-Aug-08	2-Sep-08	9-Sep-08	16-Sep-08	23-Sep-08	30-Sep-08	7-Oct-08	14-Oct-08	21-Oct-08	28-Oct-08	4-Nov-08	11-Nov-08	18-Nov-08	25-Nov-08	2-Dec-08
Leachate Volume Added (mL)		450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450	450
Leachate Volume Recovered (mL)		465	450	460	425	420	445	445	440	460	445	435	460	440	450	450	430	480	445	455	450	445
pH	Effluent (units)	5.64	5.45	5.76	6.27	5.71	5.69	5.67	5.59	5.66	5.69	5.73	5.65	5.74	5.82	5.86	5.90	5.82	5.78	5.85	5.98	5.91
Cond.	(umhos/cm)	2	2	2	4	2	2	2	2	1	2	2	2	2	2	2	2	3	2	2	3	2
ORP	mV	100	90	95	95	80	90	100	110	110	105	110	105	105	110	110	100	95	110	110	110	120
Sulphate	(mg/L)	< 1	< 1	< 1	< 1	< 1	< 1	1	2	2	1	3	1	< 1	3	< 1	< 1	1	< 1	2	< 1	1
Acidity	(mg CaCO3/L)	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	2
Alkalinity	(mg CaCO3/L)	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Total P	mg/L																					< 0.02
TDP	mgP/L																					< 0.02
Fluoride	mg/L		< 0.05				< 0.05				< 0.05				< 0.05				< 0.05			< 0.05
Chloride	mg/L		< 0.2				< 0.2				< 0.2				< 0.2				< 0.2			< 0.2
TDS	mg/L		12				< 10				< 10				32				21			24
Al	mg/L		< 0.001				< 0.005				0.002				0.059				< 0.001			0.002
Sb	mg/L		0.015				0.015				0.015				0.013				0.014			0.014
As	mg/L		< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Ba	mg/L		< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			0.0002
Be	mg/L		< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Bi	mg/L		< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
B	mg/L		< 0.01				< 0.05				< 0.01				< 0.05				< 0.01			< 0.01
Cd	mg/L		< 0.00004				< 0.0002				< 0.00004				< 0.0002				< 0.00004			< 0.00004
Ca	mg/L		0.04				< 0.05				0.03				< 0.05				0.03			0.09
Cr	mg/L		< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Co	mg/L		< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Cu	mg/L		0.0009				0.001				0.0022				0.006				0.0039			0.016
Fe	mg/L		< 0.01				< 0.05				< 0.01				< 0.05				< 0.01			< 0.01
Pb	mg/L		< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Li	mg/L		< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			0.0003
Mg	mg/L		0.02				< 0.05				0.02				< 0.05				0.02			0.02
Mn	mg/L		0.0006				< 0.001				0.0004				< 0.001				0.0007			0.0007
Hg	ug/L		< 0.02				< 0.02				< 0.02				< 0.02				< 0.02			< 0.02
Mo	mg/L		< 0.0001				< 0.0005				< 0.0001				< 0.0005				< 0.0001			< 0.0001
Ni	mg/L		< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			0.0005
P	mg/L		< 0.03				< 0.15				< 0.03				< 0.15				< 0.03			0.18
K	mg/L		0.05				< 0.1				0.03				< 0.1				0.05			0.05
Se	mg/L		< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Si	mg/L		5.41				5.2				5.9				5.7				6.99			7.58
Ag	mg/L		< 0.00005				< 0.00025				< 0.00005				< 0.00025				< 0.00005			< 0.00005
Na	mg/L		0.02				< 0.05				0.01				< 0.05				0.05			0.16
Sr	mg/L		< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Te	mg/L		< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Tl	mg/L		< 0.00002				< 0.0001				< 0.00002				< 0.0001				< 0.00002			< 0.00002
Th	mg/L		< 0.0001				< 0.0005				< 0.0001				< 0.0005				< 0.0001			< 0.0001
Sn	mg/L		< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Ti	mg/L		0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
U	mg/L		< 0.0001				< 0.0005				< 0.0001				< 0.0005				< 0.0001			< 0.0001
V	mg/L		< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Zn	mg/L		0.001				< 0.005				0.002				0.02				0.001			0.003
Zr	mg/L		< 0.002				< 0.01				< 0.002				< 0.01				< 0.002			< 0.002

Humidity Cell Sample Data

HC 31 - Pre-Leached Granite
04-ARD-168-012
04-ARD-168-013

S-Total:	0.02	%
S^{2-}:	0.02	%
NP:	0.30	$CaCO_3$/1000 t
CaNP:	0.23	$CaCO_3$/1000 t
AP:	0.60	$CaCO_3$/1000 t

Weeks	#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Date		15-Nov-05	22-Nov-05	29-Nov-05	6-Dec-05	13-Dec-05	20-Dec-05	27-Dec-05	3-Jan-06	10-Jan-06	17-Jan-06	24-Jan-06	31-Jan-06	7-Feb-06	14-Feb-06	21-Feb-06	28-Feb-06	7-Mar-06
Leachate Volume Added (mL)		635	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425
Leachate Volume Recovered (mL)		467	425	420	420	460	410	425	425	485	430	415	420	420	420	440	410	410
pH	Effluent (units)	3.35	3.61	3.89	4.25	4.38	4.51	4.35	4.40	4.81	4.75	4.93	4.85	4.85	5.15	5.18	5.41	5.00
Cond.	(umhos/cm)	3140	1306	301	67	32	18	14	8	11	10	10	12	7	8	7	6	6
ORP	mV	430	410	390	335	305	290	300	325	315	295	260	180	160	285	230	290	240
Sulphate	(mg/L)	2	< 1	1	2	1	1	1	< 1	1	2	1	1	3	< 1	1	1	1
Acidity	(mg CaCO3/L)	270	135	17	13	8	7	7	7	7	4	6	5	3	3	5	4	3
Alkalinity	(mg CaCO3/L)						< 1			< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1
Total P	mg/L																	
TDP	mgP/L																	
Fluoride	mg/L	8.00				0.30				0.20				0.21				0.17
Chloride	mg/L	978				5.0				1.00				0.59				0.67
TDS	mg/L	2133				27				48				18				13
Al	mg/L	30.7				0.260				0.084				0.061				0.039
Sb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
As	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Ba	mg/L	0.047				0.001				0.001				< 0.001				< 0.001
Be	mg/L	0.001				< 0.001				< 0.001				< 0.001				< 0.001
Bi	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
B	mg/L	< 0.05				< 0.05				< 0.05				< 0.05				< 0.05
Cd	mg/L	0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002
Ca	mg/L	361				0.99				0.23				0.19				0.11
Cr	mg/L	0.007				< 0.001				< 0.001				< 0.001				< 0.001
Co	mg/L	0.018				< 0.001				< 0.001				< 0.001				< 0.001
Cu	mg/L	0.02				< 0.001				< 0.001				< 0.001				< 0.001
Fe	mg/L	28.4				0.26				< 0.05				0.07				< 0.05
Pb	mg/L	0.025				< 0.001				< 0.001				< 0.001				< 0.001
Li	mg/L	0.1				0.002				< 0.001				< 0.001				< 0.001
Mg	mg/L	43.4				0.27				0.10				0.07				0.07
Mn	mg/L	0.88				0.005				0.001				0.001				0.001
Hg	ug/L	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02
Mo	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005
Ni	mg/L	0.033				< 0.001				< 0.001				< 0.001				< 0.001
P	mg/L	< 0.15				< 0.15				< 0.15				< 0.15				< 0.15
K	mg/L	2.0				0.2				< 0.1				0.1				< 0.1
Se	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				0.001
Si	mg/L	1.0				9.6				7.7				7.5				7.5
Ag	mg/L	< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025
Na	mg/L	0.87				< 0.05				0.30				< 0.05				0.17
Sr	mg/L	0.1				0.002				< 0.001				0.001				< 0.001
Te	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Tl	mg/L	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001
Th	mg/L	0.0013				< 0.0005				< 0.0005				< 0.0005				< 0.0005
Sn	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001
Ti	mg/L	0.008				< 0.001				< 0.001				< 0.001				< 0.001
U	mg/L	0.0015				< 0.0005				< 0.0005				< 0.0005				< 0.0005
V	mg/L	0.01				< 0.001				< 0.001				< 0.001				< 0.001
Zn	mg/L	0.19				< 0.005				< 0.005				< 0.005				< 0.005
Zr	mg/L	< 0.01				< 0.01				< 0.01				< 0.01				< 0.01

Humidity Cell Sample Data

HC 31 - Pre-Leached Granite
04-ARD-168-012
04-ARD-168-013

Weeks	#	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Date		14-Mar-06	21-Mar-06	28-Mar-06	4-Apr-06	11-Apr-06	18-Apr-06	25-Apr-06	2-May-06	9-May-06	16-May-06	23-May-06	30-May-06	6-Jun-06	13-Jun-06	20-Jun-06	27-Jun-06	4-Jul-06	11-Jul-06	18-Jul-06	25-Jul-06	1-Aug-06
Leachate Volume Added (mL)		425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425
Leachate Volume Recovered (mL)		415	405	425	425	430	420	405	490	425	445	430	420	420	440	415	430	440	445	420	420	420
pH	Effluent (units)	5.71	4.88	5.20	5.85	4.16	5.73	5.35	5.13	5.20	5.20	5.18	5.15	5.39	5.15	5.21	5.17	5.19	5.21	5.17	5.23	5.24
Cond.	(umhos/cm)	6	7	7	6	5	5	4	5	4	4	4	8	5	6	4	4	2	3	3	3	3
ORP	mV	245	150	140	120	100	160	200	150	135	120	115	150	120	105	120	120	165	190	130	290	280
Sulphate	(mg/L)	< 1	< 1	1	1	1	< 1	1	1	< 1	< 1	< 1	1	< 1	2	< 1	< 1	1	1	1	< 1	< 1
Acidity	(mg CaCO3/L)	4	3	3	4	10	3	2	3	3	3	3	3	3	3	2	3	2	3	2	2	2
Alkalinity	(mg CaCO3/L)	1	< 1	< 1	< 1		< 1	< 1	1	< 1	< 1	< 1	< 1	< 1	< 1	2	2	1	2	1	1	1
Total P	mg/L																					
TDP	mgP/L																					
Fluoride	mg/L				0.16				0.13				0.12				0.10				<0.1	
Chloride	mg/L				0.67				0.59				0.49				0.44				0.14	
TDS	mg/L				<25*				10				16				16				26	
Al	mg/L				0.03				< 0.005				0.008				0.018				0.012	
Sb	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
As	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Ba	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Be	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Bi	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
B	mg/L				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05	
Cd	mg/L				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002	
Ca	mg/L				0.11				< 0.05				0.05				< 0.05				0.06	
Cr	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Co	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Cu	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Fe	mg/L				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05	
Pb	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Li	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Mg	mg/L				0.06				0.05				< 0.05				< 0.05				0.05	
Mn	mg/L				0.001				< 0.001				< 0.001				0.001				< 0.001	
Hg	ug/L				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02	
Mo	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
Ni	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
P	mg/L				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15	
K	mg/L				< 0.1				< 0.1				< 0.1				< 0.1				< 0.1	
Se	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Si	mg/L				6.7				6.5				5.0				5.7				6.7	
Ag	mg/L				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025	
Na	mg/L				0.08				< 0.05				< 0.05				< 0.05				< 0.05	
Sr	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Te	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Tl	mg/L				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001	
Th	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
Sn	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Ti	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
U	mg/L				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
V	mg/L				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Zn	mg/L				< 0.005				< 0.005				< 0.005				< 0.005				< 0.005	
Zr	mg/L				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01	

Humidity Cell Sample Data

HC 31 - Pre-Leached Granite
04-ARD-168-012
04-ARD-168-013

Weeks	#	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62
Date		8-Aug-06	15-Aug-06	22-Aug-06	29-Aug-06	5-Sep-06	12-Sep-06	19-Sep-06	26-Sep-06	3-Oct-06	10-Oct-06	17-Oct-06	24-Oct-06	31-Oct-06	7-Nov-06	14-Nov-06	21-Nov-06	28-Nov-06	5-Dec-06	12-Dec-06	19-Dec-06	26-Dec-06	2-Jan-07	9-Jan-07	16-Jan-07
Leachate Volume Added (mL)		425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425
Leachate Volume Recovered (mL)		430	420	420	420	430	405	425	430	425	380	415	400	410	405	410	410	430	400	395	425	410	400	405	400
pH	Effluent (units)	5.26	5.18	5.16	5.21	5.07	5.18	5.21	5.18	5.16	5.18	5.37	5.28	5.32	5.36	5.24	5.48	5.24	5.28	5.21	5.27	5.30	5.32	5.38	5.27
Cond.	(umhos/cm)	4	3	3	3	3	3	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	5	3	3
ORP	mV	310	315	280	295	240	265	285	275	270	265	230	220	215	245	235	205	230	245	190	235	205	210	220	200
Sulphate	(mg/L)	1	1	1	1	1	< 1	< 1	1	1	1	1	1	< 1	< 1	1	< 1	1	< 1	2	< 1	< 1	1	< 1	2
Acidity	(mg CaCO3/L)	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	1	2	2	2
Alkalinity	(mg CaCO3/L)	2	1	1	2	2	2	3	2	2	2	2	1	2	1	2	2	2	2	2	2	1	2	2	2
Total P	mg/L																								
TDP	mgP/L																								
Fluoride	mg/L			0.10				<0.1				<0.1				<0.1				< 0.05				< 0.05	
Chloride	mg/L			0.19				0.54				0.44				0.42				< 0.2				0.2	
TDS	mg/L			21				9				2				13				24				< 10	
Al	mg/L			<0.005				<0.005				0.018				0.008				0.017				< 0.005	
Sb	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001	
As	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001	
Ba	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001	
Be	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001	
Bi	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001	
B	mg/L			<0.05				<0.05				<0.05				< 0.05				< 0.05				< 0.05	
Cd	mg/L			<0.0002				<0.0002				<0.0002				< 0.0002				< 0.0002				< 0.0002	
Ca	mg/L			<0.05				0.10				0.07				0.13				< 0.05				0.07	
Cr	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001	
Co	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001	
Cu	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001	
Fe	mg/L			<0.05				<0.05				<0.05				< 0.05				< 0.05				< 0.05	
Pb	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001	
Li	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001	
Mg	mg/L			<0.05				<0.05				<0.05				0.05				< 0.05				< 0.05	
Mn	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001	
Hg	ug/L			<0.02				<0.02				<0.02				< 0.02				< 0.02				< 0.02	
Mo	mg/L			<0.0005				<0.0005				<0.0005				< 0.0005				< 0.0005				< 0.0005	
Ni	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001	
P	mg/L			<0.15				<0.15				<0.15				< 0.15				< 0.15				< 0.15	
K	mg/L			<0.1				<0.1				<0.1				< 0.1				< 0.1				< 0.1	
Se	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001	
Si	mg/L			5.4				5.6				6.7				5.1				4.8				4.6	
Ag	mg/L			<0.00025				<0.00025				<0.00025				< 0.00025				< 0.00025				< 0.00025	
Na	mg/L			<0.05				<0.05				<0.05				0.09				< 0.05				0.08	
Sr	mg/L			<0.001				<0.001				0.002				< 0.001				< 0.001				< 0.001	
Te	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001	
Tl	mg/L			<0.0001				<0.0001				<0.0001				< 0.0001				< 0.0001				< 0.0001	
Th	mg/L			<0.0005				<0.0005				<0.0005				< 0.0005				< 0.0005				< 0.0005	
Sn	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001	
Ti	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001	
U	mg/L			<0.0005				<0.0005				<0.0005				< 0.0005				< 0.0005				< 0.0005	
V	mg/L			<0.001				<0.001				<0.001				< 0.001				< 0.001				< 0.001	
Zn	mg/L			<0.005				<0.005				<0.005				< 0.005				< 0.005				< 0.005	
Zr	mg/L			<0.01				<0.01				<0.01				< 0.01				< 0.01				< 0.01	

Humidity Cell Sample Data

HC 31 - Pre-Leached Granite
04-ARD-168-012
04-ARD-168-013

Weeks	#	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
Date		23-Jan-07	30-Jan-07	6-Feb-07	13-Feb-07	20-Feb-07	27-Feb-07	6-Mar-07	13-Mar-07	20-Mar-07	27-Mar-07	3-Apr-07	10-Apr-07	17-Apr-07	24-Apr-07	1-May-07	8-May-07	15-May-07	22-May-07	29-May-07	5-Jun-07	12-Jun-07	19-Jun-07	26-Jun-07	3-Jul-07	10-Jul-07	17-Jul-07
Leachate Volume Added (mL)		425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425
Leachate Volume Recovered (mL)		420	410	425	380	410	400	405	410	400	400	390	405	405	410	415	425	385	410	390	405	395	390	410	400	400	415
pH	Effluent (units)	5.34	5.37	5.39	5.36	5.39	5.63	5.34	5.34	5.53	5.36	5.33	5.41	5.40	5.34	5.33	5.26	5.36	5.34	5.39	5.39	5.35	5.35	5.37	5.35	5.42	5.34
Cond.	(umhos/cm)	4	3	3	3	3	3	2	2	3	2	3	2	2	2	3	3	2	2	2	2	3	2	2	3	3	4
ORP	mV	240	250	245	240	245	240	240	230	240	240	235	225	220	230	240	230	230	220	250	230	250	240	240	240	250	240
Sulphate	(mg/L)	2	1	< 1	1	1	1	1	1	1	1	1	1	1	< 1	2	1	2	1	< 1	1	< 1	< 1	1	1	< 1	< 1
Acidity	(mg CaCO3/L)	2	2	2	2	2	2	1	2	1	3	2	2	1	2	2	2	2	2	1	1	2	2	1	2	1	2
Alkalinity	(mg CaCO3/L)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Total P	mg/L																										
TDP	mgP/L																										
Fluoride	mg/L			< 0.05				0.08				< 0.05				< 0.05				0.06				< 0.05			
Chloride	mg/L			< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2			
TDS	mg/L			11				< 10				< 10				24				< 10				< 10			
Al	mg/L			0.002				< 0.005				0.01				< 0.005				< 0.001				0.002			
Sb	mg/L			0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				0.0003			
As	mg/L			< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002			
Ba	mg/L			< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002			
Be	mg/L			< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002			
Bi	mg/L			< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002			
B	mg/L			< 0.01				< 0.05				< 0.05				< 0.05				< 0.01				< 0.01			
Cd	mg/L			< 0.00004				< 0.0002				< 0.0002				< 0.0002				< 0.00004				< 0.00004			
Ca	mg/L			0.05				0.06				< 0.05				< 0.05				< 0.01				0.06			
Cr	mg/L			< 0.0002				< 0.001				< 0.001				< 0.001				0.0003				< 0.0002			
Co	mg/L			< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002			
Cu	mg/L			0.0049				< 0.001				< 0.001				< 0.001				< 0.0002				0.0035			
Fe	mg/L			< 0.01				< 0.05				< 0.05				< 0.05				< 0.01				< 0.01			
Pb	mg/L			< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002			
Li	mg/L			0.0003				< 0.001				< 0.001				< 0.005				< 0.001				< 0.001			
Mg	mg/L			0.03				< 0.05				< 0.05				< 0.05				< 0.01				0.03			
Mn	mg/L			0.0006				< 0.001				< 0.001				< 0.001				< 0.0002				0.0005			
Hg	ug/L			< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02			
Mo	mg/L			< 0.0001				< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0001			
Ni	mg/L			0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002			
P	mg/L			0.03				< 0.15				< 0.15				< 0.15				0.07				< 0.03			
K	mg/L			0.03				< 0.1				< 0.1				< 0.1				< 0.02				0.03			
Se	mg/L			< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002			
Si	mg/L			4.87				4.6				4.4				4.4				< 0.05				5.01			
Ag	mg/L			< 0.00005				< 0.00025				< 0.00025				< 0.00025				0.00011				< 0.00005			
Na	mg/L			0.02				< 0.05				< 0.05				< 0.05				0.13				0.01			
Sr	mg/L			0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				0.0011			
Te	mg/L			< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002			
Tl	mg/L			< 0.00002				< 0.0001				< 0.0001				< 0.0001				< 0.00002				< 0.00002			
Th	mg/L			< 0.0001				< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0001			
Sn	mg/L			< 0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002			
Ti	mg/L			0.0002				< 0.001				< 0.001				< 0.001				< 0.0002				< 0.0002			
U	mg/L			< 0.0001				< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0001			
V	mg/L			0.0004				< 0.001				< 0.001				< 0.001				< 0.0002				0.0004			
Zn	mg/L			0.001				< 0.005				< 0.005				< 0.005				0.004				0.001			
Zr	mg/L			< 0.002				< 0.01				< 0.01				< 0.01				< 0.002				< 0.002			

Humidity Cell Sample Data

HC 31 - Pre-Leached Granite
04-ARD-168-012
04-ARD-168-013

Weeks	#	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114
Date		24-Jul-07	31-Jul-07	7-Aug-07	14-Aug-07	21-Aug-07	28-Aug-07	4-Sep-07	11-Sep-07	18-Sep-07	25-Sep-07	2-Oct-07	9-Oct-07	16-Oct-07	23-Oct-07	30-Oct-07	6-Nov-07	13-Nov-07	20-Nov-07	27-Nov-07	4-Dec-07	11-Dec-07	18-Dec-07	25-Dec-07	1-Jan-08	8-Jan-08	15-Jan-08
Leachate Volume Added (mL)		425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425
Leachate Volume Recovered (mL)		405	400	415	415	410	410	420	410	410	425	410	415	425	405	410	410	405	420	425	400	410	410	405	385	415	405
pH	Effluent (units)	5.34	5.34	5.34	5.31	5.37	5.34	5.37	5.43	5.42	5.41	5.58	5.36	5.38	5.43	5.62	5.42	5.44	5.56	5.23	4.78	5.29	5.45	5.29	5.05	5.23	5.07
Cond.	(umhos/cm)	3	3	2	3	3	3	2	2	2	2	2	2	3	2	2	2	2	2	2	5	3	2	3	4	3	4
ORP	mV	230	215	225	190	155	160	165	210	240	235	230	240	245	240	225	230	250	240	235	230	250	260	260	200	200	250
Sulphate	(mg/L)	< 1	2	1	< 1	< 1	1	1	< 1	1	1	1	< 1	1	1	1	< 1	< 1	< 1	< 1	1	< 1	1	1	< 1	2	1
Acidity	(mg CaCO3/L)	1	2	1	2	1	1	1	1	2	1	1	1	2	1	2	1	1	2	1	2	1	2	2	2	2	2
Alkalinity	(mg CaCO3/L)	1	1	1	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	1	1	2	2	2	1	1	1
Total P	mg/L																										
TDP	mgP/L																										
Fluoride	mg/L	0.07				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				0.05	
Chloride	mg/L	< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2	
TDS	mg/L	< 10				< 10				10				30				10				18				16	
Al	mg/L	< 0.005				< 0.005				< 0.005				0.006				0.009				0.006				< 0.005	
Sb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
As	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Ba	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Be	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Bi	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
B	mg/L	< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05	
Cd	mg/L	< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002				< 0.0002	
Ca	mg/L	0.09				< 0.05				< 0.05				< 0.05				< 0.05				0.07				< 0.05	
Cr	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Co	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Cu	mg/L	0.004				0.001				0.002				0.002				0.002				0.003				< 0.001	
Fe	mg/L	< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05	
Pb	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Li	mg/L	< 0.005				< 0.005				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Mg	mg/L	< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05	
Mn	mg/L	0.002				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Hg	ug/L	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02	
Mo	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
Ni	mg/L	< 0.001				< 0.001				0.001				0.001				< 0.001				< 0.001				< 0.001	
P	mg/L	< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15				< 0.15	
K	mg/L	< 0.1				< 0.1				< 0.1				< 0.1				< 0.1				< 0.1				< 0.1	
Se	mg/L	0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Si	mg/L	5.7				5				4.8				5				5.3				4.4				6.9	
Ag	mg/L	< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025				< 0.00025	
Na	mg/L	< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05	
Sr	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				0.001				< 0.001	
Te	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Tl	mg/L	< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001				< 0.0001	
Th	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
Sn	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Ti	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
U	mg/L	< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005				< 0.0005	
V	mg/L	< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001				< 0.001	
Zn	mg/L	0.007				< 0.005				< 0.005				< 0.005				0.008				< 0.005				< 0.005	
Zr	mg/L	< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01				< 0.01	

Humidity Cell Sample Data

HC 31 - Pre-Leached Granite
04-ARD-168-012
04-ARD-168-013

Weeks	#	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
Date		22-Jan-08	29-Jan-08	5-Feb-08	12-Feb-08	19-Feb-08	26-Feb-08	4-Mar-08	11-Mar-08	18-Mar-08	25-Mar-08	1-Apr-08	8-Apr-08	15-Apr-08	22-Apr-08	29-Apr-08	6-May-08	13-May-08	20-May-08	27-May-08	3-Jun-08	10-Jun-08	17-Jun-08	24-Jun-08	1-Jul-08	8-Jul-08	15-Jul-08
Leachate Volume Added (mL)		425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425	425
Leachate Volume Recovered (mL)		395	380	380	400	395	420	380	395	405	410	375	370	370	415	410	415	425	420	435	420	420	420	425	425	420	420
pH	Effluent (units)	5.35	5.35	5.46	5.49	5.47	5.45	5.56	5.54	5.58	5.60	5.70	5.55	5.73	5.86	5.86	5.76	5.71	5.76	5.69	5.75	5.63	5.73	5.70	5.72	5.73	5.72
Cond.	(umhos/cm)	3	3	3	2	2	3	3	3	2	2	3	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2
ORP	mV	230	260	265	255	235	250	250	255	245	245	270	255	255	245	270	255	240	255	260	260	230	260	210	265	265	240
Sulphate	(mg/L)	< 1	1	1	< 1	1	1	1	1	< 1	< 1	1	1	< 1	1	< 1	1	1	< 1	1	< 1	< 1	1	1	2	< 1	< 1
Acidity	(mg CaCO3/L)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	1	2	1	1	1	1	1	1
Alkalinity	(mg CaCO3/L)	2	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Total P	mg/L																										
TDP	mgP/L																										
Fluoride	mg/L			< 0.05				< 0.05				< 0.05				< 0.05				< 0.05				< 0.05			
Chloride	mg/L			< 0.2				< 0.2				< 0.2				< 0.2				< 0.2				< 0.2			
TDS	mg/L			< 10				17				21				10				38				17			
Al	mg/L			< 0.005				0.009				0.005				< 0.001				0.008				< 0.001			
Sb	mg/L			< 0.001				< 0.001				< 0.001				0.0003				< 0.001				0.0002			
As	mg/L			< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002			
Ba	mg/L			< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				0.0003			
Be	mg/L			< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002			
Bi	mg/L			< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002			
B	mg/L			< 0.05				< 0.05				< 0.05				< 0.01				< 0.05				< 0.01			
Cd	mg/L			< 0.0002				< 0.0002				< 0.0002				< 0.00004				< 0.0002				< 0.00004			
Ca	mg/L			< 0.05				< 0.05				0.06				0.03				< 0.05				0.02			
Cr	mg/L			< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002			
Co	mg/L			< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002			
Cu	mg/L			< 0.001				< 0.001				0.002				0.0013				< 0.001				0.0015			
Fe	mg/L			< 0.05				< 0.05				< 0.05				< 0.01				< 0.05				< 0.01			
Pb	mg/L			< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002			
Li	mg/L			< 0.001				< 0.001				0.003				< 0.0002				< 0.001				0.0002			
Mg	mg/L			< 0.05				< 0.05				< 0.05				0.01				< 0.05				0.01			
Mn	mg/L			< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				0.0002			
Hg	ug/L			< 0.02				< 0.02				< 0.02				< 0.02				< 0.02				< 0.02			
Mo	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0005				< 0.0001			
Ni	mg/L			< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002			
P	mg/L			< 0.15				< 0.15				< 0.15				< 0.03				< 0.15				< 0.03			
K	mg/L			< 0.1				< 0.1				0.1				0.04				< 0.1				0.04			
Se	mg/L			< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002			
Si	mg/L			4.6				5.6				5.1				5.09				5.3				4.85			
Ag	mg/L			< 0.00025				< 0.00025				< 0.00025				< 0.00005				< 0.00025				< 0.00005			
Na	mg/L			0.06				< 0.05				< 0.05				< 0.01				< 0.05				0.02			
Sr	mg/L			< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002			
Te	mg/L			< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002			
Tl	mg/L			< 0.0001				< 0.0001				< 0.0001				< 0.00002				< 0.0001				< 0.00002			
Th	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0005				< 0.0001			
Sn	mg/L			< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002			
Ti	mg/L			< 0.001				< 0.001				< 0.001				< 0.0002				< 0.001				< 0.0002			
U	mg/L			< 0.0005				< 0.0005				< 0.0005				< 0.0001				< 0.0005				< 0.0001			
V	mg/L			< 0.001				< 0.001				< 0.001				0.0004				< 0.001				0.0003			
Zn	mg/L			< 0.005				< 0.005				< 0.005				0.002				< 0.005				0.001			
Zr	mg/L			< 0.01				< 0.01				< 0.01				< 0.002				< 0.01				< 0.002			

Humidity Cell Sample Data

HC 31 - Pre-Leached Granite
04-ARD-168-012
04-ARD-168-013

Weeks	#	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
Date		22-Jul-08	29-Jul-08	5-Aug-08	12-Aug-08	19-Aug-08	26-Aug-08	2-Sep-08	9-Sep-08	16-Sep-08	23-Sep-08	30-Sep-08	7-Oct-08	14-Oct-08	21-Oct-08	28-Oct-08	4-Nov-08	11-Nov-08	18-Nov-08	25-Nov-08	2-Dec-08
Leachate Volume Added (mL)		425	425	425	425	425	425	425	425	425	425	425	425	450	450	450	450	450	450	450	450
Leachate Volume Recovered (mL)		405	390	410	405	375	405	390	375	390	400	425	415	430	390	400	380	385	400	390	400
pH	Effluent (units)	5.86	5.75	5.81	5.85	5.91	5.83	5.26	5.80	5.93	5.70	5.82	5.81	5.96	5.82	6.00	6.37	6.29	6.23	6.14	6.09
Cond.	(umhos/cm)	2	2	3	2	2	2	2	1	2	2	2	2	2	3	2	3	3	3	3	3
ORP	mV	220	210	210	200	255	260	270	275	265	265	265	270	260	255	260	250	240	270	245	210
Sulphate	(mg/L)	< 1	1	2	1	1	< 1	< 1	2	< 1	2	< 1	1	1	< 1	< 1	< 1	< 1	2	< 1	1
Acidity	(mg CaCO3/L)	1	1	2	1	1	1	2	1	< 1	1	1	1	1	1	1	2	2	1	1	2
Alkalinity	(mg CaCO3/L)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	2	2	3	2
Total P	mg/L																				< 0.02
TDP	mgP/L																				< 0.02
Fluoride	mg/L	< 0.05				< 0.05				< 0.05				< 0.05				< 0.05			< 0.05
Chloride	mg/L	< 0.2				< 0.2				< 0.2				< 0.2				< 0.2			< 0.2
TDS	mg/L	10				< 10				36				31				23			33
Al	mg/L	< 0.001				< 0.005				0.001				0.009				< 0.001			0.002
Sb	mg/L	0.0002				< 0.001				0.0003				< 0.001				0.0003			0.0002
As	mg/L	< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Ba	mg/L	0.0003				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Be	mg/L	< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Bi	mg/L	< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
B	mg/L	< 0.01				< 0.05				< 0.01				< 0.05				< 0.01			< 0.01
Cd	mg/L	< 0.00004				< 0.0002				< 0.00004				< 0.0002				< 0.00004			< 0.00004
Ca	mg/L	0.02				< 0.05				0.02				< 0.05				0.01			0.06
Cr	mg/L	< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Co	mg/L	< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Cu	mg/L	0.0007				0.002				0.0039				0.005				0.002			0.01
Fe	mg/L	< 0.01				< 0.05				< 0.01				< 0.05				< 0.01			< 0.01
Pb	mg/L	< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Li	mg/L	< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			0.0003
Mg	mg/L	0.01				< 0.05				0.01				< 0.05				< 0.01			< 0.01
Mn	mg/L	0.0003				< 0.001				0.0002				< 0.001				0.0003			0.0003
Hg	ug/L	< 0.02				< 0.02				< 0.02				< 0.02				< 0.02			< 0.02
Mo	mg/L	< 0.0001				< 0.0005				< 0.0001				< 0.0005				< 0.0001			< 0.0001
Ni	mg/L	< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
P	mg/L	< 0.03				< 0.15				< 0.03				< 0.15				< 0.03			< 0.03
K	mg/L	0.04				< 0.1				0.04				< 0.1				0.05			0.04
Se	mg/L	< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Si	mg/L	5.05				3.7				5.26				6.8				6.17			7.2
Ag	mg/L	< 0.00005				< 0.00025				< 0.00005				< 0.00025				< 0.00005			< 0.00005
Na	mg/L	0.02				< 0.05				< 0.01				< 0.05				0.01			0.03
Sr	mg/L	< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Te	mg/L	< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Tl	mg/L	< 0.00002				< 0.0001				< 0.00002				< 0.0001				< 0.00002			< 0.00002
Th	mg/L	< 0.0001				< 0.0005				< 0.0001				< 0.0005				< 0.0001			< 0.0001
Sn	mg/L	< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
Ti	mg/L	< 0.0002				< 0.001				< 0.0002				< 0.001				< 0.0002			< 0.0002
U	mg/L	< 0.0001				< 0.0005				< 0.0001				< 0.0005				< 0.0001			< 0.0001
V	mg/L	0.0003				< 0.001				0.0004				< 0.001				0.0005			0.0005
Zn	mg/L	< 0.001				< 0.005				< 0.001				< 0.005				<0.005			0.005
Zr	mg/L	< 0.002				< 0.01				< 0.002				< 0.01				< 0.002			< 0.002

Humidity Cell Sample Data

DRAFT

HC - Coarse PK 2010

S-Total:	0.01	%
S^{2-}:	0.01	%
NP:	114.00	t $CaCO_3$/1000 t
CaNP:	11.7	t $CaCO_3$/1000 t
AP:	0.3	t $CaCO_3$/1000 t

Date		29-Jul-10	5-Aug-10	12-Aug-10	19-Aug-10	26-Aug-10	2-Sep-10	9-Sep-10	16-Sep-10	23-Sep-10	30-Sep-10	7-Oct-10	14-Oct-10
Cycle		0	1	2	3	4	5	6	7	8	9	10	11
Leachate Volume Added (mL)		250	250	250	250	250	250	250	250	250	250	250	250
Leachate Volume Recovered (mL)		170	230	200	230	235	255	250	240	220	260	215	210
pH		7.67	7.77	7.82	7.80	7.87	7.62	7.67	7.38	7.97	7.73	7.79	7.43
ORP	mV	331	405	407	378	327	366	330	301	296	251	288	256
Cond.	umhos/cm	365	393	283	198	171	135	133	133	100	76	102	123
Acidity	mgCaCO3/L	5.3	3.7	4.5	5.0	3.1	4.9	5.3	5.0	2.5	3.1	3.1	4.9
Alkalinity	mgCaCO3/L	39.8	38.8	41.2	46.6	43.7	40.6	44.4	47.7	43.8	44.9	43.2	53.2
Sulphate	mg/L	36	6	5	6	7	12	7	10	9	4	10	9
Total P	mg/L												
Ortho P	mg/L												
Chloride	mg/L	91	94	63	34	27	16	10	10	8	5	5	5
Fluoride	mg/L	0.31	0.34	0.29	0.31	0.31	0.25	0.29	0.37	0.34	0.27	0.31	0.33
Hardness	mg/L	80.2	81.4	58.9	34.5	34.9					21.4		
Al	mg/L	0.0047	0.0027	0.0037	0.0137	0.0105					0.0034		
Sb	mg/L	0.0003	0.0004	< 0.0002	0.0004	0.0003					0.0003		
As	mg/L	0.0006	0.0011	0.0013	0.0009	0.0008					0.0008		
Ba	mg/L	0.0869	0.0766	0.0506	0.0544	0.0319					0.0348		
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002		
Bi	mg/L	0.00003	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001		
B	mg/L	1.18	1.66	1.32	1.30	1.29					0.74		
Cd	mg/L	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003					< 0.000003		
Ca	mg/L	19.1	19.1	13.7	8.22	7.99					5.18		
Cr	mg/L	0.0042	0.0016	0.0016	0.0018	0.0008					0.0010		
Co	mg/L	0.000059	0.000053	0.000053	0.000193	0.000034					0.000022		
Cu	mg/L	0.0040	< 0.0005	< 0.0005	0.0016	0.0009					0.0008		
Fe	mg/L	0.003	0.002	< 0.002	0.009	0.012					0.014		
Pb	mg/L	0.00002	0.00003	0.00002	0.00014	0.00009					0.00004		
Li	mg/L	0.003	0.003	0.002	0.002	0.001					< 0.001		
Mg	mg/L	7.90	8.20	6.04	3.40	3.64					2.07		
Mn	mg/L	0.0015	0.0014	0.0013	0.0012	0.0084					< 0.0002		
Hg	ug/L	0.01	< 0.01	< 0.01	< 0.01	0.01					< 0.01		
Mo	mg/L	0.00563	0.00297	0.00227	0.00213	0.00225					0.00163		
Ni	mg/L	0.0022	0.0014	0.0011	0.0021	0.0009					0.0005		
P	mg/L	< 0.009	< 0.009	0.014	< 0.009	< 0.009					0.012		
K	mg/L	10.7	12.0	9.29	7.61	7.84					6.29		
Se	mg/L	< 0.00004	0.00196	0.00032	0.00085	0.00016					0.00013		
Si	mg/L	2.71	3.79	4.01	4.01	4.46					4.41		
Ag	mg/L	0.00002	< 0.00001	< 0.00001	0.00002	< 0.00001					< 0.00001		
Na	mg/L	33.3	35.5	25.9	16.7	18.9					8.2		
Sr	mg/L	0.268	0.270	0.190	0.110	0.118					0.069		
S	mg/L	7.41	4.65	3.74	3.80	3.45					2.08		
Tl	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002					< 0.0002		
Sn	mg/L	0.00058	0.00045	0.00131	0.00198	0.00096					0.00421		
Ti	mg/L	0.0002	0.0002	0.0002	0.0002	0.0002					< 0.0001		
U	mg/L	0.000008	0.000019	0.000002	0.000060	0.000050					0.000004		
V	mg/L	0.00212	0.00260	0.00332	0.00390	0.00390					0.00372		
Zn	mg/L	< 0.001	< 0.001	< 0.001	0.00200	< 0.001					0.00100		
Zr	mg/L	0.00002	0.00001	< 0.00001	0.00003	0.00002					0.00003		

Humidity Cell Sample Data

DRAFT

HC - Coarse PK 2010

Date		21-Oct-10	28-Oct-10	4-Nov-10	11-Nov-10	18-Nov-10	25-Nov-10	2-Dec-10	9-Dec-10	16-Dec-10	23-Dec-10	30-Dec-10	6-Jan-11	13-Jan-11	20-Jan-11
Cycle		12	13	14	15	16	17	18	19	20	21	22	23	24	25
Leachate Volume Added (mL)		250	250	250	250	250	250	250	350	250	250	250	250	300	250
Leachate Volume Recovered (mL)		210	210	210	195	235	240	215	205	210	220	215	215	300	210
pH		7.83	7.84	7.96	7.45	7.99	7.58	7.82	7.70	7.65	7.61	7.66	7.41	7.72	7.62
ORP	mV	330	323	375	348	344	297	285	367	318	349	322	338	297	319
Cond.	umhos/cm	115	114	131	127	117	88	95	105	90	83	71	67	69	75
Acidity	mgCaCO3/L	3.3	2.9	2.1	3.6	2.5	3.8	3.2	4.4	4.5	5.5	6.3	8.9	4.2	3.8
Alkalinity	mgCaCO3/L	53.9	54.5	49.6	43.5	56.7	48.2	49.3	57.0	48.5	45.9	47.0	43.2	47.3	48.0
Sulphate	mg/L	7	9	7	4	2	3	6	4	5	2	4	5	3	6
Total P	mg/L	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0	< 0.03
Ortho P	mg/L	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Chloride	mg/L	4	4	3	3	3	2	2	2	2	2	1	1	1	1
Fluoride	mg/L	0.32	0.36	0.29	0.25	0.29	0.20	0.24	0.29	0.23	0.25	0.22	0.20	0.22	0.21
Hardness	mg/L			19.9					26.3					23.8	
Al	mg/L			0.0148					0.0024					0.0262	
Sb	mg/L			< 0.0002					0.0004					0.0003	
As	mg/L			0.0005					0.0006					0.0007	
Ba	mg/L			0.0314					0.0463					0.0423	
Be	mg/L			< 0.00002					< 0.00002					< 0.00002	
Bi	mg/L			< 0.00001					< 0.00001					< 0.00001	
B	mg/L			0.88					0.78					0.46	
Cd	mg/L			< 0.000003					< 0.000003					< 0.000003	
Ca	mg/L			4.62					6.02					5.24	
Cr	mg/L			0.0007					0.0009					< 0.0005	
Co	mg/L			0.000050					0.000045					0.000083	
Cu	mg/L			0.0102					0.0012					< 0.0005	
Fe	mg/L			0.014					< 0.002					0.037	
Pb	mg/L			0.00112					0.00114					0.00004	
Li	mg/L			< 0.001					< 0.001					< 0.001	
Mg	mg/L			2.03					2.74					2.61	
Mn	mg/L			0.0007					0.0005					0.0010	
Hg	ug/L			< 0.01					< 0.01					< 0.01	
Mo	mg/L			0.00157					0.00143					0.00092	
Ni	mg/L			0.0013					0.0005					0.0012	
P	mg/L			< 0.009					0.017					0.022	
K	mg/L			7.03					8.20					6.98	
Se	mg/L			0.00018					< 0.00004					< 0.00004	
Si	mg/L			5.29					6.50					5.79	
Ag	mg/L			< 0.00001					< 0.00001					< 0.00001	
Na	mg/L			8.5					8.1					4.9	
Sr	mg/L			0.065					0.086					0.077	
S	mg/L			2.08					1.73					1.28	
Tl	mg/L			< 0.0002					< 0.0002					< 0.0002	
Sn	mg/L			0.00047					0.00120					0.00160	
Ti	mg/L			0.0001					< 0.0001					0.0004	
U	mg/L			0.000012					0.000005					0.000011	
V	mg/L			0.00442					0.00453					0.00346	
Zn	mg/L			0.00300					0.00200					0.00100	
Zr	mg/L			0.00003					0.00005					0.00005	

Humidity Cell Sample Data

DRAFT

HC - Coarse PK 2010

Date		27-Jan-11	3-Feb-11	10-Feb-11	17-Feb-11	24-Feb-11	3-Mar-11	10-Mar-11	17-Mar-11	24-Mar-11	31-Mar-11	7-Apr-11	14-Apr-11	21-Apr-11	28-Apr-11	5-May-11
Cycle		26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Leachate Volume Added (mL)		430	250	250	350	250	250	250	250	350	250	250	250	250	350	250
Leachate Volume Recovered (mL)		395	215	220	310	220	220	215	220	325	215	245	255	240	345	220
pH		7.60	7.59	7.59	7.66	7.65	7.59	7.71	7.64	7.79	7.62	7.73	7.58	7.65	7.55	7.54
ORP	mV	280	322	314	316	285	309	287	298	304	312	275	285	287	354	340
Cond.	umhos/cm	44	57	54	74	81	76	78	78	63	77	75	74	77	65	69
Acidity	mgCaCO3/L	3.6	3.1	3.5	4.2	4.8	3.6	4.0	4.0	5.2	6.0	8.1	7.1	2.8	3.8	3.4
Alkalinity	mgCaCO3/L	30.0	40.3	35.6	47.3	41.9	42.1	40.9	42.3	36.1	44.4	47.4	44.4	44.2	38.1	39.8
Sulphate	mg/L	1	3	<2	<2	9	9	5	8	7	5	4	5	3	6	5
Total P	mg/L	< 0.03	0	< 0.03	< 0.03	< 0.03	< 0.03	0	< 0.03	0	< 0.03	< 0.03	< 0.03	< 0.03	0	0
Ortho P	mg/L	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0	0
Chloride	mg/L	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fluoride	mg/L	0.15	0.20	0.18	0.19	0.17	0.24	0.21	0.16	0.19	0.19	0.21	0.16	0.17	0.16	0.17
Hardness	mg/L				24.9					18.5					18.9	
Al	mg/L				0.0203					0.0038					0.0129	
Sb	mg/L				< 0.0002					< 0.0002					0.0003	
As	mg/L				0.0006					0.0012					0.0004	
Ba	mg/L				0.0507					0.0362					0.0463	
Be	mg/L				< 0.00002					< 0.00002					< 0.00002	
Bi	mg/L				< 0.00001					< 0.00001					< 0.00001	
B	mg/L				0.37					0.24					0.23	
Cd	mg/L				< 0.000003					< 0.000003					< 0.000003	
Ca	mg/L				5.38					4.03					4.18	
Cr	mg/L				0.0008					0.0007					< 0.0005	
Co	mg/L				0.000087					0.000033					0.000073	
Cu	mg/L				0.0005					0.0013					0.0006	
Fe	mg/L				0.028					< 0.002					0.012	
Pb	mg/L				0.00038					0.00003					0.00008	
Li	mg/L				< 0.001					< 0.001					< 0.001	
Mg	mg/L				2.79					2.04					2.07	
Mn	mg/L				0.0006					0.0004					0.0007	
Hg	ug/L				< 0.01					< 0.01					< 0.01	
Mo	mg/L				0.00077					0.00058					0.00093	
Ni	mg/L				0.0010					0.0003					0.0010	
P	mg/L				0.056					< 0.009					0.017	
K	mg/L				6.80					5.13					5.29	
Se	mg/L				0.00007					< 0.00004					0.00038	
Si	mg/L				5.84					4.00					4.44	
Ag	mg/L				< 0.00001					< 0.00001					< 0.00001	
Na	mg/L				4.1					2.6					2.2	
Sr	mg/L				0.079					0.061					0.064	
S	mg/L				1.06					0.78					0.73	
Tl	mg/L				< 0.0002					< 0.0002					< 0.0002	
Sn	mg/L				0.00040					0.00055					0.00053	
Ti	mg/L				0.0003					< 0.0001					< 0.0001	
U	mg/L				0.000006					0.000009					0.000001	
V	mg/L				0.00328					0.00262					0.00287	
Zn	mg/L				< 0.001					< 0.001					0.00700	
Zr	mg/L				0.00002					< 0.00001					0.00005	

Humidity Cell Sample Data

DRAFT

HC - Coarse PK 2010

Date		12-May-11	########	########	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11
Cycle		41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
Leachate Volume Added (mL)		250	250	250	300	250	250	250	250	300	250	250	250	250	350	300	250	250	250	250
Leachate Volume Recovered (mL)		225	220	250	275	240	230	225	240	270	225	225	220	215	305	265	235	220	220	295
pH		7.57	7.57	7.59	7.62	7.51	7.73	7.75	7.85	7.54	7.63	7.49	7.62	7.52	7.53	7.96	7.41	7.81	7.71	7.66
ORP	mV	338	177	297	285	325	293	338	298	313	295	224	348	329	233	145	270	321	289	301
Cond.	umhos/cm	76	75	56	54	54	46	69	78	63	71	68	73	69	58	98	58	75	72	58
Acidity	mgCaCO3/L	3.2	6.1	5.0	6.1	3.1	3.6	2.7	3.3	4.1	5.4	5.0	4.7	3.6	4.8	4.0	5.6	3.5	2.5	2.4
Alkalinity	mgCaCO3/L	43.9	38.0	31.8	33.7	31.2	29.5	40.1	45.4	36.7	37.5	36.7	38.7	37.6	33.4	54.1	35.9	42.3	40.4	32.7
Sulphate	mg/L	6	3	2	<2	2	3	4	4	4	3	<2	<2	<2	<2	2	3	2	5	<2
Total P	mg/L	0	0	0	<0.002	<0.002	0	<0.002	<0.002	<0.002	0	0	0	<0.002	0	0	<0.002	<0.002	<0.002	0
Ortho P	mg/L	<0.001	<0.001	0	<0.001	<0.001	0	0	<0.001	0	0	0	0	0	0	0	0	0	0	0
Chloride	mg/L	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0
Fluoride	mg/L	0.20	0.28	0.16	0.12	0.12	0.10	0.16	0.16	0.12	0.15	0.17	0.18	0.17	0.11	0.18	0.16	0.17	0.15	0.13
Hardness	mg/L				17.4					21.3					16.8					19.8
Al	mg/L				0.0082					0.0155					0.0092					0.0981
Sb	mg/L				< 0.0002					< 0.0002					< 0.0002					< 0.0002
As	mg/L				< 0.0002					0.0004					0.0005					0.0004
Ba	mg/L				0.0415					0.0517					0.0460					0.0544
Be	mg/L				< 0.00002					< 0.00002					< 0.00002					< 0.00002
Bi	mg/L				0.00002					0.00002					< 0.00001					< 0.00001
B	mg/L				0.17					0.18					0.16					0.17
Cd	mg/L				< 0.000003					0.000006					< 0.000003					< 0.000003
Ca	mg/L				3.88					4.81					3.73					3.98
Cr	mg/L				0.0007					< 0.0005					0.0012					0.0024
Co	mg/L				0.000025					0.000137					0.000057					0.000350
Cu	mg/L				0.0033					< 0.0005					0.0028					0.0006
Fe	mg/L				0.008					0.021					0.005					0.139
Pb	mg/L				< 0.00002					0.00004					0.00006					0.00007
Li	mg/L				< 0.001					< 0.001					< 0.001					< 0.001
Mg	mg/L				1.87					2.27					1.82					2.41
Mn	mg/L				0.0016					0.0003					0.0004					0.0020
Hg	ug/L				< 0.01					< 0.01					< 0.01					< 0.01
Mo	mg/L				0.00063					0.00046					0.00171					0.00051
Ni	mg/L				0.0007					0.0010					0.0003					0.0045
P	mg/L				< 0.009					< 0.009					< 0.009					< 0.009
K	mg/L				4.23					5.46					4.62					5.21
Se	mg/L				< 0.00004					< 0.00004					0.00029					0.00007
Si	mg/L				4.00					4.62					3.82					4.99
Ag	mg/L				< 0.00001					< 0.00001					< 0.00001					< 0.00001
Na	mg/L				1.6					1.9					1.5					1.6
Sr	mg/L				0.057					0.066					0.054					0.058
S	mg/L				0.59					0.71					0.46					0.65
Tl	mg/L				< 0.00002					< 0.00002					< 0.00002					< 0.00002
Sn	mg/L				0.00040					0.00161					0.00039					0.00094
Ti	mg/L				< 0.0001					0.0002					< 0.0001					0.0007
U	mg/L				< 0.000001					0.000005					0.000037					0.000003
V	mg/L				0.00195					0.00296					0.00247					0.00302
Zn	mg/L				0.00300					0.00400					0.00400					0.00300
Zr	mg/L				0.00002					0.00002					0.00003					0.00008

Humidity Cell Sample Data

DRAFT

HC - Coarse PK 2010

Date		22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		60	61	62	63	64	65	66	67	68	69	70	71	72
Leachate Volume Added (mL)		250	250	250	250	250	250	250	250	250	350	250	250	250
Leachate Volume Recovered (mL)		200	195	200	195	305	195	205	205	205	305	205	205	200
pH		7.87	7.79	7.57	7.78	7.61	7.63	7.51	7.80	7.59	7.56	7.53	7.92	7.54
ORP	mV	269	273	304	263	289	286	296	277	318	320	355	286	337
Cond.	umhos/cm	79	74	75	68	45	52	59	64	67	62	66	81	74
Acidity	mgCaCO3/L	2.6	2.7	4.9	5.7	3.9	3.2	5.4	3.7	3.4	3.6	5.6	2.5	4.3
Alkalinity	mgCaCO3/L	43.9	42.6	42.2	40.4	26.4	31.1	33.9	37.6	37.2	35.8	40.1	47.6	42.4
Sulphate	mg/L	3	3	2	2	3	2	2	<2	2	5	3	2	
Total P	mg/L	0	0	0	0	0	0	<0.002	0	0	<0.002	IP	0	
Ortho P	mg/L	0	0	<0.001	0	<0.001	0	<0.001	<0.001	<0.001	<0.001	IP	0	
Chloride	mg/L	1	1	1	1	0	0	0	1	0	0	0		
Fluoride	mg/L	0.27	0.18	< 0.06	0.15	0.10	0.15	0.14	0.16	0.14	0.18	0.16		
Hardness	mg/L					15.9					21.4			
Al	mg/L					0.0076					0.0360			
Sb	mg/L					< 0.0002					< 0.0002			
As	mg/L					0.0014					0.0005			
Ba	mg/L					0.0457					0.0609			
Be	mg/L					< 0.00002					< 0.00002			
Bi	mg/L					< 0.00001					< 0.00001			
B	mg/L					0.12					0.15			
Cd	mg/L					0.000007					< 0.000003			
Ca	mg/L					3.47					4.57			
Cr	mg/L					0.0015					< 0.0005			
Co	mg/L					0.000018					0.000035			
Cu	mg/L					< 0.0005					0.0006			
Fe	mg/L					< 0.003					0.009			
Pb	mg/L					0.00024					< 0.00002			
Li	mg/L					< 0.001					< 0.001			
Mg	mg/L					1.76					2.43			
Mn	mg/L					< 0.0002					0.0002			
Hg	ug/L					< 0.01					< 0.01			
Mo	mg/L					0.00053					0.00047			
Ni	mg/L					0.0004					0.0007			
P	mg/L					< 0.009					< 0.009			
K	mg/L					4.23					5.23			
Se	mg/L					< 0.00004					0.00024			
Si	mg/L					3.40					3.98			
Ag	mg/L					< 0.00001					< 0.00001			
Na	mg/L					1.2					1.4			
Sr	mg/L					0.050					0.070			
S	mg/L					0.49					0.47			
Tl	mg/L					0.00002					< 0.00002			
Sn	mg/L					0.00073					0.00061			
Ti	mg/L					< 0.0001					0.0006			
U	mg/L					< 0.000001					0.000001			
V	mg/L					0.00194					0.00295			
Zn	mg/L					0.00400					0.00200			
Zr	mg/L					< 0.00001					< 0.00001			

Humidity Cell Sample Data

DRAFT

HC - Fine PK 2010

S-Total:	0.04	%
S^{2-}:	0.03	%
NP:	110.00	t $CaCO_3$/1000 t
CaNP:	21	t $CaCO_3$/1000 t
AP:	0.9	t $CaCO_3$/1000 t

Date		29-Jul-10	5-Aug-10	12-Aug-10	19-Aug-10	26-Aug-10	2-Sep-10	9-Sep-10	16-Sep-10	23-Sep-10	30-Sep-10	7-Oct-10	14-Oct-10	21-Oct-10	28-Oct-10	4-Nov-10	11-Nov-10	18-Nov-10
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Leachate Volume Added (mL)		375	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250
Leachate Volume Recovered (mL)		185	210	215	220	215	225	210	250	215	205	230	195	225	220	210	220	205
pH		7.87	7.98	7.85	8.06	8.05	7.95	7.85	7.83	8.02	7.95	7.94	7.83	7.89	7.99	8.08	8.10	8.12
ORP	mV	320	395	401	369	326	373	336	312	301	270	298	272	333	326	375	342	343
Cond.	umhos/cm	442	344	297	257	236	211	244	197	169	160	198	203	193	214	271	201	197
Acidity	mgCaCO3/L	6.9	3.9	6.1	5.2	3.3	5.8	6.7	5.4	3.5	4.0	4.3	5.4	4.4	4.0	2.6	3.2	3.0
Alkalinity	mgCaCO3/L	88.8	81.0	82.6	94.4	98.1	100.2	104.3	100.8	96.8	103.4	99.2	99.0	100.1	110.5	106.6	111.3	94.2
Sulphate	mg/L	137	58	60	41	31	26	23	23	19	17	18	20	17	22	18	14	7
Total P	mg/L													< 0.03	< 0.03	IS	< 0.03	< 0.03
Ortho P	mg/L													< 0.03	< 0.03	IS	< 0.03	< 0.03
Chloride	mg/L	27	13	5.9	3.5	4.3	4.0	4.1	3.3	2.9	4.2	2.8	3.1	2.0	2.2	2.0	1.7	1.5
Fluoride	mg/L	0.72	0.80	0.77	0.79	0.82	0.76	0.78	0.77	0.78	0.66	0.73	0.71	0.70	0.72	0.70	0.69	0.68
Hardness	mg/L	166	123	100	77.3	86.9					70.0					72.4		
Al	mg/L	0.0069	0.0040	0.0037	0.0440	0.0187					0.0242					0.0502		
Sb	mg/L	0.0045	0.0067	0.0072	0.0079	0.0083					0.0061					0.0050		
As	mg/L	0.0013	0.0021	0.0025	0.0017	0.0014					0.0011					0.0011		
Ba	mg/L	0.181	0.113	0.0967	0.0930	0.0991					0.133					0.165		
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002		
Bi	mg/L	0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001		
B	mg/L	2.14	2.22	1.86	1.98	1.76					1.01					0.868		
Cd	mg/L	0.000021	0.000015	0.000013	< 0.000003	< 0.000003					< 0.000003					0.000040		
Ca	mg/L	44.5	32.4	26.3	19.9	21.8					17.6					18.2		
Cr	mg/L	0.0024	0.0016	0.0014	0.0016	0.0011					0.0015					0.0006		
Co	mg/L	0.000161	0.000094	0.000089	0.000200	0.000105					0.000147					0.000182		
Cu	mg/L	0.0041	0.0012	0.0010	0.0019	0.0018					0.0028					0.0027		
Fe	mg/L	0.007	0.003	< 0.002	0.062	0.033					0.034					0.068		
Pb	mg/L	0.00003	0.00002	0.00004	0.00011	0.00005					0.00017					0.00147		
Li	mg/L	0.009	0.007	0.005	0.006	0.005					0.004					0.004		
Mg	mg/L	13.4	10.1	8.37	6.70	7.91					6.36					6.56		
Mn	mg/L	0.0061	0.0022	0.0018	0.0020	0.0082					< 0.0002					0.0014		
Hg	ug/L	0.01	0.01	< 0.01	< 0.01	< 0.01					< 0.01					< 0.01		
Mo	mg/L	0.0735	0.06595	0.05209	0.0430	0.04507					0.0389					0.0395		
Ni	mg/L	0.0052	0.0035	0.0030	0.0050	0.0029					0.0035					0.0040		
P	mg/L	0.020	0.036	0.024	0.023	0.024					< 0.009					< 0.009		
K	mg/L	17.3	16.9	16.1	14.6	14.5					13.9					12.0		
Se	mg/L	0.00073	0.00068	0.00092	0.00088	0.00053					0.00053					0.00021		
Si	mg/L	7.25	8.39	8.67	8.31	8.81					8.01					8.06		
Ag	mg/L	0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001		
Na	mg/L	18.6	15.7	13.5	11.6	12.4					8.57					6.58		
Sr	mg/L	0.502	0.369	0.299	0.232	0.276					0.217					0.212		
S	mg/L	38.4	28.3	20.5	19.0	12.0					6.32					5.26		
Tl	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002					< 0.0002					< 0.0002		
Sn	mg/L	0.00045	0.00105	0.00040	0.00057	0.00086					0.00262					0.00026		
Ti	mg/L	0.0005	0.0004	0.0005	0.0016	0.0007					0.0008					0.0017		
U	mg/L	0.000309	0.000203	0.000156	0.000110	0.000066					0.000046					0.000087		
V	mg/L	0.00981	0.0114	0.0128	0.0136	0.01360					0.0120					0.0125		
Zn	mg/L	< 0.001	< 0.001	< 0.001	0.001	< 0.001					0.002					0.003		
Zr	mg/L	0.00005	0.00003	0.00001	0.00011	0.00005					0.00009					0.00031		

Humidity Cell Sample Data
DRAFT
HC - Fine PK 2010

Date		25-Nov-10	2-Dec-10	9-Dec-10	16-Dec-10	23-Dec-10	30-Dec-10	6-Jan-11	13-Jan-11	20-Jan-11	27-Jan-11	3-Feb-11	10-Feb-11	17-Feb-11	24-Feb-11	3-Mar-11	10-Mar-11	17-Mar-11	24-Mar-11	31-Mar-11	7-Apr-11
Cycle		17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Leachate Volume Added (mL)		250	250	300	250	250	250	250	300	250	250	250	250	350	250	250	250	250	350	250	250
Leachate Volume Recovered (mL)		255	205	260	185	215	215	210	280	215	185	210	205	300	215	210	200	205	300	220	235
pH		7.81	7.83	7.87	7.74	7.79	7.72	7.70	7.81	7.86	7.75	7.84	7.85	7.86	7.77	7.84	7.83	7.90	7.79	7.84	7.79
ORP	mV	298	307	353	327	348	333	347	324	325	305	327	332	325	303	316	301	306	318	317	288
Cond.	umhos/cm	188	173	190	172	171	172	151	156	165	151	132	157	152	176	168	179	181	171	164	181
Acidity	mgCaCO3/L	5.2	4.6	5.0	6.3	6.9	8.0	9.8	6.3	4.8	6.8	4.1	4.6	5.2	5.9	4.7	5.4	4.9	6.6	6.6	9.8
Alkalinity	mgCaCO3/L	103.4	97.7	104.0	93.0	91.9	96.4	95.3	100.9	101.0	93.9	90.5	100.4	92.2	90.2	88.4	92.9	93.2	90.6	91.6	101.4
Sulphate	mg/L	10	10	10	10	10	12	12	15	11	10	12	10	4	13	13	10	12	9	7	8
Total P	mg/L	< 0.03	< 0.03	< 0.03	< 0.03	0.05	0.04	< 0.03	0.03	< 0.03	< 0.03	0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.04	0.05	< 0.03
Ortho P	mg/L	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Chloride	mg/L	1.3	1.1	1.3	1.0	1.1	1.2	1.0	1.0	0.9	1.0	0.9	1.0	0.7	0.7	0.6	0.8	1.0	0.6	0.6	0.9
Fluoride	mg/L	0.62	0.56	0.55	0.54	0.52	0.52	0.51	0.48	0.45	0.45	0.42	0.42	0.37	0.37	0.42	0.39	0.33	0.39	0.34	0.40
Hardness	mg/L			75.3					80.5					70.6					71.3		
Al	mg/L			0.0023					0.0163					0.0378					0.0083		
Sb	mg/L			0.0050					0.0042					0.0035					0.0031		
As	mg/L			0.0010					0.0010					0.0007					0.0025		
Ba	mg/L			0.191					0.209					0.189					0.180		
Be	mg/L			< 0.00002					< 0.00002					< 0.00002					< 0.00002		
Bi	mg/L			< 0.00001					< 0.00001					< 0.00001					< 0.00001		
B	mg/L			0.569					0.376					0.266					0.219		
Cd	mg/L			0.000003					< 0.000003					< 0.000003					0.000003		
Ca	mg/L			18.8					20.1					17.6					18.1		
Cr	mg/L			0.0009					< 0.0005					0.0013					0.0008		
Co	mg/L			0.000125					0.000085					0.000161					0.000085		
Cu	mg/L			0.0025					0.0010					0.0009					0.0013		
Fe	mg/L			< 0.002					0.063					0.061					0.010		
Pb	mg/L			0.00133					0.00006					0.00102					0.00003		
Li	mg/L			0.003					0.003					0.003					0.002		
Mg	mg/L			6.86					7.33					6.43					6.35		
Mn	mg/L			0.0004					0.0038					0.0005					0.0002		
Hg	ug/L			< 0.01					< 0.01					< 0.01					0.01		
Mo	mg/L			0.0317					0.0280					0.0193					0.0153		
Ni	mg/L			0.0014					0.0016					0.0026					0.0016		
P	mg/L			< 0.009					0.039					0.011					0.031		
K	mg/L			10.8					11.6					9.50					9.11		
Se	mg/L			< 0.00004					0.00024					0.00018					0.00013		
Si	mg/L			7.04					7.76					6.68					6.11		
Ag	mg/L			< 0.00001					< 0.00001					< 0.00001					< 0.00001		
Na	mg/L			5.08					3.99					2.84					2.42		
Sr	mg/L			0.224					0.236					0.200					0.215		
S	mg/L			4.15					5.17					3.57					3.25		
Tl	mg/L			< 0.0002					< 0.0002					< 0.0002					< 0.0002		
Sn	mg/L			0.00059					0.00101					0.00036					0.00023		
Ti	mg/L			0.0002					0.0006					0.0018					0.0002		
U	mg/L			0.000113					0.000066					0.000025					0.000037		
V	mg/L			0.0123					0.0123					0.01053					0.00931		
Zn	mg/L			0.002					0.002					0.002					< 0.001		
Zr	mg/L			0.00005					0.00004					0.00004					< 0.00001		

Humidity Cell Sample Data

DRAFT

HC - Fine PK 2010

Date		14-Apr-11	21-Apr-11	28-Apr-11	5-May-11	12-May-11	19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11
Cycle		37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
Leachate Volume Added (mL)		250	250	350	250	300	250	250	300	250	250	250	250	250	250	250	250	250	350	300	250
Leachate Volume Recovered (mL)		210	200	340	215	245	245	220	265	225	215	185	215	250	215	210	205	210	300	265	235
pH		7.73	7.88	7.84	7.72	8.02	7.82	7.93	7.81	7.92	8.05	8.05	8.15	8.02	7.95	7.88	8.02	7.94	7.98	7.96	7.92
ORP	mV	289	292	360	304	334	225	301	288	319	324	346	328	307	294	281	295	305	242	171	274
Cond.	umhos/cm	176	179	173	173	174	183	181	172	171	167	162	162	272	154	158	171	170	146	146	158
Acidity	mgCaCO3/L	9.2	3.8	4.3	4.9	3.6	6.7	6.0	6.1	3.8	3.5	3.0	3.0	5.5	5.6	4.6	4.3	4.8	4.5	4.6	5.4
Alkalinity	mgCaCO3/L	96.6	96.1	94.2	91.0	95.8	91.1	89.3	92.5	89.8	91.5	89.5	89.0	127.0	78.9	81.6	89.5	89.3	77.4	77.9	84.2
Sulphate	mg/L	8	6	9	8	8	7	5	5	4	6	7	5	12	5	5	5	4	4	4	5
Total P	mg/L	< 0.03	< 0.03	0.003	0.005	0.002	0.004	0.008	<0.002	0.003	0.007	0.004	0.002	0.005	0.004	0.006	0.004	0.003	0.01	0.003	0.004
Ortho P	mg/L	< 0.03	< 0.03	0.001	0.002	0.002	0.001	0.004	0.001	0.001	0.005	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.006	0.002	0.002
Chloride	mg/L	0.9	0.8	0.6	0.8	0.9	0.8	0.9	0.8	0.8	0.8	0.7	0.6	0.5	0.5	0.6	0.6	0.5	0.4	0.4	0.5
Fluoride	mg/L	0.35	0.39	0.36	0.35	0.34	0.34	0.36	0.30	0.29	0.29	0.30	0.26	0.26	0.20	0.27	0.26	0.26	0.21	0.25	0.25
Hardness	mg/L			67.3					67.7					66.4					61.8		
Al	mg/L			0.0231					0.0229					0.0062					0.0088		
Sb	mg/L			0.0036					0.0031					0.0028					0.0027		
As	mg/L			0.0006					0.0005					0.0017					0.0013		
Ba	mg/L			0.199					0.210					0.209					0.189		
Be	mg/L			< 0.00002					< 0.00002					< 0.00002					< 0.00002		
Bi	mg/L			< 0.00001					0.00001					0.00001					< 0.00001		
B	mg/L			0.226					0.164					0.150					0.128		
Cd	mg/L			0.000011					0.000018					0.000007					0.000019		
Ca	mg/L			16.8					17.1					16.9					15.8		
Cr	mg/L			< 0.0005					0.0007					< 0.0005					0.0018		
Co	mg/L			0.000146					0.000124					0.000095					0.000070		
Cu	mg/L			0.0009					0.0015					0.0011					0.0014		
Fe	mg/L			0.026					0.039					0.010					0.007		
Pb	mg/L			0.00014					0.00012					0.00003					0.00011		
Li	mg/L			0.002					0.002					0.002					0.002		
Mg	mg/L			6.16					6.07					5.88					5.45		
Mn	mg/L			0.0009					0.0018					< 0.0002					0.0004		
Hg	ug/L			< 0.01					< 0.01					0.01					0.01		
Mo	mg/L			0.01393					0.0104					0.00890					0.00690		
Ni	mg/L			0.0025					0.0026					0.0013					0.0008		
P	mg/L			< 0.009					0.027					< 0.009					0.010		
K	mg/L			9.53					8.90					8.42					8.30		
Se	mg/L			0.00015					< 0.00004					0.00014					0.00022		
Si	mg/L			6.64					6.80					6.81					6.35		
Ag	mg/L			< 0.00001					< 0.00001					< 0.00001					< 0.00001		
Na	mg/L			2.11					1.78					1.68					1.45		
Sr	mg/L			0.202					0.200					0.192					0.178		
S	mg/L			3.05					2.69					2.53					2.07		
Tl	mg/L			< 0.0002					< 0.00002					< 0.00002					< 0.00002		
Sn	mg/L			0.00062					0.00033					0.00047					0.00020		
Ti	mg/L			0.0004					0.0009					0.0001					0.0002		
U	mg/L			0.000032					0.000012					0.000018					0.000068		
V	mg/L			0.00994					0.00935					0.00922					0.00864		
Zn	mg/L			0.003					0.005					0.003					0.003		
Zr	mg/L			0.00010					0.00004					0.00001					0.00002		

Humidity Cell Sample Data

DRAFT

HC - Fine PK 2010

Date		1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
Leachate Volume Added (mL)		250	250	250	250	250	250	250	250	250	250	250	250	350	250	250	250
Leachate Volume Recovered (mL)		200	230	305	205	215	215	230	235	240	200	225	205	320	235	210	245
pH		8.13	8.08	7.87	8.04	8.00	7.91	7.74	8.03	8.02	7.96	7.83	7.65	7.99	7.96	7.93	7.89
ORP	mV	303	297	302	255	292	251	295	245	296	255	309	193	313	270	322	276
Cond.	umhos/cm	144	153	154	152	151	155	162	158	157	156	152	148	139	152	150	167
Acidity	mgCaCO3/L	3.0	3.7	3.4	3.3	3.4	4.0	8.9	2.9	3.1	4.1	5.2	4.6	3.1	4.1	3.3	3.7
Alkalinity	mgCaCO3/L	77.1	84.6	84.7	82.6	81.6	80.8	86.5	82.9	82.4	81.7	81.9	79.8	78.2	82.9	84.6	88.8
Sulphate	mg/L	5	7	2	5	2	4	3	3	4	4	3	5	4	3	3	
Total P	mg/L	0.003	0.004	0.003	0.004	0.004	0.004	0.004	0.003	0.004	0.003	0.008	0.004	0.004	IP	0.003	
Ortho P	mg/L	0.001	0.004	0.002	0.002	0.002	<0.001	0.002	<0.001	0.002	<0.001	<0.001	0.002	<0.001	IP	0.002	
Chloride	mg/L	0.5	0.5	0.4	0.6	0.5	0.5	0.5	0.3	0.4	0.3	0.5	0.5	0.3	0.4		
Fluoride	mg/L	0.23	0.19	0.22	0.22	0.22	0.20	0.22	0.22	0.27	0.22	0.22	0.21	0.23	0.24		
Hardness	mg/L			62.4					65.3					61.5			
Al	mg/L			0.0047					0.0072					0.0298			
Sb	mg/L			0.0024					0.0024					0.0022			
As	mg/L			0.0007					0.0007					0.0008			
Ba	mg/L			0.245					0.244					0.239			
Be	mg/L			< 0.00002					< 0.00002					< 0.00002			
Bi	mg/L			< 0.00001					< 0.00001					0.00002			
B	mg/L			0.119					0.117					0.104			
Cd	mg/L			< 0.000003					< 0.000003					< 0.000003			
Ca	mg/L			16.0					16.8					15.8			
Cr	mg/L			0.0017					0.0012					< 0.0005			
Co	mg/L			0.000060					0.000045					0.000049			
Cu	mg/L			< 0.0005					0.0009					0.0005			
Fe	mg/L			0.010					0.109					0.004			
Pb	mg/L			0.00008					0.00016					0.00002			
Li	mg/L			0.002					0.002					0.002			
Mg	mg/L			5.49					5.70					5.36			
Mn	mg/L			< 0.0002					0.0003					< 0.0002			
Hg	ug/L			< 0.01					< 0.01					< 0.01			
Mo	mg/L			0.00572					0.00522					0.00435			
Ni	mg/L			0.0003					0.0009					0.0014			
P	mg/L			< 0.009					< 0.009					< 0.009			
K	mg/L			7.71					7.92					7.01			
Se	mg/L			0.00018					0.00015					< 0.00004			
Si	mg/L			6.03					5.89					5.39			
Ag	mg/L			< 0.00001					< 0.00001					< 0.00001			
Na	mg/L			1.31					1.14					0.92			
Sr	mg/L			0.178					0.185					0.181			
S	mg/L			2.16					2.05					1.59			
Tl	mg/L			< 0.00002					< 0.00002					< 0.00002			
Sn	mg/L			0.00055					0.00050					0.00025			
Ti	mg/L			< 0.0001					0.0001					0.0004			
U	mg/L			0.000025					0.000025					0.000020			
V	mg/L			0.00890					0.00933					0.00940			
Zn	mg/L			0.002					0.002					0.001			
Zr	mg/L			0.00002					0.00004					< 0.00001			

Humidity Cell Sample Data

DRAFT
HC 2 - Granite 2011
HC 9 Confirmation

S-Total:	0.04	%
S^{2-}:	0.04	%
NP:	7.30	t $CaCO_3$/1000 t
CaNP:	2.5	t $CaCO_3$/1000 t
AP:	1.3	t $CaCO_3$/1000 t

Date		28-Apr-11	5-May-11	12-May-11	19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		395	470	475	465	465	465	480	425	480	470	470	470	470	470	465	480	470	490	470
pH		7.44	7.28	7.42	7.51	7.42	7.53	7.34	7.63	7.67	7.62	7.33	7.39	7.44	7.51	7.34	7.44	7.49	7.43	7.82
ORP	mV	270	353	355	301	241	281	327	304	348	305	313	300	238	330	318	233	255	269	320
Cond.	umhos/cm	174	200	103	73	56	52	50	63	46	42	41	41	39	40	43	40	42	40	41
Acidity	mgCaCO3/L	4.0	3.2	3.4	3.4	4.7	5.0	2.7	3.5	2.2	3.1	3.8	4.8	4.2	4.1	3.3	3.7	3.1	4.6	3.2
Alkalinity	mgCaCO3/L	26.4	20.8	20.3	17.1	20.1	16.2	14.9	27.0	16.5	15.3	15.6	13.8	14.1	13.9	13.3	13.6	13.9	14.2	15.3
Sulphate	mg/L	37	66	27	16	9	6	8	8	6	6	7	7	6	6	5	6	5	6	7
Total P	mg/L	0	<0.002	<0.002	0	0	<0.002	<0.002	<0.002	<0.002	<0.002	0	0	<0.002	<0.002	<0.002	0	<0.002	<0.002	<0.002
Ortho P	mg/L	0	<0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0	0	0	0	<0.001	0	0	<0.001	<0.001
Chloride	mg/L	8	5	1	0	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Fluoride	mg/L	0.23	0.37	0.40	0.37	0.34	0.29	0.30	0.42	0.29	0.24	0.24	0.21	0.24	0.24	0.24	0.19	0.24	0.26	0.24
Hardness	mg/L	45.4	60.8	33.1	26.2	21.1					18.4					19.4				
Al	mg/L	0.1400	0.0730	0.0785	0.0848	0.0711					0.0634					0.0503				
Sb	mg/L	< 0.0002	< 0.0002	< 0.0002	0.0002	< 0.0002					< 0.0002					< 0.0002				
As	mg/L	0.0004	0.0003	0.0003	< 0.0002	< 0.0002					< 0.0002					0.0006				
Ba	mg/L	0.0131	0.0107	0.0065	0.0060	0.0044					0.0053					0.0040				
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002				
Bi	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001				
B	mg/L	0.03	0.05	0.04	0.02	0.03					0.02					0.00				
Cd	mg/L	< 0.000003	0.000005	< 0.000003	0.001194	0.000003					< 0.000003					< 0.000003				
Ca	mg/L	13.6	17.2	9.7	8.01	6.56					6.10					6.71				
Cr	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005					< 0.0005					0.0012				
Co	mg/L	0.000066	0.000054	0.000049	0.000241	0.000030					0.000020					0.000014				
Cu	mg/L	0.0011	0.0008	0.0006	0.0006	0.0018					< 0.0005					< 0.0005				
Fe	mg/L	0.002	< 0.002	< 0.002	< 0.002	< 0.002					0.006					0.003				
Pb	mg/L	0.00004	0.00005	0.00003	0.00113	0.00003					0.00003					0.00006				
Li	mg/L	0.005	0.007	0.004	0.003	0.002					0.001					< 0.001				
Mg	mg/L	2.78	4.35	2.17	1.49	1.14					0.77					0.63				
Mn	mg/L	0.0036	0.0078	0.0063	0.0059	0.0028					0.0023					0.0013				
Hg	ug/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01					0.01					0.01				
Mo	mg/L	0.00140	0.00282	0.00136	0.00127	0.00071					0.00069					0.00039				
Ni	mg/L	0.0011	0.0001	0.0006	0.0007	0.0004					0.0001					< 0.0001				
P	mg/L	< 0.009	0.04	< 0.009	< 0.009	0.011					< 0.009					< 0.009				
K	mg/L	7.2	5.5	2.63	1.87	1.31					0.78					0.58				
Se	mg/L	0.00064	< 0.00004	0.00012	< 0.00004	< 0.00004					< 0.00004					< 0.00004				
Si	mg/L	1.29	1.21	1.17	1.18	0.91					0.98					0.83				
Ag	mg/L	< 0.00001	< 0.00001	< 0.00001	0.00006	< 0.00001					< 0.00001					< 0.00001				
Na	mg/L	8.4	8.3	3.2	1.9	1.2					0.5					0.4				
Sr	mg/L	0.138	0.184	0.098	0.075	0.058					0.046					0.041				
S	mg/L	13.30	20.60	9.14	5.70	4.06					2.34					2.90				
Tl	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002					< 0.00002					< 0.00002				
Sn	mg/L	0.00028	0.00099	0.00118	0.00038	0.00070					0.00135					0.00136				
Ti	mg/L	0.0005	0.0006	0.0006	0.0002	0.0001					< 0.0001					< 0.0001				
U	mg/L	0.000163	0.001850	0.000873	0.000608	0.000540					0.000932					0.000949				
V	mg/L	0.00102	0.00105	0.00123	0.00153	0.00128					0.00123					0.00114				
Zn	mg/L	0.00200	0.00100	0.00300	0.00200	0.00200					0.00100					0.00200				
Zr	mg/L	0.00011	0.00008	0.00004	0.00002	0.00002					0.00002					0.00002				

Humidity Cell Sample Data

DRAFT

HC 2 - Granite 2011
HC 9 Confirmation

Date		8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		475	485	490	480	480	470	460	455	475	480	475	470	480	475	485
pH		7.81	7.41	7.48	7.44	7.38	7.78	7.31	7.45	7.61	7.85	7.42	7.54	7.45	7.67	7.49
ORP	mV	277	299	301	280	300	268	286	292	287	284	312	311	347	293	327
Cond.	umhos/cm	38	38	40	35	35	35	32	35	33	34	33	34	33	34	33
Acidity	mgCaCO3/L	3.0	2.6	2.7	2.4	4.6	6.0	3.8	3.0	4.9	4.2	3.7	3.2	4.8	2.5	4.5
Alkalinity	mgCaCO3/L	14.4	14.1	14.0	13.5	12.7	15.6	11.2	12.1	13.3	14.7	12.2	14.1	13.9	13.9	13.6
Sulphate	mg/L	9	3	4	4	4	3	6	4	5	3	4	6	6	3	
Total P	mg/L	<0.002	0	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0	<0.002	<0.002	IP	<0.002	
Ortho P	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	IP	<0.001	
Chloride	mg/L	< 0.2	< 0.2	< 0.2	0	< 0.2	< 0.2	< 0.2	1	< 0.2	< 0.2	< 0.2	< 0.2			
Fluoride	mg/L	0.32	0.25	0.23	0.23	0.20	0.23	0.20	0.24	0.22	0.22	0.22	0.26			
Hardness	mg/L	16.9					15.7					15.4				
Al	mg/L	0.0769					0.0567					0.0711				
Sb	mg/L	< 0.0002					< 0.0002					< 0.0002				
As	mg/L	< 0.0002					< 0.0002					< 0.0002				
Ba	mg/L	0.0035					0.0030					0.0033				
Be	mg/L	< 0.00002					< 0.00002					< 0.00002				
Bi	mg/L	< 0.00001					0.00002					< 0.00001				
B	mg/L	0.01					0.00					0.01				
Cd	mg/L	< 0.000003					< 0.000003					< 0.000003				
Ca	mg/L	6.05					5.69					5.66				
Cr	mg/L	0.0011					0.0010					< 0.0005				
Co	mg/L	0.000133					0.000014					0.000008				
Cu	mg/L	0.0009					0.0007					< 0.0005				
Fe	mg/L	0.004					< 0.002					< 0.003				
Pb	mg/L	0.00026					0.00018					0.00003				
Li	mg/L	0.001					< 0.001					< 0.001				
Mg	mg/L	0.43					0.37					0.30				
Mn	mg/L	0.0016					0.0013					< 0.0002				
Hg	ug/L	0.01					< 0.01					0.01				
Mo	mg/L	0.00102					0.00021					0.00496				
Ni	mg/L	0.0004					0.0002					0.0002				
P	mg/L	< 0.009					< 0.009					< 0.009				
K	mg/L	0.45					0.41					0.33				
Se	mg/L	< 0.00004					< 0.00004					< 0.00004				
Si	mg/L	0.79					0.75					0.67				
Ag	mg/L	< 0.00001					< 0.00001					< 0.00001				
Na	mg/L	0.2					0.3					0.2				
Sr	mg/L	0.032					0.027					0.023				
S	mg/L	2.45					2.04					1.87				
Tl	mg/L	< 0.00002					< 0.00002					< 0.00002				
Sn	mg/L	0.00025					0.00014					0.00031				
Ti	mg/L	0.0002					< 0.0001					0.0003				
U	mg/L	0.000759					0.000518					0.000477				
V	mg/L	0.00095					0.00076					0.00093				
Zn	mg/L	0.00500					0.00300					0.00100				
Zr	mg/L	0.00003					0.00002					0.00003				

Humidity Cell Sample Data

DRAFT
HC 3 - Granite 2011
HC 12 Confirmation

S-Total:	0.01	%
S^{2-}:	0.01	%
NP:	11.10	t $CaCO_3$/1000 t
CaNP:	4.2	t $CaCO_3$/1000 t
AP:	0.3	t $CaCO_3$/1000 t

Date		28-Apr-11	5-May-11	12-May-11	19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		340	485	495	480	495	480	485	465	485	485	490	490	485	485	505	490	490	495	485
pH		7.62	7.53	7.59	7.68	7.73	7.55	7.41	7.64	7.62	7.63	7.36	7.44	7.43	7.51	7.30	7.51	7.55	7.49	7.82
ORP	mV	314	332	346	299	271	287	332	306	348	307	314	301	253	327	325	240	257	270	335
Cond.	umhos/cm	122	85	53	43	36	32	30	30	29	28	26	29	25	26	25	23	24	24	23
Acidity	mgCaCO3/L	3.4	2.7	3.0	3.2	3.8	3.8	2.6	2.9	2.0	3.0	3.5	4.4	3.6	3.7	3.1	3.6	2.8	4.3	3.2
Alkalinity	mgCaCO3/L	33.8	27.9	25.0	21.1	20.6	18.2	15.6	16.7	16.4	15.3	15.1	15.1	13.6	14.5	12.9	14.1	14.6	14.9	15.0
Sulphate	mg/L	6	7	5	4	3	<2	2	2	3	2	<2	2	<2	<2	<2	<2	<2	<2	<2
Total P	mg/L	0	<0.002	<0.002	0	0	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0	<0.002	<0.002	<0.002
Ortho P	mg/L	0	<0.001	0	<0.001	0	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0	0	<0.001	<0.001	0	0	<0.001	<0.001
Chloride	mg/L	12	6	2	1	0	0	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Fluoride	mg/L	0.34	0.37	0.34	0.27	0.26	0.19	0.18	0.16	0.17	0.14	0.14	0.13	0.14	0.15	0.13	0.11	0.13	0.14	0.11
Hardness	mg/L	18.5	14.3	11.1	11.1	11.2					11.5					10.9				
Al	mg/L	0.2810	0.1260	0.1030	0.1140	0.0835					0.0793					0.0554				
Sb	mg/L	0.0004	0.0006	< 0.0002	0.0005	0.0009					0.0017					0.0011				
As	mg/L	0.0008	0.0007	0.0007	0.0004	0.0005					0.0007					0.0008				
Ba	mg/L	0.0069	0.0044	0.0036	0.0034	0.0036					0.0035					0.0034				
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002				
Bi	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001				
B	mg/L	0.04	0.04	0.03	0.02	0.02					0.01					0.02				
Cd	mg/L	0.000004	< 0.000003	< 0.000003	0.000357	< 0.000003					0.000041					0.000008				
Ca	mg/L	6.1	4.4	3.4	3.51	3.56					3.74					3.62				
Cr	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005					< 0.0005					0.0011				
Co	mg/L	0.000105	0.000051	0.000032	0.000103	0.000015					0.000016					0.000002				
Cu	mg/L	0.0053	0.0019	0.0011	0.0009	0.0008					0.0011					0.0006				
Fe	mg/L	0.022	0.004	0.003	< 0.002	< 0.002					0.004					< 0.002				
Pb	mg/L	0.00009	0.00005	0.00003	0.00035	< 0.00002					0.00013					0.00005				
Li	mg/L	0.007	0.006	0.004	0.004	0.003					0.002					0.001				
Mg	mg/L	0.82	0.77	0.61	0.58	0.57					0.53					0.44				
Mn	mg/L	0.0022	0.0029	0.0045	0.0021	0.0018					0.0020					0.0005				
Hg	ug/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01					0.02					0.01				
Mo	mg/L	0.00210	0.00266	0.00124	0.00077	0.00051					0.00033					0.00029				
Ni	mg/L	0.0010	0.0004	0.0003	0.0004	0.0002					0.0001					0.0002				
P	mg/L	< 0.009	0.009	< 0.009	< 0.009	< 0.009					< 0.009					< 0.009				
K	mg/L	5.9	3.5	2.11	1.91	1.53					1.06					0.70				
Se	mg/L	0.0002	< 0.00004	0.00023	< 0.00004	0.00020					0.00013					0.00031				
Si	mg/L	1.31	1.07	0.98	1.09	0.99					0.89					0.73				
Ag	mg/L	0.00003	< 0.00001	< 0.00001	0.00002	< 0.00001					< 0.00001					< 0.00001				
Na	mg/L	12.9	8.6	4.5	3.1	2.1					0.8					0.5				
Sr	mg/L	0.082	0.068	0.052	0.052	0.050					0.049					0.042				
S	mg/L	2.23	2.14	1.20	0.85	0.60					0.49					0.45				
Tl	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002					< 0.00002					< 0.00002				
Sn	mg/L	0.00029	0.00022	0.00039	0.00021	0.00029					0.00094					0.00108				
Ti	mg/L	0.0004	0.0002	0.0005	0.0002	< 0.0001					< 0.0001					0.0002				
U	mg/L	0.000047	0.000336	0.000393	0.000537	0.000677					0.000793					0.000593				
V	mg/L	0.00111	0.00123	0.00108	0.00134	0.00117					0.00103					0.00090				
Zn	mg/L	0.00100	0.00200	0.00300	0.00200	0.00100					0.00500					0.00300				
Zr	mg/L	0.00011	0.00003	0.00003	0.00002	< 0.00001					< 0.00001					< 0.00001				

Humidity Cell Sample Data

DRAFT

HC 3 - Granite 2011
HC 12 Confirmation

Date		8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		490	485	485	500	505	495	490	480	485	495	495	495	500	495	495
pH		7.70	7.42	7.43	7.41	7.34	7.77	7.35	7.48	7.57	7.95	7.43	7.51	7.46	7.64	7.48
ORP	mV	289	301	304	289	304	275	290	299	290	307	312	316	349	306	330
Cond.	umhos/cm	22	24	24	23	22	23	22	22	20	20	22	22	21	23	22
Acidity	mgCaCO3/L	3.1	2.6	2.6	2.3	4.7	6.0	3.7	2.9	4.8	5.3	3.3	2.9	4.8	2.6	4.6
Alkalinity	mgCaCO3/L	14.1	14.6	14.2	13.9	12.6	17.0	13.0	12.7	13.0	14.3	13.7	13.9	13.0	14.4	13.6
Sulphate	mg/L	<2	<2	<2	2	<2	<2	2	2	<2	<2	<2	2	2	<2	
Total P	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	IP	<0.002	
Ortho P	mg/L	<0.001	<0.001	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	IP	<0.001	
Chloride	mg/L	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2			
Fluoride	mg/L	0.15	0.11	0.09	0.09	0.11	0.11	0.08	0.10	0.08	0.08	0.08	0.09			
Hardness	mg/L	10.0					10.9					11.2				
Al	mg/L	0.0675					0.0689					0.0666				
Sb	mg/L	0.0007					0.0006					0.0004				
As	mg/L	0.0004					0.0004					0.0004				
Ba	mg/L	0.0031					0.0038					0.0033				
Be	mg/L	< 0.00002					< 0.00002					< 0.00002				
Bi	mg/L	< 0.00001					0.00003					< 0.00001				
B	mg/L	0.00					0.00					0.00				
Cd	mg/L	< 0.000003					< 0.000003					< 0.000003				
Ca	mg/L	3.43					3.81					3.98				
Cr	mg/L	0.0014					0.0013					< 0.0005				
Co	mg/L	0.000033					0.000019					0.000009				
Cu	mg/L	0.0007					< 0.0005					< 0.0005				
Fe	mg/L	< 0.002					< 0.002					< 0.003				
Pb	mg/L	0.00007					0.00014					0.00003				
Li	mg/L	0.001					< 0.001					< 0.001				
Mg	mg/L	0.35					0.35					0.30				
Mn	mg/L	0.0005					0.0005					< 0.0002				
Hg	ug/L	< 0.01					< 0.01					< 0.01				
Mo	mg/L	0.00079					0.00022					0.00014				
Ni	mg/L	0.0002					0.0001					0.0002				
P	mg/L	< 0.009					< 0.009					< 0.009				
K	mg/L	0.55					0.56					0.44				
Se	mg/L	< 0.00004					< 0.00004					< 0.00004				
Si	mg/L	0.67					0.76					0.69				
Ag	mg/L	< 0.00001					< 0.00001					< 0.00001				
Na	mg/L	0.3					0.3					0.2				
Sr	mg/L	0.036					0.036					0.033				
S	mg/L	0.37					0.31					0.29				
Tl	mg/L	< 0.00002					< 0.00002					< 0.00002				
Sn	mg/L	0.00019					0.00018					0.00015				
Ti	mg/L	< 0.0001					< 0.0001					0.0002				
U	mg/L	0.000513					0.000370					0.000273				
V	mg/L	0.00081					0.00074					0.00084				
Zn	mg/L	0.00300					0.00300					0.00100				
Zr	mg/L	< 0.00001					0.00001					< 0.00001				

Humidity Cell Sample Data

DRAFT
HC 4- Granite 2011
HC 16 Confirmation

S-Total:	0.09	%
S^{2-}:	0.07	%
NP:	7.10	t $CaCO_3$/1000 t
CaNP:	0.8	t $CaCO_3$/1000 t
AP:	2.2	t $CaCO_3$/1000 t

Date		28-Apr-11	5-May-11	12-May-11	19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		380	495	465	455	485	470	480	415	485	470	485	490	490	500	465	470	485	485	485
pH		4.81	4.91	5.25	5.50	5.77	5.73	5.22	5.49	5.29	5.26	4.89	4.94	4.54	4.54	4.21	3.84	3.86	3.62	3.86
ORP	mV	365	332	350	338	311	351	374	308	353	314	405	392	374	425	454	397	395	420	451
Cond.	umhos/cm	868	662	364	272	223	182	169	163	168	176	190	199	199	211	256	318	332	341	346
Acidity	mgCaCO3/L	24.6	16.2	9.6	8.5	9.1	8.3	7.0	7.1	6.1	7.3	10.4	12.9	13.3	13.5	18.8	29.9	29.8	38.6	35.8
Alkalinity	mgCaCO3/L	0.2	0.3	1.6	0.9	1.3	1.2	0.3	0.9	0.5	0.3	<0.1	<0.1	<0.1	<0.1	#N/A	#N/A	#N/A	#N/A	#N/A
Sulphate	mg/L	368	313	148	109	84	69	67	57	68	71	90	83	80	90	91	105	117	126	112
Total P	mg/L	0	0	<0.002	0	0	<0.002	<0.002	<0.002	0	<0.002	<0.002	0	0	0	0	0	0	0	0
Ortho P	mg/L	0	0	<0.001	0	0	0	<0.001	<0.001	0	<0.001	<0.001	0	0	0	0	<0.001	0	0	0
Chloride	mg/L	5	3	1	0	1	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Fluoride	mg/L	0.30	0.29	0.17	0.14	0.13	0.10	0.10	0.10	0.11	0.11	0.13	0.07	0.17	0.21	0.24	0.28	0.35	0.37	0.38
Hardness	mg/L	357.0	272.0	126.0	96.4	74.9					57.0					67.4				
Al	mg/L	1.2900	0.9570	0.4310	0.2850	0.2350					0.3030					0.8470				
Sb	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0002					< 0.0002					< 0.0002				
As	mg/L	0.0009	< 0.0002	0.0004	< 0.0002	< 0.0002					< 0.0002					< 0.0002				
Ba	mg/L	0.0754	0.0291	0.0262	0.0212	0.0187					0.0209					0.0167				
Be	mg/L	0.00448	0.00279	0.00171	0.00156	0.00117					0.00158					0.00383				
Bi	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00002					< 0.00001					< 0.00001				
B	mg/L	0.09	0.08	0.07	0.04	0.03					0.02					0.02				
Cd	mg/L	0.000636	0.000434	0.000267	0.000295	0.000131					0.000137					0.000242				
Ca	mg/L	70.0	51.8	23.7	18.20	15.30					11.60					13.80				
Cr	mg/L	0.0013	0.0014	0.0006	< 0.0005	< 0.0005					< 0.0005					0.0019				
Co	mg/L	0.044900	0.036800	0.021000	0.012900	0.011500					0.009970					0.018600				
Cu	mg/L	0.0278	0.0131	0.0179	0.0086	0.0189					0.0085					0.0154				
Fe	mg/L	2.430	1.210	0.598	0.683	0.642					0.051					0.153				
Pb	mg/L	0.01590	0.00471	0.00252	0.00282	0.00133					0.00161					0.00468				
Li	mg/L	0.251	0.166	0.100	0.066	0.043					0.029					0.034				
Mg	mg/L	44.20	34.70	16.20	12.40	8.89					6.80					8.00				
Mn	mg/L	1.2100	1.0100	0.4870	0.3720	0.2810					0.2560					0.3150				
Hg	ug/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01					0.01					0.01				
Mo	mg/L	0.00013	0.00007	0.00029	0.00008	0.00022					0.00008					0.00012				
Ni	mg/L	0.1120	0.0938	0.0508	0.0322	0.0258					0.0242					0.0435				
P	mg/L	< 0.009	0.03	< 0.009	0.025	0.027					< 0.009					< 0.009				
K	mg/L	24.8	16.2	9.89	8.59	6.77					5.17					4.76				
Se	mg/L	0.00084	0.00005	0.00026	< 0.00004	0.00053					0.00009					0.00021				
Si	mg/L	3.13	5.37	3.92	4.19	4.49					4.10					4.68				
Ag	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00001					< 0.00001					< 0.00001				
Na	mg/L	7.2	4.9	2.3	1.5	1.2					0.4					0.4				
Sr	mg/L	0.508	0.413	0.202	0.168	0.143					0.123					0.146				
S	mg/L	138.00	103.00	51.00	37.50	28.80					22.10					28.50				
Tl	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002					0.00002					< 0.00002				
Sn	mg/L	0.00018	0.00024	0.00024	0.00017	0.00020					0.00094					0.00109				
Ti	mg/L	0.0009	0.0032	0.0009	0.0007	0.0008					0.0004					0.0007				
U	mg/L	0.001150	0.001110	0.000438	0.000394	0.000284					0.000543					0.002160				
V	mg/L	0.00010	< 0.00003	0.00013	< 0.00003	< 0.00003					< 0.00003					< 0.00003				
Zn	mg/L	0.18600	0.12400	0.07300	0.07900	0.04400					0.04300					0.08400				
Zr	mg/L	0.00078	0.00018	0.00007	0.00002	0.00004					0.00002					0.00009				

Humidity Cell Sample Data

DRAFT

HC 4- Granite 2011
HC 16 Confirmation

Date		8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		480	475	485	480	500	480	470	445	465	475	455	460	490	485	485
pH		3.96	3.74	3.87	3.90	3.84	4.10	3.83	4.11	3.91	4.37	3.96	4.00	4.04	4.38	4.09
ORP	mV	471	481	516	433	460	429	476	424	449	403	474	456	502	430	463
Cond.	umhos/cm	316	289	270	250	219	215	203	187	185	169	153	152	143	130	125
Acidity	mgCaCO3/L	34.3	30.6	28.6	27.0	26.4	28.8	27.9	19.9	24.4	20.0	18.6	18.4	20.1	13.0	17.5
Alkalinity	mgCaCO3/L	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Sulphate	mg/L	114	101	76	78	73	71	63	55	56	53	43	47	42	36	
Total P	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	IP	0	
Ortho P	mg/L	0	0	0	0	0	0	<0.001	0	0	<0.001	0	<0.001	IP	0	
Chloride	mg/L	< 0.2	< 0.2	< 1	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2			
Fluoride	mg/L	0.47	0.35	0.30	0.29	0.28	0.29	0.28	0.28	0.28	0.25	0.23	0.27			
Hardness	mg/L	64.7					37.9					26.0				
Al	mg/L	1.9400					1.1700					0.7950				
Sb	mg/L	< 0.0002					< 0.0002					< 0.0002				
As	mg/L	0.0005					< 0.0002					< 0.0002				
Ba	mg/L	0.0155					0.0149					0.0104				
Be	mg/L	0.00425					0.00223					0.00139				
Bi	mg/L	< 0.00001					0.00002					< 0.00001				
B	mg/L	0.02					0.01					0.01				
Cd	mg/L	0.000269					0.000141					0.000088				
Ca	mg/L	13.00					7.33					4.68				
Cr	mg/L	0.0034					0.0022					0.0008				
Co	mg/L	0.023400					0.015300					0.011200				
Cu	mg/L	0.0300					0.0154					0.0086				
Fe	mg/L	0.508					0.239					0.129				
Pb	mg/L	0.00657					0.00184					0.00091				
Li	mg/L	0.045					0.033					0.022				
Mg	mg/L	7.84					4.75					3.47				
Mn	mg/L	0.3070					0.1690					0.1140				
Hg	ug/L	< 0.01					< 0.01					< 0.01				
Mo	mg/L	0.00213					0.00004					< 0.00001				
Ni	mg/L	0.0437					0.0273					0.0204				
P	mg/L	< 0.009					< 0.009					< 0.009				
K	mg/L	5.33					3.87					2.41				
Se	mg/L	0.00025					0.00016					< 0.00004				
Si	mg/L	5.90					5.00					2.99				
Ag	mg/L	< 0.00001					< 0.00001					< 0.00001				
Na	mg/L	0.3					0.3					0.2				
Sr	mg/L	0.137					0.079					0.048				
S	mg/L	34.20					21.20					14.70				
Tl	mg/L	0.00004					0.00003					0.00002				
Sn	mg/L	0.00073					0.00016					0.00014				
Ti	mg/L	0.0008					0.0005					0.0005				
U	mg/L	0.003460					0.001370					0.000722				
V	mg/L	< 0.00003					< 0.00003					0.00024				
Zn	mg/L	0.14500					0.07700					0.05100				
Zr	mg/L	0.00009					0.00005					0.00003				

Humidity Cell Sample Data

DRAFT
HC 5- Coarse PK 2011
DGM 713 Coarse

S-Total:	0.05	%
S^{2-}:	0.05	%
NP:	29.60	t $CaCO_3$/1000 t
CaNP:	10.8	t $CaCO_3$/1000 t
AP:	1.6	t $CaCO_3$/1000 t

Date		5-May-11	12-May-11	19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Leachate Volume Added (mL)		750	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		585	445	450	470	435	450	500	440	455	360	455	410	445	420	430	435	430	425	430
pH		7.33	7.41	7.56	7.72	7.59	7.40	7.68	7.64	7.65	7.48	7.49	7.51	7.51	7.33	7.55	7.45	7.51	7.71	7.59
ORP	mV	344	318	287	278	298	313	312	354	313	320	308	276	329	330	251	273	282	340	301
Cond.	umhos/cm	392	302	162	104	85	88	96	70	59	68	59	59	57	53	52	48	50	49	49
Acidity	mgCaCO3/L	4.0	4.8	4.1	5.2	5.3	3.3	4.3	2.4	3.5	4.4	5.2	4.3	4.6	4.0	5.0	4.1	5.7	4.6	4.5
Alkalinity	mgCaCO3/L	22.2	28.8	28.5	30.9	33.5	28.7	37.7	34.2	32.4	36.2	30.3	31.1	30.3	28.5	29.2	27.0	29.1	28.9	30.9
Sulphate	mg/L	150	109	42	15	8	6	5	5	3	4	2	<2	<2	<2	<2	<2	<2	2	4
Total P	mg/L	0	<0.002	0	0	<0.002	<0.002	0	<0.002	<0.002	0	0	0	0	0	0	<0.002	0	<0.002	<0.002
Ortho P	mg/L	<0.001	<0.001	<0.001	0	<0.001	<0.001	0	0	<0.001	0	0	0	0	0	0	0	0	<0.001	0
Chloride	mg/L	3	2	1	0	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Fluoride	mg/L	0.69	1.01	0.94	1.09	1.00	0.88	0.96	1.00	0.72	0.80	0.69	0.74	0.66	0.59	0.47	0.50	0.50	0.45	0.52
Hardness	mg/L	137.0	96.0	46.7	28.1	22.0					18.9					15.3				
Al	mg/L	0.0191	0.0054	0.0071	0.0076	0.0273					0.0413					0.0117				
Sb	mg/L	< 0.0002	0.0002	0.0004	0.0008	0.0054					0.0013					0.0008				
As	mg/L	0.0004	0.0005	0.0005	0.0004	0.0037					0.0007					0.0004				
Ba	mg/L	0.0308	0.0169	0.0139	0.0085	0.0057					0.0068					0.0055				
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002				
Bi	mg/L	< 0.00001	< 0.00001	< 0.00001	0.00001	0.0031					< 0.00001					< 0.00001				
B	mg/L	0.09	0.14	0.12	0.11	0.21					0.07					0.04				
Cd	mg/L	< 0.000003	< 0.000003	0.000043	< 0.000003	< 0.000003					0.000003					< 0.000003				
Ca	mg/L	34.6	24.1	11.9	7.18	5.70					4.54					3.80				
Cr	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0018					< 0.0005					0.0012				
Co	mg/L	0.000293	0.000344	0.000199	0.000153	< 0.000002					0.000239					0.000071				
Cu	mg/L	0.0018	0.0014	0.0009	0.0009	0.0238					< 0.0005					0.0005				
Fe	mg/L	0.020	0.003	0.005	0.006	0.071					0.058					0.014				
Pb	mg/L	0.00004	0.00006	0.00008	< 0.00002	< 0.00002					0.00003					0.00007				
Li	mg/L	0.003	0.003	0.003	0.003	0.005					0.004					0.003				
Mg	mg/L	12.30	8.69	4.09	2.47	1.88					1.84					1.41				
Mn	mg/L	0.0027	0.0044	0.0014	0.0010	0.0080					0.0004					0.0008				
Hg	ug/L	0.01	< 0.01	< 0.01	0.02	0.02					0.01					0.02				
Mo	mg/L	0.02230	0.02730	0.01500	0.00818	0.03240					0.00190					0.00164				
Ni	mg/L	0.0066	0.0054	0.0026	0.0020	0.0032					0.0031					0.0009				
P	mg/L	0.046	0.021	0.039	0.015	0.883					0.009					< 0.009				
K	mg/L	6.3	5.2	3.68	3.06	2.76					3.69					3.61				
Se	mg/L	0.00093	0.00044	0.00018	0.00032	0.05870					0.00025					0.00007				
Si	mg/L	2.09	2.67	2.74	2.74	2.43					3.97					3.20				
Ag	mg/L	< 0.00001	< 0.00001	< 0.00001	0.00002	0.00551					< 0.00001					< 0.00001				
Na	mg/L	15.4	13.2	9.3	7.1	5.8					5.8					4.1				
Sr	mg/L	0.325	0.225	0.116	0.068	0.046					0.043					0.036				
S	mg/L	51.30	35.40	15.00	6.43	3.42					1.05					0.66				
Tl	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.00002					< 0.00002					< 0.00002				
Sn	mg/L	0.00009	0.00103	0.00086	0.00086	0.01960					0.00088					0.00099				
Ti	mg/L	0.0019	0.0006	0.0005	0.0003	0.0029					0.0004					0.0003				
U	mg/L	0.000473	0.000730	0.000605	0.000533	< 0.000001					0.000851					0.000477				
V	mg/L	0.02560	0.02930	0.04160	0.05060	0.05230					0.06480					0.06440				
Zn	mg/L	0.00300	0.00300	0.01000	0.00100	0.08300					0.00200					0.00300				
Zr	mg/L	0.00003	0.00004	0.00004	0.00009	0.00043					0.00006					0.00004				

Humidity Cell Sample Data

DRAFT

HC 5- Coarse PK 2011
DGM 713 Coarse

Date		15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11	
Cycle		19	20	21	22	23	24	25	26	27	28	29	30	31	32	
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	
Leachate Volume Recovered (mL)		440	500	435	490	445	450	450	450	450	450	460	455	450	435	
pH		7.35	7.37	7.38	7.39	7.72	7.39	7.50	7.51	7.68	7.39	7.41	7.36	7.50	7.38	
ORP	mV	363	284	294	318	284	311	307	310	296	336	332	360	312	346	
Cond.	umhos/cm	52	51	49	55	48	52	52	50	50	50	49	47	49	48	
Acidity	mgCaCO3/L	3.5	3.5	3.2	4.9	7.0	4.4	3.2	5.2	5.1	3.6	3.5	6.0	3.5	5.1	
Alkalinity	mgCaCO3/L	30.5	30.3	28.6	32.8	30.7	31.9	29.6	30.5	31.9	28.7	29.3	29.0	29.4	30.2	
Sulphate	mg/L	<2	2	<2	<2	<2	3	<2	2	<2	2	3	3	2		
Total P	mg/L	0	<0.002	<0.002	0	0	<0.002	<0.002	<0.002	0	<0.002	<0.002	IP	<0.002		
Ortho P	mg/L	<0.001	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	IP	0		
Chloride	mg/L	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2				
Fluoride	mg/L	0.44	0.36	0.35	0.34	0.34	0.33	0.34	0.33	0.32	0.29	0.32				
Hardness	mg/L	15.3					18.8					19.4				
Al	mg/L	0.0169					0.0044					0.0333				
Sb	mg/L	0.0008					0.0007					0.0007				
As	mg/L	0.0005					0.0007					0.0006				
Ba	mg/L	0.0070					0.0084					0.0075				
Be	mg/L	< 0.00002					< 0.00002					< 0.00002				
Bi	mg/L	< 0.00001					< 0.00001					< 0.00001				
B	mg/L	0.03					0.02					0.02				
Cd	mg/L	< 0.000003					< 0.000003					< 0.000003				
Ca	mg/L	3.78					4.65					5.00				
Cr	mg/L	0.0017					0.0017					0.0015				
Co	mg/L	0.000090					0.000030					0.000075				
Cu	mg/L	< 0.0005					< 0.0005					< 0.0005				
Fe	mg/L	0.030					< 0.003					0.011				
Pb	mg/L	0.00008					0.00017					0.00002				
Li	mg/L	0.003					0.002					0.003				
Mg	mg/L	1.43					1.74					1.68				
Mn	mg/L	0.0006					< 0.0002					0.0004				
Hg	ug/L	< 0.01					< 0.01					< 0.01				
Mo	mg/L	0.00099					0.00070					0.00355				
Ni	mg/L	0.0008					0.0007					0.0015				
P	mg/L	< 0.009					< 0.009					< 0.009				
K	mg/L	3.46					3.53					3.94				
Se	mg/L	0.00025					< 0.00004					0.00057				
Si	mg/L	3.01					2.82					2.65				
Ag	mg/L	< 0.00001					< 0.00001					< 0.00001				
Na	mg/L	2.8					2.3					1.5				
Sr	mg/L	0.036					0.044					0.046				
S	mg/L	0.55					0.39					0.56				
Tl	mg/L	< 0.00002					< 0.00002					< 0.00002				
Sn	mg/L	0.00045					0.00026					0.00023				
Ti	mg/L	< 0.0001					< 0.0001					0.0005				
U	mg/L	0.000478					0.000545					0.000394				
V	mg/L	0.06170					0.05100					0.04640				
Zn	mg/L	0.00300					0.00400					0.00200				
Zr	mg/L	0.00004					< 0.00001					0.00002				

Humidity Cell Sample Data

DRAFT
HC 6- Coarse PK 2011
DGM 717 Coarse

S-Total:	0.04	%
S^{2-}:	0.04	%
NP:	65.60	t $CaCO_3$/1000 t
CaNP:	15	t $CaCO_3$/1000 t
AP:	1.3	t $CaCO_3$/1000 t

Date		5-May-11	12-May-11	19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Leachate Volume Added (mL)		750	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		600	510	450	465	445	450	445	435	455	445	455	465	440	445	435	450	425	440
pH		7.88	7.74	7.7	7.98	7.91	7.86	8.05	8.14	8.02	7.75	7.81	7.81	7.78	7.68	7.75	7.70	7.65	7.82
ORP	mV	321	329	287	290	288	316	322	356	316	316	310	278	325	331	254	276	288	351
Cond.	umhos/cm	337	297	187	155	131	120	103	123	100	92	114	89	83	83	79	79	84	93
Acidity	mgCaCO3/L	4.7	6.3	5.4	4.8	6.3	3.9	3.2	2.6	3.3	5.1	6.2	4.9	5.0	4.8	5.0	4.5	5.9	4.6
Alkalinity	mgCaCO3/L	41.1	50.1	45.1	49.3	53.0	51.3	49.8	61.3	51.4	48.6	53.4	43.4	42.7	41.6	39.8	37.7	40.1	39.4
Sulphate	mg/L	88	66	30	19	8	10	5	10	8	7	5	3	2	<2	2	2	3	3
Total P	mg/L	0	0	0	0	<0.002	<0.002	0	0	<0.002	0	0	0	0	0	0	<0.002	0	<0.002
Ortho P	mg/L	<0.001	0	0	0	0	<0.001	0	0	0	0	0	0	0	0	0	<0.001	0	0
Chloride	mg/L	22	17	6	2	2	1	1	1	1	0	1	0	0	0	0	0	0	0
Fluoride	mg/L	0.20	0.24	0.26	0.26	0.24	0.24	0.22	0.28	0.21	0.19	0.23	0.21	0.22	0.21	0.16	0.18	0.19	0.17
Hardness	mg/L	73.1	57.4	34.6	25.8	20.3					17.0					17.7			
Al	mg/L	0.0216	0.0059	0.0048	0.0075	0.0081					0.0059					0.0094			
Sb	mg/L	0.0003	0.0008	0.0006	0.0009	0.0008					0.0006					0.0005			
As	mg/L	0.0020	0.0027	0.0024	0.0027	0.0028					0.0029					0.0026			
Ba	mg/L	0.0485	0.0284	0.0233	0.0164	0.0155					0.0140					0.0187			
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002			
Bi	mg/L	0.00002	< 0.00001	< 0.00001	0.00001	0.00001					< 0.00001					< 0.00001			
B	mg/L	1.81	2.75	2.79	2.50	2.18					1.77					1.11			
Cd	mg/L	< 0.000003	0.000004	0.000018	< 0.000003	< 0.000003					< 0.000003					< 0.000003			
Ca	mg/L	15.6	12.1	7.5	5.57	4.38					3.57					3.65			
Cr	mg/L	0.0005	< 0.0005	< 0.0005	< 0.0005	0.0008					< 0.0005					0.0021			
Co	mg/L	0.000178	0.000152	0.000089	0.000077	0.000042					0.000072					0.000051			
Cu	mg/L	0.0029	0.0019	0.0022	0.0016	0.0023					< 0.0005					< 0.0005			
Fe	mg/L	0.034	0.005	< 0.002	0.011	0.013					0.009					0.020			
Pb	mg/L	0.00006	0.00003	0.00004	0.00003	< 0.00002					< 0.00002					0.00008			
Li	mg/L	0.001	0.001	0.001	< 0.001	< 0.001					< 0.001					< 0.001			
Mg	mg/L	8.32	6.62	3.85	2.89	2.27					1.96					2.09			
Mn	mg/L	0.0021	0.0034	0.0009	0.0009	0.0007					< 0.0002					0.0004			
Hg	ug/L	< 0.01	< 0.01	0.01	< 0.01	< 0.01					0.01					< 0.01			
Mo	mg/L	0.01660	0.02060	0.01130	0.00831	0.00525					0.00174					0.00139			
Ni	mg/L	0.0033	0.0029	0.0016	0.0014	0.0012					0.0007					0.0008			
P	mg/L	0.047	0.01	0.015	< 0.009	0.078					< 0.009					0.014			
K	mg/L	11.1	10.2	7.64	6.97	5.82					5.49					5.40			
Se	mg/L	0.00109	0.00087	0.00033	0.00066	0.00040					0.00012					0.00011			
Si	mg/L	2.84	3.75	3.79	3.79	3.58					3.87					4.04			
Ag	mg/L	< 0.00001	< 0.00001	< 0.00001	0.00001	< 0.00001					< 0.00001					< 0.00001			
Na	mg/L	27.7	25.0	19.1	16.5	12.8					10.4					7.8			
Sr	mg/L	0.237	0.182	0.114	0.082	0.063					0.053					0.056			
S	mg/L	27.20	21.10	11.50	8.02	4.33					1.98					1.32			
Tl	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.00002					< 0.00002					< 0.00002			
Sn	mg/L	0.00049	0.00020	0.00095	0.00093	0.00096					0.00046					0.00049			
Ti	mg/L	0.0013	0.0009	0.0005	0.0004	0.0003					0.0001					0.0003			
U	mg/L	0.000153	0.000228	0.000194	0.000188	0.000150					0.000137					0.000103			
V	mg/L	0.01630	0.01730	0.02020	0.02170	0.02280					0.02280					0.01920			
Zn	mg/L	0.00200	0.00300	0.00500	0.00200	0.00200					0.00100					0.00400			
Zr	mg/L	0.00005	0.00002	0.00002	0.00003	0.00004					< 0.00001					0.00002			

Humidity Cell Sample Data

DRAFT

HC 6- Coarse PK 2011

DGM 717 Coarse

Date		8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		430	440	430	435	410	435	450	445	455	445	450	445	450	440	440
pH		7.77	7.57	7.65	7.68	7.63	7.71	7.63	7.66	7.69	7.73	7.68	7.69	7.61	7.66	7.63
ORP	mV	293	301	274	295	310	288	297	303	301	300	326	326	355	313	338
Cond.	umhos/cm	90	91	81	77	73	70	70	69	67	68	67	67	65	61	67
Acidity	mgCaCO3/L	4.5	3.9	3.8	3.4	5.0	7.9	4.3	3.7	5.5	5.9	3.4	4.0	5.7	3.4	5.1
Alkalinity	mgCaCO3/L	36.8	36.7	37.1	38.3	38.2	41.1	36.5	37.0	37.2	38.6	36.5	38.5	39.3	35.3	37.8
Sulphate	mg/L	2	<2	3	3	2	2	3	2	4	2	2	3	3	2	
Total P	mg/L	0	<0.002	0	<0.002	0	<0.002	<0.002	<0.002	0	0	<0.002	<0.002	IP	<0.002	
Ortho P	mg/L	0	0	0	<0.001	0	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0	IP	<0.001	
Chloride	mg/L	0	0	0	0	0	0	1	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2			
Fluoride	mg/L	0.23	0.16	0.15	0.15	0.18	0.15	0.14	0.17	0.16	0.17	0.16	0.20			
Hardness	mg/L		22.0					19.0					19.3			
Al	mg/L		0.0137					0.0118					0.0580			
Sb	mg/L		0.0005					0.0005					0.0004			
As	mg/L		0.0020					0.0022					0.0020			
Ba	mg/L		0.0281					0.0254					0.0266			
Be	mg/L		< 0.00002					< 0.00002					< 0.00002			
Bi	mg/L		< 0.00001					< 0.00001					< 0.00001			
B	mg/L		0.95					0.73					0.63			
Cd	mg/L		< 0.000003					< 0.000003					< 0.000003			
Ca	mg/L		4.37					3.73					3.71			
Cr	mg/L		0.0015					0.0023					0.0008			
Co	mg/L		0.000079					0.000050					0.000117			
Cu	mg/L		< 0.0005					0.0007					0.0006			
Fe	mg/L		0.030					0.014					0.040			
Pb	mg/L		0.00005					0.00024					0.00043			
Li	mg/L		< 0.001					< 0.001					< 0.001			
Mg	mg/L		2.69					2.36					2.43			
Mn	mg/L		0.0007					< 0.0002					0.0010			
Hg	ug/L		< 0.01					< 0.01					< 0.01			
Mo	mg/L		0.00087					0.00281					0.00126			
Ni	mg/L		0.0006					0.0009					0.0018			
P	mg/L		< 0.009					< 0.009					< 0.009			
K	mg/L		5.89					5.35					5.34			
Se	mg/L		0.00009					< 0.00004					0.00017			
Si	mg/L		3.91					3.47					3.57			
Ag	mg/L		< 0.00001					< 0.00001					< 0.00001			
Na	mg/L		6.2					4.3					3.1			
Sr	mg/L		0.068					0.058					0.061			
S	mg/L		1.12					0.84					0.66			
Tl	mg/L		< 0.00002					< 0.00002					0.00016			
Sn	mg/L		0.00045					0.00035					0.00027			
Ti	mg/L		0.0001					0.0002					0.0007			
U	mg/L		0.000098					0.000121					0.000095			
V	mg/L		0.01700					0.01430					0.01540			
Zn	mg/L		0.00300					0.00500					0.00200			
Zr	mg/L		0.00003					0.00007					0.00003			

Humidity Cell Sample Data

DRAFT
HC 7- Coarse PK 2011
DGM 737 Coarse

S-Total:	0.04	%
S^{2-}:	0.04	%
NP:	149.00	t $CaCO_3$/1000 t
CaNP:	13	t $CaCO_3$/1000 t
AP:	1.3	t $CaCO_3$/1000 t

Date		5-May-11	12-May-11	19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Leachate Volume Added (mL)		750	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		630	510	465	495	520	465	460	455	465	460	475	470	465	460	480	515	485	465
pH		7.37	7.26	7.33	7.50	7.42	7.33	7.51	7.65	7.51	7.33	7.37	7.38	7.45	7.50	7.52	7.50	7.43	7.63
ORP	mV	312	339	301	304	305	330	324	363	331	324	313	290	331	333	260	282	291	363
Cond.	umhos/cm	319	606	375	399	222	262	226	251	225	182	189	189	176	183	156	120	178	150
Acidity	mgCaCO3/L	4.0	5.6	4.7	5.7	6.4	3.3	4.1	2.8	3.7	4.7	6.0	5.3	5.1	4.8	5.5	4.2	6.6	5.3
Alkalinity	mgCaCO3/L	15.8	20.6	16.2	20.5	22.3	21.4	23.7	28.4	25.5	23.3	23.6	24.4	26.8	34.3	28.9	25.8	26.3	30.5
Sulphate	mg/L	4	4	5	3	<2	<2	<2	3	2	3	2	<2	<2	<2	<2	<2	2	2
Total P	mg/L	<0.002	<0.002	0	0	<0.002	<0.002	<0.002	0	<0.002	<0.002	0	0	0	0	0	<0.002	<0.002	<0.002
Ortho P	mg/L	<0.001	0	<0.001	0	0	<0.001	0	0	0	0	0	0	0	0	<0.001	<0.001	<0.001	0
Chloride	mg/L	77	160	110	113	51	60	52	60	51	38	41	40	36	33	28	20	42	27
Fluoride	mg/L	0.11	0.17	0.15	0.19	0.14	0.16	0.16	0.19	0.16	0.15	0.16	0.18	0.18	0.18	0.15	0.18	0.18	0.18
Hardness	mg/L	97.8	184.0	122.0	131.0	66.2					66.0					58.6			
Al	mg/L	0.0056	0.0015	0.0020	0.0019	0.0018					0.0047					0.0062			
Sb	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002					< 0.0002					< 0.0002			
As	mg/L	0.0010	0.0023	0.0015	0.0016	0.0006					0.0004					0.0005			
Ba	mg/L	0.0842	0.1460	0.1100	0.1200	0.0757					0.0655					0.0634			
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002			
Bi	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00002					< 0.00001					< 0.00001			
B	mg/L	0.31	0.54	0.54	0.54	0.36					0.42					0.34			
Cd	mg/L	< 0.000003	< 0.000003	0.00001	0.000004	0.00001					0.000007					0.000008			
Ca	mg/L	24.7	42.4	27.8	29.30	14.70					13.60					11.90			
Cr	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005					< 0.0005					0.0023			
Co	mg/L	0.000106	0.000316	0.000189	0.000207	0.000072					0.000104					0.000066			
Cu	mg/L	0.0011	0.001	< 0.0005	0.0006	0.0008					< 0.0005					< 0.0005			
Fe	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002					0.006					0.010			
Pb	mg/L	0.00003	0.00007	0.00003	0.00003	< 0.00002					0.00002					0.00004			
Li	mg/L	0.001	0.002	0.001	0.001	< 0.001					< 0.001					< 0.001			
Mg	mg/L	8.80	19.00	12.80	14.20	7.15					7.80					7.00			
Mn	mg/L	0.0016	0.0044	0.0027	0.0021	0.0012					0.0006					0.0010			
Hg	ug/L	< 0.01	< 0.01	0.01	< 0.01	0.02					0.01					< 0.01			
Mo	mg/L	0.00072	0.00017	0.00037	0.00030	0.00016					0.00010					0.00041			
Ni	mg/L	0.0022	0.0049	0.0036	0.0036	0.0019					0.0016					0.0010			
P	mg/L	< 0.009	< 0.009	0.028	0.01	0.068					< 0.009					0.012			
K	mg/L	9.2	13.7	11.50	11.70	6.66					7.29					7.91			
Se	mg/L	0.0017	0.00355	< 0.00004	0.00023	0.00019					0.00055					0.00017			
Si	mg/L	1.08	2.63	2.90	3.54	2.68					3.29					3.84			
Ag	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001			
Na	mg/L	7.9	9.6	5.6	4.6	1.8					1.3					0.9			
Sr	mg/L	0.368	0.680	0.449	0.467	0.231					0.223					0.194			
S	mg/L	0.97	1.36	0.94	0.93	0.53					0.67					0.67			
Tl	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.00002					0.00002					0.00002			
Sn	mg/L	0.00009	0.00025	0.00081	0.00103	0.00082					0.00054					0.00027			
Ti	mg/L	0.0003	0.0006	0.0004	0.0004	0.0002					< 0.0001					0.0001			
U	mg/L	< 0.000001	0.000002	0.000008	< 0.000001	< 0.000001					0.000009					0.000015			
V	mg/L	0.00077	0.00072	0.00133	0.00166	0.00203					0.00219					0.00224			
Zn	mg/L	0.00100	0.00800	0.00300	0.00300	0.00600					0.00200					0.00400			
Zr	mg/L	0.00001	< 0.00001	< 0.00001	< 0.00001	0.00001					< 0.00001					< 0.00001			

Humidity Cell Sample Data

DRAFT

HC 7- Coarse PK 2011

DGM 737 Coarse

Date		8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		460	460	475	475	520	455	445	460	460	455	450	455	450	455	460
pH		7.65	7.61	7.56	7.55	7.64	7.67	7.68	7.58	7.60	7.76	7.65	7.67	7.59	7.66	7.62
ORP	mV	146	323	274	302	312	293	297	311	305	308	326	328	358	319	338
Cond.	umhos/cm	146	139	129	121	122	122	141	120	117	155	116	118	118	107	115
Acidity	mgCaCO3/L	4.6	3.9	3.4	3.2	4.8	8.4	4.4	3.8	5.4	6.1	3.2	3.8	5.2	3.3	5.1
Alkalinity	mgCaCO3/L	33.5	30.4	27.5	27.4	32.6	36.2	46.3	32.4	35.0	57.9	36.3	37.6	37.1	35.2	37.9
Sulphate	mg/L	5	3	2	2	2	<2	3	2	2	<2	2	2	2	<2	
Total P	mg/L	<0.002	<0.002	<0.002	<0.002	0	<0.002	0	<0.002	0	<0.002	0	0	IP	<0.002	
Ortho P	mg/L	0	0	<0.001	<0.001	0	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	IP	<0.001	
Chloride	mg/L	27	25	24	20	18	18	17	16	17	16	15	15			
Fluoride	mg/L	0.26	0.18	0.15	0.16	0.20	0.17	0.19	0.21	0.21	0.22	0.20	0.24			
Hardness	mg/L		48.4					56.3					43.9			
Al	mg/L		0.0103					0.0046					0.0342			
Sb	mg/L		< 0.0002					< 0.0002					< 0.0002			
As	mg/L		0.0004					0.0007					0.0005			
Ba	mg/L		0.0628					0.0723					0.0594			
Be	mg/L		< 0.00002					< 0.00002					< 0.00002			
Bi	mg/L		< 0.00001					< 0.00001					< 0.00001			
B	mg/L		0.31					0.29					0.28			
Cd	mg/L		< 0.000003					< 0.000003					0.000029			
Ca	mg/L		9.68					11.10					8.33			
Cr	mg/L		0.0013					0.0019					< 0.0005			
Co	mg/L		0.000094					0.000037					0.000051			
Cu	mg/L		< 0.0005					< 0.0005					0.0041			
Fe	mg/L		0.024					< 0.003					0.011			
Pb	mg/L		0.00005					0.00005					0.00018			
Li	mg/L		< 0.001					< 0.001					< 0.001			
Mg	mg/L		5.89					6.92					5.61			
Mn	mg/L		0.0011					< 0.0002					0.0006			
Hg	ug/L		< 0.01					< 0.01					0.01			
Mo	mg/L		0.00012					0.00019					0.00036			
Ni	mg/L		0.0009					0.0008					0.0011			
P	mg/L		< 0.009					< 0.009					< 0.009			
K	mg/L		6.62					7.76					7.07			
Se	mg/L		< 0.00004					0.00014					0.00034			
Si	mg/L		3.56					4.32					3.49			
Ag	mg/L		< 0.00001					< 0.00001					< 0.00001			
Na	mg/L		0.8					0.7					0.6			
Sr	mg/L		0.156					0.181					0.148			
S	mg/L		0.77					0.76					0.72			
Tl	mg/L		0.00002					< 0.00002					0.00006			
Sn	mg/L		0.00044					0.00022					0.00023			
Ti	mg/L		< 0.0001					< 0.0001					0.0002			
U	mg/L		0.000016					0.000019					0.000011			
V	mg/L		0.00195					0.00143					0.00201			
Zn	mg/L		0.00600					0.00300					0.00700			
Zr	mg/L		0.00002					0.00001					0.00001			

Humidity Cell Sample Data

DRAFT

HC 11- Coarse PK 2011

Tuzo and Hearne Coarse

S-Total:	0.03	%
S^{2-}:	0.01	%
NP:	53.8	t $CaCO_3$/1000 t
CaNP:	10	t $CaCO_3$/1000 t
AP:	0.3	t $CaCO_3$/1000 t

Date		23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13
Leachate Volume Added (mL)		750	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		375	505	495	510	480	500	500	510	500	505	505	495	505	490
pH		8.21	8.29	8.13	8.06	8.12	8.12	8.05	8.13	8.14	8.12	8.26	8.19	8.09	8.09
ORP	mV	253	331	321	313	287	324	332	260	279	285	340	303	341	269
Cond.	umhos/cm	2172	503	387	333	299	268	251	228	212	195	186	171	165	172
Acidity	mgCaCO3/L	6.5	3.7	5.3	7.5	5.8	4.9	5.3	4.9	3.8	5.7	3.7	3.5	3.8	3.1
Alkalinity	mgCaCO3/L	512.6	207.8	182.3	155.9	143.4	133.8	126.1	116.5	107.7	102.4	98.2	92.7	86.5	93.9
Sulphate	mg/L	585	78	41	22	15	11	7	6	6	5	6	9	3	4
Total P	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ortho P	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chloride	mg/L	64	2	1	1	0	< 0.2	0	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Fluoride	mg/L	1.61	2.32	2.56	2.49	2.48	2.26	1.95	1.44	1.55	1.37	1.23	1.21	1.07	0.76
Hardness	mg/L	696.0	62.8	45.0	38.7	33.9					24.0				
Al	mg/L	0.0059	0.0599	0.1140	0.1690	0.0743					0.0627				
Sb	mg/L	0.0019	0.0014	0.0013	0.0010	0.0011					0.0007				
As	mg/L	0.0023	0.0036	0.0047	0.0056	0.0071					0.0060				
Ba	mg/L	0.0972	0.0339	0.0286	0.0247	0.0272					0.0212				
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002				
Bi	mg/L	0.00002	< 0.00001	< 0.00001	0.00004	< 0.00001					< 0.00001				
B	mg/L	0.97	0.80	0.61	0.33	0.22					0.07				
Cd	mg/L	0.000127	0.000025	0.00001	0.000024	0.000046					0.000006				
Ca	mg/L	171.0	14.6	10.2	8.60	7.92					5.77				
Cr	mg/L	0.0035	0.0021	0.0023	0.0022	0.0015					0.0021				
Co	mg/L	0.000931	0.000331	0.000464	0.000756	0.000311					0.000227				
Cu	mg/L	0.0039	0.005	0.0006	0.0005	0.0008					0.0006				
Fe	mg/L	0.002	0.087	0.152	0.260	0.104					0.074				
Pb	mg/L	0.00014	0.00005	0.00004	0.00009	0.00005					0.00006				
Li	mg/L	0.090	0.014	0.010	0.007	0.005					0.003				
Mg	mg/L	65.60	6.43	4.72	4.19	3.42					2.34				
Mn	mg/L	0.0132	0.0041	0.0018	0.0031	0.0016					0.0011				
Hg	ug/L	< 0.01	0.01	0.01	< 0.01	< 0.01					< 0.01				
Mo	mg/L	1.51000	0.50200	0.12200	0.05990	0.04640					0.03190				
Ni	mg/L	0.0527	0.0086	0.0079	0.0098	0.0045					0.0033				
P	mg/L	< 0.009	< 0.009	< 0.009	< 0.009	0.012					< 0.009				
K	mg/L	71.6	26.1	20.70	19.00	17.80					14.30				
Se	mg/L	0.0112	0.00098	0.00060	0.00054	0.00151					0.00036				
Si	mg/L	29.20	19.70	20.70	20.60	17.80					13.40				
Ag	mg/L	0.00002	< 0.00001	0.00003	0.00007	0.00002					0.00004				
Na	mg/L	214.0	73.0	63.1	53.3	50.3					27.5				
Sr	mg/L	2.060	0.191	0.136	0.106	0.102					0.073				
S	mg/L	206.00	21.70	11.60	7.14	5.73					2.51				
Tl	mg/L	0.00008	0.00002	< 0.00002	0.00005	< 0.00002					< 0.00002				
Sn	mg/L	0.00223	0.00014	0.00013	0.00017	0.00030					0.00099				
Ti	mg/L	0.0030	0.0010	0.0012	0.0016	0.0010					0.0008				
U	mg/L	0.024400	0.003480	0.002660	0.002400	0.002240					0.001330				
V	mg/L	0.06010	0.21800	0.33300	0.36600	0.40100					0.45400				
Zn	mg/L	0.00800	0.00200	0.00200	0.00200	0.00100					0.00300				
Zr	mg/L	0.00039	0.00010	0.00018	0.00053	0.00012					0.00007				

Humidity Cell Sample Data

DRAFT

HC 11- Coarse PK 2011

Tuzo and Hearne Coarse

Date		29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		14	15	16	17	18	19	20	21	22	23	24	25
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		480	500	485	500	490	485	430	525	450	455	540	490
pH		8.05	7.95	7.97	7.98	7.96	7.90	7.96	7.95	7.92	7.79	7.89	7.81
ORP	mV	283	295	282	278	299	292	298	314	318	347	316	332
Cond.	umhos/cm	171	154	160	136	137	127	127	120	114	109	111	113
Acidity	mgCaCO3/L	3.5	4.8	7.9	4.0	3.5	5.2	5.9	3.4	3.7	5.0	3.3	5.2
Alkalinity	mgCaCO3/L	93.9	83.5	90.2	73.8	73.7	69.5	70.2	64.2	64.0	63.1	62.4	63.0
Sulphate	mg/L	3	3	2	4	2	4	2	2	3	4	2	
Total P	mg/L	0	0	0	0	0	0	0	0	0	IP	0	
Ortho P	mg/L	<0.001	0	<0.001	<0.001	0	<0.001	0	<0.001	<0.001	IP	0	
Chloride	mg/L	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2			
Fluoride	mg/L	0.65	0.69	0.57	0.57	0.54	0.49	0.51	0.51	0.54			
Hardness	mg/L	29.1					30.8						
Al	mg/L	0.0648					0.0607						
Sb	mg/L	0.0003					0.0003						
As	mg/L	0.0030					0.0023						
Ba	mg/L	0.0291					0.0326						
Be	mg/L	< 0.00002					< 0.00002						
Bi	mg/L	< 0.00001					< 0.00001						
B	mg/L	0.05					0.03						
Cd	mg/L	0.000003					< 0.000003						
Ca	mg/L	6.99					7.40						
Cr	mg/L	0.0018					0.0006						
Co	mg/L	0.000188					0.000205						
Cu	mg/L	< 0.0005					< 0.0005						
Fe	mg/L	0.058					0.064						
Pb	mg/L	0.00006					0.00003						
Li	mg/L	0.002					0.002						
Mg	mg/L	2.83					2.99						
Mn	mg/L	< 0.0002					0.0008						
Hg	ug/L	0.01					0.01						
Mo	mg/L	0.02250					0.01900						
Ni	mg/L	0.0025					0.0027						
P	mg/L	< 0.009					< 0.009						
K	mg/L	14.30					13.30						
Se	mg/L	0.00038					0.00009						
Si	mg/L	12.00					10.90						
Ag	mg/L	0.00001					0.00001						
Na	mg/L	18.5					8.0						
Sr	mg/L	0.092					0.099						
S	mg/L	1.42					1.06						
Tl	mg/L	< 0.00002					< 0.00002						
Sn	mg/L	0.00058					0.00003						
Ti	mg/L	0.0006					0.0004						
U	mg/L	0.001030					0.000573						
V	mg/L	0.26300					0.19300						
Zn	mg/L	0.00300					0.00100						
Zr	mg/L	0.00008					0.00006						

Humidity Cell Sample Data

DRAFT

HC 12- Coarse PK 2011

East Lobe Coarse

S-Total:	0.03	%
S^{2-}:	0.01	%
NP:	139.5	t $CaCO_3$/1000 t
CaNP:	7.5	t $CaCO_3$/1000 t
AP:	0.3	t $CaCO_3$/1000 t

Date		23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		285	500	485	485	460	440	425	425	435	410	415	400	440	395
pH		7.75	7.67	7.71	8.13	8.31	8.28	8.18	8.33	8.35	8.28	8.41	8.34	8.26	8.26
ORP	mV	254	357	320	307	278	308	317	248	270	274	330	323	353	273
Cond.	umhos/cm	2012	1247	691	453	327	262	227	204	175	171	167	157	150	147
Acidity	mgCaCO3/L	2.7	4.2	5.3	4.6	#N/A	1.6	3.3	#N/A	#N/A	3.7	#N/A	#N/A	3.3	2.2
Alkalinity	mgCaCO3/L	31.6	13.3	23.1	29.5	33.8	44.2	51.9	55.8	55.0	62.0	65.6	65.5	64.0	67.0
Sulphate	mg/L	<2	3	3	2	<2	<2	<2	2	2	3	3	5	<2	3
Total P	mg/L	0	0	0	0	0	0	0	0	<0.002	0	0	0	0	0
Ortho P	mg/L	0	0	0	0	0	0	0	0	<0.001	0	0	0	0	0
Chloride	mg/L	540	330	170	100	74	47	33	23	17	14	10	10	8	6
Fluoride	mg/L	0.14	0.17	0.09	0.09	0.09	0.09	0.08	0.07	0.09	0.10	0.08	0.13	0.07	0.07
Hardness	mg/L	289.0	258.0	144.0	88.3	61.1					25.6				
Al	mg/L	0.0012	0.0019	0.0490	0.0020	0.0012					0.0036				
Sb	mg/L	0.0003	< 0.0002	< 0.0002	< 0.0002	0.0002					0.0003				
As	mg/L	0.0036	0.0030	0.0020	0.0014	0.0011					0.0016				
Ba	mg/L	2.4000	1.5800	1.2800	0.7850	0.6360					0.2520				
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002				
Bi	mg/L	< 0.00001	< 0.00001	< 0.00001	0.00001	< 0.00001					< 0.00001				
B	mg/L	0.24	0.23	0.25	0.24	0.22					0.18				
Cd	mg/L	< 0.000003	0.000007	0.000014	< 0.000003	< 0.000003					< 0.000003				
Ca	mg/L	92.9	97.5	53.0	33.40	23.10					8.96				
Cr	mg/L	< 0.0005	< 0.0005	0.0012	< 0.0005	< 0.0005					0.0018				
Co	mg/L	0.000153	0.000166	0.000448	0.000057	0.000053					0.000029				
Cu	mg/L	0.0010	0.0017	0.0006	< 0.0005	< 0.0005					< 0.0005				
Fe	mg/L	< 0.002	< 0.002	0.194	< 0.002	< 0.002					0.013				
Pb	mg/L	0.00003	0.00002	0.00011	0.00002	0.00013					0.00005				
Li	mg/L	0.002	< 0.001	< 0.001	< 0.001	< 0.001					< 0.001				
Mg	mg/L	14.00	3.50	2.82	1.16	0.86					0.79				
Mn	mg/L	0.0005	0.0002	0.0040	0.0002	< 0.0002					< 0.0002				
Hg	ug/L	< 0.01	0.01	0.03	< 0.01	< 0.01					< 0.01				
Mo	mg/L	0.01850	0.00849	0.00188	0.00104	0.00027					0.00091				
Ni	mg/L	0.0031	0.0006	0.0069	0.0009	0.0009					0.0007				
P	mg/L	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009					< 0.009				
K	mg/L	152.0	96.4	61.90	45.20	34.60					23.40				
Se	mg/L	0.001	0.00060	0.00042	< 0.00004	0.00063					0.00009				
Si	mg/L	6.59	9.15	20.60	27.50	29.00					42.00				
Ag	mg/L	< 0.00001	< 0.00001	< 0.00001	0.00001	< 0.00001					< 0.00001				
Na	mg/L	122.0	53.8	27.7	17.1	12.5					9.5				
Sr	mg/L	1.850	1.970	1.180	0.698	0.497					0.202				
S	mg/L	2.36	1.91	1.48	1.18	1.15					1.43				
Tl	mg/L	0.00012	0.00004	< 0.00002	< 0.00002	< 0.00002					< 0.00002				
Sn	mg/L	0.00084	0.00064	0.00058	0.00035	0.00168					0.00058				
Ti	mg/L	0.0007	0.0005	0.0038	0.0001	0.0001					0.0001				
U	mg/L	0.000166	0.000033	0.000025	0.000016	0.000001					0.000020				
V	mg/L	0.00057	0.00129	0.00198	0.00210	0.00056					0.00363				
Zn	mg/L	0.00400	0.00200	0.00300	0.00200	0.00300					0.00500				
Zr	mg/L	0.00002	< 0.00001	0.00024	0.00001	0.00001					0.00003				

Humidity Cell Sample Data

DRAFT

HC 12- Coarse PK 2011

East Lobe Coarse

Date		29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		14	15	16	17	18	19	20	21	22	23	24	25
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		440	375	420	440	450	455	440	445	440	445	445	430
pH		8.17	8.14	8.07	8.21	8.16	8.23	8.16	8.37	8.16	8.11	8.15	8.14
ORP	mV	281	287	277	268	290	280	293	297	309	333	306	316
Cond.	umhos/cm	141	146	138	141	131	127	131	127	127	123	126	128
Acidity	mgCaCO3/L	3.0	4.3	7.9	2.9	3.0	3.3	4.8	#N/A	3.2	4.0	2.9	3.9
Alkalinity	mgCaCO3/L	66.3	70.3	68.6	69.6	63.6	63.4	67.9	63.2	67.7	64.6	66.3	68.9
Sulphate	mg/L	2	2	2	2	2	3	<2	2	2	3	2	
Total P	mg/L	0	0	0	0	0	0	0	0	0	IP	0	
Ortho P	mg/L	0	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0	<0.001	IP	0	
Chloride	mg/L	5	4	4	3	4	3	3	3	3			
Fluoride	mg/L	0.07	0.12	0.08	0.07	0.09	0.09	0.11	0.09	0.11			
Hardness	mg/L	24.6					27.1						
Al	mg/L	0.0024					0.0011						
Sb	mg/L	< 0.0002					< 0.0002						
As	mg/L	0.0014					0.0010						
Ba	mg/L	0.2580					0.3010						
Be	mg/L	< 0.00002					< 0.00002						
Bi	mg/L	< 0.00001					< 0.00001						
B	mg/L	0.16					0.15						
Cd	mg/L	0.000005					< 0.000003						
Ca	mg/L	8.21					8.91						
Cr	mg/L	0.0013					< 0.0005						
Co	mg/L	0.000022					0.000016						
Cu	mg/L	< 0.0005					< 0.0005						
Fe	mg/L	0.003					< 0.003						
Pb	mg/L	0.00012					< 0.00002						
Li	mg/L	< 0.001					< 0.001						
Mg	mg/L	1.01					1.18						
Mn	mg/L	< 0.0002					< 0.0002						
Hg	ug/L	0.01					0.01						
Mo	mg/L	0.00066					0.00030						
Ni	mg/L	0.0002					0.0003						
P	mg/L	< 0.009					< 0.009						
K	mg/L	21.50					17.40						
Se	mg/L	0.00023					< 0.00004						
Si	mg/L	44.30					39.50						
Ag	mg/L	< 0.00001					< 0.00001						
Na	mg/L	7.5					6.4						
Sr	mg/L	0.192					0.212						
S	mg/L	1.02					0.79						
Tl	mg/L	< 0.00002					< 0.00002						
Sn	mg/L	0.00026					0.00008						
Ti	mg/L	< 0.0001					< 0.0001						
U	mg/L	0.000016					0.000008						
V	mg/L	0.00325					0.00350						
Zn	mg/L	0.00600					0.00300						
Zr	mg/L	0.00004					0.00006						

Humidity Cell Sample Data

DRAFT

T-2- Fine PK 2011

DGM 713 Fine

S-Total:	0.04	%
S^{2-}:	0.01	%
NP:	74.8	t $CaCO_3$/1000 t
CaNP:	15	t $CaCO_3$/1000 t
AP:	0.3	t $CaCO_3$/1000 t

Date		23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13
Leachate Volume Added (mL)		750	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		335	475	470	500	515	485	505	455	530	500	480	505	490	480
pH		8.23	8.16	7.95	7.92	7.96	7.97	7.96	7.96	7.91	7.71	7.57	8.08	7.65	7.86
ORP	mV	237	339	300	305	286	303	314	250	281	187	259	267	297	294
Cond.	umhos/cm	732	297	159	257	237	226	217	216	199	206	187	184	181	178
Acidity	mgCaCO3/L	3.0	3.6	4.3	7.0	5.6	5.4	5.4	5.5	4.8	10.6	10.0	5.3	8.4	5.4
Alkalinity	mgCaCO3/L	211.1	128.6	87.4	117.1	109.2	106.4	102.2	96.9	91.4	94.7	88.5	89.6	87.7	87.4
Sulphate	mg/L	148	32	28	16	13	12	10	10	10	13	9	14	7	9
Total P	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ortho P	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	<0.001
Chloride	mg/L	17	1	1	1	3	3	3	2	2	2	2	2	1	1
Fluoride	mg/L	2.02	2.37	1.76	1.56	1.30	1.07	0.98	0.67	0.76	0.64	0.58	0.39	0.55	0.46
Hardness	mg/L	233.0	76.7	83.9	78.4	84.6					75.4				
Al	mg/L	0.0143	0.0396	0.0087	0.0061	0.0078					0.0102				
Sb	mg/L	0.0019	0.0025	0.0029	0.0023	0.0026					0.0021				
As	mg/L	0.0396	0.2010	0.2570	0.2860	0.2860					0.1090				
Ba	mg/L	0.1360	0.0501	0.0572	0.0700	0.0656					0.0730				
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002				
Bi	mg/L	< 0.00001	< 0.00001	0.00003	< 0.00001	< 0.00001					< 0.00001				
B	mg/L	0.34	0.26	0.18	0.13	0.08					0.04				
Cd	mg/L	0.000038	< 0.000003	0.000015	< 0.000003	0.000004					< 0.000003				
Ca	mg/L	61.6	19.5	21.5	20.10	21.70					19.50				
Cr	mg/L	0.0013	< 0.0005	0.0006	0.0006	0.0006					0.0013				
Co	mg/L	0.000262	0.000175	0.000139	0.000117	0.000154					0.000126				
Cu	mg/L	0.0040	0.0038	0.0029	0.0017	0.0026					0.0017				
Fe	mg/L	0.006	0.042	0.007	0.004	0.006					0.014				
Pb	mg/L	0.00008	0.00004	0.00017	0.00005	0.00003					< 0.00002				
Li	mg/L	0.069	0.021	0.019	0.014	0.012					0.009				
Mg	mg/L	19.20	6.82	7.33	6.87	7.39					6.47				
Mn	mg/L	0.0062	0.0033	0.0026	0.0027	0.0034					0.0033				
Hg	ug/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01					< 0.01				
Mo	mg/L	0.16300	0.04830	0.01480	0.00698	0.00381					0.00297				
Ni	mg/L	0.0059	0.0026	0.0024	0.0018	0.0023					0.0021				
P	mg/L	0.014	< 0.009	< 0.009	< 0.009	0.017					< 0.009				
K	mg/L	37.1	22.2	21.20	20.00	18.30					14.50				
Se	mg/L	0.00207	0.00047	0.00049	0.00026	0.00080					0.00058				
Si	mg/L	47.20	164.00	91.00	52.90	72.40					29.00				
Ag	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001				
Na	mg/L	35.0	18.9	16.3	12.5	11.1					4.4				
Sr	mg/L	0.556	0.184	0.198	0.188	0.198					0.175				
S	mg/L	49.70	9.94	8.29	6.14	5.60					5.84				
Tl	mg/L	0.00003	< 0.00002	0.00004	< 0.00002	< 0.00002					< 0.00002				
Sn	mg/L	0.01380	0.02870	0.02420	0.03520	0.04923					0.04740				
Ti	mg/L	0.0011	0.0008	0.0002	0.0002	0.0003					0.0002				
U	mg/L	0.008181	0.002270	0.002460	0.002387	0.002261					0.003290				
V	mg/L	0.02170	0.04820	0.06260	0.05620	0.06150					0.06160				
Zn	mg/L	0.00600	0.00400	0.01000	0.00600	0.00300					0.00100				
Zr	mg/L	0.00017	0.00006	0.00009	0.00003	0.00002					0.00004				

Humidity Cell Sample Data

DRAFT

T-2- Fine PK 2011

DGM 713 Fine

Date		29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11
Cycle		14	15	16	17	18	19	20	21	22	23	24
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		525	460	485	485	485	480	470	465	445	460	440
pH		7.75	7.75	7.78	7.91	7.89	7.94	7.78	7.54	7.84	7.66	7.61
ORP	mV	296	242	254	282	307	268	264	47	351	250	23
Cond.	umhos/cm	170	166	165	164	159	164	161	155	155	153	153
Acidity	mgCaCO3/L	5.7	5.9	5.2	3.2	3.2	4.8	4.0	4.4	3.5	4.5	4.8
Alkalinity	mgCaCO3/L	85.6	80.7	80.3	79.4	77.1	78.4	76.0	81.7	78.0	74.3	74.8
Sulphate	mg/L	8	11	9	9	12	10	10	9	7	7	5
Total P	mg/L	0	0	0	0	0	0	0	0	0	0	
Ortho P	mg/L	0	0	0	0	0	0	0	<0.001	0	0	
Chloride	mg/L	1	1	1	1	1	1	1	1	1	1	
Fluoride	mg/L	0.41	0.44	0.34	0.36	0.26	0.26	0.27	0.25	0.23	0.24	
Hardness	mg/L	65.8					68.3					
Al	mg/L	0.0166					0.0148					
Sb	mg/L	0.0016					0.0012					
As	mg/L	0.0334					0.0147					
Ba	mg/L	0.0666					0.0615					
Be	mg/L	< 0.00002					< 0.00002					
Bi	mg/L	< 0.00001					< 0.00001					
B	mg/L	0.02					0.01					
Cd	mg/L	< 0.000003					0.000005					
Ca	mg/L	17.00					17.80					
Cr	mg/L	0.0013					0.0022					
Co	mg/L	0.000101					0.000098					
Cu	mg/L	0.0010					0.0008					
Fe	mg/L	0.012					0.015					
Pb	mg/L	0.00011					0.00007					
Li	mg/L	0.007					0.005					
Mg	mg/L	5.64					5.81					
Mn	mg/L	0.0024					0.0022					
Hg	ug/L	0.02					0.01					
Mo	mg/L	0.00162					0.00177					
Ni	mg/L	0.0018					0.0015					
P	mg/L	< 0.009					0.011					
K	mg/L	11.10					9.55					
Se	mg/L	< 0.00004					0.00004					
Si	mg/L	21.10					15.70					
Ag	mg/L	< 0.00001					< 0.00001					
Na	mg/L	2.3					1.6					
Sr	mg/L	0.153					0.156					
S	mg/L	3.80					5.73					
Tl	mg/L	< 0.00002					< 0.00002					
Sn	mg/L	0.04076					0.04830					
Ti	mg/L	0.0001					0.0004					
U	mg/L	0.002663					0.002570					
V	mg/L	0.05502					0.05100					
Zn	mg/L	0.00700					0.00300					
Zr	mg/L	< 0.00001					0.00003					

Humidity Cell Sample Data

T-3- Fine PK 2011
DGM 717 Fine

S-Total:	0.05	%
S^{2-}:	0.05	%
NP:	33.1	t $CaCO_3$/1000 t
CaNP:	13.3	t $CaCO_3$/1000 t
AP:	1.6	t $CaCO_3$/1000 t

Date		23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11
Leachate Volume Added (mL)		750	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		325	490	500	465	425	460	480	490	475	465	470	510
pH		8.3	8.21	8.07	8.04	8.05	8.11	8.04	7.97	7.96	8.04	8.18	7.93
ORP	mV	252	338	309	206	283	296	250	214	245	241	249	265
Cond.	umhos/cm	1071	477	357	342	258	205	294	260	252	252	246	226
Acidity	mgCaCO3/L	#N/A	4.6	6.9	6.7	5.3	4.5	6.6	7.8	7.4	7.6	5.0	5.8
Alkalinity	mgCaCO3/L	212.7	161.8	147.6	128.0	107.2	89.9	120.3	113.9	111.5	109.8	102.3	100.4
Sulphate	mg/L	205	77	52	40	22	13	21	17	12	16	11	13
Total P	mg/L	0	0	0	0	0	0	0	0	0	0	0	0
Ortho P	mg/L	0	0	0	0	0	0	0	0	0	0	0	0
Chloride	mg/L	76	8	2	5	4	4	8	5	4	3	2	1
Fluoride	mg/L	0.44	0.39	0.37	0.40	0.42	0.34	0.47	0.44	0.42	0.43	0.36	0.59
Hardness	mg/L	225.0	76.0	60.4	59.9	53.5					55.5		
Al	mg/L	0.0172	0.0097	0.0052	0.0053	0.0776					0.0040		
Sb	mg/L	0.0038	0.0037	0.0038	0.0040	0.0032					0.0047		
As	mg/L	0.0372	0.1690	0.1760	0.2810	0.1920					0.1850		
Ba	mg/L	0.1510	0.0694	0.0691	0.0890	0.1390					0.1480		
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002		
Bi	mg/L	< 0.00001	< 0.00001	0.00002	< 0.00001	< 0.00001					< 0.00001		
B	mg/L	10.30	7.35	6.52	4.80	2.76					2.24		
Cd	mg/L	0.000021	0.000017	0.000012	0.000006	0.000013					0.000008		
Ca	mg/L	47.3	14.8	11.7	11.60	10.60					11.40		
Cr	mg/L	0.0079	< 0.0005	< 0.0005	0.0006	0.0014					0.0019		
Co	mg/L	0.000171	0.000072	0.000060	0.000052	0.000260					0.000034		
Cu	mg/L	0.0035	0.0042	0.001	0.0009	0.0007					0.0008		
Fe	mg/L	< 0.002	0.004	0.006	0.006	0.144					0.005		
Pb	mg/L	0.00012	0.00004	0.00009	0.00006	0.00010					0.00004		
Li	mg/L	0.053	0.015	0.012	0.010	0.007					0.006		
Mg	mg/L	25.90	9.47	7.60	7.48	6.59					6.59		
Mn	mg/L	0.0034	0.0018	0.0009	0.0012	0.0030					0.0012		
Hg	ug/L	< 0.01	< 0.01	0.01	< 0.01	0.01					< 0.01		
Mo	mg/L	0.23200	0.10100	0.04400	0.02650	0.01073					0.00570		
Ni	mg/L	0.0046	0.0022	0.0019	0.0012	0.0043					0.0008		
P	mg/L	0.01	< 0.009	< 0.009	0.013	< 0.009					< 0.009		
K	mg/L	60.8	35.9	30.00	28.70	22.50					22.40		
Se	mg/L	0.00332	0.00043	0.00031	0.00050	0.00082					0.00013		
Si	mg/L	90.00	232.00	112.00	76.60	48.00					30.20		
Ag	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001		
Na	mg/L	90.5	46.1	37.4	32.5	24.5					19.0		
Sr	mg/L	0.726	0.242	0.188	0.189	0.168					0.184		
S	mg/L	74.60	24.10	15.60	12.70	7.58					5.77		
Tl	mg/L	0.00005	0.00003	0.00002	< 0.00002	< 0.00002					< 0.00002		
Sn	mg/L	0.01170	0.02940	0.03950	0.03840	0.01154					0.06820		
Ti	mg/L	0.0018	0.0005	0.0003	0.0003	0.0018					0.0002		
U	mg/L	0.000791	0.000231	0.000139	0.000138	0.000057					0.000065		
V	mg/L	0.00610	0.00736	0.00889	0.00842	0.00777					0.00985		
Zn	mg/L	0.01000	0.00200	0.00800	0.00800	0.00400					0.00900		
Zr	mg/L	0.00005	0.00001	0.00002	0.00002	0.00017					0.00002		

Humidity Cell Sample Data

T-3- Fine PK 2011
DGM 717 Fine

Date		15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11
Cycle		12	13	14	15	16	17	18	19	20	21
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		470	485	495	450	500	465	450	460	485	380
pH		7.95	7.92	7.92	7.97	7.97	7.89	7.95	8.05	7.92	7.90
ORP	mV	275	281	220	255	245	184	243	223	267	152
Cond.	umhos/cm	211	207	201	192	184	187	182	174	174	178
Acidity	mgCaCO3/L	5.7	4.8	7.1	4.2	3.3	4.8	4.7	4.8	3.7	4.3
Alkalinity	mgCaCO3/L	95.9	95.3	96.3	91.4	88.1	92.9	89.2	91.2	88.4	92.8
Sulphate	mg/L	11	10	9	8	7	7	6	6	5	
Total P	mg/L	0	0	0	0	0	0	0	0	0	
Ortho P	mg/L	0	0	0	0	<0.001	0	<0.001	0	0	
Chloride	mg/L	2	2	3	2	2	2	2	1	1	
Fluoride	mg/L	0.37	0.37	0.43	0.36	0.36	0.35	0.39	0.37	0.42	
Hardness	mg/L			51.6					50.4		
Al	mg/L			0.0076					0.0457		
Sb	mg/L			0.0038					0.0035		
As	mg/L			0.1050					0.0379		
Ba	mg/L			0.1750					0.2010		
Be	mg/L			< 0.00002					< 0.00002		
Bi	mg/L			0.00002					< 0.00001		
B	mg/L			1.36					1.03		
Cd	mg/L			< 0.000003					0.000006		
Ca	mg/L			10.60					10.40		
Cr	mg/L			0.0019					< 0.0005		
Co	mg/L			0.000052					0.000101		
Cu	mg/L			0.0005					0.0008		
Fe	mg/L			0.010					0.030		
Pb	mg/L			0.00010					0.00004		
Li	mg/L			0.005					0.004		
Mg	mg/L			6.12					5.94		
Mn	mg/L			0.0018					0.0018		
Hg	ug/L			< 0.01					0.02		
Mo	mg/L			0.00305					0.00169		
Ni	mg/L			0.0013					0.0019		
P	mg/L			< 0.009					< 0.009		
K	mg/L			19.50					18.20		
Se	mg/L			0.00007					0.00017		
Si	mg/L			25.50					20.30		
Ag	mg/L			< 0.00001					< 0.00001		
Na	mg/L			11.2					7.8		
Sr	mg/L			0.169					0.163		
S	mg/L			4.04					2.73		
Tl	mg/L			< 0.00002					0.00003		
Sn	mg/L			0.07220					0.04720		
Ti	mg/L			0.0001					0.0005		
U	mg/L			0.000040					0.000049		
V	mg/L			0.00854					0.00942		
Zn	mg/L			0.00200					0.00500		
Zr	mg/L			0.00005					0.00004		

Humidity Cell Sample Data

T-4- Fine PK 2011
DGM 737 Fine

S-Total:	0.04	%
S^{2-}:	0.01	%
NP:	292.9	t $CaCO_3$/1000 t
CaNP:	24.2	t $CaCO_3$/1000 t
AP:	0.3	t $CaCO_3$/1000 t

Date		23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13
Leachate Volume Added (mL)		750	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		405	460	465	425	415	420	390	415	435	420	400	455	485	495
pH		7.85	7.62	7.71	7.83	8.00	8.20	8.09	8.32	8.36	8.51	8.49	8.64	8.44	8.83
ORP	mV	270	354	310	310	293	297	313	246	272	267	339	283	298	176
Cond.	umhos/cm	2453	1183	689	532	389	303	245	220	199	185	177	168	160	157
Acidity	mgCaCO3/L	4.4	4.6	5.2	5.2	4.4	2.5	3.6	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Alkalinity	mgCaCO3/L	50.9	16.2	15.8	16.5	22.3	23.9	27.5	30.1	31.7	34.0	37.4	36.7	35.4	37.1
Sulphate	mg/L	5	13	14	15	22	27	27	28	30	33	31	37	31	28
Total P	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ortho P	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chloride	mg/L	680	300	160	110	72	52	30	20	14	11	8	7	5	4
Fluoride	mg/L	0.37	0.88	1.28	1.50	1.73	1.90	1.70	1.46	1.76	1.81	1.51	1.72	1.55	1.64
Hardness	mg/L	599.0	301.0	167.0	121.0	92.8					39.6				
Al	mg/L	0.0146	0.0095	0.0051	0.0036	0.0030					0.0021				
Sb	mg/L	0.0004	0.0006	0.0008	0.0005	0.0010					0.0009				
As	mg/L	0.0353	0.1990	0.2350	0.2650	0.2210					0.1150				
Ba	mg/L	1.1900	0.4970	0.2900	0.2390	0.1810					0.0908				
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002				
Bi	mg/L	< 0.00001	0.00002	< 0.00001	< 0.00001	< 0.00001					< 0.00001				
B	mg/L	1.19	1.02	1.38	1.27	1.34					1.08				
Cd	mg/L	0.000027	0.000085	0.000011	0.000003	0.000004					< 0.000003				
Ca	mg/L	152.0	95.4	60.6	44.20	34.30					14.90				
Cr	mg/L	0.0009	< 0.0005	< 0.0005	< 0.0005	< 0.0005					0.0013				
Co	mg/L	0.000362	0.000247	0.000108	0.000096	0.000091					0.000041				
Cu	mg/L	0.0029	0.0019	0.0009	0.0007	0.0006					< 0.0005				
Fe	mg/L	< 0.002	0.004	0.002	< 0.002	< 0.002					0.005				
Pb	mg/L	0.00005	0.00006	0.00004	0.00006	0.00004					0.00005				
Li	mg/L	0.019	0.004	0.002	0.001	< 0.001					< 0.001				
Mg	mg/L	53.40	15.30	3.80	2.44	1.77					0.56				
Mn	mg/L	0.0042	0.0015	< 0.0002	< 0.0002	0.0002					0.0002				
Hg	ug/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01					< 0.01				
Mo	mg/L	0.00625	0.00274	0.00355	0.00508	0.00473					0.00740				
Ni	mg/L	0.0060	0.0024	0.0018	0.0027	0.0015					0.0007				
P	mg/L	< 0.009	< 0.009	0.014	< 0.009	< 0.009					< 0.009				
K	mg/L	158.0	88.8	55.80	48.00	38.70					22.00				
Se	mg/L	0.00332	< 0.00004	0.00034	< 0.00004	0.00071					0.00018				
Si	mg/L	48.50	140.00	68.30	38.40	44.80					33.90				
Ag	mg/L	< 0.00001	0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001				
Na	mg/L	74.4	25.1	12.3	10.0	8.3					4.9				
Sr	mg/L	4.090	2.240	1.420	1.050	0.806					0.344				
S	mg/L	6.66	5.40	5.69	6.13	7.91					11.00				
Tl	mg/L	0.00025	0.00013	0.00004	0.00002	< 0.00002					< 0.00002				
Sn	mg/L	0.01210	0.01660	0.01560	0.01950	0.02173					0.02740				
Ti	mg/L	0.0010	0.0005	0.0003	0.0003	0.0003					0.0002				
U	mg/L	0.000008	0.000012	0.000005	< 0.000001	0.000002					0.000001				
V	mg/L	0.00020	0.00022	0.00047	0.00050	0.00056					0.00134				
Zn	mg/L	0.01100	0.00400	0.00600	0.00700	0.00700					0.00200				
Zr	mg/L	0.00001	0.00004	0.00003	0.00003	0.00004					0.00002				

Humidity Cell Sample Data

T-4- Fine PK 2011
DGM 737 Fine

Date		29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		14	15	16	17	18	19	20	21	22	23	24	25
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		515	460	475	465	485	490	450	440	460	420	400	405
pH		8.45	8.79	8.61	8.89	8.75	8.95	8.73	9.02	8.92	8.86	8.68	8.84
ORP	mV	289	236	265	224	272	236	280	234	285	258	293	260
Cond.	umhos/cm	147	144	137	135	130	128	123	124	115	116	114	116
Acidity	mgCaCO3/L	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Alkalinity	mgCaCO3/L	34.0	37.2	41.6	37.5	38.1	40.8	39.5	38.5	38.7	40.9	42.5	43.7
Sulphate	mg/L	26	22	24	19	19	15	15	16	13	10	10	
Total P	mg/L	0	0	0	0	0	0	0	0	0	IP	0	
Ortho P	mg/L	<0.001	0	<0.001	0	<0.001	<0.001	0	0	<0.001	IP	0	
Chloride	mg/L	3	2	2	2	2	2	2	1	1	1		
Fluoride	mg/L	1.34	1.51	1.75	1.63	1.67	1.50	1.55	1.47	1.42	1.44		
Hardness	mg/L	34.7					30.4						
Al	mg/L	0.0010					0.0007						
Sb	mg/L	0.0009					0.0008						
As	mg/L	0.0551					0.0305						
Ba	mg/L	0.0911					0.1200						
Be	mg/L	< 0.00002					< 0.00002						
Bi	mg/L	0.00003					< 0.00001						
B	mg/L	0.91					0.92						
Cd	mg/L	0.000007					0.000005						
Ca	mg/L	13.40					11.80						
Cr	mg/L	0.0009					< 0.0005						
Co	mg/L	0.000024					0.000031						
Cu	mg/L	< 0.0005					< 0.0005						
Fe	mg/L	0.002					0.026						
Pb	mg/L	0.00008					0.00004						
Li	mg/L	< 0.001					< 0.001						
Mg	mg/L	0.33					0.22						
Mn	mg/L	< 0.0002					0.0004						
Hg	ug/L	0.03					0.01						
Mo	mg/L	0.00554					0.00420						
Ni	mg/L	0.0001					0.0003						
P	mg/L	< 0.009					< 0.009						
K	mg/L	18.40					15.30						
Se	mg/L	< 0.00004					0.00009						
Si	mg/L	34.70					29.50						
Ag	mg/L	0.00001					< 0.00001						
Na	mg/L	3.7					2.9						
Sr	mg/L	0.303					0.269						
S	mg/L	9.18					6.26						
Tl	mg/L	< 0.00002					0.00002						
Sn	mg/L	0.04280					0.04250						
Ti	mg/L	0.0002					0.0002						
U	mg/L	0.000001					0.000007						
V	mg/L	0.00173					0.00192						
Zn	mg/L	0.00100					< 0.001						
Zr	mg/L	0.00017					0.00002						

Humidity Cell Sample Data

T-5- Fine PK 2011
Tuzo and Hearne Fine

S-Total:	0.03	%
S^{2-}:	0.01	%
NP:	63.5	t $CaCO_3$/1000 t
CaNP:	15.8	t $CaCO_3$/1000 t
AP:	0.3	t $CaCO_3$/1000 t

Date		23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11
Leachate Volume Added (mL)		1000	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		440	410	470	465	455	460	500	455	470	425	500	450
pH		8.26	8.28	8.14	8.15	8.22	8.31	7.94	8.07	8.13	8.11	8.02	7.99
ORP	mV	264	330	328	209	193	288	224	292	248	301	312	243
Cond.	umhos/cm	2152	581	435	349	266	228	320	290	278	254	270	294
Acidity	mgCaCO3/L	4.1	2.6	6.0	3.8	4.4	#N/A	7.3	6.7	5.5	10.5	5.1	6.1
Alkalinity	mgCaCO3/L	359.7	184.0	157.3	142.8	123.6	106.7	132.4	135.2	128.1	126.5	119.9	109.4
Sulphate	mg/L	703	126	47	39	21	17	25	30	16	19	18	16
Total P	mg/L	0	0	0	0	0	0	0	0	0	0	0	0
Ortho P	mg/L	0	0	0	0	0	0	0	0	0	0	0	0
Chloride	mg/L	73	5	2	1	0	1	1	1	0	0	0	0
Fluoride	mg/L	1.14	1.42	1.44	1.25	0.99	0.78	0.93	1.12	1.02	0.92	0.88	0.87
Hardness	mg/L	683.0	77.8	54.1	47.7	45.1					44.3		
Al	mg/L	0.0097	0.0156	0.0065	0.0983	0.1870					0.0171		
Sb	mg/L	0.0014	0.0015	0.0013	0.0010	0.0007					0.0009		
As	mg/L	0.0684	0.3560	0.4210	0.2940	0.1190					0.1440		
Ba	mg/L	0.0932	0.0454	0.0401	0.0441	0.0524					0.0636		
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002		
Bi	mg/L	< 0.00001	0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001		
B	mg/L	0.47	0.44	0.47	0.34	0.21					0.15		
Cd	mg/L	0.000092	< 0.000003	0.000019	0.000005	0.000022					< 0.000003		
Ca	mg/L	155.0	17.0	12.0	10.30	9.72					10.50		
Cr	mg/L	0.0068	0.0006	0.0014	0.0015	0.0019					0.0020		
Co	mg/L	0.000573	0.000213	0.000137	0.000590	0.000697					0.000152		
Cu	mg/L	0.0052	0.0044	0.0012	0.0027	0.0069					0.0015		
Fe	mg/L	0.017	0.028	0.074	0.145	0.299					0.029		
Pb	mg/L	0.00007	0.00003	0.00003	0.00011	0.00007					0.00006		
Li	mg/L	0.099	0.015	0.013	0.008	0.005					0.005		
Mg	mg/L	71.60	8.58	5.83	5.33	5.07					4.38		
Mn	mg/L	0.0132	0.0034	0.0014	0.0019	0.0034					0.0007		
Hg	ug/L	0.02	0.01	0.03	< 0.01	0.01					< 0.01		
Mo	mg/L	1.62000	0.50200	0.15200	0.05850	0.02563					0.02740		
Ni	mg/L	0.0311	0.0060	0.0032	0.0067	0.0091					0.0021		
P	mg/L	< 0.009	< 0.009	< 0.009	0.032	< 0.009					< 0.009		
K	mg/L	74.5	33.8	28.60	23.70	18.20					18.20		
Se	mg/L	0.0112	0.00171	0.00114	0.00111	0.00131					0.00040		
Si	mg/L	1260.00	751.00	272.00	126.00	52.40					46.00		
Ag	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001		
Na	mg/L	187.0	73.3	59.7	45.5	33.1					25.8		
Sr	mg/L	1.940	0.239	0.161	0.145	0.128					0.132		
S	mg/L	232.00	35.70	21.50	12.70	7.11					6.77		
Tl	mg/L	0.00009	0.00004	0.00005	< 0.00002	0.00006					0.00002		
Sn	mg/L	0.01200	0.02530	0.04970	0.04230	0.00478					0.08680		
Ti	mg/L	0.0053	0.0007	0.0004	0.0009	0.0026					0.0003		
U	mg/L	0.008195	0.002470	0.001950	0.001460	0.000997					0.001230		
V	mg/L	0.04530	0.09050	0.15200	0.14700	0.10600					0.14100		
Zn	mg/L	0.00600	0.00200	0.00400	0.00400	0.00500					0.00700		
Zr	mg/L	0.00010	0.00006	0.00003	0.00010	0.00020					0.00006		

Humidity Cell Sample Data

T-5- Fine PK 2011
Tuzo and Hearne Fine

Date		15-Sep-11	22-Sep-11
Cycle		12	13
Leachate Volume Added (mL)		500	500
Leachate Volume Recovered (mL)		475	445
pH		8.02	7.90
ORP	mV	273	323
Cond.	umhos/cm	276	259
Acidity	mgCaCO3/L	4.4	5.1
Alkalinity	mgCaCO3/L	113.2	117.4
Sulphate	mg/L	14	10
Total P	mg/L	0	
Ortho P	mg/L	0	
Chloride	mg/L	1	
Fluoride	mg/L	0.79	
Hardness	mg/L		
Al	mg/L		
Sb	mg/L		
As	mg/L		
Ba	mg/L		
Be	mg/L		
Bi	mg/L		
B	mg/L		
Cd	mg/L		
Ca	mg/L		
Cr	mg/L		
Co	mg/L		
Cu	mg/L		
Fe	mg/L		
Pb	mg/L		
Li	mg/L		
Mg	mg/L		
Mn	mg/L		
Hg	ug/L		
Mo	mg/L		
Ni	mg/L		
P	mg/L		
K	mg/L		
Se	mg/L		
Si	mg/L		
Ag	mg/L		
Na	mg/L		
Sr	mg/L		
S	mg/L		
Tl	mg/L		
Sn	mg/L		
Ti	mg/L		
U	mg/L		
V	mg/L		
Zn	mg/L		
Zr	mg/L		

Humidity Cell Sample Data

T-6- Fine PK 2011
East Lobe Fine

S-Total:	0.02	%
S^{2-}:	0.01	%
NP:	143.1	t $CaCO_3$/1000 t
CaNP:	8.3	t $CaCO_3$/1000 t
AP:	0.3	t $CaCO_3$/1000 t

Date		23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13
Leachate Volume Added (mL)		750	500	500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		465	465	410	420	460	440	445	450	470	450	475	455	465	450
pH		8.52	8.09	7.79	8.19	8.36	8.74	8.71	8.96	8.95	8.99	9.01	9.08	8.85	9.09
ORP	mV	246	344	316	296	271	272	291	228	251	252	340	264	328	170
Cond.	umhos/cm	2835	1323	743	443	295	213	174	159	142	138	139	139	141	139
Acidity	mgCaCO3/L	#N/A	3.3	6.3	2.2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Alkalinity	mgCaCO3/L	59.3	21.7	23.5	23.1	28.7	33.9	39.7	46.4	48.9	51.7	54.6	56.6	58.9	58.9
Sulphate	mg/L	3	4	3	<2	<2	3	3	6	4	8	7	13	6	6
Total P	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ortho P	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chloride	mg/L	810	340	180	97	59	35	20	13	7	6	5	5	3	3
Fluoride	mg/L	0.18	0.17	0.12	0.20	0.26	0.24	0.24	0.19	0.22	0.21	0.22	0.30	0.18	0.17
Hardness	mg/L	493.0	270.0	143.0	83.7	55.0					19.9				
Al	mg/L	0.0040	0.0021	0.0016	0.0016	0.0016					0.0033				
Sb	mg/L	0.0003	0.0003	0.0004	< 0.0002	0.0005					0.0005				
As	mg/L	0.0316	0.1550	0.1600	0.1510	0.1690					0.1300				
Ba	mg/L	2.8800	2.2300	1.8700	0.9330	0.6490					0.2670				
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002				
Bi	mg/L	< 0.00001	0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001				
B	mg/L	0.20	0.26	0.44	0.50	0.52					0.38				
Cd	mg/L	0.000008	0.000013	0.00001	< 0.000003	< 0.000003					< 0.000003				
Ca	mg/L	128.0	100.0	53.1	32.50	21.60					7.74				
Cr	mg/L	0.0009	0.0005	< 0.0005	< 0.0005	0.0006					0.0022				
Co	mg/L	0.000230	0.000198	0.000102	0.000065	0.000059					0.000028				
Cu	mg/L	0.0017	0.0027	0.0014	0.0011	0.0008					< 0.0005				
Fe	mg/L	0.006	0.003	< 0.002	0.002	0.004					0.007				
Pb	mg/L	0.00005	0.00004	0.00003	0.00003	0.00003					0.00005				
Li	mg/L	0.004	< 0.001	< 0.001	< 0.001	< 0.001					< 0.001				
Mg	mg/L	41.80	4.74	2.47	0.59	0.30					0.14				
Mn	mg/L	0.0014	0.0004	< 0.0002	< 0.0002	< 0.0002					< 0.0002				
Hg	ug/L	< 0.01	0.01	< 0.01	< 0.01	< 0.01					< 0.01				
Mo	mg/L	0.00347	0.00790	0.00043	0.00092	0.00038					0.00065				
Ni	mg/L	0.0028	0.0014	0.0020	0.0008	0.0010					0.0001				
P	mg/L	< 0.009	< 0.009	< 0.009	0.011	0.013					< 0.009				
K	mg/L	196.0	121.0	60.60	47.40	37.10					23.10				
Se	mg/L	0.00051	0.00028	0.00039	0.00023	0.00058					0.00022				
Si	mg/L	727.00	388.00	79.80	60.50	66.40					46.70				
Ag	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001				
Na	mg/L	151.0	47.2	22.8	13.5	10.1					5.5				
Sr	mg/L	2.400	1.630	1.060	0.628	0.404					0.140				
S	mg/L	3.16	2.48	1.73	1.51	1.69					2.93				
Tl	mg/L	0.00025	0.00014	0.00007	< 0.00002	< 0.00002					< 0.00002				
Sn	mg/L	0.00758	0.01080	0.01560	0.01760	0.01952					0.01980				
Ti	mg/L	0.0006	0.0001	0.0003	0.0001	0.0001					0.0002				
U	mg/L	0.000067	0.000298	0.000001	< 0.000001	0.000020					0.000015				
V	mg/L	0.00035	0.00070	0.00020	0.00057	0.00108					0.00196				
Zn	mg/L	0.01300	0.00600	0.00400	0.00500	0.00300					0.00500				
Zr	mg/L	< 0.00001	0.00001	0.00001	< 0.00001	0.00001					0.00003				

Humidity Cell Sample Data

T-6- Fine PK 2011
East Lobe Fine

Date		29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		14	15	16	17	18	19	20	21	22	23	24	25
Leachate Volume Added (mL)		500	500	500	500	500	500	500	500	500	500	500	500
Leachate Volume Recovered (mL)		440	450	465	485	480	480	460	420	460	440	440	455
pH		8.92	9.07	8.96	9.15	9.03	9.18	9.03	9.13	9.12	9.05	9.02	9.12
ORP	mV	259	228	250	214	256	229	269	237	272	258	280	256
Cond.	umhos/cm	134	135	131	130	129	128	127	131	126	127	125	128
Acidity	mgCaCO3/L	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Alkalinity	mgCaCO3/L	58.3	61.4	61.8	61.9	58.9	61.9	63.7	62.8	65.1	65.5	63.2	65.3
Sulphate	mg/L	7	6	5	4	5	6	4	5	5	4	3	
Total P	mg/L	0	0	0	0	0	0	0	0	0	IP	0	
Ortho P	mg/L	0	0	<0.001	0	<0.001	<0.001	<0.001	<0.001	<0.001	IP	0	
Chloride	mg/L	2	2	2	1	1	1	1	1	1	1		
Fluoride	mg/L	0.16	0.23	0.22	0.16	0.23	0.19	0.19	0.17	0.29	0.24		
Hardness	mg/L	20.3					21.0						
Al	mg/L	0.0018					0.0004						
Sb	mg/L	0.0003					0.0003						
As	mg/L	0.0632					0.0404						
Ba	mg/L	0.2550					0.2990						
Be	mg/L	< 0.00002					< 0.00002						
Bi	mg/L	0.00003					< 0.00001						
B	mg/L	0.32					0.32						
Cd	mg/L	0.000006					< 0.000003						
Ca	mg/L	7.92					8.24						
Cr	mg/L	0.0019					0.0009						
Co	mg/L	0.000029					0.000019						
Cu	mg/L	0.0006					< 0.0005						
Fe	mg/L	0.003					0.015						
Pb	mg/L	0.00014					0.00002						
Li	mg/L	< 0.001					< 0.001						
Mg	mg/L	0.13					0.11						
Mn	mg/L	< 0.0002					< 0.0002						
Hg	ug/L	0.01					0.01						
Mo	mg/L	0.00071					0.00047						
Ni	mg/L	0.0001					0.0002						
P	mg/L	0.01					0.009						
K	mg/L	26.70					19.40						
Se	mg/L	0.00016					< 0.00004						
Si	mg/L	53.40					40.10						
Ag	mg/L	< 0.00001					< 0.00001						
Na	mg/L	5.3					4.7						
Sr	mg/L	0.136					0.137						
S	mg/L	2.82					2.05						
Tl	mg/L	< 0.00002					< 0.00002						
Sn	mg/L	0.02350					0.02890						
Ti	mg/L	< 0.0001					< 0.0001						
U	mg/L	0.000010					0.000005						
V	mg/L	0.00263					0.00255						
Zn	mg/L	0.00600					0.00200						
Zr	mg/L	0.00002					< 0.00001						

ATTACHMENT 8.III-9

COLUMN CELL SAMPLE DATA

Column 1 - Granite
04-ARD-145-003
04-ARD-145-004
04-ARD-145-005
04-ARD-145-006
04-ARD-145-007
04-ARD-145-008
04-ARD-145-009
04-ARD-145-010
04-ARD-145-011
04-ARD-145-012

Date		31-Jan-05	7-Feb-05	14-Feb-05	21-Feb-05	28-Feb-05	7-Mar-05	14-Mar-05	21-Mar-05	28-Mar-05	4-Apr-05	11-Apr-05	18-Apr-05	25-Apr-05	2-May-05	9-May-05	16-May-05	23-May-05	30-May-05	6-Jun-05	13-Jun-05	20-Jun-05	27-Jun-05	4-Jul-05	11-Jul-05	18-Jul-05	25-Jul-05	1-Aug-05	8-Aug-05	15-Aug-05	22-Aug-05	29-Aug-05	5-Sep-05	12-Sep-05	19-Sep-05	26-Sep-05	3-Oct-05	10-Oct-05
Weeks		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Volume (ml)	Input	450	250	250	150	150	150	150	150	150	150	150	150	150	150	200	200	200	200	200	250	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	Output	345		455		260		255		265		270		255		250		340		335		410		365		370		380		370		340		350		325		355
pH		7.25		7.45		7.33		7.28		7.38		7.34		7.50		7.35		7.61		7.69		7.10		7.00		7.21		7.20		7.10		6.40		6.92		7.54		7.74
Cond.	(umhos/cm)	193		116		117		111		93		93		74		73		63		58		51		54		57		60		51		40		58		56		49
ORP	mV	100		125		130		145		160		130		145		135		150		160		185		190		140		170		155		150		120		180		125
Sulphate	(mg/L)	1		9		6		7		8		5		4		5		4		5		3		4		5		3		5		3		5		4		4
Acidity	(mg CaCO3/L)	4		3		2		3		2		3		2		4		2		4		3		4		3		3		5		8		3		2		1
Alkalinity	(mg CaCO3/L)	33		35		45		44		36		27		23		22		20		20		18		18		20		15		17		14		18		20		
TDS	(mg/L)	124		74		31		79		67		137		19		184		58		45		39		41		39		40		50		31				51		
Cl	(mg/L)	0.32		3.46		1.56		1.13		0.67		0.62		0.65		0.82		0.77		0.76		0.63		0.65		0.67		0.63		0.62		0.37				0.48		
Al	mg/L	0.039		0.047		0.042		0.053		0.063		0.05		0.09		0.078		0.049		0.064		0.062		0.039		0.041		0.044		0.054		0.054				0.066		
Sb	mg/L	0.006		0.004		0.005		0.005		0.004		0.004		0.004		0.003		0.003		0.003		0.002		0.002		0.002		0.002		0.001		0.001				0.001		
As	mg/L	0.004		0.002		0.003		0.003		0.002		0.003		0.002		0.002		0.002		0.005		0.002		0.001		0.001		0.001		< 0.001		0.001				< 0.001		
Ba	mg/L	0.033		0.028		0.021		0.023		0.017		0.014		0.014		0.012		0.01		0.01		0.007		0.007		0.008		0.008		0.007		0.006				0.007		
Be	mg/L	< 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				< 0.001		
Bi	mg/L	< 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				< 0.001		
B	mg/L	0.09		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		
Cd	mg/L	< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		<0.0002		<0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002				< 0.0002		
Ca	mg/L	12.7		8.82		9.67		10.6		9.29		8.49		6.8		6.37		5.22		5.78		4.66		5.12		5.33		5.48		4.75		3.5				5.08		
Cr	mg/L	< 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				< 0.001		
Co	mg/L	< 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				< 0.001		
Cu	mg/L	0.003		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		0.002		<0.001		<0.001		< 0.001		< 0.001		< 0.001		< 0.001				< 0.001		
Fe	mg/L	< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		0.23		0.11		<0.05		< 0.05		< 0.05		< 0.05		< 0.05				< 0.05		
Pb	mg/L	< 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				< 0.001		
Li	mg/L	0.019		0.011		0.009		0.01		0.007		0.008		0.006		0.005		0.004		0.003		0.003		0.002		0.002		0.002		0.001		0.002				0.002		
Mg	mg/L	3.9		2.49		2.8		3.09		2.6		2.46		2.24		1.91		1.7		1.6		1.5		1.44		1.64		1.72		1.61		1.14				1.76		
Mn	mg/L	0.084		0.3		0.36		0.35		0.27		0.22		0.18		0.14		0.1		0.005		<0.001		<0.001		< 0.001		< 0.001		< 0.001		< 0.001				< 0.001		
Hg	ug/L	< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		<0.02		<0.02		< 0.02		< 0.02		< 0.02		< 0.02				< 0.02		
Mo	mg/L	0.035		0.016		0.014		0.013		0.0069		0.0055		0.0041		0.0032		0.0025		0.0023		0.0015		0.0021		0.0027		0.0029		0.0027		0.0019				0.0028		
Ni	mg/L	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				< 0.001		
PO4	mg/L	< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		<0.15		<0.15		< 0.15		< 0.15		< 0.15		< 0.15				< 0.15		
K	mg/L	16		7.9		6		5.9		5.1		4.1		3.2		3		2.5		3.1		2.4		2.2		2.1		2.1		1.7		1.6				1.8		
Se	mg/L	< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		0.014		<0.001		<0.001		< 0.001		< 0.001		< 0.001		< 0.001				< 0.001		
SiO2	mg/L	7.9		6.6		8		10.5		11		12.2		12.4		11.4		10.3		11.2		10.7		8.1		7.9		8.4		6.3		5.1				8.3		
Ag	mg/L	< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		<0.00025		<0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025				< 0.00025		
Na	mg/L	14.9		5.37		3.41		3.08		2.13		1.79		1.48		1.24		0.98		1.09		0.77		0.62		0.61		0.62		< 0.05		0.38				0.4		
Sr	mg/L	0.11		0.078		0.081		0.085		0.07		0.068		0.055		0.049		0.043		0.044		0.037		0.039		0.04		0.041		0.035		0.025				0.037		
Te	mg/L	< 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				< 0.001		
Tl	mg/L	< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		<0.0001		<0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001				< 0.0001		
Th	mg/L	< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		<0.0005		<0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005				< 0.0005		
Sn	mg/L	< 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				< 0.001		
Ti	mg/L	< 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				< 0.001		
U	mg/L	< 0.0005		0.0006		0.0012		0.0019		0.0014		0.0006		< 0.0005		< 0.0005		< 0.0005		0.001		<0.0005		<0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005				< 0.0005		
V	mg/L	0.005		0.003		0.003		0.004		0.005		0.004		0.004		0.004		0.005		0.004		0.004		0.003		0.003		0.003		0.003		0.002				0.002		
Zn	mg/L	< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		<0.005		<0.005		< 0.005		0.017		< 0.005		< 0.005				< 0.005		
Zr	mg/L	< 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				< 0.01		

Column 2 - Granite
04-ARD-122-022
04-ARD-122-023
04-ARD-122-024
04-ARD-122-025
04-ARD-124-009
04-ARD-124-010
04-ARD-124-011
04-ARD-124-012
04-ARD-124-013
04-ARD-139-036

Date		31-Jan-05	7-Feb-05	14-Feb-05	21-Feb-05	28-Feb-05	7-Mar-05	14-Mar-05	21-Mar-05	28-Mar-05	4-Apr-05	11-Apr-05	18-Apr-05	25-Apr-05	2-May-05	9-May-05	16-May-05	23-May-05	30-May-05	6-Jun-05	13-Jun-05	20-Jun-05	27-Jun-05	4-Jul-05	11-Jul-05	18-Jul-05	25-Jul-05	1-Aug-05	8-Aug-05	15-Aug-05	22-Aug-05	29-Aug-05	5-Sep-05	12-Sep-05	19-Sep-05	26-Sep-05	3-Oct-05	10-Oct-05	17-Oct-05	24-Oct-05	31-Oct-05
Weeks		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
Volume (ml)	Input	450	250	250	150	150	150	150	150	150	150	150	150	150	150	200	200	200	200	200	250	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	Output	340		450		270		250		265		240		260		260		350		350		400		345		360		340		370		390		300		305		385			
pH		7.52		7.84		7.95		7.96		7.74		7.93		7.89		8.02		7.76		7.96		7.49		7.70		7.51		7.63		7.53		7.10		7.97		8.16		8.12			
Cond.	(umhos/cm)	500		200		218		231		174		173		164		167		151		144		140		145		146		141		149		121		175		163		150			
ORP	mV	110		120		130		115		160		130		150		150		170		160		170		175		140		170		160		160		125		205		120			
Sulphate	(mg/L)	107		25		24		30		19		18		16		16		13		12		11		12		15		14		15		9		14		14		10			
Acidity	(mg CaCO3/L)	3		2		1		2		3		2		2		1		2		1		5		2		4		4		9		11		2		<1		1			
Alkalinity	(mg CaCO3/L)	58		63		62		65		69		66		63		59		59		60		54		53		57		60		54		48		60		62					
TDS	(mg/L)	324		130		52		169		111		291		83		98		102		99		88		95		92		81		99		79				80					
Cl	(mg/L)	43.6		3.30		1.80		1.33		0.80		0.74		0.61		0.89		0.81		0.83		0.74		0.73		0.76		0.80		0.69		0.38				0.57					
Al	mg/L	0.045		0.072		0.041		0.06		0.17		0.055		0.069		0.052		0.057		0.045		0.072		0.055		0.067		0.055		0.073		0.09				0.059					
Sb	mg/L	0.013		0.029		0.026		0.023		0.02		0.017		0.014		0.012		0.011		0.009		0.007		0.007		0.008		0.008		0.007		0.005				0.007					
As	mg/L	0.005		0.004		0.004		0.004		0.005		0.006		0.006		0.006		0.006		0.01		0.006		0.005		0.005		0.005		0.004		0.005				0.004					
Ba	mg/L	0.059		0.077		0.083		0.076		0.065		0.055		0.058		0.056		0.053		0.057		0.042		0.043		0.048		0.044		0.038		0.032				0.043					
Be	mg/L	< 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				< 0.001					
Bi	mg/L	< 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				< 0.001					
B	mg/L	0.27		0.17		0.12		0.1		0.07		0.06		0.05		< 0.05		< 0.05		< 0.05		<0.05		<0.05		< 0.05		< 0.05		< 0.05		< 0.05				< 0.05					
Cd	mg/L	< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		<0.0002		<0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002				< 0.0002					
Ca	mg/L	33.1		16.5		20.1		21.7		20.5		18.8		17.1		17		16.6		18.7		16.7		17.8		19.6		18.1		18.1		14.3				20.5					
Cr	mg/L	< 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				< 0.001					
Co	mg/L	< 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				< 0.001					
Cu	mg/L	0.008		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					
Fe	mg/L	< 0.05		< 0.05		< 0.05		0.07		0.11		< 0.05		< 0.05		< 0.05		< 0.05		0.1		0.11		<0.05		< 0.05		< 0.05		< 0.05		< 0.05				< 0.05					
Pb	mg/L	< 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				< 0.001					
Li	mg/L	0.031		0.021		0.019		0.021		0.018		0.017		0.014		0.012		0.012		0.01		0.008		0.008		0.008		0.008		0.008		0.005				0.007					
Mg	mg/L	9.6		4.56		5.88		6.36		5.79		5.45		5.15		4.86		4.66		4.42		4.38		4.08		4.36		4.04		4.11		2.91				4.45					
Mn	mg/L	0.061		0.17		0.21		0.21		0.17		0.13		0.11		0.081		0.001		0.001		<0.001		<0.001		< 0.001		< 0.001		< 0.001		< 0.001				< 0.001					
Hg	ug/L	< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		<0.02		<0.02		< 0.02		< 0.02		< 0.02		< 0.02				< 0.02					
Mo	mg/L	0.035		0.022		0.015		0.012		0.0076		0.0059		0.004		0.0035		0.0031		0.0036		0.0036		0.0048		0.0059		0.0046		0.0049		0.0031				0.0053					
Ni	mg/L	0.007		< 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					
PO4	mg/L	< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		<0.15		<0.15		< 0.15		< 0.15		< 0.15		< 0.15				< 0.15					
K	mg/L	16.5		11.6		9.8		9		8.4		7		6		5.7		5.2		5.8		4.6		4.3		4.3		3.9		3.6		3.1				3.5					
Se	mg/L	< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		0.016		<0.001		<0.001		< 0.001		< 0.001		< 0.001		0.001				< 0.001					
SiO2	mg/L	9.5		9.6		10.5		12.5		13.8		14.7		13.4		13.3		13.6		13.7		14.7		11.1		11.4		11.3		9.8		8.2				11.4					
Ag	mg/L	< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		<0.00025		<0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025				< 0.00025					
Na	mg/L	34.7		12.9		7.96		6.5		4.81		3.47		2.79		2.27		1.8		1.71		1.3		1.07		1.08		1.04		0.24		0.62				0.78					
Sr	mg/L	0.4		0.21		0.26		0.27		0.25		0.23		0.21		0.21		0.2		0.21		0.19		0.19		0.21		0.19		0.18		0.13				0.19					
Te	mg/L	< 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				< 0.001					
Tl	mg/L	< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		0.0016		< 0.0001		< 0.0001		< 0.0001		< 0.0001		<0.0001		<0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001				< 0.0001					
Th	mg/L	< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		<0.0005		<0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005				< 0.0005					
Sn	mg/L	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				< 0.001					
Ti	mg/L	< 0.001		< 0.001		< 0.001		< 0.001		0.006		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		<0.001		<0.001		< 0.001		< 0.001		< 0.001		< 0.001				< 0.001					
U	mg/L	0.0046		0.0055		0.015		0.021		0.031		0.03		0.027		0.025		0.028		0.025		0.02		0.019		0.018		0.016		0.016		0.0077				0.014					
V	mg/L	0.029		0.026		0.023		0.025		0.032		0.034		0.032		0.032		0.039		0.034		0.032		0.029		0.031		0.027		0.025		0.024				0.021					
Zn	mg/L	< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		<0.005		<0.005		< 0.005		0.013		< 0.005		< 0.005				< 0.005					
Zr	mg/L	< 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				< 0.01					

Column 3 - Granite
04-ARD-142-042
04-ARD-200-035
04-ARD-142-009
04-ARD-120-047

Date		31-Jan-05	7-Feb-05	14-Feb-05	21-Feb-05	28-Feb-05	7-Mar-05	14-Mar-05	21-Mar-05	28-Mar-05	4-Apr-05	11-Apr-05	18-Apr-05	25-Apr-05	2-May-05	9-May-05	16-May-05	23-May-05	30-May-05	6-Jun-05	13-Jun-05	20-Jun-05	27-Jun-05	4-Jul-05	11-Jul-05	18-Jul-05	25-Jul-05	1-Aug-05	8-Aug-05	15-Aug-05	22-Aug-05	29-Aug-05	5-Sep-05	12-Sep-05	19-Sep-05	26-Sep-05	3-Oct-05	10-Oct-05
Weeks		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Volume (ml)	Input	450	250	250	150	150	150	150	150	150	150	150	150	150	150	200	200	200	200	200	250	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	Output	360		420		270		255		270		210		270		255		340		340		375		345		175		320		400		375		310		365		325
pH		7.23		7.32		7.39		7.48		7.65		7.47		7.40		7.57		7.50		7.57		7.40		7.80		7.36		7.45		7.57		7.29		7.75		8.10		8.10
Cond.	(umhos/cm)	1473		936		726		724		599		519		475		414		358		305		305		295		259		258		257		207		275		248		247
ORP	mV	130		135		150		140		155		150		135		150		180		155		160		165		140		150		145		170		140		230		130
Sulphate	(mg/L)	6		1		1		1		1		1		1		2		2		2		2		3		3		3		6		3		3		3		3
Acidity	(mg CaCO3/L)	5		4		3		3		4		4		2		4		4		1		5		4		6		8		8		9		3		1		1
Alkalinity	(mg CaCO3/L)	23		16		14		14		15		16		16		17		22		25		30		32		35		40		43		46		49		50		
TDS	(mg/L)	771		272		373		446		244		484		385		211		209		203		194		139		188		94		154		112				120		
Cl	(mg/L)	393		262		184		191		148		132		105		108		83.7		71		63.2		55.6		61.5		53.1		38.4		25.3				33.4		
Al	mg/L	0.031		< 0.005		0.008		0.024		0.006		0.011		0.024		0.012		0.023		0.011		0.012		<0.005		0.01		< 0.005		0.019		< 0.005				0.006		
Sb	mg/L	0.003		0.004		0.003		0.003		0.003		0.003		0.003		0.003		0.003		0.003		0.003		0.003		0.003		0.003		0.002		0.002				0.002		
As	mg/L	0.003		< 0.001		< 0.001		< 0.001		< 0.001		0.001		< 0.001		< 0.001		< 0.001		0.004		<0.001		<0.001		< 0.001		< 0.001		< 0.001		< 0.001				< 0.001		
Ba	mg/L	0.42		1.07		0.89		1.04		0.86		0.77		0.65		0.63		0.53		0.49		0.39		0.36		0.41		0.4		0.29		0.26				0.34		
Be	mg/L	< 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				< 0.001		
Bi	mg/L	< 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				< 0.001		
B	mg/L	1.99		2.21		2.21		2.5		2.64		2.84		2.68		2.5		2.25		2.14		2.22		1.93		1.92		2.01		1.78		1.29				1.85		
Cd	mg/L	< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		<0.0002		<0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002				< 0.0002		
Ca	mg/L	87.7		79.2		57.2		62.1		56		47		33.4		30.1		24.8		22.9		18.6		17.6		18.1		16.4		14.1		12.3				14.1		
Cr	mg/L	< 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				< 0.001		
Co	mg/L	< 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				< 0.001		
Cu	mg/L	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				< 0.001		
Fe	mg/L	0.56		0.14		< 0.05		< 0.05		< 0.05		0.11		< 0.05		< 0.05		< 0.05		0.05		0.1		<0.05		< 0.05		< 0.05		< 0.05		< 0.05				< 0.05		
Pb	mg/L	< 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				< 0.001		
Li	mg/L	0.027		0.014		0.008		0.009		0.009		0.01		0.008		0.007		0.008		0.007		0.006		0.006		0.006		0.006		0.005		0.004				0.005		
Mg	mg/L	25.2		13.8		7.3		5.88		4.99		4.45		3.87		4.01		4.14		3.94		4.31		3.9		4.38		4.31		4.26		3.34				4.62		
Mn	mg/L	0.019		0.012		0.002		0.003		0.002		0.021		< 0.001		< 0.001		0.001		< 0.001		<0.001		<0.001		< 0.001		< 0.001		< 0.001		< 0.001				< 0.001		
Hg	ug/L	< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		<0.02		<0.02		< 0.02		< 0.02		< 0.02		< 0.02				< 0.02		
Mo	mg/L	< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		0.0006		< 0.0005		<0.0005		<0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005				< 0.0005		
Ni	mg/L	0.006		0.002		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		
PO4	mg/L	< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		<0.15		<0.15		< 0.15		< 0.15		< 0.15		< 0.15				< 0.15		
K	mg/L	61.9		69.2		51.4		58.7		56.4		49.5		39		42.1		37.3		39.3		34.6		32.2		34.8		31.7		29.6		24				28.6		
Se	mg/L	< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		0.017		<0.001		<0.001		< 0.001		< 0.001		< 0.001		< 0.001				< 0.001		
SiO2	mg/L	5.5		6.1		4.7		5.6		6		6.3		5.8		6.7		8.7		9.2		11.3		9.1		9.3		9.9		8.5		7.4				10.9		
Ag	mg/L	< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		<0.00025		<0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025				< 0.00025		
Na	mg/L	61.3		20.5		7.34		7.56		5.27		4.52		3.28		3.07		2.41		2.28		1.87		1.56		2.1		1.78		0.94		0.88				1.19		
Sr	mg/L	1.6		1.56		1.09		1.14		1.01		0.86		0.62		0.59		0.53		0.49		0.44		0.4		0.45		0.42		0.36		0.32				0.4		
Te	mg/L	< 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				< 0.001		
Tl	mg/L	< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		<0.0001		<0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001				< 0.0001		
Th	mg/L	< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		<0.0005		<0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005				< 0.0005		
Sn	mg/L	< 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				< 0.001		
Ti	mg/L	< 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				< 0.001		
U	mg/L	< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		<0.0005		<0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005				< 0.0005		
V	mg/L	< 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				< 0.001		
Zn	mg/L	< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		<0.005		<0.005		< 0.005		< 0.005		0.01		< 0.005				< 0.005		
Zr	mg/L	< 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				< 0.01		

Column 4 - Granite
04-ARD-142-013
04-ARD-142-022
04-ARD-142-023
04-ARD-142-024
04-ARD-142-025
04-ARD-142-026

Date		31-Jan-05	7-Feb-05	14-Feb-05	21-Feb-05	28-Feb-05	7-Mar-05	14-Mar-05	21-Mar-05	28-Mar-05	4-Apr-05	11-Apr-05	18-Apr-05	25-Apr-05	2-May-05	9-May-05	16-May-05	23-May-05	30-May-05	6-Jun-05	13-Jun-05	20-Jun-05	27-Jun-05	4-Jul-05	11-Jul-05	18-Jul-05	25-Jul-05	1-Aug-05	8-Aug-05	15-Aug-05	22-Aug-05	29-Aug-05	5-Sep-05	12-Sep-05	19-Sep-05	26-Sep-05	3-Oct-05	10-Oct-05
Weeks		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Volume (ml)	Input	450	250	250	150	150	150	150	150	150	150	150	150	150	150	200	200	200	200	200	250	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	Output	335		430		255		270		250		230		240		255		330		340		375		340		355		330		350		375		340		345		360
pH		7.58		7.95		8.04		8.15		8.05		7.99		8.06		8.03		7.83		7.94		7.71		8.00		7.50		7.35		7.54		7.24		7.94		8.14		8.13
Cond.	(umhos/cm)	193		139		146		157		155		136		138		141		132		123		125		123		122		119		113		92		145		125		123
ORP	mV	90		100		130		140		140		135		130		135		180		145		150		160		130		140		150		150		110		200		135
Sulphate	(mg/L)	7		4		3		3		2		2		2		2		2		2		2		2		2		2		2		1		1		2		1
Acidity	(mg CaCO3/L)	2		2		1		<1		2		2		1		1		2		1		3		2		4		6		7		7		2		<1		<1
Alkalinity	(mg CaCO3/L)	36		50		57		66		66		67		65		61		59		56		52		52		55		58		53		36		61		57		
TDS	(mg/L)	103		80		20		96		94		188		48		174		84		67		73		71		66		52		66		64				70		
Cl	(mg/L)	22.6		6.55		2.11		1.88		1.04		0.82		0.80		0.92		0.87		0.81		0.74		0.73		0.76		0.72		0.70		0.43				0.60		
Al	mg/L	0.017		0.075		0.06		0.17		0.058		0.061		0.095		0.082		0.097		0.099		0.15		0.12		0.14		0.13		0.16		0.25				0.14		
Sb	mg/L	0.004		0.004		0.003		0.004		0.003		0.002		0.002		0.002		0.002		0.002		0.001		0.001		0.001		0.001		< 0.001		< 0.001				< 0.001		
As	mg/L	0.013		0.016		0.008		0.008		0.007		0.007		0.006		0.005		0.005		0.008		0.004		0.003		0.003		0.003		0.003		0.003				0.002		
Ba	mg/L	0.009		0.016		0.016		0.017		0.016		0.014		0.016		0.013		0.015		0.015		0.011		0.011		0.01		0.011		0.008		0.006				0.01		
Be	mg/L	< 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				< 0.001		
Bi	mg/L	< 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				< 0.001		
B	mg/L	0.12		0.1		0.07		0.08		< 0.05		0.05		0.06		< 0.05		0.11		0.06		<0.05		<0.05		< 0.05		< 0.05		< 0.05		< 0.05				< 0.05		
Cd	mg/L	< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		<0.0002		<0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002				< 0.0002		
Ca	mg/L	6.86		11.4		15.4		17.6		18.8		18.1		19.1		17.7		17.7		19.7		18.8		18.7		19.3		19.3		17.4		14				20.4		
Cr	mg/L	< 0.001		< 0.001		< 0.001		0.002		< 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		
Co	mg/L	< 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				< 0.001		
Cu	mg/L	0.002		< 0.001		< 0.001		0.004		< 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		
Fe	mg/L	< 0.05		< 0.05		< 0.05		0.11		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		0.05		0.12		<0.05		< 0.05		< 0.05		< 0.05		< 0.05				< 0.05		
Pb	mg/L	< 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				< 0.001		
Li	mg/L	0.01		0.011		0.009		0.01		0.008		0.007		0.007		0.005		0.005		0.004		0.004		0.003		0.003		0.003		0.001		0.002				0.002		
Mg	mg/L	1.93		3.06		4.37		4.75		4.46		4.04		4.19		3.28		2.76		2.36		2.25		1.67		1.67		1.45		1.19		0.77				1.12		
Mn	mg/L	0.015		0.13		0.18		0.19		0.15		0.12		0.098		0.074		0.066		0.043		0.027		0.008		0.002		< 0.001		< 0.001		< 0.001				< 0.001		
Hg	ug/L	< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		<0.02		<0.02		< 0.02		< 0.02		< 0.02		< 0.02				< 0.02		
Mo	mg/L	0.0044		0.0054		0.0037		0.0045		0.002		0.0016		0.0011		0.0008		0.0009		0.0007		<0.0005		<0.0005		< 0.0005		< 0.0005		0.0007		< 0.0005				0.0012		
Ni	mg/L	0.002		< 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		
PO4	mg/L	< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		<0.15		<0.15		< 0.15		< 0.15		< 0.15		< 0.15				< 0.15		
K	mg/L	10.2		6.7		6		4.8		3.9		3.2		3		2.8		3.5		4		3.2		2.7		2.6		2.4		2.1		1.8				2.2		
Se	mg/L	< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		0.017		<0.001		<0.001		< 0.001		< 0.001		< 0.001		< 0.001				< 0.001		
SiO2	mg/L	5.7		7.1		8.2		10.1		9.7		9.5		9.5		8.1		8.3		8.5		8.9		6.1		6.3		6.5		5.1		3.9				6.6		
Ag	mg/L	< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		<0.00025		<0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025				< 0.00025		
Na	mg/L	16.2		9.6		4.58		4.26		2.86		2.14		1.93		1.52		1.26		1.19		0.91		0.66		0.7		0.63		< 0.05		0.37				0.42		
Sr	mg/L	0.079		0.13		0.16		0.17		0.17		0.17		0.18		0.17		0.18		0.17		0.16		0.15		0.14		0.14		0.11		0.078				0.11		
Te	mg/L	< 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				< 0.001		
Tl	mg/L	< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		<0.0001		<0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001				< 0.0001		
Th	mg/L	< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		<0.0005		<0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005				< 0.0005		
Sn	mg/L	< 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				< 0.001		
Ti	mg/L	< 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				< 0.001		
U	mg/L	< 0.0005		0.0015		0.0037		0.0056		0.0079		0.0082		0.009		0.0079		0.0092		0.0081		0.0067		0.0061		0.0057		0.0052		0.0056		0.0031				0.004		
V	mg/L	0.005		0.003		0.002		0.003		0.003		0.003		0.003		0.002		0.003		0.003		0.002		0.002		0.003		0.002		0.002		0.002				0.002		
Zn	mg/L	< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		0.008		< 0.005		0.007		< 0.005		< 0.005		<0.005		<0.005		< 0.005		< 0.005		0.009		< 0.005				< 0.005		
Zr	mg/L	< 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				< 0.01		

Column 5 - Kimberlite
04-ARD-203-031
04-ARD-203-032
04-ARD-203-033
04-ARD-203-034
04-ARD-203-035
04-ARD-203-036
04-ARD-203-037

Date		31-Jan-05	7-Feb-05	14-Feb-05	21-Feb-05	28-Feb-05	7-Mar-05	14-Mar-05	21-Mar-05	28-Mar-05	4-Apr-05	11-Apr-05	18-Apr-05	25-Apr-05	2-May-05	9-May-05	16-May-05	23-May-05	30-May-05	6-Jun-05	13-Jun-05	20-Jun-05	27-Jun-05	4-Jul-05	11-Jul-05	18-Jul-05	25-Jul-05	1-Aug-05	8-Aug-05	15-Aug-05	22-Aug-05	29-Aug-05
Weeks		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Volume (ml)	Input	450	250	250	150	150	150	150	150	150	150	150	150	150	150	200	200	200	200	200	250	200	200	200	200	200	200	200	200	200	200	200
	Output	305		465		240		255		260		230		265		235		350		355		380		355		370		360		365		350
pH		7.34		8.30		8.46		8.47		8.23		8.19		8.36		8.33		8.31		8.35		8.26		8.40		8.08		7.92		8.03		7.92
Cond.	(umhos/cm)	3320		797		547		616		606		561		524		435		412		362		377		359		336		308		336		298
ORP	mV	130		90		110		140		125		135		130		130		150		120		130		135		110		120		130		140
Sulphate	(mg/L)	1252		218		122		135		97		80		66		63		43		35		29		23		23		22		19		15
Acidity	(mg CaCO3/L)	3		#N/A		#N/A		#N/A		<1		1		#N/A		#N/A		#N/A		#N/A		<1		#N/A		2		6		5		6
Alkalinity	(mg CaCO3/L)	53		123		139		141		137		143		152		150		160		151		157		144		149		147		146		144
TDS	(mg/L)	2767		433		250		369		406		620		271		121		250		215		213		195		185		181		192		184
Cl	(mg/L)	501		14.8		4.71		1.08		0.86		0.68		4.39		1.28		0.89		0.85		0.86		0.72		0.75		0.76		0.71		0.43
Al	mg/L	< 0.005		0.006		0.019		0.01		0.007		< 0.005		0.016		0.021		0.014		0.011		0.015		<0.005		0.009		< 0.005		< 0.005		0.011
Sb	mg/L	< 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
As	mg/L	0.005		0.002		0.002		0.001		0.001		0.002		0.002		0.001		0.002		0.005		0.002		0.001		0.002		0.002		0.002		0.002
Ba	mg/L	0.057		0.056		0.045		0.053		0.053		0.044		0.043		0.037		0.038		0.039		0.029		0.027		0.03		0.027		0.026		0.025
Be	mg/L	< 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
Bi	mg/L	< 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
B	mg/L	0.36		0.36		0.33		0.32		0.34		0.3		0.32		0.25		0.21		0.2		0.16		0.13		0.1		0.09		0.11		0.08
Cd	mg/L	< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		<0.0002		<0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002
Ca	mg/L	422		54.2		33.9		38.3		41.1		31.7		28.1		22.2		23.6		22.1		21.4		19.3		21.6		16.7		21.7		19.3
Cr	mg/L	< 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
Co	mg/L	0.009		0.002		< 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
Cu	mg/L	0.003		< 0.001		< 0.001		< 0.001		< 0.001		0.002		< 0.001		< 0.001		< 0.001		< 0.001		<0.001		<0.001		< 0.001		< 0.001		< 0.001		< 0.001
Fe	mg/L	< 0.05		0.15		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		0.12		<0.05		< 0.05		< 0.05		< 0.05		< 0.05
Pb	mg/L	< 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
Li	mg/L	0.035		0.015		0.012		0.015		0.016		0.016		0.015		0.013		0.015		0.012		0.012		0.012		0.012		0.01		0.013		0.011
Mg	mg/L	148		21.6		14.9		16.8		19.3		16		14.9		12.2		11.6		10.9		10.8		9.73		9.58		8.53		10.5		9.31
Mn	mg/L	0.078		0.007		0.004		0.006		0.003		0.005		0.002		0.001		0.003		< 0.001		<0.001		<0.001		< 0.001		< 0.001		< 0.001		< 0.001
Hg	ug/L	< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		<0.02		<0.02		< 0.02		< 0.02		< 0.02		< 0.02
Mo	mg/L	0.251		0.13		0.049		0.033		0.024		0.016		0.013		0.011		0.01		0.0088		0.0066		0.0074		0.009		0.0085		0.0091		0.0073
Ni	mg/L	0.087		0.019		0.013		0.016		0.015		0.012		0.011		0.01		0.01		0.008		0.008		0.006		0.007		0.004		0.006		0.005
PO4	mg/L	< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		<0.15		<0.15		< 0.15		< 0.15		< 0.15		< 0.15
K	mg/L	28.6		14		11.4		11.4		13.4		11.6		10.6		10.4		10		11.5		10.2		9.8		9.8		8.4		9.7		9.6
Se	mg/L	0.017		0.003		0.002		0.002		< 0.001		< 0.001		0.002		< 0.001		< 0.001		0.018		<0.001		<0.001		< 0.001		0.002		0.002		0.002
SiO2	mg/L	8.9		9.6		8.8		10.3		12		12.1		12.2		11.9		12.6		12.2		13.9		10.8		10.8		9.6		10		9.3
Ag	mg/L	< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		<0.00025		<0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025
Na	mg/L	146		63.2		50		53.9		60.5		51.9		50.6		46.5		42.3		40.9		37.6		32.2		28.1		23.1		23.6		20.4
Sr	mg/L	4.64		0.65		0.41		0.47		0.52		0.42		0.37		0.32		0.31		0.28		0.27		0.25		0.26		0.22		0.25		0.25
Te	mg/L	< 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
Tl	mg/L	< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		0.0008		< 0.0001		< 0.0001		< 0.0001		< 0.0001		<0.0001		<0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001
Th	mg/L	< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		<0.0005		<0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005
Sn	mg/L	< 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
Ti	mg/L	< 0.001		< 0.001		0.001		< 0.001		< 0.001		< 0.001		< 0.001		0.003		< 0.001		< 0.001		<0.001		<0.001		< 0.001		< 0.001		< 0.001		< 0.001
U	mg/L	0.021		0.021		0.026		0.028		0.036		0.03		0.028		0.027		0.032		0.029		0.025		0.025		0.021		0.018		0.021		0.015
V	mg/L	0.009		0.022		0.023		0.022		0.023		0.022		0.024		0.023		0.031		0.027		0.028		0.027		0.028		0.023		0.025		0.025
Zn	mg/L	< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		<0.005		<0.005		< 0.005		< 0.005		< 0.005		< 0.005
Zr	mg/L	< 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

Column 6 - Granite
04-ARD-203-001
04-ARD-203-002
04-ARD-203-003
04-ARD-203-004
04-ARD-203-005
04-ARD-203-006
04-ARD-203-007
04-ARD-203-008
04-ARD-203-009
04-ARD-203-010

Date		31-Jan-05	7-Feb-05	14-Feb-05	21-Feb-05	28-Feb-05	7-Mar-05	14-Mar-05	21-Mar-05	28-Mar-05	4-Apr-05	11-Apr-05	18-Apr-05	25-Apr-05	2-May-05	9-May-05	16-May-05	23-May-05	30-May-05	6-Jun-05	13-Jun-05	20-Jun-05	27-Jun-05	4-Jul-05	11-Jul-05	18-Jul-05	25-Jul-05	1-Aug-05	8-Aug-05	15-Aug-05	22-Aug-05	29-Aug-05	5-Sep-05	12-Sep-05	19-Sep-05	26-Sep-05	3-Oct-05	10-Oct-05
Weeks		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Volume (ml)	Input	450	250	250	150	150	150	150	150	150	150	150	150	150	150	200	200	200	200	200	250	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
	Output	320		465		285		240		270		245		260		260		350		363		415		350		400		350		375		380		305		375		340
pH		7.76		7.95		7.93		8.15		8.03		7.98		8.02		8.02		7.88		8.12		7.80		8.00		7.68		7.55		7.61		7.27		7.97		8.17		8.12
Cond.	(umhos/cm)	535		254		187		218		190		160		155		158		144		137		134		129		128		128		128		115		146		128		133
ORP	mV	100		95		110		150		120		125		110		115		150		135		140		145		125		130		145		135		115		205		135
Sulphate	(mg/L)	134		38		21		27		18		14		11		10		8		6		5		4		4		4		3		3		3		3		2
Acidity	(mg CaCO3/L)	1		2		2		1		3		2		2		4		3		1		3		2		4		8		8		9		1		<1		1
Alkalinity	(mg CaCO3/L)	35		53		59		63		67		66		64		66		63		60		58		56		56		59		61		52		61		61		
TDS	(mg/L)	284		121		48		132		66		100		73		88		68		70		77		71		70		68		81		60				191		
Cl	(mg/L)	35.2		6.29		1.38		1.03		0.64		0.58		0.56		0.82		0.74		0.72		0.71		0.69		0.67		0.73		0.62		0.39				0.49		
Al	mg/L	0.025		0.031		0.048		0.056		0.04		0.043		0.067		0.06		0.064		0.064		0.088		0.073		0.088		0.084		0.088		0.11				0.089		
Sb	mg/L	< 0.001		0.001		0.002		0.003		0.002		0.002		0.002		0.002		0.001		0.001		<0.001		0.001		< 0.001		< 0.001		< 0.001		< 0.001				< 0.001		
As	mg/L	0.004		0.004		0.005		0.005		0.007		0.008		0.008		0.008		0.009		0.012		0.009		0.008		0.008		0.008		0.008		0.008				0.007		
Ba	mg/L	0.048		0.036		0.03		0.033		0.029		0.031		0.029		0.027		0.024		0.025		0.021		0.02		0.02		0.02		0.018		0.016				0.02		
Be	mg/L	< 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				< 0.001		
Bi	mg/L	< 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				< 0.001		
B	mg/L	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				< 0.05		
Cd	mg/L	< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		<0.0002		<0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002				< 0.0002		
Ca	mg/L	36.9		21.2		18.2		22		21.3		19.4		19.5		17.8		16.3		19.3		17.4		17.4		17.7		17.3		17.4		15.4				18.7		
Cr	mg/L	0.002		0.002		0.003		0.003		0.003		0.003		0.002		0.002		0.002		0.002		0.001		0.002		0.001		0.001		< 0.001		< 0.001				< 0.001		
Co	mg/L	< 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				< 0.001		
Cu	mg/L	0.002		< 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		
Fe	mg/L	< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		0.07		0.12		<0.05		< 0.05		< 0.05		< 0.05		< 0.05				< 0.05		
Pb	mg/L	< 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				< 0.001		
Li	mg/L	0.02		0.016		0.013		0.019		0.013		0.012		0.009		0.007		0.006		0.005		0.004		0.004		0.004		0.003		0.002		0.003				0.003		
Mg	mg/L	10.2		5.74		5.16		6.51		5.79		5.35		5.52		4.87		4.28		4.12		3.9		3.24		3		2.79		2.76		2.13				2.61		
Mn	mg/L	0.076		0.2		0.22		0.11		0.05		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		<0.001		<0.001		< 0.001		< 0.001		< 0.001		< 0.001				< 0.001		
Hg	ug/L	< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		<0.02		<0.02		< 0.02		< 0.02		< 0.02		< 0.02				< 0.02		
Mo	mg/L	0.01		0.01		0.0065		0.0069		0.0046		0.0043		0.0035		0.003		0.0025		0.0052		0.0079		0.0099		0.009		0.0081		0.007		0.0054				0.0058		
Ni	mg/L	0.002		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		
PO4	mg/L	< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		<0.15		<0.15		< 0.15		< 0.15		< 0.15		< 0.15				< 0.15		
K	mg/L	21		10.2		7.4		6.9		6.2		5.4		5		4.6		3.7		4.5		3.7		3.2		3		2.9		2.7		2.5				2.6		
Se	mg/L	< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		0.015		<0.001		<0.001		< 0.001		< 0.001		0.001		0.001				< 0.001		
SiO2	mg/L	7.7		8.5		8.5		11.6		11.1		11.2		11.4		11.7		10.3		11.1		12		8.7		8.5		8.5		7.7		6.2				8.8		
Ag	mg/L	< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		<0.00025		<0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025				< 0.00025		
Na	mg/L	23.9		8.43		3.76		3.96		2.89		2.2		1.91		1.58		1.23		1.41		1.02		0.75		0.69		0.67		< 0.05		0.55				0.44		
Sr	mg/L	0.4		0.34		0.3		0.35		0.33		0.3		0.31		0.28		0.26		0.28		0.25		0.25		0.23		0.22		0.21		0.18				0.19		
Te	mg/L	< 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				< 0.001		
Tl	mg/L	< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		<0.0001		<0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001				< 0.0001		
Th	mg/L	< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		<0.0005		<0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005				< 0.0005		
Sn	mg/L	< 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				< 0.001		
Ti	mg/L	< 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				< 0.001		
U	mg/L	0.0009		0.0019		0.0035		0.0052		0.0061		0.0055		0.0054		0.0047		0.0055		0.0053		0.0044		0.0043		0.0038		0.0033		0.0035		0.0023				0.0025		
V	mg/L	0.004		0.004		0.004		0.005		0.005		0.006		0.006		0.006		0.007		0.007		0.006		0.006		0.006		0.006		0.006		0.006				0.006		
Zn	mg/L	< 0.005		< 0.005		< 0.005		0.007		< 0.005		< 0.005		< 0.005		0.006		< 0.005		< 0.005		<0.005		<0.005		< 0.005		< 0.005		< 0.005		< 0.005				< 0.005		
Zr	mg/L	< 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				< 0.01		

Column 7 - Granite
04-ARD-122-001
04-ARD-122-002
04-ARD-122-003
04-ARD-122-004
04-ARD-122-005
04-ARD-122-006
04-ARD-122-007
04-ARD-122-008
04-ARD-122-009
04-ARD-122-010

Date		31-Jan-05	7-Feb-05	14-Feb-05	21-Feb-05	28-Feb-05	7-Mar-05	14-Mar-05	21-Mar-05	28-Mar-05	4-Apr-05	11-Apr-05	18-Apr-05	25-Apr-05	2-May-05	9-May-05	16-May-05	23-May-05	30-May-05	6-Jun-05	13-Jun-05	20-Jun-05	27-Jun-05	4-Jul-05	11-Jul-05	18-Jul-05	25-Jul-05	1-Aug-05	8-Aug-05	15-Aug-05	22-Aug-05	29-Aug-05
Weeks		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Volume (ml)	Input	450	250	250	150	150	150	150	150	150	150	150	150	150	150	200	200	200	200	200	250	200	200	200	200	200	200	200	200	200	200	200
	Output	330		470		265		265		390		265		260		260		350		355		400		360		385		370		370		360
pH		7.88		8.03		7.99		8.18		8.08		8.01		8.04		7.95		7.90		7.96		7.92		8.00		7.86		7.89		7.78		7.36
Cond.	(umhos/cm)	1043		593		416		388		303		285		319		327		344		328		346		365		300		238		235		217
ORP	mV	100		100		100		140		115		120		115		120		170		140		140		140		115		130		130		130
Sulphate	(mg/L)	308		134		100		80		55		39		37		35		27		23		20		17		17		17		15		13
Acidity	(mg CaCO3/L)	5		2		2		1		3		3		3		4		6		3		7		3		7		8		10		17
Alkalinity	(mg CaCO3/L)	64		65		63		62		71		75		68		68		62		59		63		61		75		79		80		79
TDS	(mg/L)	670		341		217		250		186		170		212		171		246		235		236		213		167		175		154		172
Cl	(mg/L)	98.3		35.3		16.5		12.0		6.56		3.94		5.82		7.58		4.80		4.16		1.94		1.78		1.71		1.67		1.54		1.1
Al	mg/L	< 0.005		< 0.005		0.029		0.028		< 0.005		0.83		0.011		0.008		0.009		< 0.005		0.006		<0.005		< 0.005		< 0.005		< 0.005		< 0.005
Sb	mg/L	0.002		0.003		0.003		0.003		0.003		0.003		0.003		0.002		0.002		0.003		0.002		0.002		0.002		0.002		0.002		0.002
As	mg/L	0.013		0.017		0.022		0.02		0.028		0.032		0.033		0.028		0.029		0.035		0.03		0.03		0.033		0.036		0.038		0.041
Ba	mg/L	0.088		0.093		0.09		0.072		0.066		0.07		0.09		0.11		0.12		0.15		0.13		0.14		0.13		0.12		0.11		0.12
Be	mg/L	< 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
Bi	mg/L	< 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
B	mg/L	4.76		8.08		9.94		9.07		8.41		7.59		8.18		8.32		6.79		6.39		8.06		7.6		5.68		7.69		7.92		7.1
Cd	mg/L	< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		<0.0002		<0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002
Ca	mg/L	74.4		35.1		25.1		18.6		16		13.2		14.2		15.7		16.9		18.8		17.4		18		15.3		12.1		12		11.5
Cr	mg/L	< 0.001		0.001		0.001		0.001		< 0.001		0.002		< 0.001		< 0.001		0.001		< 0.001		<0.001		<0.001		< 0.001		< 0.001		< 0.001		< 0.001
Co	mg/L	< 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
Cu	mg/L	0.001		< 0.001		< 0.001		< 0.001		< 0.001		0.002		< 0.001		< 0.001		< 0.001		< 0.001		<0.001		<0.001		< 0.001		< 0.001		< 0.001		< 0.001
Fe	mg/L	< 0.05		0.11		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		0.11		<0.05		< 0.05		< 0.05		< 0.05		< 0.05
Pb	mg/L	< 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
Li	mg/L	0.003		0.002		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
Mg	mg/L	42.7		18.9		14.3		11.1		8.98		7.84		9.03		9.43		10.3		11		11.2		10.4		9.06		7.27		7.31		6.78
Mn	mg/L	0.004		< 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
Hg	ug/L	< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		<0.02		<0.02		< 0.02		< 0.02		< 0.02		< 0.02
Mo	mg/L	0.044		0.029		0.023		0.016		0.01		0.0066		0.0054		0.0043		0.004		0.0035		0.0022		0.002		0.0019		0.0019		0.0017		0.0014
Ni	mg/L	0.012		0.006		0.004		0.003		0.002		0.001		0.001		0.001		0.002		< 0.001		<0.001		<0.001		< 0.001		< 0.001		< 0.001		< 0.001
PO4	mg/L	< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		<0.15		<0.15		< 0.15		< 0.15		< 0.15		< 0.15
K	mg/L	22.6		19.3		17.1		14.5		14.1		12.3		13		14.2		15.5		19.7		19.1		19.5		18.8		17.3		18.4		18.7
Se	mg/L	< 0.001		0.001		0.003		0.002		< 0.001		< 0.001		0.001		< 0.001		< 0.001		0.018		<0.001		<0.001		< 0.001		0.002		0.001		0.002
SiO2	mg/L	9.5		9.6		10.7		9.9		10.6		10.9		12.1		12		12.2		12.8		15.3		11.8		11.9		11.6		11		11.2
Ag	mg/L	< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		<0.00025		<0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025
Na	mg/L	45.2		31.7		28.1		23		21.1		19.3		20.7		20.8		19.2		19.7		17.9		15		11.9		9.35		7.94		7.3
Sr	mg/L	0.81		0.38		0.28		0.2		0.16		0.14		0.16		0.18		0.2		0.21		0.19		0.2		0.17		0.14		0.13		0.12
Te	mg/L	< 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
Tl	mg/L	< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		<0.0001		<0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001
Th	mg/L	< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		<0.0005		<0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005
Sn	mg/L	< 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
Ti	mg/L	< 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
U	mg/L	< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		<0.0005		<0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005
V	mg/L	0.01		0.021		0.025		0.022		0.027		0.027		0.025		0.021		0.024		0.021		0.022		0.021		0.025		0.025		0.026		0.026
Zn	mg/L	< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		0.009		< 0.005		< 0.005		<0.005		<0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005
Zr	mg/L	< 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		< 0.01

Column 8 - Granite
04-ARD-121-026
04-ARD-121-027
04-ARD-121-028
04-ARD-121-029
04-ARD-121-030
04-ARD-121-031
04-ARD-121-032
04-ARD-121-033
04-ARD-121-034
04-ARD-121-035

Date		31-Jan-05	7-Feb-05	14-Feb-05	21-Feb-05	28-Feb-05	7-Mar-05	14-Mar-05	21-Mar-05	28-Mar-05	4-Apr-05	11-Apr-05	18-Apr-05	25-Apr-05	2-May-05	9-May-05	16-May-05	23-May-05	30-May-05	6-Jun-05	13-Jun-05	20-Jun-05	27-Jun-05	4-Jul-05	11-Jul-05	18-Jul-05	25-Jul-05	1-Aug-05	8-Aug-05	15-Aug-05	22-Aug-05	29-Aug-05
Weeks		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Volume (ml)	Input	450	250	250	150	150	150	150	150	150	150	150	150	150	150	200	200	200	200	200	250	200	200	200	200	200	200	200	200	200	200	200
	Output	295		440		270		250		260		215		265		255		350		330		365		370		335		380		355		355
pH		7.81		7.82		7.94		8.00		7.96		7.92		8.06		8.12		8.05		8.17		8.07		8.20		7.96		7.80		7.90		7.72
Cond.	(umhos/cm)	3020		1422		724		674		446		582		466		355		300		275		282		296		287		264		261		240
ORP	mV	105		105		110		140		115		120		110		110		150		130		130		130		110		115		130		150
Sulphate	(mg/L)	1647		617		310		232		127		78		64		59		32		25		19		16		15		14		12		10
Acidity	(mg CaCO3/L)	4		2		1		1		2		3		1		<1		1		4		1		1		3		6		5		8
Alkalinity	(mg CaCO3/L)	84		44		46		46		63		83		85		90		89		90		92		89		94		99		100		100
TDS	(mg/L)	2778		932		426		424		277		322		274		119		181		162		155		154		138		158		161		176
Cl	(mg/L)	115		2.57		1.79		0.55		0.45		3.59		0.50		0.75		0.41		1.74		0.60		0.59		1.45		0.90		0.57		0.39
Al	mg/L	< 0.005		< 0.005		0.009		0.011		0.006		0.012		0.015		0.022		0.025		0.022		0.037		0.035		0.033		0.025		0.033		0.06
Sb	mg/L	0.001		0.002		0.002		0.002		0.002		0.002		0.002		0.002		0.002		0.003		0.002		0.002		0.002		0.002		0.002		0.002
As	mg/L	0.003		0.002		0.002		0.002		0.003		0.003		0.003		0.004		0.006		0.012		0.008		0.009		0.01		0.009		0.011		0.012
Ba	mg/L	0.034		0.017		0.008		0.009		0.006		0.009		0.007		0.006		0.005		0.006		0.004		0.004		0.005		0.004		0.004		0.004
Be	mg/L	< 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
Bi	mg/L	< 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
B	mg/L	0.6		0.69		0.62		0.7		0.73		0.74		0.81		0.66		0.78		0.61		0.42		0.33		0.32		0.27		0.3		0.23
Cd	mg/L	< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		<0.0002		<0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002
Ca	mg/L	334		104		33.5		28.3		15.7		22.4		14.3		10.2		7.92		8.21		6.82		6.84		6.95		5.86		6.25		5.86
Cr	mg/L	< 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
Co	mg/L	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
Cu	mg/L	0.002		< 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
Fe	mg/L	< 0.05		0.2		0.06		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		0.06		0.11		<0.05		< 0.05		< 0.05		< 0.05		< 0.05
Pb	mg/L	< 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
Li	mg/L	0.004		0.002		< 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
Mg	mg/L	115		35.5		12.5		10.7		5.97		8.74		6.07		4.18		3.24		3.15		3.07		2.74		2.86		2.40		2.64		2.44
Mn	mg/L	0.021		0.009		0.005		0.004		0.001		0.009		0.002		< 0.001		< 0.001		< 0.001		<0.001		<0.001		< 0.001		< 0.001		< 0.001		< 0.001
Hg	ug/L	< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		<0.02		<0.02		< 0.02		< 0.02		< 0.02		< 0.02
Mo	mg/L	2.18		1.07		0.536		0.550		0.340		0.287		0.220		0.201		0.165		0.167		0.120		0.120		0.131		0.109		0.124		0.116
Ni	mg/L	0.019		0.014		0.005		0.004		0.002		0.003		0.002		0.002		0.001		0.001		0.001		0.001		0.001		< 0.001		< 0.001		0.002
PO4	mg/L	< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		<0.15		<0.15		< 0.15		< 0.15		< 0.15		< 0.15
K	mg/L	18.2		11.8		6.6		6.8		5.3		6.2		4.7		4.4		3.8		4.9		4.0		3.8		3.8		3.3		3.6		3.6
Se	mg/L	0.019		0.004		0.002		0.003		< 0.001		< 0.001		0.002		< 0.001		< 0.001		0.018		0.004		<0.001		< 0.001		0.002		< 0.001		0.002
SiO2	mg/L	9.4		9.8		7.9		10.2		10.7		12.2		13.3		13.6		13.7		15.1		17.5		13.6		14.3		12.5		13.2		13.2
Ag	mg/L	< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		<0.00025		<0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025
Na	mg/L	242		138		79.8		81		63.2		76.5		64.2		54.9		45.8		49.2		45.5		41.7		42.3		37.2		41.1		37.7
Sr	mg/L	5.2		1.60		0.52		0.43		0.24		0.35		0.22		0.15		0.13		0.12		0.10		0.10		0.10		0.09		0.094		0.084
Te	mg/L	< 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
Tl	mg/L	< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		<0.0001		<0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001
Th	mg/L	< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		<0.0005		<0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005
Sn	mg/L	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
Ti	mg/L	< 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
U	mg/L	0.0071		0.0014		0.0008		0.0007		0.0008		0.0009		0.0009		0.0008		0.0008		0.0008		0.0008		0.0008		0.0008		0.0007		0.001		0.0007
V	mg/L	0.038		0.084		0.098		0.12		0.17		0.13		0.16		0.2		0.25		0.26		0.28		0.27		0.30		0.25		0.31		0.31
Zn	mg/L	< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		<0.005		<0.005		< 0.005		< 0.005		< 0.005		0.006
Zr	mg/L	< 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

Column 9 - Granite
MPV-04-234C BOX 45 MPV-04-234C BOX 47 MPV-04-234C BOX 49 MPV-04-234C BOX 51 MPV-04-234C BOX 53

Date		31-Jan-05	7-Feb-05	14-Feb-05	21-Feb-05	28-Feb-05	7-Mar-05	14-Mar-05	21-Mar-05	28-Mar-05	4-Apr-05	11-Apr-05	18-Apr-05	25-Apr-05	2-May-05	9-May-05	16-May-05	23-May-05	30-May-05	6-Jun-05	13-Jun-05	20-Jun-05	27-Jun-05	4-Jul-05	11-Jul-05	18-Jul-05	25-Jul-05	1-Aug-05	8-Aug-05	15-Aug-05	22-Aug-05	29-Aug-05
Weeks		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Volume (ml)	Input	450	250	250	150	150	150	150	150	150	150	150	150	150	150	200	200	200	200	200	250	200	200	200	200	200	200	200	200	200	200	200
	Output	335		465		265		255		270		260		260		210		390		335		390		365		375		370		370		375
pH		8.17		8.19		8.20		8.30		8.14		7.95		8.24		8.08		8.09		8.10		8.06		8.20		7.99		7.97		7.82		7.62
Cond.	(umhos/cm)	1101		490		349		316		284		277		282		266		241		223		233		251		236		208		196		192
ORP	mV	90		95		100		140		100		100		100		100		150		125		130		130		125		120		130		150
Sulphate	(mg/L)	273		125		72		56		45		34		32		34		25		23		20		18		17		17		15		12
Acidity	(mg CaCO3/L)	2		2		2		#N/A		3		15		1		6		6		2		16		3		8		7		13		20
Alkalinity	(mg CaCO3/L)	66		62		70		75		83		83		82		80		79		80		75		72		75		80		77		73
TDS	(mg/L)	756		231		134		243		148		188		239		134		189		166		158		157		139		146		157		168
Cl	(mg/L)	119		4.26		2.21		1.61		1.00		0.93		1.25		1.04		1.10		1.09		0.94		0.91		0.89		0.88		0.81		0.56
Al	mg/L	< 0.005		< 0.005		0.008		0.01		< 0.005		0.02		0.011		0.009		0.012		< 0.005		0.009		<0.005		< 0.005		< 0.005		< 0.005		< 0.005
Sb	mg/L	0.004		0.007		0.006		0.006		0.006		0.006		0.006		0.006		0.006		0.006		0.005		0.005		0.005		0.005		0.005		0.004
As	mg/L	0.016		0.032		0.044		0.048		0.063		0.071		0.084		0.087		0.1		0.12		0.11		0.11		0.11		0.11		0.1		0.1
Ba	mg/L	0.076		0.051		0.046		0.039		0.042		0.039		0.046		0.049		0.05		0.057		0.051		0.051		0.057		0.062		0.051		0.058
Be	mg/L	< 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
Bi	mg/L	< 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
B	mg/L	15.5		15		19.1		21.6		20.8		17		18.1		17.6		13.9		12.7		15.5		14		9.45		12		11.1		9.21
Cd	mg/L	< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		0.0008		< 0.0002		<0.0002		<0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002
Ca	mg/L	78		24.1		14		10.3		9.6		8.03		7.8		7.34		6.72		6.87		6.05		6.03		5.92		5.64		5.18		5.08
Cr	mg/L	< 0.001		0.002		0.003		0.005		0.004		0.004		0.004		0.003		0.004		0.003		0.002		0.002		0.003		0.003		0.002		0.002
Co	mg/L	< 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
Cu	mg/L	< 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
Fe	mg/L	< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		0.1		<0.05		< 0.05		< 0.05		< 0.05		< 0.05
Pb	mg/L	< 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
Li	mg/L	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
Mg	mg/L	17.4		4.76		2.94		2.31		2.06		1.88		1.93		1.75		1.7		1.52		1.59		1.36		1.39		1.34		1.25		1.14
Mn	mg/L	0.002		< 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
Hg	ug/L	< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		<0.02		<0.02		< 0.02		< 0.02		< 0.02		< 0.02
Mo	mg/L	0.043		0.027		0.012		0.009		0.0045		0.0028		0.0027		0.0023		0.0016		0.0026		0.0011		0.0009		0.001		0.001		0.0008		0.0007
Ni	mg/L	0.002		< 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
PO4	mg/L	< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		<0.15		<0.15		< 0.15		< 0.15		< 0.15		< 0.15
K	mg/L	35.6		23.6		17.7		15.8		16.1		14.7		14		13.7		13		14.7		13.3		12.5		12.4		12		11.4		11.3
Se	mg/L	0.016		0.004		0.003		0.005		0.004		0.003		0.003		< 0.001		< 0.001		0.021		<0.001		<0.001		< 0.001		< 0.001		< 0.001		0.002
SiO2	mg/L	15.9		14.9		15.3		15.8		16.5		18.3		18.3		17.9		18.5		19.1		23.3		18.7		18.7		18.7		16.6		16.4
Ag	mg/L	< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		<0.00025		<0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025
Na	mg/L	80.2		47.7		37.8		33.2		32.7		31.1		32.9		30.4		27.4		29.2		28		25.4		24.5		24.4		22.7		21.6
Sr	mg/L	1.25		0.38		0.21		0.16		0.14		0.13		0.12		0.11		0.11		0.11		0.097		0.095		0.093		0.091		0.082		0.077
Te	mg/L	< 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
Tl	mg/L	< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		<0.0001		<0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001
Th	mg/L	< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		<0.0005		<0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005
Sn	mg/L	< 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
Ti	mg/L	< 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
U	mg/L	< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		<0.0005		<0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005
V	mg/L	0.013		0.034		0.044		0.049		0.06		0.063		0.067		0.063		0.079		0.076		0.082		0.078		0.092		0.087		0.083		0.081
Zn	mg/L	< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		<0.005		<0.005		< 0.005		< 0.005		< 0.005		< 0.005
Zr	mg/L	< 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

Column 10 - Granite
MPV-04-234C BOX 62 MPV-04-234C BOX 64 MPV-04-234C BOX 66 MPV-04-234C BOX 68

Date		31-Jan-05	7-Feb-05	14-Feb-05	21-Feb-05	28-Feb-05	7-Mar-05	14-Mar-05	21-Mar-05	28-Mar-05	4-Apr-05	11-Apr-05	18-Apr-05	25-Apr-05	2-May-05	9-May-05	16-May-05	23-May-05	30-May-05	6-Jun-05	13-Jun-05	20-Jun-05	27-Jun-05	4-Jul-05	11-Jul-05	18-Jul-05	25-Jul-05	1-Aug-05	8-Aug-05	15-Aug-05	22-Aug-05	29-Aug-05
Weeks		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Volume (ml)	Input	450	250	250	150	150	150	150	150	150	150	150	150	150	150	200	200	200	200	200	250	200	200	200	200	200	200	200	200	200	200	200
	Output	360		470		285		270		260		255		260		270		365		350		410		370		385		390		315		435
pH		8.85		8.69		8.38		8.48		8.32		8.31		8.43		8.58		8.44		8.67		8.64		8.70		8.49		8.39		7.97		8.26
Cond.	(umhos/cm)	1515		986		806		814		656		549		500		420		374		325		323		312		286		246		250		218
ORP	mV	60		80		100		130		100		100		100		95		130		110		105		110		100		110		130		130
Sulphate	(mg/L)	3		3		4		4		5		6		5		5		5		5		5		4		4		4		6		3
Acidity	(mg CaCO3/L)	#N/A		#N/A		#N/A		#N/A		#N/A		#N/A		#N/A		#N/A		#N/A		#N/A		#N/A		#N/A		#N/A		#N/A		4		1
Alkalinity	(mg CaCO3/L)	50		68		83		81		92		94		101		104		100		100		100		94		105		95		41		83
TDS	(mg/L)	772		483		316		403		324		265		279		155		205		180		174		162		150		121		156		142
Cl	(mg/L)	432		237		171		172		118		45.2		60.3		60.2		40.3		31.6		24.6		21.0		18.7		16.4		14.4		10.4
Al	mg/L	0.009		0.009		0.009		0.022		0.008		0.013		0.012		0.009		0.019		0.009		0.015		0.008		< 0.005		0.006		0.007		0.007
Sb	mg/L	0.006		0.01		0.009		0.009		0.009		0.009		0.008		0.007		0.007		0.006		0.005		0.004		0.004		0.004		0.003		0.003
As	mg/L	0.002		0.001		0.001		0.001		0.001		0.002		0.001		0.002		0.002		0.005		0.002		0.001		0.001		0.001		0.001		0.001
Ba	mg/L	0.38		0.35		0.31		0.33		0.25		0.21		0.2		0.2		0.19		0.21		0.2		0.2		0.24		0.26		0.26		0.29
Be	mg/L	< 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
Bi	mg/L	< 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
B	mg/L	0.11		0.08		0.09		0.12		0.13		0.11		0.12		0.06		0.52		0.32		0.06		0.09		0.08		0.08		0.08		< 0.05
Cd	mg/L	< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		<0.0002		<0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002
Ca	mg/L	3.92		2.7		6.63		3.75		2.95		3.02		3.35		2.79		3.83		1.9		2.21		2.16		2.59		2.37		3		2.44
Cr	mg/L	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
Co	mg/L	< 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
Cu	mg/L	< 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
Fe	mg/L	< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		< 0.05		0.09		<0.05		< 0.05		< 0.05		< 0.05		< 0.05
Pb	mg/L	< 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
Li	mg/L	< 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
Mg	mg/L	0.18		0.06		0.13		0.06		< 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	mg/L	< 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
Hg	ug/L	< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		< 0.02		<0.02		<0.02		< 0.02		< 0.02		< 0.02		< 0.02
Mo	mg/L	0.001		0.0005		0.0006		0.0006		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		0.0007		<0.0005		<0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005
Ni	mg/L	< 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
PO4	mg/L	< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		< 0.15		<0.15		<0.15		< 0.15		< 0.15		< 0.15		< 0.15
K	mg/L	35.4		25.6		19.7		21		19.4		17		13.7		13.4		12.4		14.4		12.8		12.4		12.9		12.5		13.3		12.7
Se	mg/L	< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		< 0.001		0.015		<0.001		<0.001		< 0.001		< 0.001		< 0.001		< 0.001
SiO2	mg/L	9.3		12.1		12.1		12.7		15.3		18.8		17.4		17.4		17.4		18.3		21.7		16.2		16.1		15.8		14.1		13.1
Ag	mg/L	< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025		<0.00025		<0.00025		< 0.00025		< 0.00025		< 0.00025		< 0.00025
Na	mg/L	238		161		125		122		105		91.9		81.3		72.5		59		59.8		53.6		46.2		44		40		37.4		30.3	
Sr	mg/L	3.42		2.2		1.88		1.84		1.46		1.22		1.03		0.94		0.88		0.93		0.9		0.93		1		1.05		1.14		1.14
Te	mg/L	< 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
Tl	mg/L	< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001		<0.0001		<0.0001		< 0.0001		< 0.0001		< 0.0001		< 0.0001
Th	mg/L	< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		<0.0005		<0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005
Sn	mg/L	< 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
Ti	mg/L	< 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
U	mg/L	< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		<0.0005		<0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005
V	mg/L	0.002		0.003		0.003		0.003		0.004		0.005		0.004		0.004		0.005		0.005		0.005		0.004		0.004		0.004		0.003		0.003
Zn	mg/L	< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		< 0.005		<0.005		<0.005		< 0.005		< 0.005		< 0.005		0.005
Zr	mg/L	< 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

Column Test - Fine PK Top
2010 Fine PK Comp

Date		29-Jul-10	5-Aug-10	12-Aug-10	19-Aug-10	26-Aug-10	2-Sep-10	9-Sep-10	16-Sep-10	23-Sep-10	30-Sep-10	7-Oct-10	14-Oct-10	21-Oct-10	28-Oct-10	4-Nov-10	11-Nov-10	18-Nov-10	25-Nov-10	2-Dec-10	9-Dec-10	16-Dec-10	23-Dec-10	30-Dec-10	6-Jan-11	13-Jan-11	20-Jan-11	27-Jan-11	3-Feb-11	10-Feb-11	17-Feb-11	24-Feb-11	3-Mar-11	10-Mar-11	17-Mar-11	24-Mar-11	31-Mar-11	7-Apr-11	14-Apr-11	21-Apr-11	28-Apr-11	5-May-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Volume mL	Input	2585	440	375	350	345	335	320	355	365	360	420	345	350	430	425	515	455	430	525	550	555	425	518	610	620	480	545	565	520	510	580	505	530	520	520	535		530	555	540	545
	Output	#N/A	160	155	165	160	160	160	165	165	165	160	160	165	205	205	215	220	210	260	265	255	205	255	255	250	250	260	235	250	255	270	255	255	265	250	265		250	255	250	260
pH		#N/A	7.55	7.74	7.52	7.84	7.82	7.68	7.69	7.79	7.69	7.74	7.65	7.69	7.72	7.88	7.64	7.83	7.55	7.53	7.09	7.47	7.62	7.54	7.74	7.51	7.5	7.48	7.44	7.46	7.64	7.59	7.51	7.5	7.59	7.83	7.84		7.81	7.51	7.61	7.41
ORP	mV	#N/A	403	403	379	335	388	332	316	305	336	297	283	332	326	370	402	352	303	310	292	325	342	327	335	321	320	297	322	318	315	297	308	295	295	303	303		278	292	357	324
Cond.	umhos/cm	#N/A	275	213	191	179	156	164	141	118	100	121	110	105	101	113	113	107	76	71	66	59	56	49	43	41	42	40	35	36	37	45	40	40	40	39	41		44	41	38	37
Acidity	mgCaCO3/L	#N/A	3.9	5.3	7.7	3.3	5.6	6.1	4.3	3.6	3.6	4.0	4.1	3.3	3.6	2.3	3.3	2.9	3.9	3.7	6.0	4.4	5.1	5.6	7.0	4.0	3.0	5.3	2.8	2.9	3.7	4.3	3.4	3.5	3.2	5.1	5.2		5.5	2.3	3.8	3.1
Alkalinity	mgCaCO3/L	#N/A	70.0	66.0	70.0	75.5	77.0	74.8	71.4	68.0	65.7	63.1	59.0	58.9	57.0	55.1	53.0	47.5	44.8	43.1	34.9	37.1	35.4	35.5	36.6	31.0	30.4	30.9	28.2	27.4	27.8	26.5	24.6	24.9	24.9	26.5	27.4		31.2	25.2	25.3	24.1
Sulphate	mg/L	#N/A	36	22	15	17	17	12	13	9	10	8	4	4	5	3	2	<2	<2	4	2	2	2	3	3	2	4	2	4	<2	<2	9	6	3	4	5	4		4	3	5	4
DO	mg/L	#N/A	5.70	4.12	4.30	3.74	5.63	6.15	5.83	5.94	5.71	6.24	6.37	6.04	6.23	6.05	5.72	6.22	6.09	6.42	7.25	7.05	6.75	3.00	6.50	6.77	5.55	4.80	3.02	3.25	2.76	3.60	3.58	3.71	4.61	5.68	6.02		4.25	6.66	5.02	5.12
Total P	mg/L														< 0.03	< 0.03	< 0.03	0.04	< 0.03	< 0.03	0.05	< 0.03	< 0.03	0.07	< 0.03	0.03	< 0.03	0.04	< 0.03	0.04	< 0.03	< 0.03	0.04	< 0.03	0.04	< 0.03		< 0.03	< 0.03	<0.002	0.00
Ortho P	mg/L													IS	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.04	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03		< 0.03	< 0.03	0.00	0.00
Chloride	mg/L	#N/A	14	11	9	8	7	6	6	5	5	4	4	3	4	3	2	2	2	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	< 0.2	0		0	< 0.2	< 0.2	0
Fluoride	mg/L	#N/A	0.07	0.12	0.17	0.20	0.20	0.23	0.23	0.24	0.22	0.24	0.20	0.22	0.22	0.21	0.21	0.21	0.17	0.16	0.14	0.15	0.13	0.12	0.16	0.11	0.11	0.10	0.09	0.09	0.07	0.08	0.09	0.06	< 0.06	0.07	0.06		0.06	0.06	< 0.06	< 0.06
Hardness	mg/L	#N/A	130	91.1	70	87.2	68	61.5	56	56.9	49	48.3	42	36.6	38	36.6	33	29.9	28	30.6	25	18.5	24	20.8	21	19.4	19	21.6	19	18.0	18	17.3	16	16.0	15	15.6	16		17	15.7	15	14.8
Al	mg/L	#N/A	0.0036	0.0031	0.0040	0.0039	0.0037	0.0091	0.0036	0.0088	0.0076	0.0052	0.0043	0.0024	0.0018	0.0034	0.0035	0.0021	0.0031	0.0028	0.0022	0.0031	0.0037	0.0030	0.0039	0.0034	0.0040	0.0031	0.0024	0.0024	0.0119	0.0037	0.0021	0.0016	0.0110	0.0022	0.0034		0.0033	0.0045	0.0058	0.0276
Sb	mg/L	#N/A	0.0003	< 0.0002	0.0003	< 0.0002	< 0.0002	0.0004	0.0003	< 0.0002	0.0002	0.0002	0.0003	0.0003	0.0004	< 0.0002	0.0003	0.0003	0.0038	0.0004	0.0005	0.0003	0.0006	0.0004	0.0003	0.0006	0.0004	0.0005	0.0003	0.0003	0.0003	0.0002	0.0003	< 0.0002	0.0003	0.0004	0.0003		0.0003	0.0004	0.0005	0.0003
As	mg/L	#N/A	0.0004	0.0005	0.0005	0.0007	0.0004	< 0.0002	0.0003	0.0004	0.0003	0.0004	< 0.0002	< 0.0002	< 0.0002	0.0004	0.0002	< 0.0002	0.0004	0.0002	< 0.0002	0.0003	< 0.0002	0.0003	< 0.0002	0.0003	< 0.0002	< 0.0002	0.0004	0.0004	0.0003	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002		< 0.0002	0.0004	0.0003	< 0.0002
Ba	mg/L	#N/A	0.0554	0.0879	0.1020	0.1210	0.1350	0.1570	0.1890	0.2210	0.2320	0.2630	0.2620	0.3150	0.3290	0.3370	0.3280	0.3040	0.2970	0.2890	0.2850	0.2680	0.2650	0.2580	0.2480	0.2470	0.2420	0.2480	0.2370	0.2210	0.2210	0.2070	0.2010	0.1920	0.1870	0.1850	0.1800		0.2160	0.1900	0.1880	0.1700
Be	mg/L	#N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002		< 0.00002	< 0.00002	< 0.00002	< 0.00002
Bi	mg/L	#N/A	0.00001	< 0.00001	0.00002	0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.0001	< 0.00001	< 0.00001	0.00002	< 0.00001	0.00001	0.00001	0.00001	0.00003	0.00003	0.00009	< 0.00001	0.00004	< 0.00001	0.00001	< 0.00001	0.00001	< 0.00001	0.00001	< 0.00001	0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001		0.00002	< 0.00001	0.00002	0.00006
B	mg/L	#N/A	0.313	0.268	0.291	0.303	0.303	0.288	0.272	0.264	0.300	0.254	0.224	0.242	0.242	0.275	0.222	0.200	0.182	0.159	0.133	0.106	0.093	0.097	0.145	0.081	0.104	0.074	0.065	0.056	0.046	0.042	0.035	0.032	0.026	0.024	0.033		0.032	0.029	0.024	0.021
Cd	mg/L	#N/A	< 0.0000003	< 0.0000003	0.00015	< 0.0000003	< 0.0000003	< 0.0000003	< 0.0000003	0.0000003	0.0000155	< 0.0000003	< 0.0000003	< 0.0000003	0.0000729	< 0.0000003	< 0.0000003	< 0.0000003	< 0.0000003	< 0.0000003	< 0.0000003	< 0.0000003	< 0.0000003	0.0000018	< 0.0000003	< 0.0000003	< 0.0000003	0.0000004	< 0.0000003	0.0000005	0.0000031	< 0.0000003	0.0000011	< 0.0000003	0.0000023	< 0.0000003	0.0000003		< 0.0000003	< 0.0000003	0.0000003	0.0000006
Ca	mg/L	#N/A	35.2	24.4	18.3	22.0	17.6	15.9	14.6	14.7	12.8	12.8	11.2	9.8	10.3	9.9	8.8	8.1	7.7	8.6	6.9	5.2	6.5	5.8	6.0	5.4	5.2	6.1	5.4	5.1	5.1	5.0	4.7	4.6	4.3	4.5	4.8		4.8	4.6	4.4	4.3
Cr	mg/L	#N/A	0.0020	0.0012	0.0014	0.0013	0.0012	0.0019	0.0011	0.0015	0.0014	0.0018	0.0019	0.0011	0.0010	< 0.0005	0.0012	0.0006	0.0011	0.0024	0.0009	0.0007	0.0011	0.0014	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0011	0.0009	< 0.0005	0.0006	0.0007	0.0008	0.0006	0.0008		< 0.0005	< 0.0005	< 0.0005	0.0006
Co	mg/L	#N/A	0.000254	0.000219	0.000139	0.000103	0.000118	0.000050	0.000029	0.000044	0.000030	0.000072	0.000042	0.000040	0.000042	0.000043	0.000027	0.000022	0.000060	0.000023	0.000054	0.000028	0.000052	0.000015	0.000016	0.000016	0.000034	0.000013	0.000009	0.000267	0.000296	0.000015	0.000021	0.000010	0.000052	0.000014	0.000063		0.000014	0.000050	0.000040	0.000069
Cu	mg/L	#N/A	0.0012	0.0012	0.0057	0.0088	0.0010	0.0017	0.0012	0.0013	0.0013	0.0022	0.0010	0.0011	0.0005	0.0015	0.0027	< 0.0005	0.0012	0.0024	0.0019	0.0021	0.0016	0.0010	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0006	0.0014	< 0.0005	< 0.0005	0.0013	0.0005	0.0017	0.0007	0.0010		< 0.0005	< 0.0005	0.0006	0.0007
Fe	mg/L	#N/A	0.004	< 0.002	0.002	0.017	< 0.002	3.4	< 0.02	0.005	< 0.002	< 0.002	0.003	0.005	< 0.002	0.003	< 0.002	< 0.002	< 0.002	0.004	< 0.002	0.006	< 0.002	< 0.002	0.004	0.005	0.002	< 0.002	0.002	< 0.002	< 0.002	< 0.002	0.005	0.002	0.011	< 0.002	< 0.002		< 0.002	< 0.002	0.002	0.009
Pb	mg/L	#N/A	0.00013	0.00003	0.00006	0.00007	0.00019	0.00191	0.00010	0.00026	0.00007	0.00009	0.00011	< 0.00002	0.00003	0.00041	0.00056	0.00003	0.00009	0.00265	0.00471	0.00008	0.00257	0.00415	0.00004	0.00008	0.00003	0.00007	< 0.00002	0.00223	0.00036	0.00002	0.00259	0.00291	0.00017	0.00007	0.00031		0.00037	0.00018	0.00031	0.00027
Li	mg/L	#N/A	0.002	0.002	0.001	0.001	< 0.001	< 0.001	0.001	0.002	0.001	0.003	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	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	< 0.001	< 0.001	< 0.001
Mg	mg/L	#N/A	10.2	7.30	6.0	7.83	5.8	5.28	4.8	4.89	4.2	3.94	3.4	2.95	3.0	2.90	2.6	2.34	2.2	2.24	1.9	1.34	1.8	1.56	1.6	1.42	1.4	1.55	1.4	1.25	1.3	1.19	1.1	1.09	1.0	1.04	1.1		1.03	1.05	1.0	0.97
Mn	mg/L	#N/A	0.0093	0.0085	0.0102	0.0251	< 0.0002	< 0.0002	0.0015	0.0010	< 0.0002	< 0.0002	0.0004	0.0013	< 0.0002	0.0002	0.0005	0.0002	0.0008	0.0017	< 0.0002	0.0002	0.0008	0.0017	< 0.0002	< 0.0002	0.0008	< 0.0002	< 0.0002	0.0035	0.0004	0.0009	0.0009	0.0006	0.0017	< 0.0002	0.0009		0.0003	0.0005	0.0017	0.0023
Hg	ug/L	#N/A	0.02	< 0.01	< 0.01	0.03	0.01	< 0.01	0.02	< 0.01	0.03	< 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	< 0.01	< 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
Mo	mg/L	#N/A	0.0109	0.00794	0.0073	0.00752	0.0066	0.00640	0.0060	0.00483	0.0053	0.00521	0.0049	0.00491	0.0040	0.00420	0.0038	0.00357	0.0036	0.00287	0.0027	0.00250	0.0022	0.00212	0.0019	0.00179	0.0015	0.00185	0.0014	0.00206	0.0016	0.00353	0.0014	0.00135	0.0016		0.00154	0.0013	0.00602	
Ni	mg/L	#N/A	0.0045	0.0039	0.0026	0.0013	0.0029	0.0036	0.0029	0.0016	0.0026	0.0026	0.0020	0.0016	0.0019	0.0022	0.0017	0.0013	0.0019	0.0017	0.0011	0.0010	0.0009	0.0008	0.0009	0.0006	0.0008	0.0008	0.0005	0.0004	0.0005	0.0007	0.0005	0.0006	0.0006	0.0007	0.0002		0.0006	0.0007	0.0008	0.0007
P	mg/L	#N/A	0.160	< 0.009	< 0.009	< 0.009	< 0.009	0.212	< 0.009	0.009	< 0.009	< 0.009	< 0.009	< 0.009	0.024	0.014	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	0.026	< 0.009	< 0.009	0.029	0.026	0.062	0.027	0.002	< 0.009	0.014	0.014	0.038	< 0.009	0.016	0.034		< 0.009	< 0.009	< 0.009	< 0.009
K	mg/L	#N/A	5.46	5.64	5.57	5.93	5.84	5.40	5.76	5.54	5.27	4.74	4.54	4.25	4.65	4.54	4.15	3.88	3.55	3.36	3.16	2.19	2.96	2.70	2.83	2.57	2.99	2.71	2.31	2.19	2.19	1.95	1.95	1.93	1.83	1.75	1.81		2.13	1.90	1.83	1.77
Se	mg/L	#N/A	0.00022	0.00091	0.00022	< 0.00004	0.00008	< 0.00004	0.00010	0.00126	0.00017	0.00027	< 0.00004	0.00007	< 0.00004	< 0.00004	< 0.00004	< 0.00004	0.00024	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	0.00006	< 0.00004	< 0.00004	< 0.00004	< 0.00004	0.00007	< 0.00004	0.00030		< 0.00004	0.00031	0.00008	< 0.00004
Si	mg/L	#N/A	1.23	2.18	2.87	3.83	3.72	3.68	3.83	3.75	3.58	3.32	3.44	3.04	3.45	3.40	3.18	2.99	2.75	2.52	2.31	1.61	2.46	2.13	2.15	1.88	2.02	2.14	2.05	1.88	1.78	1.69	1.45	1.59	1.54	1.40	1.43		1.67	1.50	1.43	1.43
Ag	mg/L	#N/A	0.00004	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001		< 0.00001	< 0.00001	< 0.00001	< 0.00001
Na	mg/L	#N/A	4.66	3.64	3.17	3.93	3.28	3.00	2.87	3.06	2.85	3.16	2.49	2.39	2.50	2.49	2.25	1.99	1.89	1.87	1.56	1.06	1.32	1.09	1.26	0.98	0.94	0.95	0.74	0.69	0.64	0.64	0.66	0.53	0.43	0.42	0.51		0.47	0.43	0.41	0.41
Sr	mg/L	#N/A	0.369	0.259	0.202	0.267	0.194	0.177	0.164	0.164	0.144	0.138	0.126	0.111	0.114	0.116	0.104	0.096	0.091	0.085	0.080	0.059	0.076	0.067	0.069	0.063	0.062	0.071	0.061	0.057	0.055	0.053	0.051	0.050	0.046	0.048	0.048		0.050	0.049	0.047	0.045
S	mg/L	#N/A	16.8	12.8	9.0	7.3	5.4	6.9	3.6	3.3	2.6	0.2	1.6	1.4	1.6	1.1	0.9	0.8	3.6	0.9	0.6	0.6	0.7	0.5	0.5	0.5	0.6	0.9	0.5	0.9	0.6	0.6	0.5	0.6	0.5	0.5	0.8		0.5	0.4	0.4	0.5
Ti	mg/L	#N/A	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002		< 0.0002	< 0.0002	< 0.0002	< 0.0002
Sn	mg/L	#N/A	0.285	0.361	0.388	0.391	0.360	0.355	0.385	0.370	0.385	0.408	0.348	0.338	0.336	0.362	0.315	0.288	0.292	0.273	0.267	0.250	0.241	0.219	0.213	0.193	0.176	0.175	0.177	0.165	0.170	0.154	0.142	0.137	0.128	0.119	0.115		0.131	0.147	0.116	0.124
Ti	mg/L	#N/A	0.0002	0.0001	0.0001	0.0001	0.0001	0.0004	0.0002	0.0016	< 0.0001	0.0004	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0003	< 0.0001	< 0.0001	0.0003	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0003	0.0007	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001		0.0002	0.0006	0.0004	0.0002
U	mg/L	#N/A	0.000081	0.000469	0.000069	0.000024	0.000028	0.000029	0.000070	0.000045	0.000013	0.000049	0.000003	0.000016	0.000004	0.000013	0.000015	0.000008	0.000023	0.000007	0.000014	0.000009	0.000031	0.000005	0.000004	0.000009	0.000006	0.000008	0.000064	0.000012	0.000025	0.000056	0.000015	0.000005	< 0.000001	0.000002	0.000005		0.000114	0.000053	0.000003	0.000834
V	mg/L	#N/A	0.00026	0.00081	0.00044	0.00037	0.00102	0.00175	0.00169	0.00201	0.00204	0.00194	0.00188	0.00203	0.00194	0.00186	0.00179	0.00162	0.00171	0.00150	0.00149	0.00136	0.00131	0.00129	0.00134	0.00119	0.00112	0.00114	0.00111	0.00102	0.00113	0.00102	0.00088	0.00097	0.00099	0.00091	0.00088		0.00102	0.00098	0.00089	0.00089
Zn	mg/L	#N/A	0.004	0.002	0.003	0.005	0.003	0.004	0.003	0.002	0.004	0.003	0.003	0.003	0.002	0.004	0.002	0.004	0.008	0.007	0.004	0.006	0.006	0.005	0.005	0.003	0.002	0.019	0.003	0.006	0.010	0.003	0.004	0.006	0.006	0.007	0.018		0.010	0.010	0.017	0.011
Zr	mg/L	#N/A	0.00002	0.00002	0.00003	0.00002	0.00001	0.00007	0.00002	< 0.00001	0.00004	0.00005	0.00004	0.00002	0.00002	0.00002	0.00003	< 0.00001	0.00001	0.00001	0.00002	0.00009	< 0.00001	< 0.00001	0.00002	0.00002	0.00006	0.00003	< 0.00001	< 0.00001	0.00004	< 0.00001	0.00002	0.00004	< 0.00001	< 0.00001	< 0.00001		< 0.00001	0.00001	0.00003	< 0.00001

Column Test - Fine PK Top
2010 Fine PK Comp

Date		12-May-11	19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
Volume mL	Input	530	500	560	480	585	480	525	535	580	540	640	555	645	565	550	780	405	525	620	550	530	530	535	615	580	560	565	545	615	555	580	740
	Output	260	250	255	260	255	260	260	255	250	255	250	250	265	265	265	260	260	255	265	265	260	260	260	260	260	265	265	265	265	250	255	255
pH		7.58	7.75	7.84	7.69	7.47	7.69	7.56	7.61	7.58	7.38	7.76	7.55	7.77	7.54	7.75	7.46	7.49	7.62	7.81	7.47	7.5	7.39	7.69	7.49	7.55	7.6	7.86	7.52	7.83	7.62	7.65	7.36
ORP	mV	344	248	295	303	314	329	358	310	283	291	258	297	277	244	160	267	261	274	301	259	272	279	249	275	270	278	262	284	258	314	256	313
Cond.	umhos/cm	35	36	35	34	34	32	32	30	28	27	29	28	29	29	29	28	28	28	30	25	26	27	26	24	26	24	26	32	56	25	28	26
Acidity	mgCaCO3/L	3.1	4.1	4.4	4.9	2.7	3.5	2.3	2.6	3.1	4.4	3.1	3.0	2.0	3.3	2.7	3.8	2.9	3.0	2.5	2.3	2.5	3.7	6.4	2.8	3.4	3.9	4.8	2.5	2.5	3.7	2.9	3.7
Alkalinity	mgCaCO3/L	24.7	22.6	23.0	24.0	21.5	22.3	21.4	20.8	20.2	15.9	16.2	16.4	21.5	17.5	18.4	20.6	21.4	21.7	22.2	16.4	16.6	16.3	21.3	15.5	14.8	16.5	20.0	14.6	16.7	15.6	16.3	16.0
Sulphate	mg/L	5	3	3	<2	<2	<2	3	<2	3	2	<2	<2	<2	<2	2	3	<2	3	<2	<2	3	<2	<2	<2	2	<2	<2	2	3	2	3	
DO	mg/L	3.65	6.39	6.79	5.77	2.81	3.78	4.98	4.57	4.00	5.45	4.85	5.84	5.57	4.37	5.92	5.01	4.24	4.36	4.59	4.19	4.09	3.50	4.29	3.89	4.07	4.54	4.72	4.88	5.13	6.02	3.24	6.41
Total P	mg/L	0.00	0.00	0.01	<0.002	<0.002	0.00	0.00	<0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	IP	<0.002	
Ortho P	mg/L	<0.001	0.00	0.00	<0.001	<0.001	0.00	0.00	<0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.001	0.00	0.00	<0.001	0.00	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	IP	0.00	
Chloride	mg/L	< 0.2	< 0.2	< 0.2	0	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	1	0	0	0	< 0.2	0	0	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	1	< 0.2	< 0.2	< 0.2	< 0.2	2	8	< 0.2		
Fluoride	mg/L	0.07	0.06	0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.07	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06		
Hardness	mg/L	14	14.4	14	13.6	14	13.8	14	12.5	12	11.4	12	13.4	13	12.0	11	11.7	12	12.4	12	11	11.4	12	10.5	11	10.6	11	10.8	11	10.3	11	10.3	
Al	mg/L	0.0030	0.0047	0.0137	0.0062	0.0224	0.0037	0.0040	0.0048	0.0027	0.0031	0.0031	0.0033	0.0037	0.0048	0.0087	0.0058	0.0043	0.0075	0.0034	0.0033	0.0040	0.0035	0.0026	0.0106	0.0043	0.0052	0.0198	0.0372	0.0506	0.0214		
Sb	mg/L	< 0.0002	< 0.0002	0.0003	0.0002	0.0004	< 0.0002	0.0010	< 0.0002	0.0002	0.0005	0.0002	0.0005	0.0003	< 0.0002	0.0003	0.0004	0.0003	0.0002	0.0002	< 0.0002	0.0003	0.0005	0.0003	0.0005	< 0.0002	0.0002	0.0020	0.0003	< 0.0002	< 0.0002		
As	mg/L	0.0002	< 0.0002	0.0002	< 0.0002	< 0.0002	< 0.0002	0.0003	0.0004	< 0.0002	0.0009	< 0.0002	0.0006	0.0018	< 0.0002	< 0.0002	0.0014	< 0.0002	< 0.0002	< 0.0002	0.0002	0.0009	< 0.0002	< 0.0002	0.0006	< 0.0002	0.0006	0.0003	< 0.0002	0.0002	< 0.0002		
Ba	mg/L	0.1750	0.1790	0.1790	0.1660	0.1590	0.1470	0.1510	0.1470	0.1420	0.1370	0.1470	0.1390	0.1460	0.1350	0.1500	0.1520	0.1390	0.1090	0.1270	0.1390	0.1340	0.1170	0.1340	0.1310	0.1300	0.1310	0.1220	0.1250	0.1270	0.1390		
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002		
Bi	mg/L	< 0.00001	0.00002	0.00001	0.00003	< 0.00001	< 0.00001	0.00001	< 0.00001	0.00004	0.00003	< 0.00001	0.00018	< 0.00001	0.00004	0.00002	0.00002	0.00004	< 0.00001	< 0.00001	0.00021	< 0.00001	0.00005	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00001	< 0.00001	< 0.00001		
B	mg/L	0.020	0.024	0.027	0.028	0.021	0.025	0.017	0.016	0.013	0.014	0.011	0.011	0.011	0.011	0.018	0.015	0.014	0.017	0.016	0.018	0.010	0.085	0.011	0.014	0.013	0.017	0.011	0.015	0.034	0.011		
Cd	mg/L	< 0.000003	0.000821	< 0.000003	< 0.000003	< 0.000003	0.000008	0.000012	0.000016	0.000022	0.000029	0.000038	0.00001	0.000042	0.000026	< 0.000003	0.000005	0.000063	< 0.000003	< 0.000003	< 0.000003	0.000011	< 0.000003	0.000005	0.000136	< 0.000003	0.000004	< 0.000003	0.00001	0.000003	< 0.000003		
Ca	mg/L	4.1	4.2	4.1	4.0	4.0	4.1	4.1	3.7	3.5	3.4	3.5	3.5	3.7	3.5	3.3	3.4	3.5	3.6	3.5	3.1	3.1	2.9	3.2	3.2	3.1	3.1	3.1	3.1	3.0			
Cr	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0006	< 0.0005	< 0.0005	0.0015	< 0.0005	< 0.0005	< 0.0005	0.0014	0.0028	0.0017	0.0033	0.0018	< 0.0005	< 0.0005	0.0017	0.0024	0.0022	0.0026	0.0020	0.0019	0.0030	< 0.0005	< 0.0005	< 0.0005	< 0.0005		
Co	mg/L	0.000030	0.000081	0.000026	< 0.000002	0.000021	0.000020	0.000054	0.000029	0.000263	0.000037	0.000020	0.000058	0.000063	0.000023	0.000021	0.000019	0.000111	0.000009	0.000015	0.000019	0.000034	0.000017	0.000019	0.000051	0.000040	0.000024	0.000092	0.000014	0.000036	0.000031		
Cu	mg/L	0.0006	< 0.0005	< 0.0005	0.0005	0.0006	0.0029	0.0016	< 0.0005	0.0020	0.0008	0.0006	0.0011	0.0006	0.0008	0.0007	< 0.0005	0.0006	< 0.0005	< 0.0005	< 0.0005	0.0009	0.0011	0.0019	0.0006	0.0007	0.0007	0.0011	0.0008	0.0006	0.0010		
Fe	mg/L	0.002	0.002	0.003	< 0.002	0.008	0.005	< 0.002	0.022	0.005	< 0.002	< 0.002	0.037	0.009	0.01	0.013	0.01	0.003	0.005	0.016	0.009	0.154	0.018	0.006	< 0.003	0.011	0.017	0.017	< 0.003	0.016	0.008		
Pb	mg/L	0.00043	0.00054	0.00013	0.00018	0.00012	0.00012	0.00012	0.00012	0.00020	0.00006	0.00023	0.00017	0.00016	0.00017	0.00012	0.00013	0.00130	0.00005	0.00018	0.00010	0.00030	0.00034	0.00033	0.00062	0.00006	0.00014	0.00017	0.00007	0.00014	0.00039		
Li	mg/L	< 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	< 0.001	< 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		
Mg	mg/L	1.0	0.96	0.9	0.90	0.9	0.90	0.8	0.82	0.8	0.73	0.8	0.88	0.8	0.76	0.7	0.77	0.8	0.81	0.8	0.75	0.8	0.70	0.7	0.68	0.8	0.71	0.7	0.66	0.7	0.66		
Mn	mg/L	0.0023	0.0003	0.0005	0.0007	0.0056	0.0022	0.0006	0.0010	0.0002	0.0004	0.0005	0.0451	0.0420	0.0014	0.0013	0.0008	0.0023	0.0004	0.0006	0.0008	0.0008	0.0008	< 0.0002	0.0007	0.0004	0.0008	0.0019	< 0.0002	0.0005	0.0008		
Hg	ug/L	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	0.02	0.02	< 0.01	< 0.01	< 0.01	0.01	< 0.01	0.01	< 0.01	< 0.01	#N/A	< 0.01	< 0.01	0.01	< 0.01	0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01		
Mo	mg/L	0.0012	0.00196	0.0020	0.00128	0.0015	0.00114	0.0015	0.00150	0.0010	0.00101	0.0010	0.00096	0.0017	0.00208	0.0012	0.00137	0.0012	0.00221	0.0013	0.00106	0.0011	0.00164	0.0011	0.00129	0.0013	0.00132	0.0014	0.00119	0.0017	0.00302		
Ni	mg/L	0.0007	0.0007	0.0008	0.0009	0.0008	0.0010	0.0007	< 0.0001	0.0014	0.0006	0.0009	0.0014	0.0009	0.0009	0.0005	0.0010	0.0005	0.0003	0.0005	0.0007	0.0008	0.0009	0.0008	0.0006	0.0008	0.0008	0.0009	0.0007	0.0014	0.0011		
P	mg/L	< 0.009	< 0.009	0.025	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	0.013	0.010	0.034	< 0.009	< 0.009	0.023	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.09	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	0.009	< 0.009		
K	mg/L	1.76	1.81	1.77	1.72	1.74	1.68	1.63	1.55	1.43	1.44	1.40	1.57	1.44	1.41	1.34	1.35	1.31	1.50	1.38	1.24	1.21	1.29	1.23	1.22	1.18	1.18	1.01	1.07	1.15	1.04		
Se	mg/L	0.00020	< 0.00004	0.00068	< 0.00004	0.00025	0.00015	< 0.00004	0.00021	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.001	< 0.00004	< 0.00004	0.00006	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	0.00006		
Si	mg/L	1.46	1.41	1.38	1.43	1.44	6.62	1.31	1.41	1.30	1.33	1.19	1.36	1.24	1.36	1.29	1.46	1.39	1.62	1.58	4.59	0.88	1.63	1.52	1.61	1.30	1.52	1.41	1.46	1.38	1.26		
Ag	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001		
Na	mg/L	0.53	0.36	0.38	0.38	0.62	0.42	0.47	0.34	0.39	0.23	0.28	0.34	0.24	0.22	0.28	0.25	0.26	0.32	0.78	0.20	0.45	0.47	0.45	0.23	1.33	0.24	0.18	1.42	#N/A	0.13		
Sr	mg/L	0.044	0.045	0.042	0.042	0.040	0.041	0.039	0.040	0.035	0.033	0.035	0.043	0.043	0.034	0.034	0.036	0.037	0.039	0.035	0.035	0.041	0.032	0.033	0.030	0.031	0.032	0.030	0.031	0.032	0.031		
S	mg/L	0.4	0.4	0.5	0.4	0.6	0.4	0.8	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	1.1	0.2	0.2	0.3	0.3	0.2	0.1	0.3	0.5	0.2		
Ti	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.00018	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002		
Sn	mg/L	0.106	0.108	0.100	0.112	0.105	0.271	0.260	0.288	0.309	0.239	0.216	0.188	0.205	0.191	0.186	0.182	0.196	0.108	0.198	0.162	0.156	0.141	0.151	0.124	0.138	0.136	0.125	0.117	0.118	0.104		
Ti	mg/L	0.0004	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0004	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	0.0003	0.0005	0.0004	0.0009	0.0002		
U	mg/L	0.000005	0.000020	0.000005	< 0.000001	0.000035	0.000009	0.000008	0.000009	0.000031	0.000016	0.000001	0.000011	0.000031	0.000007	0.000002	0.000010	0.000003	0.000001	0.000004	0.000001	0.000016	0.000009	< 0.000001	< 0.000001	0.000004	0.000010	0.000004	0.000002	0.000002	0.000019		
V	mg/L	0.00080	0.00089	0.00082	0.00088	0.00086	0.00084	0.00085	0.00080	0.00087	0.00070	0.00071	0.00097	0.00084	0.00068	0.00067	0.00073	0.00068	0.00078	0.00075	0.00106	0.00065	0.00180	0.00069	0.00061	0.00068	0.00080	0.00089	0.00107	0.00159	0.00110		
Zn	mg/L	0.014	0.010	0.013	0.019	0.011	0.012	0.014	0.011	0.014	0.004	0.069	0.013	0.009	0.043	0.003	0.005	0.007	< 0.001	< 0.001	0.006	0.015	0.005	0.007	0.008	0.005	0.006	0.005	0.009	0.014	0.006		
Zr	mg/L	< 0.00001	< 0.00001	< 0.00001	0.00002	< 0.00001	0.00001	0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00001	< 0.00001	0.00001	< 0.00001	< 0.00001	< 0.00001	0.00005	< 0.00001	0.00003	0.00001	0.00003	< 0.00001	< 0.00001	0.00010	< 0.00001	< 0.00001	< 0.00001	< 0.00001		

Column Test - Fine PK Bottom
2010 Fine PK Comp

Date		29-Jul-10	5-Aug-10	12-Aug-10	19-Aug-10	26-Aug-10	2-Sep-10	9-Sep-10	16-Sep-10	23-Sep-10	30-Sep-10	7-Oct-10	14-Oct-10	21-Oct-10	28-Oct-10	4-Nov-10	11-Nov-10	18-Nov-10	25-Nov-10	2-Dec-10	9-Dec-10	16-Dec-10	23-Dec-10	30-Dec-10	6-Jan-11	13-Jan-11	20-Jan-11	27-Jan-11	3-Feb-11	10-Feb-11	17-Feb-11	24-Feb-11	3-Mar-11	10-Mar-11	17-Mar-11	24-Mar-11	31-Mar-11	7-Apr-11	14-Apr-11	21-Apr-11	28-Apr-11	5-May-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Volume mL	Input	1260	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Output	160	245	155	160	160	160	160	160	160	160	160	160	160	160	160	200	195	205	205	210	250	260	260	260	195	240	245	255	250	255	250	250	250	265	255	260	265	255	260	245	255
pH		7.6	7.98	7.99	7.99	8.09	7.95	7.85	7.87	7.94	7.83	7.84	7.72	7.78	7.82	7.98	7.92	8.11	7.73	7.96	7.89	8	8.02	8.11	8.1	8.11	8.1	8.22	8.2	8.22	8.19	8.24	8.23	8.23	8.16	8.19	8.19		8.11	8.07	7.94	7.9
ORP	mV	332.03	395	#N/A	376	322	379	334	320	307	329	309	296	340	339	383	414	352	310	306	311	322	340	323	339	316	316	293	313	312	316	290	298	287	296	307	303		268	283	347	334
Cond.	umhos/cm	90.79	189	309	265	277	288	312	269	239	225	284	291	283	298	281	289	287	219	193	166	142	127	109	96	96	103	96	91	91	99	117	113	112	113	106	111		108	110	106	106
Acidity	mgCaCO3/L	4.2	3.5	5.5	6.3	3.2	7.2	7.9	5.6	4.8	5.4	5.9	5.8	5.2	5.6	3.8	4.1	3.6	6.2	4.9	6.6	5.9	6.3	6.0	8.3	4.1	3.1	3.3	2.4	2.6	3.4	3.4	2.6	2.6	2.9	4.4	4.9		5.7	2.5	4.4	3.9
Alkalinity	mgCaCO3/L	38.63	75.0	134.7	120.1	116.3	121.9	116.8	109.0	110.9	115.7	117.9	116.4	116.4	121.4	135.3	124.6	123.3	93.6	87.3	78.4	69.8	66.9	66.4	66.1	62.0	63.5	60.3	63.5	58.7	60.3	59.6	59.0	58.5	58.9	57.4	61.0		60.5	58.7	58.1	56.9
Sulphate	mg/L	8	11	1	1	4	7	1	5	3	4	5	4	4	2	3	1	1	<2	3	2	1	2	3	2	<2	4	<1	6	<2	<2	5	9	4	6	6	5		6	6	<2	5
DO	mg/L	1.75	0.45	0.88	0.88	0.58	0.76	0.84	1.60	1.19	0.72	0.93	1.33	0.99	1.07	0.82	1.65	1.58	0.70	0.68	1.45	0.79	1.42	1.29	1.05	1.08	0.89	1.47	2.50	1.40	1.65	2.16	1.97	1.21	1.90	0.67	1.17		2.43	2.00	1.17	2.18
Total P	mg/L													0.03	IS	0.10	0.22	0.28	0.07	0.36	0.47	0.50	0.64	0.66	0.64	0.60	0.62	0.58	0.57	0.48	0.50	0.52	0.56	0.06	0.41	0.40	0.36	0.36		0.29	0.30	0.07	0.07
Ortho P	mg/L													< 0.03	IS	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.08	0.03	0.04	0.09	0.05	< 0.03	0.04	0.04	0.04		< 0.03	< 0.03	0.06	0.06
Chloride	mg/L	2.1	8	14	19	26	28	28	24	20	18	14	13	11	10	5	7	6	8	5	4	3	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1		1	1	1	1
Fluoride	mg/L	0.34	0.67	0.62	0.80	0.81	0.74	0.88	0.87	0.96	0.90	0.93	0.99	0.98	1.06	0.48	1.15	1.31	1.38	1.46	1.77	1.99	1.91	2.11	2.11	2.10	2.25	2.25	2.31	2.23	2.27	2.34	2.51	2.44	2.27	2.23	2.32		2.17	2.38	2.38	2.36
Hardness	mg/L	37	73	129.0	85	112.0	100	98.2	93	96.9	91	96.8	95	92.8	95	84.1	78	71.2	62	57.5	39	11.5	29	25.1	25	22.1	22	25.9	24	21.5	22	21.6	21	20.4	19	20.0	19		18	17.5	17	16.2
Al	mg/L	0.0307	0.0398	0.0031	0.0069	0.0048	0.0685	0.0053	0.0039	0.0082	< 0.0002	0.0049	0.0047	0.0028	0.0061	0.0097	0.0045	0.0034	0.0033	0.0044	0.0054	0.0177	0.0247	0.0761	0.0788	0.0791	0.1780	0.1840	0.2690	0.1860	0.4140	0.4620	0.4190	0.4220	0.7440	0.7400	0.4290		0.6390	0.5780	0.4370	0.1460
Sb	mg/L	0.0027	0.0055	0.0011	0.0005	0.0003	0.0002	0.0002	0.0005	< 0.0002	0.0009	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0015	< 0.0002	0.0002	< 0.0002	0.0004	< 0.0002	< 0.0002	0.0004	< 0.0002	0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0003	0.0003		< 0.0002	< 0.0002	0.0003	< 0.0002
As	mg/L	0.0008	0.0007	0.0006	0.0009	0.0006	0.0006	0.0008	0.0006	0.0007	0.0008	0.0005	0.0003	< 0.0002	0.0002	0.0004	0.0008	< 0.0002	0.0004	0.0003	0.0002	0.0003	0.0002	< 0.0002	< 0.0002	0.0003	0.0005	0.0002	< 0.0002	0.0003	0.0003	0.0006	0.0003	< 0.0002	0.0002	< 0.0002	< 0.0002		0.0002	0.0008	0.0004	< 0.0002
Ba	mg/L	0.0555	0.1170	0.1410	0.1230	0.2290	0.2290	0.2220	1.0200	1.0300	1.1300	1.1800	1.1200	1.2100	1.3200	1.3100	1.3900	1.2100	1.1300	0.9660	0.8420	0.6530	0.5530	0.4440	0.4250	0.3900	0.3390	0.3880	0.3820	0.3750	0.3820	0.3580	0.3510	0.3530	0.3480	0.3400	0.3180	0.3210		0.3320	0.3170	0.3270	0.2820
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00004	0.00006	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002		< 0.00002	< 0.00002	< 0.00002	< 0.00002
Bi	mg/L	0.00005	< 0.00001	< 0.00001	0.00001	0.00002	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00035	0.00005	< 0.00001	0.00001	0.00002	0.00004	< 0.00001	0.00001	0.00001	0.00002	0.00003	0.00002	< 0.00001	0.00002	< 0.00001	< 0.00001	< 0.00001	0.00001	0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001		0.00001	< 0.00001	0.00001	0.00002
B	mg/L	0.21	1.090	1.520	2.080	2.290	2.310	2.700	2.690	2.880	3.190	2.830	2.990	2.960	3.320	4.060	3.530	3.800	4.150	4.100	4.400	4.080	3.780	3.480	3.630	3.470	3.220	3.160	3.130	2.860	2.610	2.480	2.040	2.060	2.230	1.970	2.090		2.040	1.860	1.770	1.500
Cd	mg/L	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003		0.000007	0.000007	0.000016	0.000005
Ca	mg/L	10.3	19.9	35.3	22.6	28.8	26.3	25.8	24.3	24.9	23.4	25.0	24.7	24.2	24.8	22.0	20.3	18.7	16.3	15.6	10.5	3.2	7.9	5.8	6.7	5.9	6.0	7.1	6.5	5.9	5.9	5.7	5.7	5.6	5.3	5.5	5.4		4.9	4.9	4.9	4.6
Cr	mg/L	0.0022	0.0019	0.0018	0.0017	0.0012	0.0023	0.0018	0.0018	0.0019	< 0.0005	0.0021	0.0019	0.0020	0.0013	0.0012	0.0014	0.0011	0.0010	0.0015	0.0010	0.0008	0.0012	0.0014	< 0.0005	0.0009	< 0.0005	< 0.0005	< 0.0005	0.0012	0.0014	< 0.0005	0.0010	0.0008	0.0008	0.0015	0.0007		< 0.0005	< 0.0005	< 0.0005	0.0006
Co	mg/L	0.000092	0.000137	0.000040	0.000048	0.000032	0.000056	0.000059	0.000041	0.000072	0.000151	0.000124	0.000083	0.000052	0.000093	0.000065	0.000048	0.000036	0.000074	0.000034	0.000063	0.000031	0.000137	0.000026	0.000028	0.000030	0.000049	0.000028	0.000032	0.000125	0.000064	0.000037	0.000045	0.000037	0.000055	0.000097	0.000253		0.000053	0.000059	0.000056	0.000036
Cu	mg/L	0.003	0.0011	0.0008	0.0033	0.0010	0.0013	0.0019	0.0017	0.0019	0.0007	0.0013	0.0017	0.0009	< 0.0005	0.0030	0.0017	0.0010	0.0013	0.0013	0.0017	0.0012	0.0018	0.0010	0.0006	0.0007	0.0007	0.0007	0.0007	0.0011	0.0016	0.0007	0.0014	0.0006	0.0019	0.0017	0.0071		< 0.0005	0.0009	< 0.0005	0.0009
Fe	mg/L	0.048	0.059	< 0.002	0.002	0.01	< 0.002	0.185	< 0.002	< 0.002	0.003	< 0.002	0.010	0.012	< 0.002	0.02	0.007	0.006	0.005	0.005	< 0.002	< 0.002	0.004	0.01	0.008	0.006	0.007	0.008	0.016	0.01	0.023	0.019	0.02	0.024	0.024	0.029	0.06	0.015		0.015	0.016	0.012	0.007
Pb	mg/L	0.00008	0.00014	0.00004	0.00007	0.00013	0.00020	0.00022	0.00005	0.00020	0.00015	0.00014	0.00004	0.00003	0.00003	0.00141	0.00071	0.00005	0.00006	0.00448	0.00219	0.00007	0.00092	0.00210	0.00006	0.00006	0.00007	0.00015	0.00011	0.00191	0.00312	0.00011	0.00149	0.00256	0.00028	0.00030	0.00034		0.00031	0.00022	0.00015	0.00016
Li	mg/L	< 0.001	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.002	0.001	0.003	0.002	< 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	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001	< 0.001	< 0.001	< 0.001
Mg	mg/L	2.72	5.8	9.97	6.8	9.68	8.4	8.22	7.8	8.42	7.9	8.34	8.2	7.89	8.1	7.09	6.5	5.98	5.1	4.53	3.2	0.87	2.3	2.00	2.0	1.78	1.7	2.02	1.8	1.65	1.7	1.65	1.6	1.53	1.4	1.52	1.4		1.3	1.28	1.3	1.18
Mn	mg/L	0.0015	0.0044	0.0043	0.0041	0.0141	< 0.0002	< 0.0002	0.0040	0.0016	0.0045	< 0.0002	0.0063	0.0063	0.0061	0.0062	0.0052	0.0045	0.0042	0.0037	0.0029	0.0007	0.0015	0.0011	0.0019	0.0016	0.0011	0.0013	0.0026	0.0023	0.0018	0.0017	0.0019	0.0022	0.0022	0.0019	0.0025		0.0017	0.0018	0.0017	0.0013
Hg	ug/L	< 0.01	0.02	< 0.01	< 0.01	0.02	0.02	< 0.01	0.02	< 0.01	0.01	< 0.01	**	0.03	< 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	< 0.01	< 0.01	< 0.01	0.01	0.01	< 0.01	< 0.01	< 0.01		0.01	< 0.01	< 0.01	0.02
Mo	mg/L	0.00873	0.0189	0.00849	0.0134	0.01480	0.0128	0.01250	0.0107	0.00838	0.0103	0.00817	0.0078	0.00732	0.0069	0.00720	0.0072	0.00818	0.0088	0.01030	0.0123	0.01450	0.0142	0.01630	0.0178	0.01850	0.0167	0.01720	0.0165	0.01630	0.0179	0.01810	0.0188	0.01800	0.0180	0.01880	0.0195		0.0212	0.02380	0.0225	0.02410
Ni	mg/L	0.0023	0.0036	0.0003	0.0009	0.0005	0.0007	0.0012	0.0008	< 0.0001	0.0015	0.0015	0.0012	0.0003	0.0011	0.0017	0.0012	0.0007	0.0012	0.0006	0.0006	0.0007	0.0005	0.0005	0.0005	0.0004	0.0005	0.0005	0.0008	0.0008	0.0005	0.0006	0.0009	0.0006	0.0006	0.0016	0.0017		0.0007	0.0006	0.0006	0.0004
P	mg/L	< 0.009	0.059	0.1	0.112	0.148	0.135	0.177	0.274	0.195	0.173	0.155	0.183	0.174	0.201	0.215	0.234	0.259	0.341	0.385	0.462	0.192	0.638	0.683	0.637	0.733	0.646	0.755	0.624	0.564	0.524	0.541	0.461	0.437	0.358	0.374	0.278		0.305	0.314	0.278	0.266
K	mg/L	2.48	9.33	14.40	12.30	13.30	14.00	14.00	13.80	15.00	13.50	12.80	12.80	13.40	14.10	13.00	12.70	12.60	11.30	10.00	9.28	2.33	8.44	7.83	7.91	7.75	8.60	8.78	7.82	7.19	7.15	6.89	6.95	7.09	6.79	6.31	6.68		6.79	6.64	6.62	6.37
Se	mg/L	< 0.00004	0.00010	< 0.00004	0.00054	0.00060	< 0.00004	0.00057	< 0.00004	0.00108	0.00109	< 0.00004	0.00014	< 0.00004	0.00055	< 0.00004	0.00020	< 0.00004	0.00035	< 0.00004	0.00018	0.00022	0.00008	0.00006	0.00014	0.00007	< 0.00004	< 0.00004	< 0.00004	0.00027	0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	0.00005	0.00008		0.00006	0.00046	0.00008	< 0.00004
Si	mg/L	3.09	6.68	7.09	6.81	7.90	7.26	7.30	7.09	7.60	6.59	6.12	6.27	5.80	6.10	5.75	5.73	5.76	5.36	5.26	5.09	1.72	5.88	5.46	5.24	5.87	5.56	6.32	6.46	5.65	6.18	6.37	5.81	6.39	7.00	5.86	5.59		6.05	5.77	5.60	4.83
Ag	mg/L	0.00003	0.00002	< 0.00001	0.00002	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00002	0.00006	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001		< 0.00001	< 0.00001	< 0.00001	< 0.00001
Na	mg/L	0.64	4.43	10.20	10.20	14.70	14.00	15.30	14.10	17.70	17.70	18.40	18.30	20.40	21.10	21.20	19.40	19.60	18.70	17.70	16.10	3.98	14.00	12.90	13.50	12.80	12.20	15.00	13.60	12.80	13.70	13.80	13.60	13.30	12.70	11.90	13.20		12.60	15.10	13.00	12.10
S	mg/L	0.107	0.218	0.411	0.274	0.383	0.327	0.325	0.304	0.323	0.298	0.316	0.318	0.311	0.318	0.289	0.264	0.244	0.209	0.171	0.134	0.041	0.104	0.088	0.088	0.078	0.078	0.095	0.083	0.075	0.075	0.076	0.073	0.073	0.068	0.070	0.068		0.062	0.065	0.064	0.059
S	mg/L	2.77	6.4	0.9	1.1	1.3	1.2	1.0	0.8	1.4	1.1	0.9	0.8	0.7	0.8	0.8	0.8	2.1	2.0	0.5	0.5	0.1	0.5	0.4	0.3	0.4	0.3	0.7	2.2	1.6	1.8	0.2	0.3	1.5	0.2	0.2	0.3		1.5	0.2	0.3	0.2
Ti	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0005	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002		< 0.0002	< 0.0002	< 0.0002	< 0.0002
Sn	mg/L	0.0202	0.117	0.023	0.070	0.079	0.126	0.080	0.068	0.057	0.126	0.147	0.076	0.030	0.019	0.017	0.099	0.066	0.063	0.054	0.058	0.069	0.066	0.059	0.054	0.059	0.054	0.056	0.067	0.048	0.024	0.022	0.024	0.023	0.023	0.035	0.017		0.015	0.014	0.016	0.018
Ti	mg/L	0.0013	0.0018	0.0005	0.0001	0.0001	0.0004	0.0008	0.0001	0.0011	< 0.0001	0.0003	< 0.0001	< 0.0001	< 0.0001	0.0002	< 0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	0.0013	0.0001	0.0015	0.0003	0.0003	0.0003	0.0004	0.0007	< 0.0001	0.0011	0.0011	0.0011	0.0010	0.0016	0.0030	0.0008		0.0021	0.0026	0.0006	0.0002
U	mg/L	0.000036	0.000037	0.000259	0.000102	0.000008	0.000013	0.000006	0.000009	0.000045	0.000056	0.000019	< 0.000001	0.000007	< 0.000001	0.000022	0.001790	0.000007	0.000010	0.000042	0.000008	0.000005	0.000011	0.000072	0.000008	0.000019	0.000006	0.000029	0.000036	0.000084	0.000011	0.000041	0.000005	0.000004	0.000099	0.000010	0.000021		0.000252	0.000140	0.000011	0.000210
V	mg/L	0.00748	0.00444	0.00034	0.00040	0.00028	0.00046	0.00045	0.00038	0.00048	0.00050	0.00026	0.00033	0.00027	0.00016	0.00005	0.00026	0.00017	0.00019	0.00017	0.00019	0.00017	0.00029	0.00022	0.00035	0.00099	0.00021	0.00032	0.00026	0.00033	0.00033	0.00034	0.00026	0.00033	0.00034	0.00088	0.00027		0.00031	0.00038	0.00036	0.00039
Zn	mg/L	0.001	< 0.001	< 0.001	0.002	0.001	0.002	0.002	0.002	0.001	0.003	0.002	0.002	0.003	0.004	0.005	0.003	0.005	0.005	0.006	0.005	0.002	0.003	0.003	0.003	0.001	0.002	0.020	0.006	0.004	0.004	0.001	0.002	0.004	0.002	0.003	0.006		0.002	0.004	0.002	0.003
Zr	mg/L	0.00007	0.00010	0.00002	0.00008	0.00005	0.00008	0.00010	0.00008	< 0.00001	0.00006	0.00014	0.00012	0.00011	0.00329	0.00016	0.00010	0.00001	0.00006	0.00006	0.00012	0.00002	0.00003	0.00014	0.00009	0.00007	0.00017	0.00030	0.00029	0.00012	0.00031	0.00030	0.00064	0.00031	0.00047	0.00044	0.00025		0.00042	0.00037	0.00045	0.00016

Column Test - Fine PK Bottom
2010 Fine PK Comp

Date		12-May-11	19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11
Cycle		41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70
Volume mL	Input	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Output	245	245	270	245	255	245	250	260	290	285	250	270	260	260	270	265	260	265	270	255	265	245	265	255	275	265	265	265	265	245
pH		8.07	7.78	8.02	7.87	8.18	8.17	7.98	8.31	8.08	8.08	8.08	7.94	8.11	8.3	8.32	8.3	8.52	8.43	7.81	8.22	8.12	7.74	7.61	7.99	8.07	8.29	8.22	8.35	8.35	8.29
ORP	mV	339	270	310	295	318	331	354	318	295	296	130	302	295	242	193	264	257	263	273	233	280	302	175	270	280	269	278	272	266	306
Cond.	umhos/cm	105	107	101	101	103	97	99	100	97	97	99	95	95	92	91	91	93	86	81	87	86	87	87	82	82	81	83	94	95	76
Acidity	mgCaCO3/L	3.2	6.6	4.3	5.6	2.1	2.9	2.6	#N/A	3.1	4.0	2.8	3.2	2.4	#N/A	#N/A	#N/A	#N/A	#N/A	4.9	1.5	2.2	4.9	5.5	2.4	2.5	2.2	3.4	#N/A	#N/A	1.7
Alkalinity	mgCaCO3/L	58.0	51.9	49.8	53.8	54.6	53.8	56.4	55.5	52.5	50.0	49.3	49.3	49.5	49.4	47.7	48.9	49.3	47.9	42.9	46.1	46.0	47.2	47.0	44.0	43.5	44.3	45.0	41.9	44.8	43.8
Sulphate	mg/L	6	8	4	3	3	3	3	3	3	3	<2	<2	<2	<2	2	<2	2	3	<2	3	3	3	2	4	2	2	<2	2	3	3
DO	mg/L	1.81	1.40	1.29	1.87	2.22	1.97	2.54	1.36	1.69	1.35	1.05	0.75	1.80	1.28	2.21	1.26	0.89	2.90	1.33	1.09	1.56	1.32	1.08	1.15	0.88	0.61	1.97	0.79	1.39	1.19
Total P	mg/L	0.27	0.00	0.27	0.23	0.22	0.24	0.22	0.22	0.22	0.21	0.20	0.22	0.20	0.21	0.20	0.19	0.18	0.16	0.14	0.15	0.15	0.13	0.11	0.11	0.15	0.15	0.14	0.14	0.14	IP
Ortho P	mg/L	0.06	0.00	0.07	0.05	0.05	0.06	0.04	0.04	0.06	0.05	0.06	0.00	0.06	0.19	0.07	0.06	0.07	0.06	0.02	0.05	0.06	0.04	0.04	0.04	0.06	0.07	<0.001	0.07	0.07	IP
Chloride	mg/L	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	0	1	4	1	0
Fluoride	mg/L	2.36	2.22	2.32	2.21	2.07	2.05	2.10	2.01	2.00	1.97	2.02	2.00	1.83	1.43	1.81	1.77	1.79	1.63	1.86	1.75	1.65	1.87	1.53	1.50	1.74	1.37	1.61	1.57	1.76	1.66
Hardness	mg/L	18	16.6	17	17.1	16	16.2	15	16.2	16	15.3	15	14.7	16	13.8	13	15.4	17	12.6	13	13.0	12	13.6	13	13.5	14	14.2	14	12.2	12	11.4
Al	mg/L	0.8080	0.6990	0.6770	0.8270	0.5080	0.4730	0.7830	0.7550	0.1920	0.2800	0.6160	0.8360	0.9040	0.7400	0.9420	0.8390	0.8200	0.3960	0.7390	0.4000	0.5910	0.9570	0.2760	0.7720	0.9130	1.0700	1.3000	0.8810	0.9460	0.8780
Sb	mg/L	< 0.0002	< 0.0002	0.0003	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0003	< 0.0002	0.0003	< 0.0002	< 0.0002	0.0002	< 0.0002	< 0.0002	0.0005	< 0.0002	< 0.0002	0.0003	0.0007	0.0006	< 0.0002	< 0.0002	0.0007	< 0.0002	< 0.0002	< 0.0002
As	mg/L	0.0003	0.0002	0.0003	< 0.0002	0.0039	0.0004	0.0017	0.0003	< 0.0002	0.0002	< 0.0002	< 0.0002	0.0011	< 0.0002	0.0003	0.0010	< 0.0002	0.0009	0.0003	0.0004	0.0011	0.0005	0.0004	0.0012	0.0002	0.0003	0.0002	< 0.0002	0.0008	0.0003
Ba	mg/L	0.3070	0.3070	0.3140	0.2930	0.2660	0.2630	0.2550	0.2750	0.2740	0.2620	0.2820	0.2700	0.2790	0.2590	0.2640	0.2610	0.2600	0.2210	0.2600	0.2290	0.2290	0.2190	0.2190	0.2040	0.2410	0.2490	0.2380	0.2190	0.2180	0.2340
Be	mg/L	< 0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00003	< 0.00002	< 0.00002	0.00002	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00002	< 0.00002	< 0.00002	0.00002	0.00003	0.00003	0.00002	0.00002	< 0.00002
Bi	mg/L	< 0.00001	0.00003	< 0.00001	0.00002	< 0.00001	0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00004	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00003	0.00002	0.00001	0.00005	< 0.00001	0.00003	< 0.00001	0.00001	< 0.00001	< 0.00001	< 0.00001	0.00003	< 0.00001	< 0.00001	0.00002
B	mg/L	1.550	1.860	1.500	1.340	1.520	1.390	1.330	1.410	1.400	1.150	1.070	1.110	1.190	1.020	1.020	0.909	0.880	0.890	0.884	0.760	0.813	0.786	0.806	0.706	0.780	0.865	0.688	0.688	0.686	0.725
Cd	mg/L	0.0000017	0.0000251	0.00001	0.0000013	< 0.0000003	0.0000012	0.0000011	0.0000012	0.0000088	0.0000044	0.0000043	0.0000014	0.0000047	0.0000012	0.0000015	0.0000031	0.0000035	0.0000027	0.0000011	0.0000013	0.0000032	0.0000012	< 0.0000003	0.0000036	0.0000018	0.0000019	0.0000022	0.0000015	0.0000017	0.0000014
Ca	mg/L	5.1	4.7	4.7	4.9	4.6	4.7	4.5	4.6	4.6	4.4	4.3	4.2	4.5	4.0	3.9	4.5	5.1	3.8	3.5	4.0	3.9	4.0	3.8	4.0	3.7	4.0	4.0	3.6	3.4	3.3
Cr	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0010	0.0008	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0027	0.0025	0.0022	0.0029	0.0028	0.0024	0.0025	0.0027	0.0023	0.0011	0.0017	0.0031	0.0038	0.0036	0.0006	0.0007	0.0007	0.0006
Co	mg/L	0.000060	0.000068	0.000046	0.000020	0.000059	0.000039	0.000054	0.000060	0.000373	0.000119	0.000067	0.000088	0.000144	0.000153	0.000077	0.000088	0.000048	0.000051	0.000070	0.000072	0.000064	0.000100	0.000045	0.000077	0.000188	0.000190	0.000137	0.000108	0.000116	0.000126
Cu	mg/L	0.0006	0.0017	0.0008	0.0014	0.0019	0.0013	0.0037	0.0010	0.0006	0.0079	0.0024	0.0013	0.0018	0.0114	0.0040	0.0013	0.0007	0.0010	0.0009	0.0010	0.0017	0.0011	0.0011	0.0012	0.0016	0.0018	0.0018	0.0010	0.0016	0.0036
Fe	mg/L	0.030	0.018	0.019	0.021	0.021	0.023	0.021	0.043	0.020	0.017	0.030	0.068	0.073	0.048	0.052	0.168	0.048	0.022	0.047	0.053	0.037	0.057	0.019	0.042	0.141	0.157	0.095	0.068	0.079	0.074
Pb	mg/L	0.00025	0.00028	0.00013	0.00018	0.00025	0.00100	0.00025	0.00017	0.00028	0.00014	0.00023	0.00026	0.00031	0.00027	0.00044	0.00047	0.00049	0.00065	0.00034	0.00023	0.00065	0.00040	0.00023	0.00060	0.00033	0.00040	0.00043	0.00035	0.00028	0.00048
Li	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 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	< 0.001
Mg	mg/L	1.3	1.17	1.2	1.18	1.1	1.10	1.0	1.12	1.1	1.03	1.0	1.05	1.2	0.93	0.9	1.01	1.1	0.79	0.8	0.86	0.8	0.89	0.8	0.88	1.1	1.05	0.9	0.78	0.8	0.75
Mn	mg/L	0.0040	0.0014	0.0014	0.0018	0.0026	0.0032	0.0013	0.0019	0.0010	0.0017	0.0019	0.0040	0.0017	0.0019	0.0022	0.0750	0.0040	0.0010	0.0017	0.0016	0.0011	0.0019	0.0006	0.0011	0.0024	0.0029	0.0030	0.0005	0.0016	0.0019
Hg	ug/L	< 0.01	< 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	< 0.01	< 0.01	0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Mo	mg/L	0.0227	0.02390	0.0248	0.02540	0.0289	0.02440	0.0304	0.02840	0.0280	0.02890	0.0283	0.02910	0.0312	0.03170	0.0310	0.03210	0.0318	0.03360	0.0336	0.03460	0.0337	0.03650	0.0356	0.03370	0.0385	0.04000	0.0429	0.03940	0.0447	0.04120
Ni	mg/L	0.0008	0.0008	0.0007	0.0006	0.0010	0.0009	0.0012	0.0006	0.0018	0.0008	0.0013	0.0014	0.0017	0.0010	0.0012	0.0009	0.0006	0.0006	0.0008	0.0012	0.0012	0.0017	0.0009	0.0013	0.0033	0.0033	0.0023	0.0018	0.0022	0.0024
P	mg/L	0.300	0.256	0.260	0.26	0.228	0.23	0.194	0.225	0.216	0.219	0.210	0.229	0.204	0.196	0.189	0.135	0.206	0.138	0.126	0.159	0.119	0.122	0.098	0.099	0.143	0.16	0.160	0.155	0.128	0.128
K	mg/L	6.94	6.73	6.59	6.58	6.32	6.29	6.26	6.80	6.45	6.23	5.96	6.06	6.41	6.12	5.60	6.07	6.77	5.40	6.14	5.48	5.76	6.12	5.80	5.52	5.94	6.02	5.39	5.48	5.32	5.21
Se	mg/L	0.00012	< 0.00004	< 0.00004	< 0.00004	0.00158	< 0.00004	0.00008	0.00011	< 0.00004	< 0.00004	< 0.00004	0.00025	0.00059	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	0.00023	0.00006	< 0.00004	0.00011	< 0.00004	< 0.00004	0.00010	< 0.00004	< 0.00004	0.00007	0.00007	< 0.00004
Si	mg/L	7.20	6.65	6.14	7.59	5.93	7.97	6.13	6.33	5.32	5.60	6.06	6.25	6.93	6.43	6.03	6.44	7.39	4.76	6.30	5.98	5.58	6.34	4.71	5.93	5.77	6.72	6.74	5.95	6.29	5.74
Ag	mg/L	< 0.00001	0.00005	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00001	0.00002	< 0.00001	< 0.00001	0.00002	0.00001	< 0.00001	0.00002	< 0.00001	0.00002	0.00001	< 0.00001	< 0.00001	0.00002	0.00003	0.00003	0.00002	0.00002	0.00003
Na	mg/L	13.10	12.80	12.90	12.60	12.30	12.10	12.00	13.00	13.00	12.40	12.30	11.80	13.20	11.30	11.10	11.40	14.10	10.40	11.10	10.80	10.90	11.30	10.50	10.10	11.30	11.20	9.81	12.80	9.64	9.38
Sr	mg/L	0.066	0.062	0.060	0.064	0.057	0.056	0.056	0.060	0.057	0.053	0.054	0.056	0.058	0.050	0.049	0.061	0.065	0.047	0.048	0.047	0.045	0.050	0.046	0.046	0.047	0.050	0.047	0.044	0.044	0.042
S	mg/L	0.3	0.3	0.3	0.2	0.3	0.3	0.5	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.2	0.0	0.2	0.5	0.2	0.3	0.3	0.2	0.3	0.4	0.2	0.2	0.1	0.4	0.1	0.1
Ti	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.00003	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.00006	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Sn	mg/L	0.016	0.016	0.017	0.019	0.029	0.042	0.030	0.019	0.018	0.018	0.019	0.019	0.020	0.018	0.017	0.018	0.020	0.028	0.021	0.023	0.023	0.026	0.032	0.077	0.028	0.027	0.030	0.030	0.031	0.031
Ti	mg/L	0.0016	0.0010	0.0010	0.0012	0.0018	0.0008	0.0027	0.0016	0.0005	0.0009	0.0013	0.0026	0.0041	0.0020	0.0022	0.0020	0.0018	0.0011	0.0014	0.0016	0.0018	0.0026	0.0008	0.0020	0.0056	0.0056	0.0045	0.0051	0.0039	0.0043
U	mg/L	0.000012	0.000015	0.000010	< 0.000001	0.000045	0.001410	0.000040	0.000007	0.000005	0.000042	0.000006	0.000140	0.000060	0.000111	0.000006	0.000027	0.000004	0.000035	0.000007	0.000004	0.000011	0.000010	< 0.000001	0.000005	0.000005	0.000087	0.000007	0.000006	0.000005	0.000010
V	mg/L	0.00034	0.00044	0.00056	0.00074	0.00061	0.00074	0.00070	0.00144	0.00090	0.00063	0.00084	0.00055	0.00101	0.00050	0.00063	0.00052	0.00046	0.00109	0.00104	0.00119	0.00078	0.00300	0.00290	0.00159	0.00127	0.00117	0.00122	0.00138	0.00154	0.00145
Zn	mg/L	0.010	0.004	0.003	0.003	0.008	0.004	0.019	0.004	0.019	0.005	0.005	0.014	0.009	0.005	0.008	0.028	0.006	0.013	0.006	0.007	0.009	0.004	0.007	0.006	0.005	0.006	0.006	0.004	0.004	0.006
Zr	mg/L	0.00046	0.00045	0.00030	0.00044	0.00029	0.00031	0.00061	0.00033	0.00016	0.00028	0.00048	0.00048	0.00055	0.00047	0.00041	0.00047	0.00044	0.00101	0.00068	0.00031	0.00061	0.00035	0.00022	0.00028	0.00047	0.00060	0.00055	0.00046	0.00044	0.00047

DRAFT

Column Test - Coarse PK Top
2010 Coarse PK Comp

Date		29-Jul-10	5-Aug-10	12-Aug-10	19-Aug-10	26-Aug-10	2-Sep-10	9-Sep-10	16-Sep-10	23-Sep-10	30-Sep-10	7-Oct-10	14-Oct-10	21-Oct-10	28-Oct-10	4-Nov-10	11-Nov-10	18-Nov-10	25-Nov-10	2-Dec-10	9-Dec-10	16-Dec-10	23-Dec-10	30-Dec-10	6-Jan-11	13-Jan-11	20-Jan-11	27-Jan-11	3-Feb-11	10-Feb-11	17-Feb-11	24-Feb-11	3-Mar-11	10-Mar-11	17-Mar-11	24-Mar-11	31-Mar-11	7-Apr-11	14-Apr-11	21-Apr-11	28-Apr-11	5-May-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Volume mL	Input	2460	340	320	350	335	330	310	415	260	330	340	335	310	410	460	405	430	460	560	555	500	425	552	620	500	570	525	510	525	515	570	535	530	525	515	555		525		550	
	Output	#N/A	155	155	160	155	160	155	155	160	160	160	160	155	205	210	220	220	220	255	260	260	205	260	255	250	255	260	250	250	265	255	260	255	250	250	265		255		260	
pH		#N/A	7.55	7.63	7.66	7.59	7.31	7.47	7.41	7.51	7.49	7.49	7.48	#N/A	7.51	7.61	7.57	7.69	7.39	7.39	7.34	7.35	7.54	7.45	7.61	7.34	7.29	7.36	7.31	7.34	7.57	7.45	7.41	7.43	7.5	7.57	7.68		7.7		7.52	
ORP	mV	#N/A	405	403	376	333	394	325	316	298	309	298	285	#N/A	324	354	409	352	307	309	311	325	339	328	344	320	314	291	312	302	309	285	292	279	289	302	292		272		343	
Cond.	umhos/cm	#N/A	120	139	173	184	168	214	170	127	115	141	132	#N/A	120	130	139	127	84	76	67	59	56	49	47	39	37	34	30	30	31	37	35	34	33	32	32		37		39	
Acidity	mgCaCO3/L	#N/A	3.2	4.5	5.8	3.5	6.1	6.4	4.5	3.7	3.9	3.9	3.9	#N/A	3.6	2.9	3.7	3.4	3.6	3.6	4.5	4.9	5.0	5.9	6.7	4.4	2.7	4.9	2.8	3.2	3.7	4.2	3.2	3.5	3.0	5.0	5.0		5.3		4.0	
Alkalinity	mgCaCO3/L	#N/A	29.0	33.7	37.9	37.6	35.9	38.4	35.9	34.2	36.6	35.3	34.7	#N/A	34.3	33.5	32.1	30.1	28.5	27.3	25.2	24.6	24.9	24.8	27.4	22.2	20.8	21.1	17.3	16.9	17.3	17.1	16.8	15.9	17.1	17.8	20.5		24.9		23.3	
Sulphate	mg/L	#N/A	4	2	3	10	5	5	7	7	4	7	4	5	5	4	2	<2	<2	4	4	4	4	4	4	2	5	2	5	<2	<2	9	9	7	6	5	4		5		4	
DO	mg/L	#N/A	3.50	4.79	5.40	5.81	6.23	6.22	6.23	5.71	6.12	6.46	6.29	6.33	6.30	6.08	6.18	6.16	3.67	3.08	2.43	5.23	6.00	3.75	6.63	6.58	2.99	5.76	5.35	5.60	4.62	5.42	5.37	4.93	4.94	6.02	4.53		4.13		4.23	
Total P	mg/L														0.16	IS	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.04	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.04	< 0.03	< 0.03	< 0.03	0.05		<0.002	
Ortho P	mg/L														< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03		< 0.001	
Chloride	mg/L	#N/A	23	26	37	40	36	43	35	28	27	24	22	20	19	16	15	13	11	11	9	8	6	5	5	5	3	3	3	3	2	2	2	2	1	1	1		1		1	
Fluoride	mg/L	#N/A	0.11	0.14	0.19	0.20	0.19	0.25	0.24	0.23	0.22	0.23	0.21	0.16	0.24	0.22	0.23	0.23	0.21	0.19	0.19	0.18	0.17	0.17	0.23	0.18	0.16	0.15	0.16	0.16	0.13	0.15	0.17	0.15	0.12	0.14	0.12		0.14		0.16	
Hardness	mg/L	#N/A	35	38.0	40	56.1	47	48.7	42	39.4	37	38.3	34	30.2	30	27.5	25	23.0	21	23.0	18	18.4	16	14.3	14	12.7	11	14.1	12	10.3	10	10.1	10	9.3	9	9.1	9		10		11	
Al	mg/L	#N/A	0.0054	0.0022	0.0036	0.0037	0.0042	0.0123	0.0033	0.0022	0.0029	0.0035	0.0029	0.0020	0.0014	0.0018	0.0028	0.0014	0.0017	0.0020	0.0024	0.0020	0.0026	0.0039	0.0066	0.0038	0.0033	0.0022	0.0026	0.0031	0.0050	0.0142	0.0039	0.0023	0.0053	0.0056	0.0040		0.0064		0.0111	
Sb	mg/L	#N/A	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0004	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0008	< 0.0002	< 0.0002	< 0.0002	0.0002	< 0.0002	< 0.0002	0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002		< 0.0002		< 0.0002	
As	mg/L	#N/A	0.0002	0.0005	0.0008	0.0008	0.0004	0.0018	0.0004	0.0013	0.0005	0.0005	0.0003	< 0.0002	< 0.0002	< 0.0002	0.0003	0.0006	< 0.0002	0.0005	< 0.0002	0.0003	0.0009	< 0.0002	< 0.0002	0.0002	0.0003	0.0003	0.0002	< 0.0002	< 0.0002	0.0003	0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002		< 0.0002		0.0002	
Ba	mg/L	#N/A	0.0432	0.0600	0.0738	0.0725	0.0815	0.1120	0.0839	0.0777	0.0794	0.0865	0.0770	0.0646	0.0652	0.0670	0.0642	0.0599	0.0533	0.0537	0.0502	0.0449	0.0449	0.0479	0.0423	0.0386	0.0439	0.0413	0.0352	0.0376	0.0368	0.0362	0.0353	0.0325	0.0302	0.0323	0.0322		0.0419		0.0428	
Be	mg/L	#N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002		< 0.00002		< 0.00002	
Bi	mg/L	#N/A	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00001	< 0.00001	< 0.00001	< 0.00001	0.00002	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001		0.00001		< 0.00001	
B	mg/L	#N/A	0.298	0.351	0.523	0.535	0.530	0.874	0.586	0.502	0.500	0.526	0.467	0.451	0.487	0.520	0.447	0.409	0.403	0.365	0.337	0.281	0.293	0.277	0.411	0.271	0.249	0.194	0.194	0.187	0.169	0.163	0.152	0.137	0.121	0.130	0.139		0.157		0.139	
Cd	mg/L	#N/A	< 0.000003	< 0.000003	< 0.000003	0.000016	< 0.000003	< 0.000003	< 0.000003	< 0.000003	0.000231	< 0.000003	< 0.000003	< 0.000003	0.001006	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003		< 0.000003		< 0.000003	
Ca	mg/L	#N/A	8.2	8.9	9.4	12.7	10.9	11.5	10.0	9.1	8.6	9.0	7.9	7.1	7.0	6.5	5.8	5.4	5.1	5.6	4.3	4.4	3.8	3.4	3.5	3.1	2.7	3.4	2.8	2.5	2.5	2.5	2.4	2.3	2.1	2.3	2.3		2.5		2.7	
Cr	mg/L	#N/A	0.0024	0.0014	0.0015	0.0011	0.0027	0.0086	0.0018	0.0015	0.0014	0.0016	0.0020	0.0017	0.0010	< 0.0005	0.0010	0.0007	0.0008	0.0021	0.0012	0.0008	0.0014	0.0018	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0009	0.0009	< 0.0005	0.0009	0.0011	0.0009	0.0010	0.0011		< 0.0005		< 0.0005	
Co	mg/L	#N/A	0.000108	0.000122	0.000166	0.000124	0.000137	0.000237	0.000113	0.000103	0.000104	0.000099	0.000047	0.000027	0.000031	0.000021	0.000022	0.000016	0.000028	0.000017	0.000023	0.000013	0.000016	0.000015	0.000017	0.000010	0.000025	0.000097	0.000006	0.000016	0.000032	0.000193	0.000020	0.000006	0.000014	0.000009	0.000010		0.000012		0.000039	
Cu	mg/L	#N/A	0.0031	0.0018	0.0033	0.0011	0.0014	0.0047	0.0017	0.0011	0.0013	0.0020	0.0006	0.0036	< 0.0005	0.0020	0.0023	< 0.0005	0.0016	0.0016	0.0010	0.0014	0.0010	0.0018	< 0.0005	< 0.0005	< 0.0005	0.0006	< 0.0005	0.0023	0.0010	0.0007	0.0009	0.0013	0.0015	0.0012	0.0016		< 0.0005		< 0.0005	
Fe	mg/L	#N/A	0.010	< 0.002	< 0.002	0.01	< 0.002	0.026	< 0.02	0.003	< 0.002	< 0.002	0.003	0.004	< 0.002	0.003	< 0.002	< 0.002	< 0.002	< 0.002	0.004	0.011	0.002	< 0.002	0.012	0.003	< 0.002	< 0.002	< 0.002	0.002	< 0.002	0.006	< 0.002	0.003	< 0.002	< 0.002		< 0.002		0.006	
Pb	mg/L	#N/A	0.00010	0.00004	0.00008	0.00008	0.00012	0.00074	0.00008	0.00012	0.00012	0.00007	0.00008	0.00005	0.00008	0.00135	0.00061	< 0.00002	0.00003	0.00262	0.00180	0.00008	0.00182	0.00419	0.00031	0.00006	0.00003	0.00005	0.00003	0.00366	0.00123	0.00013	0.00325	0.00163	0.00010	0.00010	0.00011		0.00008		0.00008	
Li	mg/L	#N/A	< 0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	0.003	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	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001		0.001	
Mg	mg/L	#N/A	3.5	3.85	4.1	5.90	4.7	4.87	4.1	4.07	3.8	3.86	3.4	3.04	3.0	2.73	2.4	2.29	2.1	2.18	1.8	1.81	1.5	1.41	1.4	1.23	1.1	1.35	1.1	0.97	0.9	0.96	0.9	0.87	0.8	0.83	0.8		0.9		1.0	
Mn	mg/L	#N/A	0.0044	0.0045	0.0049	0.0117	< 0.0002	< 0.0002	0.0010	0.0033	0.0013	< 0.0002	0.0012	0.0019	0.0003	0.0005	0.0003	0.0002	0.0004	0.0006	< 0.0002	0.0005	0.0002	0.0002	0.0009	0.0002	0.0004	0.0005	0.0002	0.0005	< 0.0002	0.0008	< 0.0002	0.0008	0.0004	0.0002	< 0.0002		< 0.0002		< 0.0002	
Hg	ug/L	#N/A	< 0.01	0.01	< 0.01	0.04	0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	**	< 0.01	0.02	< 0.01	0.02	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	0.01	0.01	< 0.01	< 0.01		< 0.01		< 0.01	
Mo	mg/L	#N/A	0.0010	0.00081	0.0011	0.00152	0.0012	0.00289	0.0012	0.00076	0.0009	0.00115	0.0010	0.00118	0.0010	0.00084	0.0009	0.00085	0.0008	0.00068	0.0008	0.00061	0.0007	0.00063	0.0011	0.00075	0.0006	0.00057	0.0005	0.00064	0.0006	0.00135	0.0006	0.00080	0.0004	0.00051	0.0007		0.0008		0.0004	
Ni	mg/L	#N/A	0.0027	0.0030	0.0038	0.0030	0.0032	0.0050	0.0026	0.0015	0.0026	0.0025	0.0021	0.0015	0.0017	0.0020	0.0016	0.0012	0.0020	0.0011	0.0010	0.0006	0.0009	0.0006	0.0007	0.0004	0.0006	0.0006	0.0005	0.0006	0.0003	0.0007	0.0005	0.0004	0.0003	0.0005	0.0002		0.0005		0.0010	
P	mg/L	#N/A	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.09	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	0.021	< 0.009	< 0.009	0.024	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	0.086	0.015	< 0.009	< 0.009	< 0.009	0.031	0.021	0.038	< 0.009	0.015	0.068		< 0.009		< 0.009	
K	mg/L	#N/A	3.75	4.50	5.31	5.97	6.24	6.89	5.94	5.37	5.48	5.30	4.94	4.78	4.88	4.60	4.37	4.21	3.85	3.73	3.37	3.49	3.21	3.06	3.27	2.94	2.98	3.24	2.59	2.47	2.39	2.30	2.27	2.29	2.16	2.09	2.19		2.55		2.63	
Se	mg/L	#N/A	0.00030	0.00049	0.00057	< 0.00004	< 0.00004	< 0.00004	0.00010	0.00083	0.00049	< 0.00004	0.00055	0.00061	0.00036	0.00024	0.00023	0.00019	0.00021	0.00004	0.00007	0.00016	0.00005	< 0.00004	0.00004	0.00005	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004	0.00013	< 0.00004	< 0.00004		0.00030		0.00034	
Si	mg/L	#N/A	1.75	2.55	2.95	3.70	3.75	3.87	3.90	3.81	3.90	3.89	3.94	3.79	3.96	3.86	3.73	3.62	3.36	3.17	2.89	2.94	2.96	2.72	2.75	2.46	2.32	2.82	2.52	2.35	2.19	2.22	1.90	2.08	2.02	1.87	1.94		2.21		2.31	
Ag	mg/L	#N/A	0.00002	< 0.00001	0.00002	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001		< 0.00001		< 0.00001	
Na	mg/L	#N/A	8.52	8.80	10.00	13.40	11.10	13.60	10.80	9.60	9.21	11.20	8.18	7.95	7.59	7.09	6.38	5.77	5.29	4.84	4.19	4.17	3.41	3.05	4.06	2.66	2.31	2.74	2.21	2.00	1.97	1.94	1.86	1.67	1.50	1.47	1.63		1.69		1.75	
Sr	mg/L	#N/A	0.112	0.122	0.132	0.195	0.152	0.160	0.138	0.127	0.120	0.123	0.110	0.102	0.099	0.092	0.083	0.078	0.071	0.067	0.060	0.062	0.053	0.047	0.048	0.043	0.037	0.048	0.038	0.034	0.033	0.033	0.031	0.031	0.028	0.030	0.030		0.032		0.036	
S	mg/L	#N/A	1.5	1.0	1.5	1.5	1.3	1.4	1.2	1.3	1.3	1.2	1.2	1.1	1.2	1.1	1.1	0.9	1.0	0.9	0.7	0.8	0.9	0.6	0.7	0.6	0.6	1.1	0.6	0.6	0.5	0.5	0.4	0.5	0.4	0.4	0.5		0.5		0.5	
Ti	mg/L	#N/A	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002		< 0.0002		< 0.0002	
Sn	mg/L	#N/A	0.276	0.327	0.358	0.352	0.347	0.379	0.405	0.351	0.388	0.426	0.368	0.352	0.339	0.363	0.299	0.284	0.273	0.255	0.243	0.222	0.206	0.186	0.180	0.152	0.143	0.132	0.131	0.129	0.131	0.117	0.109	0.105	0.095	0.096	0.086		0.095		0.096	
Ti	mg/L	#N/A	< 0.0001	0.0001	0.0001	0.0001	0.0001	0.0003	0.0003	0.0005	< 0.0001	0.0004	0.0001	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	0.0001	< 0.0001	0.0001	0.0003	< 0.0001	0.0003	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0004	< 0.0001	0.0004	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001		0.0003		0.0005	
U	mg/L	#N/A	0.000024	0.000187	0.000071	0.000020	0.000032	0.000041	0.000032	0.000037	0.000019	0.000020	< 0.000001	0.000026	0.000016	0.000022	0.000417	0.000018	0.000018	0.000016	0.000017	0.000326	0.000017	0.000024	0.000015	0.000019	0.000012	0.000054	0.000025	0.000014	0.000023	0.000168	0.000011	0.000013	0.000007	0.000011	0.000015		0.000014		0.000020	
V	mg/L	#N/A	0.00040	0.00060	0.00086	0.00089	0.00120	0.00254	0.00124	0.00139	0.00144	0.00148	0.00149	0.00160	0.00165	0.00166	0.00166	0.00166	0.00165	0.00170	0.00188	0.00148	0.00170	0.00166	0.00156	0.00159	0.00148	0.00150	0.00155	0.00142	0.00152	0.00171	0.00144	0.00150	0.00151	0.00152	0.00150		0.00173		0.00175	
Zn	mg/L	#N/A	0.002	0.002	0.003	0.002	0.003	0.010	0.003	0.001	0.004	0.003	0.002	0.003	0.005	0.004	0.003	0.003	0.005	0.004	0.005	0.003	0.006	0.004	0.004	0.003	0.002	0.004	0.005	0.004	0.005	0.003	0.004	0.003	0.002	0.003	0.002		0.004		0.004	
Zr	mg/L	#N/A	< 0.00001	< 0.00001	0.00002	0.00002	0.00007	0.00022	0.00002	< 0.00001	0.00004	0.00002	0.00002	0.00001	0.00009	0.00002	< 0.00001	< 0.00001	0.00002	< 0.00001	0.00002	< 0.00001	0.00001	< 0.00001	< 0.00001	0.00004	< 0.00001	0.00001	0.00001	0.00001	0.00002	0.00003	0.00001	< 0.00001	< 0.00001	< 0.00001	0.00001		< 0.00001		0.00006	

DRAFT

Column Test - Coarse PK Top
2010 Coarse PK Comp

Date		12-May-11	19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11
Cycle		41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71
Volume mL	Input	500		605		465		500		600		560		500		535		535		590		530		585		510		550		555		635
	Output	250		255		255		260		255		250		260		260		260		255		265		265		265		260		255
pH		7.52		7.68		7.48		7.49		7.46		7.5		7.48		7.54		7.84		7.67		7.46		7.63		7.44		7.72		7.67		7.56
ORP	mV	337		304		319		359		298		275		297		212		313		371		292		270		292		292		281		290
Cond.	umhos/cm	41		45		44		29		36		38		39		39		43		42		40		43		39		44		55		40
Acidity	mgCaCO3/L	3.3		4.4		2.9		2.3		3.3		3.4		3.2		3.3		3.6		3.1		3.1		6.8		3.8		5.2		3.2		3.0
Alkalinity	mgCaCO3/L	24.3		23.1		23.4		15.1		20.1		17.6		21.1		23.0		25.2		23.7		22.4		26.2		20.8		25.1		22.5		20.7
Sulphate	mg/L	6		4		3		4		3		<2		<2		3		3		<2		2		<2		2		3		2		
DO	mg/L	3.16		4.35		4.10		6.15		5.14		5.70		5.83		4.79		4.19		4.10		4.63		4.30		4.75		4.29		4.47		6.87
Total P	mg/L	0.00		0.00		<0.002		0.00		0.00		0.00		0.00		<0.002		<0.002		0.00		0.00		0.00		<0.002		0.00		<0.002		<0.002
Ortho P	mg/L	0.00		0.00		<0.001		0.00		0.00		0.00		0.00		<0.001		0.00		0.00		0.00		<0.001		<0.001		<0.001		<0.001		<0.001
Chloride	mg/L	1		1		1		1		1		1		1		1		1		1		1		2		1		2		6		
Fluoride	mg/L	0.18		0.19		0.16		0.11		0.18		0.15		0.14		0.14		0.14		0.15		0.15		0.14		0.19		0.18		0.22		
Hardness	mg/L	13		12		12		8		10		11		11		10		13		12		11		11		11		12		11		
Al	mg/L	0.0141		0.0045		0.0074		0.0067		0.0028		0.0060		0.0072		0.0095		0.0112		0.0079		0.0163		0.0071		0.0084		0.0312		0.0530		
Sb	mg/L	< 0.0002		< 0.0002		0.0002		< 0.0002		< 0.0002		0.0003		0.0002		< 0.0002		< 0.0002		< 0.0002		0.0003		0.0002		< 0.0002		0.0007		< 0.0002		
As	mg/L	0.0003		0.0002		0.0003		0.0013		< 0.0002		< 0.0002		< 0.0002		0.0003		< 0.0002		0.0002		0.0010		< 0.0002		0.0002		< 0.0002		0.0003		
Ba	mg/L	0.0457		0.0508		0.0476		0.0309		0.0362		0.0427		0.0418		0.0442		0.0483		0.0498		0.0478		0.0498		0.0500		0.0462		0.0452		
Be	mg/L	< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		
Bi	mg/L	< 0.00001		< 0.00001		< 0.00001		< 0.00001		0.00002		0.00002		< 0.00001		< 0.00001		0.00002		0.00003		0.00004		< 0.00001		< 0.00001		< 0.00001		< 0.00001		
B	mg/L	0.153		0.154		0.148		0.108		0.164		0.133		0.136		0.152		0.153		0.154		0.139		0.142		0.131		0.125		0.145		
Cd	mg/L	0.000004		< 0.000003		0.000003		0.000004		0.000003		0.000003		0.000014		< 0.000003		< 0.000003		< 0.000003		0.000011		0.000007		< 0.000003		< 0.000003		< 0.000003		
Ca	mg/L	3.1		3.1		3.1		2.1		2.7		2.8		2.8		2.6		3.4		3.0		2.9		2.9		2.8		3.0		2.8		
Cr	mg/L	< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		< 0.0005		0.0017		0.0025		0.0021		0.0022		0.0036		0.0028		0.0028		< 0.0005		< 0.0005		
Co	mg/L	0.000034		0.000021		0.000016		0.000021		0.000064		0.000015		0.000013		0.000019		0.000005		0.000016		0.000033		0.000012		0.000016		0.000040		0.000019		
Cu	mg/L	0.0011		0.0006		0.0013		0.0051		0.0010		0.0008		0.0009		0.0016		< 0.0005		0.0006		0.0007		0.0007		0.0009		0.0009		0.0011		
Fe	mg/L	0.011		0.002		< 0.002		< 0.002		0.007		< 0.002		0.002		0.011		0.004		0.014		0.070		0.005		0.009		< 0.003		< 0.003		
Pb	mg/L	0.00010		0.00011		0.00005		0.00009		0.00003		0.00007		0.00010		0.00015		0.00037		0.00010		0.00035		0.00022		0.00006		0.00014		0.00005		
Li	mg/L	< 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		
Mg	mg/L	1.1		1.1		1.1		0.7		0.9		1.0		1.0		0.9		1.1		1.0		0.8		1.0		1.0		1.0		0.9		
Mn	mg/L	0.0027		0.0008		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		0.0007		0.0022		0.0003		0.0050		< 0.0002		< 0.0002		0.0007		< 0.0002		
Hg	ug/L	< 0.01		< 0.01		< 0.01		0.01		0.01		< 0.01		0.01		0.01		< 0.01		< 0.01		0.02		< 0.01		0.01		< 0.01		< 0.01		
Mo	mg/L	0.0008		0.0005		0.0005		0.0016		0.0003		0.0009		0.0009		0.0008		0.0012		0.0008		0.0011		0.0008		0.0007		0.0006		0.0008		
Ni	mg/L	0.0007		0.0006		0.0006		0.0008		0.0007		0.0006		0.0006		0.0006		0.0002		0.0002		0.0005		0.0005		0.0006		0.0007		0.0007		
P	mg/L	0.016		0.012		0.032		< 0.009		< 0.009		< 0.009		< 0.009		0.014		< 0.009		< 0.009		0.072		0.010		0.011		< 0.009		< 0.009		
K	mg/L	2.97		3.02		3.06		2.15		2.60		2.65		2.74		2.57		2.97		2.98		2.53		2.94		2.83		2.49		2.68		
Se	mg/L	0.00014		0.00067		0.00026		0.00133		< 0.00004		0.00012		0.00048		< 0.00004		< 0.00004		< 0.00004		0.00007		< 0.00004		< 0.00004		0.00025		< 0.00004		
Si	mg/L	2.90		2.80		3.01		1.95		2.63		2.60		2.59		2.36		2.91		3.01		1.91		2.82		2.42		2.62		2.59		
Ag	mg/L	< 0.00001		< 0.00001		< 0.00001		< 0.00001		< 0.00001		< 0.00001		< 0.00001		< 0.00001		< 0.00001		< 0.00001		< 0.00001		< 0.00001		< 0.00001		< 0.00001		< 0.00001		
Na	mg/L	2.08		2.07		2.09		1.51		1.94		1.93		2.08		1.75		2.31		2.38		1.87		2.42		2.22		2.17		4.35		
Sr	mg/L	0.042		0.041		0.039		0.026		0.034		0.036		0.037		0.034		0.044		0.037		0.033		0.038		0.037		0.036		0.036		
S	mg/L	0.6		0.9		0.6		0.5		0.8		0.5		0.5		0.5		0.5		0.5		0.7		0.6		0.5		0.5		0.6		
Ti	mg/L	< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		< 0.0002		
Sn	mg/L	0.089		0.092		0.098		0.216		0.281		0.254		0.268		0.246		0.251		0.241		0.223		0.212		0.199		0.197		0.193		
Ti	mg/L	0.0005		< 0.0001		< 0.0001		0.0007		< 0.0001		< 0.0001		0.0004		0.0001		< 0.0001		< 0.0001		0.0001		< 0.0001		< 0.0001		0.0002		0.0004		
U	mg/L	0.000016		0.000008		0.000020		0.000009		0.000012		0.000015		0.000017		0.000011		0.000012		0.000015		0.000018		< 0.000001		0.000008		0.000011		0.000013		
V	mg/L	0.00169		0.00190		0.00209		0.00141		0.00169		0.00168		0.00171		0.00172		0.00197		0.00197		0.00177		0.00185		0.00178		0.00227		0.00254		
Zn	mg/L	0.006		0.007		0.005		0.010		0.003		0.008		0.009		0.009		0.011		0.004		0.019		0.007		0.005		0.005		0.005		
Zr	mg/L	0.00002		0.00004		0.00002		0.00003		0.00001		0.00002		0.00001		0.00002		0.00003		0.00004		0.00004		0.00012		0.00002		0.00001		< 0.00001		

Column Test - Coarse PK Bottom
2010 Coarse PK Comp

Date		29-Jul-10	5-Aug-10	12-Aug-10	19-Aug-10	26-Aug-10	2-Sep-10	9-Sep-10	16-Sep-10	23-Sep-10	30-Sep-10	7-Oct-10	14-Oct-10	21-Oct-10	28-Oct-10	4-Nov-10	11-Nov-10	18-Nov-10	25-Nov-10	2-Dec-10	9-Dec-10	16-Dec-10	23-Dec-10	30-Dec-10	6-Jan-11	13-Jan-11	20-Jan-11	27-Jan-11	3-Feb-11	10-Feb-11	17-Feb-11	24-Feb-11	3-Mar-11	10-Mar-11	17-Mar-11	24-Mar-11	31-Mar-11	7-Apr-11	14-Apr-11	21-Apr-11	28-Apr-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
Volume mL	Input	540	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Output	165	175	160	160	160	160	165	165	160	160	165	160	155	205	210	210	210	215	250	255	260	215	263	250	250	265	265	255	250	255	260	260	250	245	245	260		255		255
pH		7.62	7.73	7.79	7.82	7.88	7.67	7.85	7.95	8.06	7.94	8.16	8.02	7.81	8.31	8.44	8.47	8.58	8.19	8.29	8.22	8.27	8.23	8.35	8.32	8.31	8.33	8.52	8.42	8.51	8.45	8.53	8.48	8.49	8.42	8.43	8.44		8.38		8.24
ORP	mV	342.28	420.41	416.5	395.99	324.7	399.9	323.24	312.5	298.33	312.01	292.48	289.06	339.84	309.57	362.79	401.85	351.07	298.33	288.08	299.31	310.54	328.61	312.98	323.73	306.15	306.15	276.85	305.17	294.92	302.24	277.83	286.62	274.9	286.13	299.31	290.03		259.27		340.33
Cond.	umhos/cm	626	1310.34	1233.64	913.49	718.48	672.63	580.68	494.57	404.72	345.49	392.59	352.15	345.06	302.1	303	351	341	228.18	206.98	192.98	176.69	167.88	151.8	130.05	122.77	127.24	120.43	109.18	109.01	118.94	136.22	128.64	127.57	126.92	117.32	118.97		123.78		123.2
Acidity	mgCaCO3/L	5.66	5.29	6.46	7.45	4.09	7.14	6.48	4.21	3.04	4.11	2.87	3.71	5.41	#N/A	#N/A	#N/A	#N/A	2.77	0.66	2.4	1.86	3.01	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	2.36
Alkalinity	mgCaCO3/L	49.68	67.01	57.97	50.65	42.25	42.87	36.21	36.3	38.81	41.61	43.42	43.42	45.95	45.74	48.18	49.51	50.19	48.02	48.81	48.61	46.82	49.14	48.48	50.59	47.08	48.21	47.56	48.69	46.19	48.05	47.23	45.47	47.08	46.33	46.07	48.51		50.75		47.99
Sulphate	mg/L	28	30	15	7	9	14	7	11	14	9	10	10	8	5	7	5	5	5	6	7	6	5	6	6	5	6	3	9	3	<2	11	12	10	9	6	4		5		6
DO	mg/L	1.86	1.65	2.59	0.74	0.98	1.2	1.45	1.6	1.74	1.07	1.46	1.23	0.84	1.22	1.42	0.97	0.45	0.68	0.48	0.89	0.99	0.62	0.58	1.1	0.97	1	0.97	1.25	2.55	1.62	1.8	2.54	2.41	0.6	0.69	1.55		1.49		2.55
Total P	mg/L														< 0.03	< 0.03	< 0.03	0.04	< 0.03	< 0.03	0.03	0.08	0.04	< 0.03	< 0.03	0.05	0.04	0.06	0.04	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03		< 0.03		<0.002
Ortho P	mg/L														< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.04	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03		< 0.03		<0.001
Chloride	mg/L	180	390	370	270	210	190	150	140	124	110	98	94	83	67	56	48	48	40	33	29	26	24	22	18	16	15	14	12	11	11	10	8.4	8.5	7.7	6.9	6.8		8		IP
Fluoride	mg/L	0.4	0.52	0.49	0.58	0.6	0.59	0.65	0.7	0.75	0.71	0.8	0.84	0.86	0.9	0.91	0.91	1.03	0.97	0.95	0.98	0.98	0.97	0.95	1.04	0.96	0.97	1	0.99	0.98	0.99	0.48	1.03	0.99	0.82	0.89	0.87		0.91		IP
Hardness	mg/L	165	379	320	191	158	125	98.4	95.1	82.9	80.9	67.7	59.6	54.1	48	41	36.8	31.7	31.8	28.4	30.2	23.2	25.4	22.2	18.9	18.2	18.3	16.2	20.6	16.8	16.3	15.8	15.1	14.8	14.5	12.6	13.5	14.4		13.6		14.1
Al	mg/L	0.0029	0.003	0.0027	0.0038	0.0043	0.0067	0.0051	0.0054	0.0007	0.0005	0.0046	0.0054	0.0044	0.0024	0.0044	0.0084	0.0048	0.0044	0.0055	0.0046	0.0054	0.006	0.005	0.0053	0.0051	0.0044	0.0046	0.0047	0.0042	0.006	0.0101	0.0044	0.0042	0.0045	0.006	0.0039		0.0089		0.0084
Sb	mg/L	0.0006	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0005	< 0.0002	0.0007	< 0.0002	< 0.0002	< 0.0002	0.0002	< 0.0002	< 0.0002	< 0.0002	0.0006	< 0.0002	0.0002	< 0.0002	0.0003	< 0.0002	< 0.0002	0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002		< 0.0002		< 0.0002
As	mg/L	0.0016	0.0033	0.0026	0.0019	0.003	0.0005	0.0028	0.0016	0.0038	0.0015	0.0017	0.0015	0.0009	0.0011	0.0009	0.0007	0.0008	0.0014	0.0008	0.0009	0.0021	0.0006	0.0006	0.0005	0.0005	0.0006	0.0007	0.0004	0.0005	0.0006	0.0005	0.0006	0.0004	0.0003	0.0003	0.0003		0.0004		0.0005
Ba	mg/L	0.144	0.292	0.255	0.195	0.162	0.179	0.15	0.162	0.185	0.162	0.162	0.142	0.131	0.121	0.114	0.0934	0.102	0.0932	0.0813	0.0766	0.0688	0.0713	0.0684	0.0595	0.0638	0.0628	0.0634	0.0574	0.0631	0.06	0.0568	0.0569	0.056	0.0543	0.0527	0.0535		0.0579		0.0616
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	0.00006	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002		< 0.00002		< 0.00002
Bi	mg/L	0.00003	< 0.00001	< 0.00001	0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00004	< 0.00001	< 0.00001	< 0.00001	0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00001	< 0.00001	< 0.00001	0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001		0.00001		< 0.00001
B	mg/L	1.49	3.13	2.87	3	2.68	2.82	2.54	2.8	3.04	3.01	2.98	2.74	2.73	2.82	3.51	2.67	2.96	3.12	2.86	2.82	2.45	2.43	2.13	2.29	2.15	2.07	2.09	2.03	2.02	1.87	1.77	1.52	1.55	1.7	1.51	1.6		1.7		1.63
Cd	mg/L	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003	< 0.000003		0.000003		0.000007
Ca	mg/L	40	92.5	77.8	46.2	37.5	30.7	24.1	23.8	19.7	16.7	14.9	13.7	12.3	10.5	9.47	8.01	8.23	7.38	8.11	6.1	6.71	5.88	4.97	4.84	4.82	4.3	5.5	4.52	4.4	4.28	4.07	4.03	3.96	3.46	3.7	3.99		3.76		3.92
Cr	mg/L	0.006	0.0017	0.0021	0.0013	0.0014	0.009	0.0024	0.0016	0.0019	0.0017	0.0015	0.0018	0.0013	0.0008	0.0006	0.0009	0.0007	0.0008	0.003	0.001	0.0011	0.0011	0.0015	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0008	0.0008	< 0.0005	< 0.0005	0.001	0.0008	0.0013	0.0006		< 0.0005		< 0.0005
Co	mg/L	0.000087	0.000121	0.000127	0.00006	0.000056	0.000047	0.000052	0.000039	0.000061	0.000061	0.000085	0.000052	0.000024	0.00004	0.00002	0.000025	0.000023	0.000035	0.00002	0.000038	0.000018	0.000016	0.00002	0.000011	0.000012	0.000016	0.000014	0.0001	0.00002	0.000015	0.000018	0.00002	0.00001	0.000013	0.000014	0.000015		0.000032		0.000051
Cu	mg/L	0.0032	0.0007	0.0016	0.0011	0.0019	0.0038	0.0048	0.004	0.0027	0.001	0.0009	0.0021	0.0011	0.0007	0.0026	0.0018	< 0.0005	0.0016	0.0011	0.002	0.0005	0.0007	0.0017	0.0007	0.0008	0.001	0.0008	< 0.0005	< 0.0005	0.0008	0.0008	0.0015	0.0007	0.0014	0.0011	0.0007		0.0019		< 0.0005
Fe	mg/L	< 0.002	< 0.002	< 0.002	< 0.002	0.009	< 0.002	0.013	< 0.02	0.004	< 0.002	0.003	0.003	0.003	< 0.002	0.003	< 0.002	0.003	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	0.003	0.003	0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002		< 0.002		0.004
Pb	mg/L	< 0.00002	0.00002	0.00004	0.00012	0.00009	0.00058	0.00017	0.00011	0.00267	0.00011	0.00007	0.00006	0.00002	0.00003	0.00415	0.00064	< 0.00002	0.00004	0.00336	0.0016	0.00009	0.0017	0.0016	0.00004	0.00006	0.00008	0.00005	0.00002	0.00015	0.00214	0.00002	0.00272	0.00245	0.00006	0.00005	0.00005		0.00008		0.00007
Li	mg/L	0.004	0.006	0.004	0.004	0.002	< 0.001	0.002	0.002	0.012	0.001	0.003	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	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		< 0.001		< 0.001
Mg	mg/L	15.9	36	30.6	18.4	15.5	11.8	9.29	8.68	7.68	6.34	5.45	4.85	4.23	3.59	3.18	2.73	2.73	2.41	2.43	1.92	2.1	1.83	1.58	1.48	1.51	1.31	1.66	1.34	1.3	1.23	1.19	1.16	1.12	0.972	1.04	1.1		1.02		1.05
Mn	mg/L	0.0022	0.0039	0.0035	0.0024	0.0091	< 0.0002	< 0.0002	0.0016	< 0.0002	< 0.0002	0.0011	0.0009	0.0007	0.0007	0.0007	0.0004	0.0003	0.0005	0.0004	0.0003	0.0005	< 0.0002	0.0004	0.0004	0.0004	0.0002	< 0.0002	0.0003	0.0003	0.0002	< 0.0002	< 0.0002	< 0.0002	0.0003	< 0.0002	< 0.0002		0.0005		0.0007
Hg	ug/L	0.02	0.02	0.01	< 0.01	0.03	0.02	< 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	0.02	< 0.01	< 0.01	< 0.01	0.03	< 0.01	< 0.01	0.01	0.01	0.02	0.01	0.02	< 0.01		< 0.01		0.01
Mo	mg/L	0.00517	0.00591	0.00463	0.00382	0.00371	0.00399	0.00319	0.00309	0.00246	0.00333	0.00313	0.00311	0.00326	0.00303	0.00299	0.00299	0.00322	0.0032	0.00305	0.00306	0.00298	0.00285	0.00301	0.00351	0.00291	0.00299	0.00298	0.00247	0.0031	0.0031	0.00299	0.00299	0.0027	0.00266	0.00272		0.00284		0.00623
Ni	mg/L	0.003	0.0025	0.0023	0.0016	0.0011	0.0008	0.0009	0.0006	< 0.0001	0.0012	0.0011	0.0009	0.0003	0.0006	0.0011	0.0007	0.0005	0.001	0.0006	0.0005	0.0002	0.0004	0.0004	0.0003	0.0001	0.0003	0.0003	0.0001	0.0004	< 0.0001	0.0002	0.0003	0.0002	0.0001	0.0003	0.0001		0.0003		0.0005
P	mg/L	< 0.009	0.025	0.02	< 0.009	< 0.009	< 0.009	0.022	< 0.02	< 0.009	< 0.009	0.01	0.023	0.018	< 0.009	0.03	0.032	0.01	< 0.009	< 0.009	< 0.009	0.03	0.032	0.01	< 0.009	< 0.009	< 0.009	0.043	< 0.009	0.081	0.037	0.034	0.061	0.011	< 0.009	< 0.009	0.03		0.083		< 0.009
K	mg/L	15.4	33.5	31.1	25.1	19.3	21	18.1	17.5	15.4	14.6	13.1	11.7	12	11.1	11	9.57	9.72	9.19	8.58	8.01	8.92	8.22	7.45	7.54	7.49	7.76	8.66	6.97	6.7	6.25	5.86	5.89	6.05	5.44	5.21	5.78		5.93		5.9
Se	mg/L	0.00051	0.0076	0.0004	0.0041	< 0.00004	0.00356	< 0.00004	0.00007	0.00461	0.00222	< 0.00004	0.00298	< 0.00004	0.00017	0.00047	0.00076	0.00082	0.00075	0.00063	< 0.00004	0.0004	0.00026	0.00033	0.00029	< 0.00004	0.00038	< 0.00004	< 0.00004	< 0.00004	0.00016	0.00018	0.0001	0.0001	0.00042	0.00016	0.00019		0.00043		0.00037
Si	mg/L	3.81	5.85	5.86	5.51	5.36	5.65	5.49	6.39	5.92	5.98	5.75	5.97	6.04	6.18	6.34	6.26	6.45	5.9	6.12	5.68	6.41	6.57	5.73	5.75	6.09	5.61	6.99	6.48	6	5.84	5.77	5.29	5.88	5.37	4.75	5.43		5.38		5.51
Ag	mg/L	0.00003	0.00006	0.00004	0.00003	0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00002	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00002	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001		< 0.00001		< 0.00001
Na	mg/L	49.9	91.5	91.1	67.8	62.4	51.8	45	47.2	45.1	41.6	40	35.6	39.3	33.9	32.8	28.5	29.6	27.8	26.3	24.1	26.9	22.6	21.4	20.6	20.4	18.5	23.6	19.4	18.5	19	18.1	17.5	17.1	15	14.1	16.4		15.7		16.4
Sr	mg/L	0.559	1.2	1.02	0.664	0.584	0.455	0.358	0.341	0.285	0.241	0.215	0.194	0.173	0.147	0.135	0.114	0.115	0.106	0.0986	0.0867	0.0949	0.0832	0.0703	0.0681	0.0678	0.0593	0.078	0.0632	0.0598	0.0578	0.0554	0.0543	0.0542	0.0472	0.0501	0.0532		0.0496		0.0535
S	mg/L	6.45	9.06	7.14	6.66	4.66	3.98	3.26	3.49	3.19	2.9	2.64	2.46	2.59	2.62	2.41	2.36	2.86	2.19	2.46	2.14	2.69	2.74	2.29	2.34	2.31	2.32	4.26	2.46	4.16	2.21	2.19	2.15	2.08	1.9	2.03	2.15		2.22		2.1
Ti	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002		< 0.0002		< 0.0002
Sn	mg/L	0.0283	0.0215	0.0193	0.0167	0.11	0.124	0.0486	0.02512	0.06709	0.137	0.105	0.1	0.0181	0.0217	0.0233	0.115	0.0781	0.0644	0.0634	0.0634	0.0634	0.0682	0.0549	0.0231	0.0645	0.0546	0.0517	0.0494	0.0511	0.0453	0.0445	0.0365	0.0443	0.043	0.0458	0.0398		0.0529		0.0574
Ti	mg/L	0.0003	0.0003	0.0004	0.0008	0.0006	0.0003	0.0005	0.0006	0.0018	< 0.0001	0.0009	0.0005	0.0004	0.0004	< 0.0001	0.0001	0.0001	0.0002	0.0001	0.0002	0.0007	0.0001	0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0009	0.0001	0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001		0.0007		< 0.0001
U	mg/L	0.000019	0.000039	0.000089	0.000008	0.000019	0.000021	0.004059	0.000002	0.000055	0.000012	0.00001	< 0.000001	0.000015	< 0.000001	0.000001	0.00001	0.000004	0.000011	0.000004	0.000007	0.00149	0.000035	0.000005	0.000007	0.000032	0.000005	0.000154	0.000002	0.000005	0.000004	0.000015	0.000004	0.000003	< 0.000001	0.000011	0.000008		0.000011		0.000015
V	mg/L	0.00322	0.00234	0.00192	0.00164	0.00127	0.00121	0.00107	0.00098	0.00093	0.00073	0.00067	0.0006	0.00058	0.00069	0.00066	0.0013	0.00113	0.0009	0.00121	0.00129	0.00129	0.00121	0.00109	0.00149	0.00152	0.00116	0.00128	0.00128	0.00109	0.00112	0.0012	0.00119	0.00125	0.00122	0.00126	0.00112		0.00107		0.00099
Zn	mg/L	< 0.001	0.001	0.002	0.001	0.002	0.004	0.002	0.003	0.007	0.002	< 0.001	< 0.001	0.002	0.002	0.006	0.002	0.002	0.003	0.004	0.009	< 0.001	0.002	0.003	< 0.001	0.001	0.002	0.004	0.001	0.002	0.005	< 0.001	0.002	0.002	0.001	0.001	0.001		0.003		0.002
Zr	mg/L	0.00003	0.00002	0.00002	0.00003	0.00003	< 0.00001	0.00006	0.00005	< 0.00001	0.00008	0.00005	0.00007	0.00004	0.00023	0.00006	0.00004	0.00003	0.00005	0.00002	0.00002	0.00095	< 0.00001	< 0.00001	< 0.00001	0.00002	0.00005	0.00002	0.00008	0.00003	< 0.00001	0.00003	0.00002	0.00003	0.00003	0.00003	0.00003		0.00003		0.00014

Column Test - Coarse PK Bottom
2010 Coarse PK Comp

Date		5-May-11	12-May-11	19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11
Cycle		40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71
Volume mL	Input	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	635
	Output		260		255		250		260		260		250		255		260		260		265		265		260		260		260		255		255
pH			8.28		8.47		8.3		8.44		8.32		8.45		8.3		8.48		8.7		8.55		8.5		8.37		8.49		8.61		8.65		7.56
ORP	mV		330.56		306.15		314.94		358.88		295.89		268.55		297.36		218.26		203		303		228.02		240.23		238.28		250.48		239.25		290.03
Cond.	umhos/cm		124.49		126.51		124.72		120.42		121.23		118.38		120.62		111.67		115.17		116.11		112.63		110.18		109.91		116.67		131.48		39.76
Acidity	mgCaCO3/L		1.63		#N/A		#N/A		#N/A		#N/A		#N/A		#N/A		#N/A		#N/A		#N/A		#N/A		#N/A		#N/A		#N/A		#N/A		3
Alkalinity	mgCaCO3/L		48.97		44.53		47.52		47.72		48.04		43.67		45.69		41.96		45.66		44.39		43.65		45.05		42.14		47.37		43.88		20.67
Sulphate	mg/L		6		4		5		6		8		6		4		6		6		4		5		5		5		5		5		
DO	mg/L		2.01		2.6		0.17		3.2		0.35		0.7		0.83		2.05		1.64		0.67		0.59		0.79		0.78		0.61		1.19		6.87
Total P	mg/L		0.006		0.013		0.002		0.008		0.011		0.009		0.007		0.009		0.006		0.008		0.008		0.009		0.008		0.011		0.008		<0.002
Ortho P	mg/L		0.001		0.008		<0.001		0.002		0.006		0.005		0.006		0.001		0.002		<0.001		0.002		0.002		0.002		0.004		<0.001		<0.001
Chloride	mg/L		7.9		7.9		7.5		7.3		6.9		6.7		6.7		6		0.6		6.2		6.3		5.9		5.8		5.5		11		
Fluoride	mg/L		0.94		0.95		0.88		0.94		0.83		0.89		0.86		0.86		0.85		0.99		0.85		0.78		0.95		1.06		1.03		
Hardness	mg/L		14		14.2		13.8		12.8		14.1		14.4		13.9		12.1		13.8		12.6		12.8		12.4		13		13.2		12.3		
Al	mg/L		0.008		0.0083		0.008		0.008		0.0093		0.0131		0.009		0.007		0.0086		0.0106		0.0137		0.0228		0.0113		0.0489		0.0539		
Sb	mg/L		< 0.0002		< 0.0002		0.0002		0.0002		< 0.0002		0.0003		< 0.0002		< 0.0002		< 0.0002		< 0.0002		0.0003		0.0003		< 0.0002		0.0004		< 0.0002		
As	mg/L		0.0006		0.0006		0.0003		0.0014		0.0003		0.0003		0.0008		0.0003		0.0004		0.0004		0.0013		0.0015		0.0005		0.0005		0.0005		
Ba	mg/L		0.0589		0.0632		0.0555		0.0535		0.0597		0.0611		0.0559		0.058		0.062		0.066		0.0597		0.0599		0.0623		0.0571		0.0578		
Be	mg/L		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		
Bi	mg/L		< 0.00001		0.00001		0.00001		< 0.00001		< 0.00001		0.00001		< 0.00001		< 0.00001		0.00001		0.00001		0.00006		0.00004		0.00007		0.00003		0.00002		
B	mg/L		1.52		1.53		1.47		1.58		1.77		1.38		1.74		1.45		1.36		1.45		1.38		1.28		1.31		1.31		1.31		
Cd	mg/L		< 0.000003		< 0.000003		0.000041		0.000004		0.000005		0.000004		0.000006		< 0.000003		0.000003		< 0.000003		< 0.000003		0.0001199		< 0.000003		0.000004		< 0.000003		
Ca	mg/L		3.84		3.97		3.87		3.6		4.07		4.07		3.92		3.43		3.95		3.62		3.68		3.56		3.72		3.81		3.57		
Cr	mg/L		< 0.0005		< 0.0005		< 0.0005		0.0005		< 0.0005		< 0.0005		0.0018		0.0021		0.0021		0.0035		0.0021		0.0025		0.003		< 0.0005		< 0.0005		
Co	mg/L		0.000024		0.00002		0.000055		0.000021		0.00006		0.000023		0.000011		0.000021		0.000004		0.00002		0.00002		0.000016		0.000018		0.000035		0.000017		
Cu	mg/L		< 0.0005		0.0008		0.0032		0.0034		0.0006		0.0006		0.0007		0.0009		< 0.0005		0.0006		0.0005		0.0007		< 0.0005		0.0018		0.0007		
Fe	mg/L		< 0.002		0.003		< 0.002		< 0.002		0.005		0.004		0.008		0.007		0.002		0.015		0.009		0.007		0.014		< 0.003		0.005		
Pb	mg/L		0.00007		0.00006		0.00009		0.00008		0.0004		0.00006		0.0001		0.00009		0.00031		0.00011		0.00035		0.00021		0.00005		0.00007		0.00005		
Li	mg/L		< 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		
Mg	mg/L		1.06		1.04		1.02		0.922		1.01		1.04		1		0.848		0.955		0.86		0.883		0.85		0.91		0.885		0.831		
Mn	mg/L		0.002		0.0003		0.0004		< 0.0002		< 0.0002		0.0004		0.0003		0.0009		0.0023		0.0002		< 0.0002		< 0.0002		< 0.0002		0.0012		0.0002		
Hg	ug/L		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		
Mo	mg/L		0.00269		0.00281		0.00276		0.00369		0.00297		0.00286		0.00293		0.00277		0.00288		0.00289		0.00284		0.00347		0.00267		0.00317		0.00312		
Ni	mg/L		0.0004		0.0004		0.0008		0.0005		0.0003		0.0005		0.0004		0.0005		< 0.0001		< 0.0001		0.0003		0.0004		0.0003		0.0005		0.0004		
P	mg/L		0.012		0.015		0.022		0.015		< 0.009		0.013		0.011		0.019		< 0.009		< 0.09		0.011		0.011		0.019		0.018		< 0.009		
K	mg/L		5.96		5.82		5.71		5.49		5.86		5.72		5.73		5.1		5.34		5.52		5.63		5.46		5.61		5.5		5.14		
Se	mg/L		0.00032		0.00007		0.00027		0.00099		0.00023		0.0003		0.00061		< 0.00004		0.00011		< 0.00004		0.0002		0.00029		0.00017		0.00066		0.00016		
Si	mg/L		5.82		5.81		5.97		5.24		6.17		5.87		5.67		4.81		5.36		5.85		5.62		5.52		5.17		5.38		5.35		
Ag	mg/L		< 0.00001		< 0.00001		< 0.00001		< 0.00001		< 0.00001		< 0.00001		< 0.00001		< 0.00001		< 0.00001		< 0.00001		< 0.00001		< 0.00001		< 0.00001		< 0.00001		< 0.00001		
Na	mg/L		15.5		16.5		15.3		15.2		16.6		16.7		15.5		13.6		15.6		14.4		14.8		14.2		14.9		15.1		18		
Sr	mg/L		0.0529		0.0532		0.0502		0.0468		0.0526		0.0539		0.0527		0.0455		0.0528		0.0464		0.0491		0.047		0.0498		0.0506		0.0477		
S	mg/L		2.04		2.09		2.19		2.03		2.28		2.29		2.22		2.15		1.8		2.29		2.3		2.15		2.28		2.13		2.3		
Ti	mg/L		< 0.0002		< 0.0002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		< 0.00002		
Sn	mg/L		0.0557		0.0555		0.0415		0.0782		0.0713		0.057		0.0641		0.0439		0.0716		0.0595		0.0485		0.0568		0.0528		0.0477		0.0457		
Ti	mg/L		0.0003		0.0001		0.0002		0.001		< 0.0001		0.0001		0.0009		0.0002		< 0.0001		< 0.0001		0.0002		0.0001		0.0001		0.0003		0.0008		
U	mg/L		0.00001		0.000001		0.00001		0.000009		0.000004		0.000015		0.000005		0.000001		0.000014		0.000005		0.000005		< 0.000001		0.000006		0.000005		0.000005		
V	mg/L		0.00098		0.00089		0.00086		0.00145		0.00092		0.0013		0.00083		0.00081		0.00083		0.00096		0.00097		0.00089		0.00101		0.00134		0.00171		
Zn	mg/L		< 0.002		0.003		0.009		0.006		0.003		0.004		0.006		0.012		0.006		0.003		0.006		0.004		0.003		0.003		0.003		
Zr	mg/L		0.00004		0.00005		0.0001		0.00007		0.00006		0.00005		0.00004		0.00003		0.00005		0.00017		0.00014		0.00689		0.00005		0.00004		0.00003		

Column Test - Coarse PK Top
DGM 713 Coarse

Date		19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Volume mL	Input	2480	685	590	620	575	515	595	595	565	540	520	610	550	540	550	575	535	585	565	545	550	595	515	535	570	550	535	565	535	570	580
	Output	#N/A	270	265	265	270	260	260	260	260	260	260	265	265	265	265	265	265	265	265	270	270	270	270	270	270	265	265	270	260	260	260
pH		#N/A	7.62	7.42	7.34	7.51	7.58	7.6	7.44	7.4	7.46	7.46	7.47	7.54	7.49	7.51	7.68	7.57	7.57	7.62	7.39	7.31	7.68	7.36	7.44	7.6	7.79	7.41	7.6	7.52	7.53	7.46
ORP	mV	#N/A	217	295	306	335	357	349	299	297	276	301	293	245	226	271	267	279	281	275	242	289	246	272	245	272	252	284	240	327	250	292
Cond.	umhos/cm	#N/A	18	25	31	35	37	41	41	40	40	41	39	38	37	38	38	36	35	33	33	32	34	31	32	33	34	35	35	29	29	28
Acidity	mgCaCO3/L	#N/A	3.5	5.2	2.8	3.8	2.3	3.3	3.0	4.6	3.6	4.2	3.5	3.7	4.0	3.9	4.0	2.9	2.9	2.7	3.0	4.4	6.6	3.0	3.9	4.4	5.0	2.8	3.2	3.7	3.1	3.8
Alkalinity	mgCaCO3/L	#N/A	11.3	16.2	20.1	23.4	25.1	25.6	25.4	24.4	24.2	24.7	24.2	24.5	24.0	25.4	26.2	25.0	24.4	22.2	22.0	21.6	26.6	20.7	20.7	22.8	22.6	20.1	21.6	21.0	17.6	17.0
Sulphate	mg/L	#N/A	<2	<2	3	2	5	3	4	2	<2	<2	<2	<2	2	3	2	3	<2	2	<2	<2	<2	2	<2	<2	<2	2	2	2	2	
DO	mg/L	#N/A	6.57	6.63	2.39	5.54	4.53	5.86	5.72	5.65	5.02	4.40	4.53	3.38	3.57	3.47	3.83	3.98	3.63	4.43	4.44	4.19	3.62	4.11	4.54	4.37	4.35	4.99	4.35	5.73	6.45	6.15
Total P	mg/L	#N/A	0.00	<0.002	<0.002	0.00	<0.002	<0.002	0.00	0.00	0.00	0.00	<0.002	0.00	<0.002	0.00	<0.002	0.00	<0.002	<0.002	<0.002	0.00	<0.002	0.00	<0.002	<0.002	0.00	<0.002	<0.002	IP	<0.002	
Ortho P	mg/L	#N/A	0.00	<0.001	<0.001	0.00	<0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<0.001	0.00	0.00	0.00	<0.001	0.00	0.00	0.00	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	IP	<0.001	
Chloride	mg/L	#N/A	< 0.2	0	< 0.2	< 0.2	< 0.2	1	0	< 0.2	< 0.2	< 0.2	0	< 0.2	< 0.2	0	< 0.2	< 0.2	0	< 0.2	< 0.2	< 0.2	0	< 0.2	< 0.2	0	1	1				
Fluoride	mg/L	#N/A	0.13	0.16	0.18	0.20	0.21	0.19	0.18	0.18	0.20	0.19	0.18	0.16	0.18	0.17	0.15	0.12	0.11	0.15	0.10	0.12	0.09	0.09	0.11	0.12	0.10	0.11				
Hardness	mg/L	#N/A	6	8.4	11	13.0	14					18.0					18					14.0					13					
Al	mg/L	#N/A	0.0017	0.0016	0.0026	0.0040	0.0021					0.0029					0.0015					0.0027					0.0239					
Sb	mg/L	#N/A	0.0002	0.0003	0.0005	0.0004	0.0005					0.0006					0.0004					0.0007					0.0005					
As	mg/L	#N/A	0.0004	0.0006	0.0028	0.0014	0.0012					0.0020					0.0025					0.0027					0.0030					
Ba	mg/L	#N/A	0.0081	0.0056	0.0065	0.0063	0.0185					0.0059					0.0066					0.0074					0.0080					
Be	mg/L	#N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					< 0.00002					
Bi	mg/L	#N/A	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001					0.00002					< 0.00001					0.00007					< 0.00001					
B	mg/L	#N/A	0.042	0.016	0.024	0.014	0.019					0.013					0.027					0.008					0.014					
Cd	mg/L	#N/A	< 0.000003	< 0.000003	0.000004	0.000005	< 0.000003					< 0.000003					< 0.000003					< 0.000003					0.000005					
Ca	mg/L	#N/A	1.5	2.2	3.0	3.4	3.7					4.6					4.6					3.6					3.3					
Cr	mg/L	#N/A	< 0.0005	< 0.0005	< 0.0005	0.0007	< 0.0005					< 0.0005					0.0008					0.0029					< 0.0005					
Co	mg/L	#N/A	0.000061	0.000040	0.000068	0.000070	0.000060					0.000093					0.000018					0.000017					0.000026					
Cu	mg/L	#N/A	0.0007	< 0.0005	0.0028	0.0011	0.0035					0.0012					0.0005					0.0006					0.0007					
Fe	mg/L	#N/A	0.002	0.003	< 0.002	0.011	0.002					0.019					0.010					0.004					< 0.003					
Pb	mg/L	#N/A	0.00002	0.00003	0.00007	0.00017	0.00007					0.00032					0.00013					0.00010					0.00032					
Li	mg/L	#N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001					< 0.001					< 0.001					< 0.001					< 0.001					
Mg	mg/L	#N/A	0.5	0.70	1.0	1.08	1.2					1.58					1.6					1.19					1.1					
Mn	mg/L	#N/A	0.0009	0.0004	0.0012	0.0032	0.0010					0.0041					0.0028					0.0003					0.0015					
Hg	ug/L	#N/A	< 0.01	< 0.01	< 0.01	< 0.01	0.02					< 0.01					0.08					< 0.01					< 0.01					
Mo	mg/L	#N/A	0.0004	0.00060	0.0006	0.00066	0.0035					0.00062					0.0006					0.00078					0.0003					
Ni	mg/L	#N/A	0.0008	0.0009	0.0012	0.0017	0.0018					0.0022					0.0017					0.0018					0.0017					
P	mg/L	#N/A	< 0.009	0.017	0.023	< 0.009	< 0.009					0.021					< 0.009					< 0.009					< 0.009					
K	mg/L	#N/A	0.65	0.83	0.99	1.08	1.19					1.18					1.05					0.94					1.05					
Se	mg/L	#N/A	0.00030	< 0.00004	0.00010	< 0.00004	0.00009					0.00039					< 0.00004					< 0.00004					0.00005					
Si	mg/L	#N/A	13.00	13.00	16.80	18.60	11.30					7.00					4.43					3.62					2.61					
Ag	mg/L	#N/A	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001					< 0.00001					
Na	mg/L	#N/A	0.83	1.14	1.23	1.32	1.37					1.27					0.96					0.57					1.06					
Sr	mg/L	#N/A	0.015	0.021	0.027	0.032	0.035					0.044					0.042					0.033					0.030					
S	mg/L	#N/A	0.3	0.3	0.3	0.5	0.5					0.3					0.3					0.3					0.2					
Tl	mg/L	#N/A	< 0.0002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					0.00002					< 0.00002					
Sn	mg/L	#N/A	0.145	0.259	0.254	0.249	0.260					0.214					0.205					0.135					0.137					
Ti	mg/L	#N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001					< 0.0001					< 0.0001					< 0.0001					0.0002					
U	mg/L	#N/A	0.000022	< 0.000001	0.000030	0.000036	0.000062					0.000032					0.000027					0.000022					0.000019					
V	mg/L	#N/A	0.00710	0.00870	0.00995	0.00945	0.00963					0.00819					0.00792					0.00606					0.00584					
Zn	mg/L	#N/A	0.003	0.007	0.004	0.003	0.003					0.007					0.003					0.004					0.005					
Zr	mg/L	#N/A	< 0.00001	0.00002	0.00002	0.00003	0.00002					0.00003					< 0.00001					0.00002					< 0.00001					

Column Test - Coarse PK Bottom
DGM 713 Coarse

Date		19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Volume mL	Input	744	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Output	260	265	270	250	270	270	265	265	260	260	260	265	260	265	265	265	265	265	265	265	265	270	265	265	265	260	265	265	265	260	265
pH		7.59	7.87	7.68	7.84	7.98	8.06	8.1	7.84	7.81	7.92	7.91	7.87	7.92	7.89	7.87	8.04	8.03	7.94	7.81	7.92	7.89	7.77	7.96	7.91	7.93	7.89	7.97	7.98	7.88	7.95	7.87
ORP	mV	255.85	268.06	303.22	329.58	334.47	359.86	327.63	312.01	311.03	291.5	312.98	314.94	254.39	245.6	282.71	280	293	301	301	270.5	289.55	264.16	273.43	274.9	280.27	280.76	284.17	268.06	331.54	280.27	309.57
Cond.	umhos/cm	156.41	242.11	225.9	223.29	216.66	215.3	199.62	207.24	213.43	205.45	203.77	198.29	199.78	198.15	191.15	184.52	185.7	172.23	181.24	173.57	173.5	168.76	168.69	170.79	147.21	163.47	169.79	174.47	154.83	151.64	152.47
Acidity	mgCaCO3/L	6.94	5.48	8.56	4.94	4.46	3.39	3.6	5.05	7.68	4.68	5.41	5.76	5.03	5.28	5.83	4.11	4.04	4.57	3.12	3.73	4.97	9.16	3.7	3.9	4.42	5.62	3.02	4.09	4.46	2.87	3.94
Alkalinity	mgCaCO3/L	59	93.28	104.76	117.65	123.31	128.38	116.06	119.27	115.24	113.61	113.3	110.19	111.62	111.77	109.13	106.29	107.99	99	101.88	100.84	97.66	97.8	96.13	95.53	85.15	93.22	90.56	91.13	92.08	88.06	88.36
Sulphate	mg/L	17	22	12	5	2	2	3	<2	<2	<2	<2	<2	<2	2	<2	2	3	<2	2	<2	<2	<2	2	<2	<2	<2	<2	3	2	<2	
DO	mg/L	2.4	0.53	2.47	1.34	1.56	3.05	3.95	1.53	0.68	0.76	0.88	0.61	0.45	0.85	0.67	0.58	0.61	1.29	0.44	0.5	0.44	0.7	0.62	0.82	0.7	1.72	0.78	0.85	0.88	1.71	0.7
Total P	mg/L	0.004	0.015	0.003	0.009	0.016	0.009	0.007	0.015	0.008	0.009	0.007	0.006	0.011	0.006	0.005	0.004	0.006	0.004	0.004	0.004	0.007	0.004	0.004	0.004	0.005	0.022	0.005	0.005	IP	0.011	
Ortho P	mg/L	<0.001	0.004	0.002	0.002	0.01	0.001	0.002	0.01	0.002	0.001	0.001	0.002	<0.001	0.001	0.001	0.002	0.003	0.002	0.002	0.001	0.006	0.001	<0.001	0.001	<0.001	0.004	0.001	<0.001	IP	0.002	
Chloride	mg/L	0.5	0.8	0.6	0.4	0.3	0.3	0.3	0.4	0.3	0.4	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.2	0.3	0.3	0.3	0.3	0.9	3				
Fluoride	mg/L	1.53	2.6	2.7	2.72	2.53	2.67	2.21	2.19	2.21	2.33	2.29	2.18	2.05	2.12	1.95	1.79	1.84	1.61	1.67	1.49	1.56	1.29	1.5	1.54	1.26	1.45	1.42				
Hardness	mg/L	43.7	76.8	68.2	69.4	67.8	71.6					74.4					77.9					65					60.3					
Al	mg/L	0.0082	0.0067	0.005	0.0063	0.0038	0.0042					0.0073					0.0022					0.0034					0.0394					
Sb	mg/L	0.0007	0.0016	0.0016	0.0015	0.001	0.0004					0.0002					< 0.0002					0.0005					< 0.0002					
As	mg/L	0.0012	0.0014	0.0073	0.0022	0.0013	0.0017					0.0014					0.0017					0.0022					0.0025					
Ba	mg/L	0.0137	0.0306	0.0229	0.023	0.0221	0.0233					0.0236					0.0305					0.0248					0.0252					
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					< 0.00002					
Bi	mg/L	< 0.00001	< 0.00001	0.00001	< 0.00001	0.00003	< 0.00001					< 0.00001					< 0.00001					0.00007					< 0.00001					
B	mg/L	0.199	0.251	0.254	0.274	0.234	0.253					0.192					0.134					0.0913					0.0721					
Cd	mg/L	0.000005	0.000005	0.000004	0.000022	0.000009	< 0.000003					< 0.000003					0.000008					0.000006					< 0.000003					
Ca	mg/L	10.9	19.2	16.9	17.2	16.9	17.7					18.3					19.2					16					14.8					
Cr	mg/L	< 0.0005	0.0011	0.0007	0.0007	0.001	0.0005					< 0.0005					0.0016					0.0019					< 0.0005					
Co	mg/L	0.000119	0.000275	0.000245	0.000204	0.000156	0.000172					0.000173					0.000107					0.000088					0.000108					
Cu	mg/L	0.0018	0.0011	0.0012	0.0013	0.0012	0.0045					0.0019					0.0006					0.0007					0.0011					
Fe	mg/L	0.008	0.007	< 0.002	0.01	0.021	0.008					0.033					0.012					0.011					0.006					
Pb	mg/L	0.0001	0.00011	0.00029	0.00011	0.00009	0.00009					0.00008					0.00023					0.00028					0.00006					
Li	mg/L	0.002	0.003	0.003	0.003	0.003	0.004					0.003					0.003					0.002					0.002					
Mg	mg/L	3.99	7.01	6.33	6.42	6.24	6.64					6.97					7.28					6.07					5.65					
Mn	mg/L	0.001	0.004	0.0031	0.0041	0.005	0.0024					0.0454					0.0047					0.0023					0.003					
Hg	ug/L	< 0.01	< 0.01	< 0.01	0.03	< 0.01	0.01					< 0.01					< 0.01					< 0.01					< 0.01					
Mo	mg/L	0.00633	0.0196	0.0218	0.0217	0.018	0.0201					0.0113					0.00817					0.00669					0.00546					
Ni	mg/L	0.0032	0.0061	0.004	0.0032	0.0034	0.004					0.0038					0.0026					0.0025					0.0027					
P	mg/L	0.015	< 0.009	0.031	0.016	< 0.009	0.012					0.042					< 0.009					< 0.009					< 0.009					
K	mg/L	4.74	6.5	6.19	6.39	6.06	6.47					6.34					6.12					5.53					4.95					
Se	mg/L	0.00026	0.00084	0.00019	0.0003	< 0.00004	0.00045					0.00042					< 0.00004					< 0.00004					0.00031					
Si	mg/L	99.7	125	68.3	106	65.9	73.5					19.8					12.6					9.92					7.8					
Ag	mg/L	0.00007	0.00007	0.00007	0.00001	0.00002	< 0.00001					< 0.00001					< 0.00001					< 0.00001					< 0.00001					
Na	mg/L	10.8	15	13.9	14.2	13.3	14.1					13.1					11.9					8.71					7.36					
Sr	mg/L	0.107	0.178	0.158	0.158	0.155	0.165					0.18					0.182					0.149					0.138					
S	mg/L	6.64	9.29	5.62	2.46	0.58	0.52					0.4					0.39					0.36					0.24					
Tl	mg/L	< 0.0002	< 0.0002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					< 0.00002					
Sn	mg/L	0.0252	0.0257	0.0361	0.028	0.0354	0.0317					0.0215					0.0313					0.0243					0.0267					
Ti	mg/L	0.0005	0.0005	0.0004	0.0001	< 0.0001	0.0008					0.0005					< 0.0001					< 0.0001					0.0002					
U	mg/L	0.00204	0.00173	0.00114	0.000445	0.000308	0.000161					0.00014					0.000078					0.000089					0.000056					
V	mg/L	0.0782	0.0193	0.00982	0.0042	0.00429	0.00353					0.00344					0.00276					0.00349					0.00218					
Zn	mg/L	0.006	0.011	0.014	0.006	0.007	0.009					0.004					0.004					0.005					0.004					
Zr	mg/L	0.00003	0.00005	0.00006	0.00008	0.00023	0.00013					0.00009					0.00006					0.00018					0.00004					

Column Test - Coarse PK Top
DGM 717 Coarse

Date		19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Volume mL	Input	2452	600	580	515	615	545	545	625	760	555	525	590	675	445	585	590	550	555	555	545	545	575	545	560	560	540	565	570	535	735	565
	Output	260	260	260	260	270	265	265	260	260	265	260	270	265	260	280	265	270	270	265	265	270	270	260	270	270	265	260	270	265	265	260
pH		#N/A	7.87	7.63	7.47	7.72	7.72	7.77	6.97	7.63	7.62	7.63	7.44	7.7	7.63	7.71	7.56	7.73	7.82	7.53	7.4	7.52	7.84	7.51	7.51	7.72	7.86	7.54	7.68	7.61	7.61	7.51
ORP	mV	#N/A	258.3	291.99	312.5	332.51	358.39	329.58	299.31	298.82	278.32	297.85	321.77	250	240.72	264.16	263	271	301	257.81	291.01	280.27	259.27	267.57	275.87	270.01	273.92	273.92	259.76	316.89	278.8	298.82
Cond.	umhos/cm	#N/A	26.94	36.54	43.41	48.76	49.2	50.28	43.79	53.05	46.17	44.58	44.84	43.74	35.44	43.25	42.69	38.96	39.45	36.91	36.8	36.94	37.09	35.71	35.5	35.5	37.86	35.11	39.55	48.99	32.66	31.25
Acidity	mgCaCO3/L	#N/A	4.04	4.99	2.68	3.43	2.56	3.25	4.63	4.35	4.13	4	3.73	4.28	3.37	3.85	4.62	3.2	2.85	2.39	2.73	3.71	6.25	3.29	3.49	3.9	5.14	2.87	3	3.73	3.25	3.88
Alkalinity	mgCaCO3/L	#N/A	13.76	21.39	23.64	29.35	29.22	29.59	20.3	29.85	26.26	26.69	26.54	27.38	23.83	27.43	27.27	26.91	25.43	23.44	23.38	23.58	27.55	22.5	22.3	24	25.76	21.95	23.35	22.95	21.4	20.13
Sulphate	mg/L	#N/A	<2	2	3	3	4	3	4	2	<2	<2	<2	<2	2	4	4	4	3	2	2	<2	<2	2	2	2	<2	2	2	2	2	
DO	mg/L	#N/A	6.85	6.4	4.94	7.66	7.06	4.59	6.02	7.04	6.8	6.2	7.2	5.37	5.45	5	5.8	5.47	4.71	5.35	5.41	5.28	5.37	6.45	5.47	5	5.42	5.9	5.1	5.25	8.23	7.1
Total P	mg/L	#N/A	0.004	<0.002	<0.002	0.003	0.003	0.002	0.002	0.006	0.004	<0.002	<0.002	0.003	<0.002	0.002	<0.002	<0.002	0.005	<0.002	0.003	0.003	0.003	0.002	0.002	0.003	0.004	0.004	0.003	IP	0.003	
Ortho P	mg/L	#N/A	0.001	<0.001	<0.001	0.002	0.002	<0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001	<0.001	0.002	<0.001	0.001	0.002	0.002	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	IP	<0.001	
Chloride	mg/L	#N/A	0.6	0.6	0.5	0.4	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	< 0.2	0.4	< 0.2	< 0.2	0.2	1	0.2				
Fluoride	mg/L	#N/A	0.08	0.1	0.12	0.13	0.13	0.12	0.11	0.12	0.12	0.11	0.11	0.12	0.11	0.11	0.1	0.09	0.09	0.11	0.08	0.1	0.1	0.09	0.11	0.11	0.12	0.11				
Hardness	mg/L	#N/A		6.1	8.2	11.3	13.6	14.9					16.3					15				13.2					13.3					
Al	mg/L	#N/A	0.0107	0.0024	0.003	0.0038	0.0038					0.0032					0.0019					0.0024					0.0252					
Sb	mg/L	#N/A	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002					< 0.0002					< 0.0002					0.0003					< 0.0002					
As	mg/L	#N/A	0.0005	0.001	0.0022	0.0017	0.0017					0.0015					0.0014					0.0054					0.0077					
Ba	mg/L	#N/A	0.00607	0.0072	0.0103	0.0123	0.012					0.0146					0.0174					0.015					0.0169					
Be	mg/L	#N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					< 0.00002					
Bi	mg/L	#N/A	0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001					< 0.00001					
B	mg/L	#N/A	0.274	0.335	0.405	0.405	0.427					0.331					0.287					0.203					0.173					
Cd	mg/L	#N/A	< 0.000003	0.000012	0.000125	0.000008	< 0.000003					< 0.000003					< 0.000003					0.000172					< 0.000003					
Ca	mg/L	#N/A		1.36	1.81	2.5	3.01	3.34					3.56					3.26					2.9					2.93					
Cr	mg/L	#N/A	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0005					< 0.0005					0.0026					0.0019					< 0.0005					
Co	mg/L	#N/A	0.000035	0.000299	0.000055	0.000041	0.000045					0.000039					0.000011					0.000017					0.000014					
Cu	mg/L	#N/A	0.0023	0.0007	0.0034	0.0026	0.0049					0.0007					0.0009					0.0006					0.0007					
Fe	mg/L	#N/A	< 0.002	< 0.002	< 0.002	0.007	0.003					0.028					0.003					0.007					< 0.003					
Pb	mg/L	#N/A	0.00005	0.00269	0.00012	0.00008	0.00007					0.00008					0.00018					0.00018					0.00005					
Li	mg/L	#N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001					< 0.001					< 0.001					< 0.001					< 0.001					
Mg	mg/L	#N/A	0.657	0.89	1.24	1.47	1.61					1.79					1.68					1.45					1.46					
Mn	mg/L	#N/A	0.0006	0.0014	0.001	0.0027	0.0012					0.0441					0.0033					0.0009					0.001					
Hg	ug/L	#N/A	< 0.01	< 0.01	0.01	< 0.01	0.01					< 0.01					< 0.01					< 0.01					< 0.01					
Mo	mg/L	#N/A	0.00082	0.00091	0.00122	0.00102	0.00161					0.0008					0.00061					0.00052					0.00027					
Ni	mg/L	#N/A	0.0006	0.0009	0.0008	0.0011	0.0014					0.0011					0.0003					0.0005					0.0006					
P	mg/L	#N/A	0.024	0.041	0.017	< 0.009	< 0.009					0.028					< 0.009					< 0.009					< 0.009					
K	mg/L	#N/A	1.36	1.75	2.11	2.28	2.42					2.19					1.81					1.7					1.61					
Se	mg/L	#N/A	0.00033	< 0.00004	< 0.00004	< 0.00004	0.00057					0.00029					< 0.00004					0.00005					< 0.00004					
Si	mg/L	#N/A	17.4	16.6	26.9	22	15.1					8.74					4.89					4.2					3.14					
Ag	mg/L	#N/A	< 0.00001	< 0.00001	0.00008	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001					< 0.00001					
Na	mg/L	#N/A	2.04	2.42	2.76	2.82	2.89					2.29					1.78					1.24					1.64					
Sr	mg/L	#N/A	0.0203	0.0275	0.0365	0.0431	0.0477					0.054					0.048					0.0407					0.0406					
S	mg/L	#N/A	0.85	0.88	0.98	1.02	1.14					0.7					0.42					0.41					0.32					
Tl	mg/L	#N/A	< 0.0002	0.00011	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					< 0.00002					
Sn	mg/L	#N/A	0.179	0.277	0.282	0.279	0.252					0.197					0.184					0.132					0.114					
Ti	mg/L	#N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0007					< 0.0001					< 0.0001					< 0.0001					0.0002					
U	mg/L	#N/A	0.000015	< 0.000001	0.000019	0.000021	0.000011					0.000013					0.00002					0.000008					0.000008					
V	mg/L	#N/A	0.0044	0.0035	0.00446	0.00529	0.00512					0.00511					0.00483					0.00434					0.00464					
Zn	mg/L	#N/A	0.006	0.006	0.017	0.009	0.011					0.006					0.003					0.004					0.008					
Zr	mg/L	#N/A	0.00001	0.00006	0.00001	0.00004	0.00002					< 0.00001					0.00001					0.00002					< 0.00001					

Column Test - Coarse PK Bottom
DGM 717 Coarse

Date		19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Volume mL	Input	770	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Output	260	270	265	265	270	265	240	265	260	260	260	265	265	265	265	270	265	265	270	265	270	270	265	270	270	270	260	265	260	265	260
pH		7.81	8.06	7.91	8.01	8.18	8.22	8.27	8.16	7.98	8.06	8.08	7.99	8.11	8.1	8.08	8.25	8.22	8.15	8.19	8.12	8.12	8.04	8.17	8.13	8.18	8.14	8.2	8.21	8.08	8.17	8.11
ORP	mV	263.18	289.55	303.22	324.7	336.91	359.86	332.51	303.22	308.1	287.59	307.12	317.87	254.88	256.34	277.83	256	289	289	193.84	267.08	276.36	261.71	255.85	271.48	269.04	277.83	274.9	257.81	315.91	284.17	300.29
Cond.	umhos/cm	159.11	423.52	398.81	357.93	318.41	296.37	273.57	313.88	266.92	258.81	254.83	248.33	202.79	240.78	226.93	228.6	225.44	225.66	215.65	214.17	209.81	202.59	209.82	200.11	200.23	193.6	189.4	189.19	199.78	181.03	177.5
Acidity	mgCaCO3/L	6.61	6.3	11.08	7.07	3.68	3.51	3.53	4.87	10.51	7.58	6.97	7.12	4.73	4.87	6.42	3.57	4.09	5.1	2.82	3.71	3.97	8.41	3.42	3.46	3.31	5.31	2.06	2.5	4.43	2.73	3.81
Alkalinity	mgCaCO3/L	57.73	129.19	146.41	151.33	151.63	155.92	151.7	157.7	144.45	143.78	143.26	138.5	114.71	135.81	130.31	131.85	131.58	128.75	123.7	123.99	118.03	116.84	118.19	112.95	113.12	109.47	106.44	105.52	108.62	105.49	103.22
Sulphate	mg/L	16	63	47	29	17	13	8	5	2	<2	<2	<2	<2	2	<2	2	2	<2	2	<2	<2	<2	2	<2	2	<2	<2	2	2	<2	
DO	mg/L	2.5	1.94	1.08	2.26	1.42	1.51	2.79	0.77	0.62	0.97	0.43	1.02	0.69	0.55	0.73	1.07	0.75	1.12	0.73	0.65	1.08	0.56	0.59	1.3	0.73	0.66	0.48	0.82	0.36	2.12	0.38
Total P	mg/L	0.005	0.013	0.003	0.01	0.014	0.009	0.006	0.014	0.009	0.008	0.017	0.044	0.015	0.007	0.01	0.006	0.007	0.026	0.006	0.006	0.008	0.007	0.008	0.007	0.007	0.008	0.007	0.006	IP	0.006	
Ortho P	mg/L	0.001	0.004	0.001	0.002	0.009	0.002	0.001	0.011	0.001	0.002	<0.001	0.013	0.002	0.002	0.001	0.002	0.004	0.003	0.003	0.002	0.004	0.002	<0.001	0.001	0.002	<0.001	0.002	<0.001	IP	0.002	
Chloride	mg/L	2.5	7.8	7.9	6.6	5.3	4.4	3.6	14	4.2	2.5	2.3	2.2	2.2	1.9	1.8	1.7	1.6	1.6	1.4	1.6	1.1	1.4	1.1	1	0.9	2	0.8				
Fluoride	mg/L	0.35	0.47	0.44	0.44	0.45	0.48	0.42	0.44	0.44	0.46	0.48	0.47	0.46	0.51	0.45	0.45	0.41	0.46	0.51	0.42	0.44	0.45	0.48	0.49	0.49	0.51	0.51				
Hardness	mg/L	26.9	93.1	83.6	74.6	66.7	61.9					56.8					52.7					47.2					45					
Al	mg/L	0.007	0.0038	0.0041	0.0045	0.004	0.0034					0.004					0.0068					0.0177					0.0312					
Sb	mg/L	0.0006	0.0004	0.0003	0.0002	0.0003	0.0002					< 0.0002					< 0.0002					0.0003					< 0.0002					
As	mg/L	0.004	0.0047	0.0058	0.0018	0.0015	0.0022					0.0013					0.0013					0.0024					0.0045					
Ba	mg/L	0.0145	0.0525	0.047	0.0449	0.0431	0.0454					0.063					0.0766					0.078					0.0841					
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					< 0.00002					
Bi	mg/L	< 0.00001	0.00001	0.00001	< 0.00001	0.00003	< 0.00001					< 0.00001					0.00001					< 0.00001					< 0.00001					
B	mg/L	2.62	6.91	7.3	6.8	6.64	7.11					5.82					4.26					3.46					2.88					
Cd	mg/L	0.000004	0.000006	0.000005	0.000004	< 0.000003	0.000005					< 0.000003					0.000004					0.000009					< 0.000003					
Ca	mg/L	5.72	19	16.7	15	13.5	12.4					11.3					10.5					9.45					9.02					
Cr	mg/L	0.0005	0.0016	0.0012	0.0011	0.0014	0.0007					0.0006					0.0023					0.0022					< 0.0005					
Co	mg/L	0.000056	0.000171	0.000134	0.000073	0.000051	0.000052					0.000063					0.000028					0.000046					0.000042					
Cu	mg/L	0.0021	0.002	0.0017	0.0042	0.001	0.0025					0.0016					0.0008					0.0023					0.0016					
Fe	mg/L	0.01	0.021	0.034	0.019	0.018	0.005					0.03					0.023					0.072					0.007					
Pb	mg/L	0.00014	0.00007	0.00005	0.0001	0.00201	0.00017					0.00006					0.00035					0.00042					0.00005					
Li	mg/L	< 0.001	0.002	0.001	0.001	0.001	0.002					< 0.001					< 0.001					< 0.001					< 0.001					
Mg	mg/L	3.06	11.1	10.2	9.02	8.02	7.51					6.92					6.41					5.74					5.47					
Mn	mg/L	0.0009	0.0042	0.003	0.003	0.0038	0.0017					0.0446					0.0042					0.0025					0.0023					
Hg	ug/L	0.01	0.01	0.01	0.01	< 0.01	0.02					< 0.01					0.02					< 0.01					< 0.01					
Mo	mg/L	0.00629	0.029	0.0299	0.0254	0.0191	0.0186					0.00828					0.00573					0.00528					0.00414					
Ni	mg/L	0.0021	0.0036	0.0027	0.0024	0.0019	0.002					0.0016					0.0005					0.0007					0.0016					
P	mg/L	0.017	0.011	0.015	0.056	< 0.009	< 0.009					0.039					< 0.009					< 0.009					0.012					
K	mg/L	7.46	15.4	15.9	15.1	14.1	12.7					12.8					11.1					11					10.2					
Se	mg/L	0.00056	0.00016	0.00034	0.00044	0.00018	0.00077					0.00075					0.00021					0.00005					0.00006					
Si	mg/L	77.5	169	150	160	112	82.7					32.9					15.5					13.1					9.53					
Ag	mg/L	0.00002	0.00004	0.00004	0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001					< 0.00001					
Na	mg/L	17.5	38.5	37.1	34.5	32.2	30.3					30.2					25.5					21.2					19.5					
Sr	mg/L	0.0878	0.292	0.262	0.229	0.203	0.192					0.184					0.165					0.146					0.14					
S	mg/L	6.47	22.1	17.5	13	8.87	4.89					1.23					0.9					0.48					0.34					
Tl	mg/L	< 0.0002	< 0.0002	0.00016	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					< 0.00002					
Sn	mg/L	0.00978	0.0133	0.00946	0.0183	0.0238	0.0264					0.013					0.0439					0.0134					0.0145					
Ti	mg/L	0.0004	0.0008	0.0005	0.0004	0.0002	0.0007					0.0006					0.0006					0.0004					0.0002					
U	mg/L	0.000782	0.00031	0.000156	0.000073	0.000067	0.000057					0.00005					0.000028					0.000034					0.000019					
V	mg/L	0.0389	0.00432	0.005	0.0026	0.00266	0.00189					0.00255					0.00226					0.00211					0.00243					
Zn	mg/L	0.005	0.009	0.003	0.011	0.005	0.007					0.006					0.008					0.006					0.007					
Zr	mg/L	0.00002	0.00003	0.00002	0.00006	0.00005	0.00002					0.00002					0.00003					0.00007					0.00002					

Column Test - Coarse PK Top
DGM 737 Coarse

Date		12-May-11	19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Volume mL	Input	2486	515	595	575	550	540	555	555	600	510	540	535	540	545	540	560	540	535	550	550	665	510	570	540	535	540	570	545	1095	520	595	665
	Output	#N/A	255	265	260	270	265	265	250	265	255	255	260	260	260	260	260	260	260	265	270	260	265	270	265	270	260	265	265	265	260	265	260
pH		#N/A	7.31	7.5	7.34	7.21	7.39	7.36	7.41	7.31	7.36	7.39	7.38	7.12	7.48	7.45	7.51	7.68	7.52	7.34	7.36	7.35	7.38	7.61	7.4	7.43	7.65	7.78	7.48	7.61	7.54	7.55	7.48
ORP	mV	#N/A	264.16	284.66	289.06	308.59	333.49	360.83	345.7	297.36	296.38	274.41	289.06	302.24	249.51	246.09	264.16	261	274	303	267.08	269.53	275.87	253.9	252.92	266.11	263.18	273.43	272.94	251.95	306.15	278.8	293
Cond.	umhos/cm	#N/A	258.92	244.12	209.01	194.75	178.73	165.66	149.16	139.24	128.04	128.26	109.92	107.91	88.79	80.37	90.45	83.2	69.14	74.16	64.33	64.88	58.48	59.18	57.01	55.13	57.16	54.86	54.54	60.77	42.5	42.75	45
Acidity	mgCaCO3/L	#N/A	5.91	5.21	6.47	3.04	4.31	2.92	3.77	3.39	5.14	4.19	4.1	4.03	4.22	3.43	4.44	4.45	3.55	3.29	2.67	3.02	3.71	7.31	3.32	3.33	3.94	5.57	2.75	3.17	3.94	3.06	4.0
Alkalinity	mgCaCO3/L	#N/A	10.67	11.87	12.14	13.45	17.12	16.86	17.05	17.47	15.64	15.34	15.04	16.68	14.25	13.58	15.63	16.71	13.64	14.46	13.44	13.61	13.25	17.31	13.5	12.87	15.23	16.43	13.85	15.38	12.01	12.19	13.4
Sulphate	mg/L	#N/A	4	3	<2	<2	<2	3	3	3	<2	<2	<2	<2	<2	2	3	2	3	<2	2	2	<2	<2	2	2	2	<2	2	3	3	2	
DO	mg/L	#N/A	6.5	5.18	5.04	3.47	2.75	2.85	6.83	4.85	5.53	5.3	4.5	4.12	3.77	3.3	3.83	4.7	4.5	4.33	4.1	4.99	3.85	4.13	4.93	4.75	5.44	5.75	5.84	4.6	6.86	6.46	6.35
Total P	mg/L	#N/A	<0.002	0.005	<0.002	<0.002	0.005	<0.002	<0.002	<0.002	0.003	0.002	<0.002	0.003	0.003	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	<0.002	0.002	0.002	0.003	0.004	0.004	0.004	IP	0.002	
Ortho P	mg/L	#N/A	<0.001	0.001	<0.001	<0.001	0.002	<0.001	<0.001	0.002	0.002	0.002	0.001	0.002	0.002	<0.001	0.002	0.001	<0.001	0.001	<0.001	0.002	0.002	<0.001	<0.001	<0.001	0.001	0.002	<0.001	<0.001	IP	0.001	
Chloride	mg/L	#N/A	75	69	54	45	40	38	32	30	26	27	22	21	19	17	19	16	14	14	12	12	9.5	9.5	9	8.5	9.1	8.2	8.1				
Fluoride	mg/L	#N/A	0.18	0.07	0.06	0.07	0.08	0.09	0.09	0.12	0.1	0.12	0.12	0.11	0.11	0.12	0.14	0.13	0.12	0.12	0.14	0.11	0.13	0.13	0.14	0.17	0.17	0.17	0.17				
Hardness	mg/L	#N/A	19.2	76.9	68.9	62.8	60.4					48.8					33.5					22.6					22						
Al	mg/L	#N/A	0.0022	0.0031	0.0016	0.002	0.003					0.0025					0.0024					0.0022					0.0026						
Sb	mg/L	#N/A	< 0.0002	< 0.0002	< 0.0002	0.0005	< 0.0002					< 0.0002					< 0.0002					< 0.0002					< 0.0002						
As	mg/L	#N/A	0.0003	0.0014	0.0008	0.0011	0.0011					0.0014					0.0021					0.003					0.0039						
Ba	mg/L	#N/A	0.0094	0.125	0.127	0.144	0.138					0.166					0.14					0.125					0.12						
Be	mg/L	#N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					< 0.00002						
Bi	mg/L	#N/A	0.00002	< 0.00001	0.00001	0.00005	< 0.00001					< 0.00001					< 0.00001					< 0.00001					< 0.00001						
B	mg/L	#N/A	0.0196	0.213	0.2	0.214	0.191					0.17					0.154					0.128					0.139						
Cd	mg/L	#N/A	0.000004	0.000007	0.000012	0.000059	0.000009					0.000008					< 0.000003					< 0.000003					< 0.000003						
Ca	mg/L	#N/A	4.99	19	17	15.4	14.8					12.4					8.93					6.12					6.11						
Cr	mg/L	#N/A	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0006					< 0.0005					0.0024					0.0028					0.0039						
Co	mg/L	#N/A	0.000089	0.000214	0.00018	0.000269	0.00028					0.000184					0.00008					0.000015					0.000017						
Cu	mg/L	#N/A	0.0006	0.0049	0.002	0.0048	0.003					< 0.0005					0.0007					< 0.0005					< 0.0005						
Fe	mg/L	#N/A	< 0.002	0.004	0.004	0.006	0.01					0.003					0.008					< 0.002					0.013						
Pb	mg/L	#N/A	0.00005	0.00008	0.00005	0.00016	0.00015					0.00005					0.00007					0.00024					0.00017						
Li	mg/L	#N/A	0.001	0.003	0.002	0.002	0.002					0.001					< 0.001					< 0.001					< 0.001						
Mg	mg/L	#N/A	1.63	7.15	6.46	5.91	5.67					4.34					2.73					1.79					1.65						
Mn	mg/L	#N/A	0.0021	0.0054	0.0064	0.0103	0.0135					0.0077					0.0046					< 0.0002					< 0.0002						
Hg	ug/L	#N/A	0.01	< 0.01	0.02	< 0.01	< 0.01					< 0.01					< 0.01					0.01					< 0.01						
Mo	mg/L	#N/A	0.00219	0.00008	0.00004	0.00008	0.00014					0.00126					0.0002					0.00019					0.00008						
Ni	mg/L	#N/A	0.0015	0.0031	0.0035	0.005	0.0056					0.0036					0.0019					0.0011					0.001						
P	mg/L	#N/A	0.022	< 0.009	< 0.009	0.018	< 0.009					0.013					< 0.009					< 0.009					< 0.009						
K	mg/L	#N/A	1.7	4.48	3.9	3.48	3.25					2.64					2.19					1.97					2.06						
Se	mg/L	#N/A	0.00015	0.00014	< 0.00004	0.0005	0.00046					0.00025					0.00012					0.00028					< 0.00004						
Si	mg/L	#N/A	202	97.3	60.6	79.2	53.8					16.1					5.71					3.13					2.63						
Ag	mg/L	#N/A	0.00003	< 0.00001	< 0.00001	0.00003	< 0.00001					< 0.00001					< 0.00001					< 0.00001					< 0.00001						
Na	mg/L	#N/A	1.76	3.76	3.15	2.57	2.15					1.19					0.66					0.44					0.42						
Sr	mg/L	#N/A	0.0477	0.278	0.247	0.214	0.198					0.171					0.124					0.0832					0.0784						
S	mg/L	#N/A	5.08	0.62	0.43	0.47	0.52					0.44					0.37					0.41					0.86						
Tl	mg/L	#N/A	< 0.0002	< 0.0002	< 0.00002	0.00003	0.00003					< 0.00002					0.00002					< 0.00002					0.00002						
Sn	mg/L	#N/A	0.397	0.448	0.504	0.525	0.473					0.386					0.306					0.251					0.192						
Ti	mg/L	#N/A	0.0002	0.0002	0.0001	0.0009	< 0.0001					< 0.0001					< 0.0001					< 0.0001					< 0.0001						
U	mg/L	#N/A	0.000389	< 0.000001	< 0.000001	0.000005	0.000009					0.000022					0.000005					0.000007					0.000004						
V	mg/L	#N/A	0.00277	0.00027	0.00086	0.00013	0.00016					0.00255					0.00077					0.00033					< 0.00003						
Zn	mg/L	#N/A	0.006	0.014	0.007	0.01	0.01					0.004					0.005					0.005					0.004						
Zr	mg/L	#N/A	0.00001	0.00001	0.00001	0.00001	0.00003					< 0.00001					< 0.00001					0.00002					0.00002						

Column Test - Coarse PK Bottom
DGM 737 Coarse

Date		12-May-11	19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Volume mL	Input	896	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Output	260	255	260	260	265	270	265	265	265	260	260	265	260	260	260	265	265	260	260	265	265	265	265	265	265	260	265	260	265	260	260	260
pH		7.33	7.19	7.5	7.37	7.45	7.23	7.79	7.8	7.66	7.59	7.81	7.83	7.48	7.84	7.83	7.83	7.89	7.96	7.87	8.02	8	8.08	7.95	8.11	8.02	8.18	8.18	8.28	8.21	8.05	8.37	8.2
ORP	mV	348.63	289.06	306.64	317.87	334.96	353.02	373.53	360.35	312.01	311.52	297.36	312.98	329.1	265.62	270.99	289.06	270	301	286	342	264.64	282.22	268.06	282.22	268.06	270.99	279.29	275.39	252.44	327.63	271.48	298
Cond.	umhos/cm	1348.09	1769.69	1963.96	1870.26	1716.04	1500.44	1320.61	1136.15	1085.27	1020.91	940.7	865.5	830.85	778.38	731.03	684.64	672.43	627.81	600.82	573.81	543.94	516.66	499	461.01	483.38	446.47	432.6	412.8	386.87	382.19	373.26	360
Acidity	mgCaCO3/L	5.99	9.36	6.89	9.7	5.25	4.61	3.54	4.25	4.85	6.28	4.9	4.26	6.01	5.13	4.2	6.11	3.9	4.06	3.7	2.31	2.71	3.02	8.36	2.29	2.45	2.94	4.12	1.5	0.23	3.36	#N/A	2.2
Alkalinity	mgCaCO3/L	34.21	29.61	35.02	35.88	30.73	31.5	29.29	25.12	22.69	16.09	14.76	14.09	13.9	14.19	13.57	15.14	14.54	12.84	12.98	12.31	12.47	12.28	15.61	11.72	12.36	12.98	14.38	11.92	12.87	12.71	12.16	12.7
Sulphate	mg/L	5	6	4	4	4	4	4	3	4	2	<2	<2	<2	<2	2	<2	2	3	<2	3	2	<2	<2	4	2	<2	<2	2	2	3	2	
DO	mg/L	3.4	1.85	0.38	0.78	1.61	0.71	1.78	3.64	0.86	0.53	1.09	0.88	1.06	0.55	0.59	0.9	0.75	0.53	0.31	0.85	0.28	1.27	0.63	0.38	1.65	0.85	1.71	0.28	1.55	0.9	1.21	0.94
Total P	mg/L	<0.002	0.004	0.008	0.003	<0.002	0.004	0.002	0.002	0.003	0.002	0.004	0.002	0.006	0.007	<0.002	0.002	0.002	0.002	<0.002	0.003	0.002	0.003	0.003	0.002	0.004	0.003	0.008	0.003	<0.002	IP	<0.002	
Ortho P	mg/L	<0.001	<0.001	0.002	0.001	<0.001	0.001	0.002	0.002	0.001	0.001	0.002	<0.001	0.001	<0.001	<0.001	0.002	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	IP	<0.001	
Chloride	mg/L	410	510	590	540	460	430	360	310	290	280	270	230	220	220	190	200	180	180	170	160	160	140	140	130	120	110	120	99				
Fluoride	mg/L	0.24	0.33	0.36	0.36	0.36	0.37	0.38	0.34	0.36	0.36	0.4	0.42	0.41	0.42	0.47	0.43	0.44	0.42	0.46	0.52	0.42	0.49	0.45	0.52	0.54	0.52	0.59	0.58				
Hardness	mg/L	450	635	665	680	605	535					349					240					186					159						
Al	mg/L	0.0171	0.0012	0.0021	0.0032	0.0036	0.0031					0.0024					0.0025					0.0034					0.0042						
Sb	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.0005	< 0.0002					< 0.0002					< 0.0002					< 0.0002					< 0.0002						
As	mg/L	0.006	0.0079	0.0084	0.006	0.0059	0.0061					0.0037					0.0028					0.0029					0.0039						
Ba	mg/L	0.423	0.769	0.938	0.874	0.871	0.86					1.01					0.904					0.907					0.845						
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					< 0.00002						
Bi	mg/L	< 0.00001	< 0.00001	0.00001	0.00003	0.00012	0.00001					0.00001					0.00001					< 0.00001					< 0.00001						
B	mg/L	0.749	1.08	1.01	1.13	1.17	1.09					1.07					1.02					1					1.21						
Cd	mg/L	0.00007	0.000026	0.000043	0.000018	0.000022	0.00002					< 0.000003					< 0.000003					< 0.000003					0.000004						
Ca	mg/L	110	158	167	173	157	142					98.9					73.1					59.4					53.1						
Cr	mg/L	0.0012	0.0026	0.0023	0.0016	0.0013	0.0013					0.0005					0.0023					0.0022					0.0024						
Co	mg/L	0.000533	0.000548	0.000633	0.000413	0.000343	0.000324					0.000231					0.000103					0.00007					0.000088						
Cu	mg/L	0.0011	0.0017	0.002	0.0014	0.0031	0.0012					0.0005					< 0.0005					0.0006					0.0005						
Fe	mg/L	0.009	0.005	0.007	0.01	0.006	0.01					0.004					0.012					0.006					0.022						
Pb	mg/L	0.00014	0.00015	0.0001	0.00011	0.00008	0.00005					0.00004					0.00007					0.00015					0.00009						
Li	mg/L	0.004	0.006	0.007	0.007	0.007	0.004					0.002					0.001					< 0.001					< 0.001						
Mg	mg/L	42.5	58.4	60.6	60.1	51.8	44.2					24.7					14					9.02					6.32						
Mn	mg/L	0.0028	0.0044	0.0046	0.0047	0.005	0.0057					0.0021					0.0014					0.0008					0.0011						
Hg	ug/L	0.02	0.03	0.03	0.04	< 0.01	< 0.01					0.01					< 0.01					0.02					0.01						
Mo	mg/L	0.00133	0.00038	0.00072	0.0011	0.0002	0.00022					0.00039					0.00016					0.00015					0.00014						
Ni	mg/L	0.0086	0.0025	0.0089	0.0011	0.0161	0.0055					0.0032					0.0005					0.0001					0.0013						
P	mg/L	<0.03	0.035	0.025	0.047	0.064	< 0.009					< 0.009					< 0.009					< 0.009					< 0.009						
K	mg/L	28	36.6	36.5	38.3	32.8	28.8					16.7					12.7					11.2					9.93						
Se	mg/L	0.01467	0.00037	0.0005	0.00056	0.00095	0.00032					0.00004					0.00006					0.00017					< 0.00004						
Si	mg/L	669	576	451	269	277	159					38.7					11.9					6.65					4.85						
Ag	mg/L	< 0.00001	0.00004	0.00003	0.00007	0.00006	< 0.00001					< 0.00001					< 0.00001					< 0.00001					< 0.00001						
Na	mg/L	24	28.4	26.5	26.4	21.4	17.5					8.06					5.27					4.29					3.81						
Sr	mg/L	1.76	2.32	2.5	2.57	2.3	2.05					1.58					1.18					0.949					0.846						
S	mg/L	3.4	4.43	4.89	4.8	4.71	4					2.68					1.95					1.9					1.81						
Tl	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					< 0.00002						
Sn	mg/L	0.0063	0.00391	0.00867	0.00611	0.0195	0.0199					0.0243					0.039					0.0447					0.0537						
Ti	mg/L	0.0017	0.0025	0.003	0.0027	0.0026	0.0016					0.0017					0.0007					0.0003					0.0005						
U	mg/L	0.000014	0.000054	0.000008	0.000007	0.000005	0.000006					0.000004					0.000004					0.000009					0.000013						
V	mg/L	0.00068	0.00139	0.00113	0.00096	0.00061	0.00058					0.00062					0.00047					0.00021					0.00013						
Zn	mg/L	0.017	0.007	0.009	0.009	0.015	0.006					0.005					0.007					0.004					0.005						
Zr	mg/L	0.00012	< 0.00001	0.00001	< 0.00001	0.00004	0.00004					0.00001					0.00002					0.00004					0.00003						

Column Test - Fine PK Top
DGM 713 Fine

Date		23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Volume mL	Input	2070	540	565	695	640	560	520	530	740	595	525	550	580	560	610	520	575	600	540	565	555	550	605	550	580	1405
	Output	#N/A	265	265	260	255	265	260	265	265	265	265	260	260	260	260	260	265	260	255	260	265	260	265	260	265	265
pH		#N/A	7.75	7.66	7.66	7.65	7.71	7.6	7.75	7.65	7.75	7.97	7.74	7.66	7.57	7.52	7.52	7.97	7.58	7.64	7.83	7.9	7.61	7.77	7.65	7.68	7.6
ORP	mV	#N/A	319.33	289.55	279.78	270.5	280.27	291.5	241.69	243.65	253.9	251	263	273	255.85	244.62	267.57	241.69	242.67	260.74	248.53	255.37	264.64	241.21	314.45	263.18	284.17
Cond.	umhos/cm	#N/A	39.8	44.8	46.44	46.46	42.3	43.95	44.23	40.91	39.2	40.56	37.9	37.8	36.52	33.81	33.24	33.34	31.71	34.53	33.96	38.99	31.18	29.93	32.33	27.71	27.47
Acidity	mgCaCO3/l	#N/A	2.85	3.46	4.86	3.85	3.42	3.67	3.95	3.13	4.17	3.46	3.29	2.72	2.51	2.91	3.69	6.46	2.87	3.18	3.76	4.74	2.7	2.82	3.56	2.78	3.51
Alkalinity	mgCaCO3/l	#N/A	26.17	27.44	28.09	26.68	25.38	27.36	26.7	25.63	25.54	27.09	26.18	24.69	23.51	22.67	21.82	26.57	20.62	21.82	23.18	23.51	17.55	20.62	20.7	16.74	16.17
Sulphate	mg/L	#N/A	3	3	2	<2	<2	<2	<2	2	<2	2	3	<2	3	3	<2	<2	2	<2	2	<2	2	4	3	2	
DO	mg/L	#N/A	6.35	6.54	5.2	5.4	3.27	4.8	4.54	4.75	5.3	4	4.86	4.76	4.85	5.25	4.94	5.3	5.11	5.66	5.44	5.24	6.61	4.92	4.99	4.78	5.75
Total P	mg/L	#N/A	<0.002	0.002	0.003	0.003	0.002	0.002	0.003	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	IP	<0.002	
Ortho P	mg/L	#N/A	<0.001	0.001	0.001	0.002	0.002	<0.001	0.002	<0.001	0.001	<0.001	<0.001	0.002	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	IP	<0.001	
Chloride	mg/L	#N/A	< 0.2	0.4	0.3	0.8	< 0.2	< 0.2	< 0.2	0.2	0.6	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	1.9	< 0.2	< 0.2			
Fluoride	mg/L	#N/A	0.12	0.1	0.11	0.12	0.08	0.07	0.06	0.07	0.06	0.06	0.08	< 0.06	0.06	0.06	< 0.06	< 0.06	< 0.06	0.08	0.07	0.07	0.07	< 0.06			
Hardness	mg/L	#N/A	12.9	17.5	17.1	17.3	16					18.6					13.3					13.4					
Al	mg/L	#N/A	0.0055	0.0134	0.0038	0.0041	0.0042					0.0036					0.0035					0.0252					
Sb	mg/L	#N/A	< 0.0002	< 0.0002	< 0.0002	0.0002	0.0004					0.0003					0.0003					< 0.0002					
As	mg/L	#N/A	0.0003	0.0003	0.0005	0.0004	0.0011					0.0003					0.0003					0.001					
Ba	mg/L	#N/A	0.0243	0.0224	0.0189	0.0214	0.0162					0.0235					0.0124					0.0139					
Be	mg/L	#N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					
Bi	mg/L	#N/A	< 0.00001	< 0.00001	0.00002	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001					
B	mg/L	#N/A	0.0129	0.0284	0.0112	0.0192	0.0056					0.0515					0.0246					0.0227					
Cd	mg/L	#N/A	0.000006	0.000003	< 0.000003	0.000004	0.000011					0.000003					0.000162					< 0.000003					
Ca	mg/L	#N/A	3.68	4.9	4.87	4.85	4.46					5.17					3.68					3.68					
Cr	mg/L	#N/A	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005					0.0015					0.0026					< 0.0005					
Co	mg/L	#N/A	0.000137	0.000155	0.000103	0.000098	0.000094					0.000047					0.00005					0.00003					
Cu	mg/L	#N/A	0.0026	0.0015	0.0018	0.0035	0.0012					0.0006					< 0.0005					0.0008					
Fe	mg/L	#N/A	0.158	0.018	< 0.002	< 0.002	0.02					0.002					0.005					< 0.003					
Pb	mg/L	#N/A	0.00003	0.00002	0.00003	0.00027	0.00025					0.00022					0.00016					0.00007					
Li	mg/L	#N/A	0.001	0.002	0.001	0.001	0.001					< 0.001					< 0.001					< 0.001					
Mg	mg/L	#N/A	0.908	1.27	1.2	1.26	1.19					1.38					0.993					1.03					
Mn	mg/L	#N/A	0.0063	0.0027	0.003	0.0025	0.0441					0.004					0.0016					0.0014					
Hg	ug/L	#N/A	0.01	0.01	< 0.01	< 0.01	< 0.01					0.01					< 0.01					< 0.01					
Mo	mg/L	#N/A	0.00186	0.00104	0.00083	0.001	0.00049					0.00077					0.00047					0.00082					
Ni	mg/L	#N/A	0.0025	0.0026	0.0016	0.0016	0.0017					0.0008					0.0011					0.0012					
P	mg/L	#N/A	< 0.009	< 0.009	0.009	0.012	0.025					< 0.009					< 0.009					< 0.009					
K	mg/L	#N/A	3.03	3.34	2.88	2.75	2.64					2.59					1.87					1.8					
Se	mg/L	#N/A	< 0.00004	< 0.00004	< 0.00004	< 0.00004	< 0.00004					< 0.00004					0.00018					< 0.00004					
Si	mg/L	#N/A	21.9	25	20.1	14.9	10.7					4.78					2.7					1.95					
Ag	mg/L	#N/A	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001					
Na	mg/L	#N/A	1.21	1.52	1.07	1.03	0.81					0.56					0.27					1.59					
Sr	mg/L	#N/A	0.0313	0.0395	0.0362	0.0381	0.0372					0.0402					0.0271					0.0273					
S	mg/L	#N/A	0.45	0.7	0.57	0.71	0.53					0.42					0.41					0.35					
Tl	mg/L	#N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					
Sn	mg/L	#N/A	0.294	0.42	0.379	0.366	0.328					0.318					0.249					0.219					
Ti	mg/L	#N/A	< 0.0001	0.0002	< 0.0001	< 0.0001	< 0.0001					< 0.0001					< 0.0001					0.0002					
U	mg/L	#N/A	0.00003	0.000037	0.000049	0.000043	0.000038					0.000033					0.000026					0.000033					
V	mg/L	#N/A	0.00835	0.00841	0.00776	0.00621	0.00547					0.00405					0.00266					0.00266					
Zn	mg/L	#N/A	0.002	0.003	0.004	0.004	0.008					0.007					0.005					0.009					
Zr	mg/L	#N/A	0.00001	< 0.00001	0.00002	0.00002	0.00001					< 0.00001					0.00001					< 0.00001					

Column Test - Fine PK Bottom
DGM 713 Fine

Date		23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Volume mL	Input	1049	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Output	255	255	255	385	360	265	245	265	265	260	260	265	260	285	260	260	265	275	255	255	280	245	265	250	240	265
pH		8.19	7.98	7.87	7.75	7.86	7.83	7.8	7.96	7.77	7.86	8.01	7.97	7.8	7.94	7.91	7.87	7.78	8.04	7.88	7.89	7.92	7.98	7.97	7.83	7.96	7.94
ORP	mV	167.96	340.82	314.45	310.54	185.54	310.54	323.24	259.27	271.97	282.71	281	239	291	291.01	277.83	284.66	270.5	265.62	289.55	275.87	279.78	286.13	274.9	331.54	291.5	308.1
Cond.	umhos/cm	301.15	592.32	490.95	429.39	375.22	310.79	279.36	238.89	234.69	227.92	230.62	224.43	226.66	224.05	228.2	221.84	220.56	217.69	217.3	215.49	215.69	210.63	202.64	214.89	203.79	203.93
Acidity	mgCaCO3/L	1.86	4.58	5.74	9.11	7.14	6.89	6.58	5.54	6.64	6.3	4.31	5.3	4.99	5.59	4.35	5.23	9.36	3.81	4.52	5.36	5.81	3.29	4.02	6.17	3.41	4.24
Alkalinity	mgCaCO3/L	98.16	101.88	114.41	112.1	114.77	116.98	125.02	117.06	119.1	121.96	126.05	124.81	125.14	122.38	125.37	121.48	122.88	119.06	117.18	118.49	118.03	114.67	114.96	113.45	114.23	112.78
Sulphate	mg/L	72	180	126	84	67	36	15	8	4	2	2	3	<2	<2	<2	<2	<2	3	<2	<2	2	<2	2	2	<2	
DO	mg/L	4.41	2.19	4.06	3.82	3.6	2.71	1.2	1.62	1.02	2.59	2.01	2.85	3.65	2.97	3.36	4.7	2.88	1.06	2.83	0.98	4.19	2.67	3.11	3.54	1.19	
Total P	mg/L	0.006	0.006	0.016	0.004	0.011	0.006	0.008	0.011	0.004	0.008	0.004	0.006	0.015	0.005	0.009	0.014	0.011	0.013	0.014	0.016	0.019	0.019	0.015	IP	0.012	
Ortho P	mg/L	0.002	0.002	0.008	0.001	0.001	0.002	0.007	<0.001	0.002	0.001	<0.001	<0.001	0.006	0.001	0.002	0.005	<0.001	0.003	<0.001	<0.001	0.003	<0.001	<0.001	IP	<0.001	
Chloride	mg/L	7	21	14	11	5.7	3.4	2	1.3	0.9	< 0.2	0.5	0.5	0.6	0.4	0.7	0.5	0.6	0.5	0.6	0.5	0.7	0.6	0.6			
Fluoride	mg/L	1.38	1.71	2.17	2.44	2.78	2.73	2.83	2.15	2.69	2.48	2.42	2.62	2.38	2.34	1.97	1.99	2.26	2.05	1.99	1.88	1.92	0.08	1.99			
Hardness	mg/L	108	181	161	123	102	90.3					59.9					54.6					55.9					
Al	mg/L	0.0522	0.0037	0.332	0.0036	0.0038	0.005					0.0048					0.005					0.0316					
Sb	mg/L	0.0017	0.0018	0.0018	0.0016	0.002	0.0018					0.0016					0.0013					0.0009					
As	mg/L	0.004	0.006	0.005	0.0042	0.0045	0.0031					0.0009					0.0007					0.0005					
Ba	mg/L	0.0977	0.139	0.109	0.0844	0.0668	0.059					0.0652					0.0688					0.0692					
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					
Bi	mg/L	< 0.00001	< 0.00001	0.00002	< 0.00001	0.00001	0.00002					< 0.00001					< 0.00001					< 0.00001					
B	mg/L	0.195	0.293	0.412	0.398	0.312	0.348					0.255					0.168					0.11					
Cd	mg/L	0.000019	0.000011	0.000058	0.000015	0.000005	0.00003					0.000048					0.000003					< 0.000003					
Ca	mg/L	29.1	48.3	40.7	32.6	27	24					15.7					14.2					14.4					
Cr	mg/L	0.001	0.0006	0.002	< 0.0005	< 0.0005	0.0005					0.0011					0.0021					< 0.0005					
Co	mg/L	0.000173	0.000206	0.000929	0.000149	0.000128	0.000148					0.000046					0.00003					0.00005					
Cu	mg/L	0.0025	0.0068	0.0057	0.0006	< 0.0005	0.0022					0.0006					0.0007					0.002					
Fe	mg/L	0.057	0.006	0.499	< 0.002	0.002	0.033					0.006					0.003					0.008					
Pb	mg/L	0.00011	0.00007	0.00137	0.00038	0.00009	0.00031					0.00035					0.00016					0.00004					
Li	mg/L	0.015	0.018	0.019	0.014	0.012	0.01					0.009					0.008					0.006					
Mg	mg/L	8.67	14.6	14.4	10.1	8.39	7.39					5.06					4.66					4.81					
Mn	mg/L	0.0037	0.0078	0.0138	0.0081	0.0072	0.0506					0.0087					0.0018					0.0154					
Hg	ug/L	< 0.01	0.01	0.01	< 0.01	0.01	< 0.01					< 0.01					< 0.01					< 0.01					
Mo	mg/L	0.092	0.0763	0.0869	0.0874	0.08	0.0766					0.0501					0.0335					0.0324					
Ni	mg/L	0.0039	0.0048	0.0135	0.0023	0.001	0.0031					0.0005					0.0005					0.0012					
P	mg/L	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	0.027					< 0.009					< 0.009					0.014					
K	mg/L	17.8	29.2	28.7	25.1	22.3	23.1					17.2					17.8					16.7					
Se	mg/L	0.00052	0.00018	0.00049	0.00013	0.00063	0.00034					0.00005					< 0.00004					0.00016					
Si	mg/L	41.7	423	378	206	150	88.7					20.8					14.4					11.4					
Ag	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001					
Na	mg/L	15.5	27.5	29.7	25.4	23.5	22.8					18.8					16.2					14.1					
Sr	mg/L	0.255	0.44	0.363	0.277	0.238	0.216					0.143					0.125					0.121					
S	mg/L	24.7	51.8	40.1	28.2	19.6	13.6					0.71					0.36					0.61					
Tl	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					
Sn	mg/L	0.0114	0.00651	0.00609	0.00383	0.00452	0.00431					0.00546					0.00448					0.0031					
Ti	mg/L	0.0017	0.001	0.0074	0.0006	0.0005	0.0009					< 0.0001					< 0.0001					< 0.0001					
U	mg/L	0.003241	0.00319	0.00188	0.00124	0.000646	0.000571					0.000162					0.000301					0.000129					
V	mg/L	0.0287	0.0107	0.00958	0.0111	0.00946	0.00562					0.00057					0.0003					0.00046					
Zn	mg/L	0.014	0.007	0.023	0.012	0.005	0.011					0.007					0.003					0.003					
Zr	mg/L	0.00014	0.00002	0.00024	0.00003	0.00003	0.00004					0.00004					0.00008					0.00004					

Column Test - Fine PK Top
DGM 717 Fine

Date		23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Volume mL	Input	2505	535	605	530	615	495	530	525	560	490	545	530	560	430	500	535	560	580	545	585	560	535	525	505	575	695
	Output	#N/A	265	265	260	265	265	260	260	265	265	260	260	260	265	260	260	265	265	270	270	270	265	265	260	265	265
pH		#N/A	7.51	7.45	7.52	7.39	7.59	7.51	7.58	7.56	7.65	7.71	7.7	7.66	7.46	7.52	7.5	7.88	7.53	7.53	7.71	7.82	7.57	7.68	7.66	7.61	7.55
ORP	mV	#N/A	328.12	297.36	294.92	286.62	292.48	304.19	250	254.39	262.2	261	289	301	258.78	276.85	280.27	261.71	265.62	279.29	269.04	279.78	280.76	270.5	314.94	288.57	301.26
Cond.	umhos/cm	#N/A	58.88	71.81	69.33	67.18	63.98	62.96	56.12	49.99	53.48	54.45	50.34	49.3	45.53	42.98	43.76	40.74	44.65	38.5	41.44	40.03	39.99	38.42	44.66	37.33	35.68
Acidity	mgCaCO3/l	#N/A	3.83	3.54	5.36	3.52	4.17	3.93	4.33	4.03	4.3	4.01	3.64	3.09	2.92	2.67	4.08	6.78	3.1	3.59	4.46	4.87	2.96	3.12	3.77	2.82	4
Alkalinity	mgCaCO3/l	#N/A	11.01	20.71	23.25	23.87	25.8	27.36	27.07	24.38	28.19	30.44	28.91	27.53	25.6	25.19	25	27.71	25.52	23.28	26.34	26.16	24.02	25.28	25.09	23.42	22.42
Sulphate	mg/L	#N/A	5	8	4	3	2	<2	2	3	<2	3	5	<2	3	3	2	2	3	2	<2	<2	<2	3	2	<2	
DO	mg/L	#N/A	7.28	3.8	3.99	4.4	3.15	3.42	3.3	3.96	4.4	2.6	3.86	3.75	4.35	4.8	3.95	3.24	5.69	5.38	4.76	5.32	5.13	5.51	3.99	5.81	6.2
Total P	mg/L	#N/A	<0.002	0.003	0.002	0.004	0.002	0.003	0.007	0.004	0.002	<0.002	<0.002	<0.002	0.003	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	IP	<0.002	
Ortho P	mg/L	#N/A	<0.001	0.002	0.001	0.002	0.002	0.002	0.004	0.002	0.001	<0.001	0.001	0.002	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	IP	<0.001	
Chloride	mg/L	#N/A	7.2	6.9	5	3.9	3.2	2.8	2.1	1.7	1.4	1.1	1	0.8	0.7	0.6	0.5	0.5	0.6	0.3	0.4	0.5	0.2	0.2			
Fluoride	mg/L	#N/A	< 0.06	0.07	0.08	0.1	0.1	0.09	0.06	0.08	0.08	0.09	0.09	0.07	0.09	0.06	< 0.06	0.07	0.06	0.08	0.07	0.08	0.07	0.12			
Hardness	mg/L	#N/A	10.3	14.3	15.4	15.6	17.1					17.4					13.9					14					
Al	mg/L	#N/A	0.0032	0.0031	0.0028	0.0023	0.0022					0.0027					0.004					0.0149					
Sb	mg/L	#N/A	< 0.0002	0.0002	< 0.0002	0.0004	0.0003					0.0003					0.0006					< 0.0002					
As	mg/L	#N/A	0.0004	0.0005	0.0006	0.0004	0.0003					0.0006					0.0004					0.0004					
Ba	mg/L	#N/A	0.0297	0.0457	0.0572	0.0722	0.0773					0.126					0.11					0.129					
Be	mg/L	#N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					
Bi	mg/L	#N/A	< 0.00001	0.00001	< 0.00001	0.00002	< 0.00001					< 0.00001					< 0.00001					< 0.00001					
B	mg/L	#N/A	0.209	0.36	0.287	0.242	0.235					0.14					0.081					0.0715					
Cd	mg/L	#N/A	0.000005	0.000004	< 0.000003	0.000003	< 0.000003					0.000003					< 0.000003					< 0.000003					
Ca	mg/L	#N/A	2.14	3.02	3.38	3.47	3.88					3.97					3.2					3.22					
Cr	mg/L	#N/A	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005					0.0013					0.0028					< 0.0005					
Co	mg/L	#N/A	0.000102	0.000111	0.000064	0.000062	0.000067					0.000025					0.000036					0.000036					
Cu	mg/L	#N/A	0.0035	0.0012	0.0009	0.0011	0.0011					0.0016					0.0018					0.0012					
Fe	mg/L	#N/A	0.006	0.003	< 0.002	< 0.002	0.028					0.004					0.004					< 0.003					
Pb	mg/L	#N/A	0.00006	0.00005	0.00007	0.00006	0.00008					0.00022					0.00046					0.00007					
Li	mg/L	#N/A	0.001	0.002	0.001	0.001	0.001					0.001					< 0.001					< 0.001					
Mg	mg/L	#N/A	1.2	1.63	1.69	1.7	1.79					1.81					1.43					1.44					
Mn	mg/L	#N/A	0.0049	0.0038	0.0036	0.0032	0.0453					0.0031					0.001					0.0014					
Hg	ug/L	#N/A	0.01	< 0.01	< 0.01	0.01	0.01					< 0.01					< 0.01					< 0.01					
Mo	mg/L	#N/A	0.00441	0.00547	0.00416	0.00237	0.0027					0.00344					0.0013					0.00029					
Ni	mg/L	#N/A	0.0038	0.0035	0.0023	0.0022	0.0019					0.0005					0.001					0.0014					
P	mg/L	#N/A	< 0.009	< 0.009	< 0.009	0.013	0.035					< 0.009					< 0.009					< 0.009					
K	mg/L	#N/A	4.58	5.73	5.47	5.11	5.13					4.02					3.38					3.22					
Se	mg/L	#N/A	< 0.00004	0.00009	0.00044	0.00013	0.00009					< 0.00004					< 0.00004					< 0.00004					
Si	mg/L	#N/A	23.7	34.5	33.4	16.2	19.2					6.05					4.06					2.84					
Ag	mg/L	#N/A	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001					
Na	mg/L	#N/A	3.34	4.49	3.6	3.23	3.02					1.76					1.04					0.77					
Sr	mg/L	#N/A	0.0358	0.0482	0.05	0.0524	0.0573					0.0566					0.0437					0.0442					
S	mg/L	#N/A	1.91	2.27	1.88	1.63	1.55					0.74					0.56					0.32					
Tl	mg/L	#N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					
Sn	mg/L	#N/A	0.321	0.433	0.353	0.345	0.305					0.272					0.226					0.198					
Ti	mg/L	#N/A	< 0.0001	0.0001	< 0.0001	< 0.0001	0.0003					< 0.0001					< 0.0001					< 0.0001					
U	mg/L	#N/A	0.000035	0.000021	0.000008	0.000003	0.000006					0.000005					0.000005					0.000003					
V	mg/L	#N/A	0.00078	0.0013	0.00152	0.00205	0.00171					0.00177					0.00153					0.00145					
Zn	mg/L	#N/A	0.008	0.007	0.005	0.006	0.02					0.005					0.008					0.012					
Zr	mg/L	#N/A	0.00002	< 0.00001	0.00005	0.00001	< 0.00001					< 0.00001					0.00001					< 0.00001					

Column Test - Fine PK Bottom
DGM 717 Fine

Date		23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Volume mL	Input	1129	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Output	85	235	250	260	260	270	260	260	265	265	260	250	250	250	280	230	250	270	260	280	290	240	225	240	260	250
pH		7.92	8.53	7.66	7.5	7.7	7.62	7.75	7.74	8.11	7.96	8.16	8.2	8.08	8.16	8.14	8.14	8.13	8.19	8.14	8.15	8.13	8.15	8.19	8.08	8.16	8.04
ORP	mV	#N/A	275.39	355.46	321.28	217.28	245.6	322.26	173.33	130.85	282.71	279	291	334	265.13	276.85	291.5	267.08	263.18	282.71	272.94	287.1	284.17	279.29	315.91	293.45	306.15
Cond.	umhos/cm	#N/A	434.41	449.21	795.88	1075.69	769.48	569.95	447.66	390.21	362.37	357	341.12	329.7	320.79	313.4	311.26	312.38	310.19	309.33	310.12	304.06	312.22	297.19	309.63	291.03	289.37
Acidity	mgCaCO3/L	#N/A	#N/A	7.17	14.5	10.92	8.71	10.46	12.79	5.72	9.76	6.25	5.89	6.84	5.94	4.76	5.84	8.6	4.29	5.36	5.73	6.65	3.99	3.57	6.1	3.51	5.5
Alkalinity	mgCaCO3/L	#N/A	260.59	78.06	60.13	56.47	70.44	89.95	105.8	120.28	120.82	133.04	137.01	141.46	143.09	144.43	143.27	147.29	146.61	145.97	146.3	147.47	143.54	145.99	147.29	145.05	142.79
Sulphate	mg/L	#N/A	53	70	110	329	303	172	108	73	49	49	42	36	30	25	27	25	22	23	21	16	16	14	15	13	
DO	mg/L	3.9	5.76	2.34	4.82	2.17	2.54	2.85	2.96	2.46	1.8	1.8	2.37	1.89	2.1	0.98	1.91	2.09	1.13	2.44	3.19	2.52	2.39	1.97	0.33	2.65	3.04
Total P	mg/L	0.002	0.004	0.006	0.003	0.014	0.011	0.017	0.009	0.004	0.005	0.004	0.004	0.004	0.01	0.012	0.011	0.031	0.029	0.033	0.032	0.032	0.031	0.038	IP	0.028	
Ortho P	mg/L	0.002	0.002	0.002	0.001	0.001	0.002	0.009	<0.001	0.001	<0.001	0.002	0.004	0.001	0.002	0.001	0.004	<0.001	0.005	<0.001	0.003	<0.001	0.002	<0.001	IP	0.001	
Chloride	mg/L	#N/A	6.8	15	100	97	40	14	7	4.7	3.9	3.4	3	2.3	2.2	2.2	2	1.6	2.4	1.1	0.9	1.4	4.8	2.8			
Fluoride	mg/L	#N/A	0.57	0.38	0.28	0.24	0.3	0.38	0.32	0.51	0.52	0.54	0.44	0.57	0.61	0.49	0.54	0.67	0.6	0.65	0.64	0.68	0.68	0.74			
Hardness	mg/L	37.2	86.1	61.3	138	268	182					39.3					31.2					28.1					
Al	mg/L	0.0222	0.0031	0.0029	0.0026	0.0021	0.0024					0.0065					0.0057					0.026					
Sb	mg/L	0.0013	0.0009	0.0002	< 0.0002	0.0003	< 0.0002					0.0002					0.0003					< 0.0002					
As	mg/L	0.0025	0.0039	0.0034	0.0055	0.0078	0.0104					0.002					0.001					0.0006					
Ba	mg/L	0.178	0.214	0.203	0.237	0.116	0.0447					0.0644					0.0912					0.109					
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					
Bi	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001	0.00002	< 0.00001					< 0.00001					< 0.00001					< 0.00001					
B	mg/L	1.02	2.36	4.49	4.42	4.55	5.52					9.21					10.7					9.56					
Cd	mg/L	0.000008	0.00001	0.000018	0.000011	0.000425	0.000035					0.000046					0.000006					< 0.000003					
Ca	mg/L	8.84	23	14.1	31.1	60.1	40.7					8.84					6.99					6.27					
Cr	mg/L	0.0006	0.0006	< 0.0005	< 0.0005	0.0005	< 0.0005					0.0021					0.0016					< 0.0005					
Co	mg/L	0.000095	0.000083	0.000048	0.000075	0.000235	0.000212					0.000019					0.000017					0.000025					
Cu	mg/L	0.0016	0.0018	< 0.0005	0.0008	0.0016	0.0027					0.0011					0.0007					0.0029					
Fe	mg/L	0.031	0.006	0.002	< 0.002	< 0.002	0.025					0.002					0.002					< 0.003					
Pb	mg/L	0.00015	0.00008	0.00005	0.00019	0.00022	0.00015					0.00023					0.00018					0.00008					
Li	mg/L	0.003	0.006	0.006	0.008	0.008	0.007					0.004					0.003					0.002					
Mg	mg/L	3.67	6.97	6.37	14.7	28.7	19.5					4.18					3.35					3.02					
Mn	mg/L	0.0019	0.0034	0.0012	0.004	0.0085	0.0483					0.0005					0.0003					0.0012					
Hg	ug/L	0.02	0.01	0.01	< 0.01	0.01	0.02					< 0.01					< 0.01					< 0.01					
Mo	mg/L	0.0235	0.0589	0.0915	0.172	0.32	0.298					0.064					0.0464					0.032					
Ni	mg/L	0.0024	0.0015	0.0015	0.0015	0.0038	0.0033					0.0005					0.0011					0.0009					
P	mg/L	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	0.022					< 0.009					< 0.009					0.037					
K	mg/L	11.4	21.2	25.3	41.6	56.7	48.4					24.9					22.8					21.3					
Se	mg/L	0.00053	< 0.00004	0.00034	< 0.00004	0.00081	0.00121					0.00023					0.00005					0.00008					
Si	mg/L	8.19	99	21.5	139	406	247					25.1					17.3					11					
Ag	mg/L	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001					
Na	mg/L	7.2	20.4	29.3	55.6	88.7	76.8					44					42.5					42.2					
Sr	mg/L	0.123	0.244	0.197	0.441	0.879	0.608					0.132					0.108					0.0965					
S	mg/L	5.72	22.4	20	37.2	109	97					16					7.66					5.89					
Tl	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					
Sn	mg/L	0.0742	0.0381	0.0212	0.0152	0.0146	0.01217					0.00846					0.0474					0.00416					
Ti	mg/L	0.0006	0.0003	0.0004	0.0008	0.0024	0.0037					0.0004					0.0002					0.0005					
U	mg/L	0.000038	0.000356	0.000103	0.000106	0.000118	0.000075					0.000021					0.000038					0.000025					
V	mg/L	0.00371	0.00471	0.00328	0.00168	0.0012	0.00121					0.00107					0.0027					0.00127					
Zn	mg/L	0.004	0.006	0.003	0.025	0.18	0.023					0.005					0.005					0.004					
Zr	mg/L	0.00006	0.00002	0.00033	0.00001	0.00004	< 0.00001					0.00003					0.00002					0.00003					

Column Test - Fine PK Top
DGM 737 Fine

Date		23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Volume mL	Input	2408	545	605	540	540	555	535	690	755	615	600	535	570	595	590	595	620	565	550	640	535	265	685	550	615	645
	Output	#N/A	265	265	260	260	265	265	260	265	265	265	265	265	260	260	265	260	260	260	260	265	260	265	260	265	265
pH		#N/A	7.16	7.05	7.16	7.16	7.25	7.13	7.27	7.22	7.52	7.77	7.64	7.59	7.26	7.44	7.33	7.88	7.54	7.53	7.73	7.81	7.58	7.77	7.68	7.62	7.58
ORP	mV	#N/A	336.42	321.28	310.05	305.17	317.38	328.12	268.55	274.9	259.76	263	289	303	280.76	282.22	292.48	263.18	261.71	276.85	270.99	286.13	282.71	277.34	306.15	291.01	299.8
Cond.	umhos/cm	#N/A	148.76	164.19	149.83	220.27	183.94	150.14	122.56	89.35	73.17	70.18	57.47	55.74	46.6	41.92	41.33	39.01	38.75	39.17	40.86	55.61	40.75	40.21	40.8	37.33	37.07
Acidity	mgCaCO3/l	#N/A	5.04	4.05	5.51	4.32	4.16	3.66	4.24	4.46	4.61	4.18	3.61	3.08	2.66	2.75	3.92	6.04	3.1	3.34	3.76	5.13	2.73	3.08	3.22	2.76	3.7
Alkalinity	mgCaCO3/l	#N/A	12.32	13.04	12.96	14.01	13.92	13.16	13.38	11.49	14.02	20.63	15.18	16.17	12.99	14.75	14.38	21.53	15.98	16.82	21.89	24.91	21.15	23.89	22.93	22.3	21.92
Sulphate	mg/L	#N/A	3	4	2	2	2	<2	2	3	2	3	5	<2	3	3	2	2	3	3	2	2	2	3	3	<2	
DO	mg/L	#N/A	5.06	5.89	5.75	4.4	3.4	4	4.19	3.46	4.84	5.46	4.46	4.5	4.48	4.75	5.85	5.59	5.25	6.32	6.4	5.05	7.48	6.04	3.59	5.29	5.92
Total P	mg/L	#N/A	<0.002	0.006	0.004	0.005	0.005	0.003	0.005	0.003	0.003	<0.002	0.003	<0.002	<0.002	0.002	0.004	0.003	0.002	0.002	0.003	0.003	0.003	0.003	IP	0.003	
Ortho P	mg/L	#N/A	<0.001	0.001	0.002	0.002	0.001	0.002	0.001	0.002	0.001	0.002	0.002	<0.001	<0.001	0.001	0.004	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	IP	0.001	
Chloride	mg/L	#N/A	32	35	30	50	39	30	23	17	13	9.4	7.7	5.9	4.5	3.7	2.8	2.3	2	1.7	1.4	3.7	0.9	0.8			
Fluoride	mg/L	#N/A	< 0.06	0.16	0.22	0.32	0.34	0.31	0.23	0.26	0.26	0.3	0.23	0.27	0.29	0.19	0.22	0.27	0.22	0.26	0.24	0.38	0.23	0.25			
Hardness	mg/L	#N/A	30.8	38	34	53.1	44.7					18.7					11.3					14.6					
Al	mg/L	#N/A	0.0015	0.0019	0.0024	0.0024	0.0033					0.0022					0.0048					0.0301					
Sb	mg/L	#N/A	< 0.0002	< 0.0002	< 0.0002	0.0002	0.0003					< 0.0002					0.0004					< 0.0002					
As	mg/L	#N/A	0.0006	0.0005	0.001	0.0019	0.0023					0.0005					0.0004					0.0003					
Ba	mg/L	#N/A	0.0698	0.131	0.149	0.23	0.211					0.195					0.161					0.233					
Be	mg/L	#N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					
Bi	mg/L	#N/A	< 0.00001	< 0.00001	0.00003	< 0.00001	0.00002					< 0.00001					0.00004					< 0.00001					
B	mg/L	#N/A	0.0548	0.122	0.103	0.16	0.133					0.182					0.0802					0.195					
Cd	mg/L	#N/A	0.000009	0.000009	0.000017	0.000009	0.000013					< 0.000003					< 0.000003					0.000003					
Ca	mg/L	#N/A	7.98	10.8	10.2	18	15					6.46					3.9					5.18					
Cr	mg/L	#N/A	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005					0.0016					0.0021					< 0.0005					
Co	mg/L	#N/A	0.000491	0.000475	0.000292	0.000271	0.000209					0.000066					0.000043					0.000029					
Cu	mg/L	#N/A	0.002	0.001	0.0022	0.0009	0.0009					0.0007					0.0006					0.0011					
Fe	mg/L	#N/A	0.005	0.004	< 0.002	0.003	0.027					< 0.002					0.006					< 0.003					
Pb	mg/L	#N/A	0.00005	0.00005	0.00035	0.00008	0.00013					0.00024					0.00029					0.00007					
Li	mg/L	#N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001					< 0.001					< 0.001					< 0.001					
Mg	mg/L	#N/A	2.64	2.69	2.11	2	1.74					0.631					0.366					0.399					
Mn	mg/L	#N/A	0.0197	0.0147	0.0099	0.0078	0.0476					0.0015					0.0009					0.0009					
Hg	ug/L	#N/A	< 0.01	< 0.01	< 0.01	< 0.01	0.01					0.01					< 0.01					< 0.01					
Mo	mg/L	#N/A	0.00118	0.00167	0.0004	0.00612	0.00077					0.00197					0.00078					0.00067					
Ni	mg/L	#N/A	0.0092	0.009	0.007	0.0048	0.0037					0.0012					0.0009					0.0007					
P	mg/L	#N/A	< 0.009	< 0.009	< 0.009	0.011	0.017					< 0.009					< 0.009					< 0.009					
K	mg/L	#N/A	12	13.4	11.6	17	14.6					6.56					4.06					4.42					
Se	mg/L	#N/A	< 0.00004	0.00023	< 0.00004	0.00043	0.00081					< 0.00004					0.00007					0.00027					
Si	mg/L	#N/A	34	50.4	34.5	66.1	55.3					10.4					5.36					3.62					
Ag	mg/L	#N/A	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001					
Na	mg/L	#N/A	4.92	5.02	3.92	7.01	5.65					1.72					0.73					1.96					
Sr	mg/L	#N/A	0.185	0.245	0.216	0.403	0.333					0.138					0.077					0.0997					
S	mg/L	#N/A	0.46	0.83	0.96	1.7	1.85					0.98					0.78					0.86					
Tl	mg/L	#N/A	0.00003	0.00002	0.00002	< 0.00002	0.00003					< 0.00002					< 0.00002					< 0.00002					
Sn	mg/L	#N/A	0.505	0.612	0.554	0.505	0.486					0.397					0.296					0.232					
Ti	mg/L	#N/A	< 0.0001	< 0.0001	< 0.0001	0.0001	0.0001					< 0.0001					0.0001					0.0002					
U	mg/L	#N/A	0.000007	0.000014	0.000002	0.000016	0.000014					< 0.000001					0.000003					0.000003					
V	mg/L	#N/A	0.00015	0.00017	0.00034	0.00012	0.00048					0.00011					0.00015					0.00073					
Zn	mg/L	#N/A	0.004	0.01	0.017	0.009	0.027					0.004					0.008					0.008					
Zr	mg/L	#N/A	< 0.00001	< 0.00001	0.00002	0.00001	0.00002					< 0.00001					0.00002					0.00004					

Column Test - Fine PK Bottom
DGM 737 Fine

Date		23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Volume mL	Input	1255	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Output	270	265	265	260	265	265	265	255	265	265	265	265	265	265	265	265	265	265	265	265	260	265	265	260	265	265
pH		7.78	8.18	7.56	8.09	7.57	7.51	7.48	7.86	7.97	7.98	8.23	8.32	8.29	8.31	8.54	8.64	8.58	8.85	8.81	8.96	8.93	9.12	9.05	8.86	9.04	8.88
ORP	mV	196.77	348.63	329.58	321.77	323.73	337.89	350.09	292.96	297.36	294.92	301	301	321	299	205.56	249.51	185.54	100.09	175.78	166.5	186.52	235.83	239.74	287.1	241.69	270.01
Cond.	umhos/cm	135.25	435.44	856.14	2680.9	2978.3	2886.63	2564.47	2174.78	1673.57	1253.45	1059.43	905.44	794.91	670.85	573	493.59	433.13	380.06	348.76	317.24	287.99	277.68	262.1	252.18	244.9	242.13
Acidity	mgCaCO3/L	2.39	2.52	4.82	4.29	6.21	6.32	5.68	5.74	4.84	5.31	3.52	#N/A	1.99	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Alkalinity	mgCaCO3/L	25.62	22.23	17.54	14.05	14.13	14.01	13.81	14.29	14.86	17.11	21.24	21.02	20.97	21.3	24.37	24.43	30.94	28.86	29.79	33.17	34.59	34.43	37.08	37.27	37.82	38.32
Sulphate	mg/L	6	12	22	27	49	41	29	21	17	15	13	15	15	15	14	15	19	19	23	28	29	28	32	31	35	
DO	mg/L	4.42	4.79	4.15	3.92	2.55	2.61	3.85	3.15	1.18	2.45	2.39	3.33	2.45	3.81	0.93	2.02	3.61	2.85	2.4	2.6	2.81	1.09	3.41	2.47	2.29	2.83
Total P	mg/L	0.002	<0.002	0.007	0.005	0.008	0.005	0.003	0.008	<0.002	0.003	<0.002	0.002	0.005	0.002	0.002	0.004	<0.002	0.002	<0.002	0.002	0.002	0.003	0.002	IP	<0.002	
Ortho P	mg/L	0.002	0.001	0.003	0.002	0.005	0.001	0.001	0.007	<0.001	0.001	0.001	<0.001	<0.001	<0.001	0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	IP	<0.001	
Chloride	mg/L	24	100	220	500	760	800	720	560	430	360	260	230	190	170	140	110	89	71	59	46	38	31	28			
Fluoride	mg/L	1.21	1.56	1.39	1.21	1.22	1.24	1.33	0.96	1.46	1.48	1.74	1.93	2.07	2.23	2.07	2.52	3.17	3.42	3.56	3.64	4.09	4.13	5.28			
Hardness	mg/L	37.4	95.1	192	412	672	644					314					127					68.4					
Al	mg/L	0.0041	0.0032	0.0043	0.0023	0.0026	0.0019					0.0032					0.0025					0.0512					
Sb	mg/L	0.0004	0.0006	0.0006	0.0004	0.0007	0.0006					0.0008					0.0008					0.0008					
As	mg/L	0.0006	0.0021	0.0031	0.0101	0.0143	0.0128					0.0045					0.0032					0.0023					
Ba	mg/L	0.359	0.741	0.996	0.67	0.432	0.319					0.315					0.183					0.104					
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					
Bi	mg/L	< 0.00001	< 0.00001	0.00001	0.00004	0.00004	0.00005					< 0.00001					< 0.00001					< 0.00001					
B	mg/L	0.636	1.04	1.14	0.762	0.771	0.883					1.36					2.1					2.72					
Cd	mg/L	< 0.000003	0.000004	0.000012	0.000012	0.000152	0.000074					0.000005					0.000005					0.000008					
Ca	mg/L	13	35	73.4	160	263	253					124					50.6					27.2					
Cr	mg/L	< 0.0005	< 0.0005	< 0.0005	0.0006	0.0006	0.0005					0.0019					0.0024					< 0.0005					
Co	mg/L	0.000027	0.000098	0.000117	0.000236	0.000622	0.000922					0.000207					0.000059					0.000077					
Cu	mg/L	0.001	0.0012	0.0009	0.001	0.0017	0.0015					0.0007					0.0007					0.001					
Fe	mg/L	< 0.002	0.004	0.004	0.006	< 0.002	0.019					0.002					0.006					< 0.003					
Pb	mg/L	0.00005	0.00008	0.0001	0.00023	0.0001	0.00009					0.00026					0.00017					0.00004					
Li	mg/L	< 0.001	< 0.001	0.001	< 0.001	0.001	0.001					< 0.001					< 0.001					< 0.001					
Mg	mg/L	1.22	1.88	1.98	2.89	3.68	3.13					0.888					0.252					0.105					
Mn	mg/L	< 0.0002	0.0007	< 0.0002	0.0007	0.0016	0.0437					0.0006					0.0003					0.0009					
Hg	ug/L	< 0.01	0.01	< 0.01	< 0.01	0.01	0.01					0.02					0.01					< 0.01					
Mo	mg/L	0.00243	0.0031	0.00404	0.00659	0.0107	0.00961					0.00493					0.00604					0.0071					
Ni	mg/L	0.0007	0.0005	0.0022	0.0011	0.0086	0.0121					0.0005					0.0006					0.0016					
P	mg/L	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	0.035					< 0.009					< 0.009					< 0.009					
K	mg/L	14.4	39.7	70.5	170	238	204					73					34.3					24.1					
Se	mg/L	0.00013	< 0.00004	0.00056	0.00023	0.00113	0.0227					0.00013					0.00025					0.00082					
Si	mg/L	6.57	9.44	98.1	510	421	104					18.5					7.89					5.54					
Ag	mg/L	< 0.00001	< 0.00001	< 0.00001	0.00002	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001					
Na	mg/L	1.72	9.16	23.1	73.6	147	91.6					13.8					8.57					6.73					
Sr	mg/L	0.259	0.786	1.66	3.27	7.07	5.64					2.76					1.19					0.643					
S	mg/L	2.79	4.36	7.19	12	19.9	17.2					8.06					6.28					8.93					
Ti	mg/L	< 0.00002	0.00002	0.00003	0.00005	0.00006	0.00006					< 0.00002					< 0.00002					< 0.00002					
Sn	mg/L	0.0421	0.0413	0.0402	0.0395	0.0375	0.0284					0.0229					0.0139					0.011					
Ti	mg/L	0.0003	0.0001	0.0005	0.0006	0.0038	0.0025					0.0009					0.0004					0.0006					
U	mg/L	< 0.000001	0.000005	0.000001	< 0.000001	0.000008	0.000003					0.000002					0.000002					0.000003					
V	mg/L	0.00044	0.00051	0.0005	0.00055	0.0006	0.00027					0.00023					0.00039					0.00089					
Zn	mg/L	0.004	0.003	0.009	0.006	0.044	0.028					0.005					0.003					0.003					
Zr	mg/L	0.00005	0.00004	0.00005	0.00001	0.00001	0.00003					0.00003					0.00009					0.00007					

Column Test - Granite Top
HC 9 Confirmation

Date		12-May-11	19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Volume mL	Input	2500	550	555	570	540	695	525	495	605	515	550	560	545	565	520	530	550	530	680	530	540	515	650	525	525	540	530	565	625	525	555	645
	Output	#N/A	250	260	260	265	270	255	225	265	260	260	245	260	260	265	260	265	260	265	260	260	260	340	265	260	260	250	260	265	260	265	260
pH		#N/A	7.75	8.01	7.73	7.43	7.72	7.56	7.62	7.48	7.78	7.7	7.78	7.52	7.86	7.68	7.82	7.95	7.77	7.67	7.4	7.41	7.51	7.91	7.69	7.63	8.02	8.13	7.86	7.99	7.69	7.88	7.78
ORP	mV	#N/A	243.65	270.99	271.97	286.13	334.47	351.56	333	296.87	270.01	255.37	270.99	277.34	224.12	239.25	240.72	235	251	275	264.64	205.56	228.02	167.96	154.78	185.05	166.01	190.91	217.28	216.79	285.64	230.46	256
Cond.	umhos/cm	#N/A	30.47	37.24	36.44	35.47	35.14	31.97	30.21	30.9	29.18	27.53	24.29	23.86	22.38	21.18	21.44	20.94	21.6	19.08	16.77	16	16.16	15.43	13.83	13.05	13.6	13.02	13.24	12.73	74.78	11.9	12
Acidity	mgCaCO3/L	#N/A	3.73	3.77	4.68	2.33	3.56	2.3	2.94	3.26	4.06	3.11	2.73	2.73	2.93	2.77	3.46	3.52	3.03	2.34	2.22	2.26	3.5	5.6	2.43	2.56	2.6	3.34	1.67	2.1	2.84	2.15	2.8
Alkalinity	mgCaCO3/L	#N/A	10.08	13.48	15.3	14.54	15.96	14.62	14.14	14.03	13.44	12.07	10.94	11.02	11.56	11.93	12.51	12	11.94	11.99	8.79	10.36	8.91	11.9	8.08	6.92	8.84	9.25	7.16	8.57	8.52	6.62	6.8
Sulphate	mg/L	#N/A	7	3	3	4	4	5	3	3	3	2	<2	<2	2	3	<2	2	4	<2	3	2	3	3	3	2	<2	<2	2	2	2		
DO	mg/L	#N/A	6.4	5.88	4.41	4.33	4.58	3.19	5.93	6.46	6.12	5.9	4.19	4.5	5.55	3.83	4.84	4.75	4.82	4.6	4.86	4.76	5.25	3.85	4.85	5.11	6.02	5.9	6.81	6.31	2.2	6.67	5.30
Total P	mg/L	#N/A	0.003	0.005	<0.002	<0.002	0.004	0.003	0.003	0.004	0.003	0.003	0.003	0.004	0.004	0.003	0.002	<0.002	<0.002	0.003	0.002	0.002	0.002	<0.002	<0.002	<0.002	0.002	0.003	0.002	0.004	IP	<0.002	
Ortho P	mg/L	#N/A	<0.001	0.002	<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	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	IP	<0.001	
Chloride	mg/L	#N/A	0.9	1	1	0.6	0.5	0.4	0.4	0.6	0.2	0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.3	< 0.2	< 0.2	< 0.2			
Fluoride	mg/L	#N/A	0.09	0.11	0.12	0.14	0.15	0.15	0.13	0.12	0.13	0.16	0.13	0.11	0.12	0.11	0.1	0.12	0.13	0.1	0.1	0.07	1.69	0.77	0.07	0.09	0.09	0.08	0.1	0.08			
Hardness	mg/L	#N/A	7.6	11	12.7	13.1	14					12.6					9.61					7.08					6.16						
Al	mg/L	#N/A	0.0094	0.0107	0.0054	0.006	0.0055					0.0046					0.0057					0.0039					0.0039						
Sb	mg/L	#N/A	< 0.0002	< 0.0002	< 0.0002	0.0003	< 0.0002					< 0.0002					< 0.0002					< 0.0002					< 0.0002						
As	mg/L	#N/A	0.0004	0.0014	0.0069	0.001	0.001					0.0025					0.0023					0.0018					0.0044						
Ba	mg/L	#N/A	0.0044	0.00601	0.0059	0.0064	0.0071					0.0074					0.0084					0.0086					0.0031						
Be	mg/L	#N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					< 0.00002						
Bi	mg/L	#N/A	0.00002	< 0.00001	0.00002	0.00002	< 0.00001					< 0.00001					< 0.00001					< 0.00001					< 0.00001						
B	mg/L	#N/A	0.011	0.0127	0.008	0.0153	0.005					0.0115					0.0147					0.0145					0.0023						
Cd	mg/L	#N/A	0.000004	0.000007	0.000011	0.000017	0.000007					0.000007					0.000007					< 0.000003					0.000005						
Ca	mg/L	#N/A	2.46	3.62	4.25	4.45	4.83					4.46					3.44					2.57					2.26						
Cr	mg/L	#N/A	< 0.0005	< 0.0005	< 0.0005	0.0006	0.0013					< 0.0005					0.0021					0.0022					0.0031						
Co	mg/L	#N/A	0.000029	0.000042	0.000027	0.000038	0.000026					0.00003					0.000067					0.000011					0.000013						
Cu	mg/L	#N/A	0.0016	0.002	0.0015	0.0015	0.001					0.0006					0.0042					0.0008					0.0011						
Fe	mg/L	#N/A	< 0.002	0.002	0.003	< 0.002	0.007					0.002					0.01					0.003					0.017						
Pb	mg/L	#N/A	0.00011	0.00018	0.00006	0.0005	0.00007					0.00003					0.00018					0.00028					0.0001						
Li	mg/L	#N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001					< 0.001					< 0.001					< 0.001					< 0.001						
Mg	mg/L	#N/A	0.365	0.478	0.502	0.492	0.47					0.361					0.248					0.161					0.122						
Mn	mg/L	#N/A	0.0028	0.0055	0.0061	0.0069	0.0089					0.0067					0.0053					0.0034					0.0037						
Hg	ug/L	#N/A	< 0.01	< 0.01	< 0.01	0.01	< 0.01					< 0.01					0.03					0.01					< 0.01						
Mo	mg/L	#N/A	0.00023	0.0003	0.00026	0.00027	0.00082					0.00036					0.00011					0.00013					0.00013						
Ni	mg/L	#N/A	< 0.0001	0.0005	0.0005	0.0007	0.0007					0.0006					0.0004					0.0002					0.0004						
P	mg/L	#N/A	0.016	< 0.009	0.021	0.021	< 0.009					< 0.009					< 0.009					< 0.009					< 0.009						
K	mg/L	#N/A	0.934	0.994	0.874	0.807	0.983					0.47					0.191					0.17					0.134						
Se	mg/L	#N/A	< 0.00004	0.00012	< 0.00004	0.00019	< 0.00004					< 0.00004					0.00007					0.0001					< 0.00004						
Si	mg/L	#N/A	40	46.8	31.8	36.3	28.5					29.9					4.4					2.82					2.11						
Ag	mg/L	#N/A	0.00002	0.00004	< 0.00001	0.00003	< 0.00001					< 0.00001					< 0.00001					< 0.00001					< 0.00001						
Na	mg/L	#N/A	1.1	1.19	1.2	0.98	1.03					0.53					0.32					0.17					0.12						
Sr	mg/L	#N/A	0.0219	0.0292	0.0323	0.0312	0.0356					0.0275					0.0186					0.0125					0.0096						
S	mg/L	#N/A	1.75	1.89	1.76	1.6	1.5					1.16					0.85					0.67					0.59						
Tl	mg/L	#N/A	< 0.0002	< 0.0002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					< 0.00002						
Sn	mg/L	#N/A	0.543	0.639	0.724	0.678	0.702					0.607					0.484					0.361					0.3						
Ti	mg/L	#N/A	< 0.0001	0.0002	0.0001	0.0001	< 0.0001					0.0001					0.0001					< 0.0001					< 0.0001						
U	mg/L	#N/A	0.000046	0.00008	0.000062	0.000087	0.000079					0.000075					0.000084					0.000079					0.000069						
V	mg/L	#N/A	0.00025	0.00025	0.00045	0.00037	0.00056					0.00033					0.0004					0.00023					0.00009						
Zn	mg/L	#N/A	0.005	0.009	0.015	0.016	0.007					0.004					0.007					0.005					0.008						
Zr	mg/L	#N/A	0.00004	0.00003	0.00001	0.00003	0.00002					0.00001					0.00002					0.00002					0.00003						

Column Test - Granite Bottom
HC 9 Confirmation

Date		12-May-11	19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Volume mL	Input	817	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Output	255	250	265	260	265	270	270	260	265	260	255	270	260	260	260	260	260	260	260	260	260	260	260	260	260	260	265	260	260	260	260	260
pH		7.75	7.82	7.94	7.72	7.92	7.95	8.02	8	7.79	7.75	7.79	7.82	7.76	7.8	7.81	7.76	7.9	7.93	8.05	7.87	7.82	7.77	7.68	7.86	7.83	7.84	7.78	7.87	7.9	7.76	7.85	7.77
ORP	mV	329.58	280.76	301.75	296.38	317.87	336.91	355.95	339.35	317.38	300.78	286.62	301.26	309.57	253.41	262.69	270.5	275	289	301	215.82	263.18	265.62	229.98	225.09	255.37	237.3	262.69	265.13	275.39	313.47	282.22	304
Cond.	umhos/cm	288.34	640.96	579.73	426.63	327.79	259.14	226.31	199.62	192.56	182.82	175.21	161.36	162.86	159.67	154.81	151.31	151.06	144.26	142.92	139.32	135.48	133.59	132.04	128.54	126.9	126.15	120.29	121.84	115.3	147.97	118.95	119
Acidity	mgCaCO3/L	3.1	8.51	6.68	9.35	4.43	5.14	3.25	3.43	4.73	6.83	5.47	4.78	4.48	4.93	4.35	5.53	4.8	4.28	3.66	2.81	3.11	3.58	7.97	3.03	3.12	3.91	5.32	2.42	2.94	4.08	2.93	3.7
Alkalinity	mgCaCO3/L	41.48	107.87	124.32	135.11	127.83	119.8	111.39	99.66	94.88	85.68	81.95	76.47	77.02	77.58	75.1	75.73	76.99	74.57	71.93	70.27	68.1	65.38	67.75	63.33	62.24	62.26	60.46	57.99	57.34	59.56	58.12	57.1
Sulphate	mg/L	69	176	127	58	36	16	16	13	14	10	12	10	7	7	7	7	7	9	7	10	7	5	7	8	7	7	6	7	8	7	7	
DO	mg/L	4.78	1.65	0.86	0.79	0.47	0.45	1.51	1.79	1.18	0.4	0.85	0.8	1.02	0.78	1.55	0.63	0.6	0.56	0.51	0.6	0.45	0.67	0.35	0.14	0.63	0.31	0.55	1.16	0.89	0.95	3.15	0.80
Total P	mg/L	0.002	0.003	0.017	<0.002	0.002	0.004	<0.002	0.005	0.006	0.004	0.004	0.004	0.005	0.007	0.002	0.003	0.003	0.003	<0.002	0.004	0.004	0.005	0.003	0.003	0.002	0.002	0.004	0.003	0.004	IP	0.003	
Ortho P	mg/L	0.002	<0.001	0.004	<0.001	<0.001	0.001	0.001	0.002	0.001	0.001	0.002	0.001	0.002	<0.001	0.002	0.002	0.001	0.001	0.001	0.001	<0.001	0.003	<0.001	<0.001	<0.001	0.001	<0.001	0.001	<0.001	IP	0.001	
Chloride	mg/L	10	20	15	8.1	4.2	2.3	1.7	1.2	0.8	0.6	0.7	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.2	0.2	< 0.2	0.3	0.3	0.2			
Fluoride	mg/L	0.49	1.19	1.39	1.47	1.45	1.36	1.37	1.12	1.02	0.98	1.05	1.01	1	1.01	0.97	0.96	0.98	0.92	0.97	0.94	0.75	0.07	0.84	0.88	0.92	0.87	0.91	0.88	0.8			
Hardness	mg/L	76.6	199	183	142	107	93.3					78.1					66.3					57.1					59.1						
Al	mg/L	0.064	0.0196	0.0206	0.0178	0.0231	0.0253					0.0369					0.0554					0.058					0.0715						
Sb	mg/L	< 0.0002	< 0.0002	0.0005	< 0.0002	0.0003	< 0.0002					< 0.0002					< 0.0002					< 0.0002					< 0.0002						
As	mg/L	0.0008	0.0014	0.0022	0.0017	0.0014	0.0016					0.0004					0.0021					0.0017					0.0017						
Ba	mg/L	0.0251	0.0523	0.0459	0.0365	0.0301	0.0295					0.0245					0.0205					0.0179					0.0177						
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					< 0.00002						
Bi	mg/L	< 0.00001	0.00004	0.00001	< 0.00001	0.00002	< 0.00001					< 0.00001					< 0.00001					0.00005					< 0.00001						
B	mg/L	0.0572	0.118	0.112	0.103	0.065	0.0441					0.0284					0.0221					0.0124					0.0085						
Cd	mg/L	0.000017	0.000009	0.000012	< 0.000003	0.000014	0.000013					0.000006					< 0.000003					0.000003					< 0.000003						
Ca	mg/L	22.6	56.5	52.1	39.8	30.9	27.7					25.3					22.5					20					21.1						
Cr	mg/L	0.0021	0.0035	0.0027	0.0016	0.0011	0.0011					0.0005					0.0023					0.0033					0.003						
Co	mg/L	0.000398	0.000206	0.000199	0.000107	0.000081	0.000084					0.000065					0.00004					0.000035					0.000036						
Cu	mg/L	0.0018	0.0021	0.0023	0.0009	0.0016	0.002					< 0.0005					< 0.0005					0.0008					< 0.0005						
Fe	mg/L	0.005	0.002	0.064	0.149	0.093	0.076					0.028					0.024					0.014					0.021						
Pb	mg/L	0.00011	0.00006	0.00018	0.0001	0.00013	0.00012					0.00006					0.0001					0.00038					0.00009						
Li	mg/L	0.007	0.014	0.008	0.009	0.009	0.007					0.004					0.003					0.002					0.002						
Mg	mg/L	4.93	13.9	12.8	10.2	7.32	5.9					3.59					2.46					1.76					1.56						
Mn	mg/L	0.0044	0.0229	0.0301	0.0259	0.0197	0.0184					0.0135					0.0115					0.0087					0.0091						
Hg	ug/L	0.01	0.01	0.01	0.01	< 0.01	< 0.01					< 0.01					0.01					< 0.01					< 0.01						
Mo	mg/L	0.00331	0.00815	0.00947	0.00793	0.00599	0.00484					0.00246					0.00131					0.00081					0.00051						
Ni	mg/L	0.0023	0.0018	0.003	0.0002	0.0013	0.0015					0.0009					< 0.0001					0.0002					0.0005						
P	mg/L	<0.03	0.032	0.039	< 0.009	0.03	< 0.009					0.014					< 0.009					< 0.009					< 0.009						
K	mg/L	11.4	20.4	17.6	14.7	10.4	8.02					3.68					2.41					1.78					1.42						
Se	mg/L	0.00067	0.0007	0.00054	0.00016	0.00029	0.00029					0.00042					0.00006					0.00005					< 0.00004						
Si	mg/L	398	498	376	173	134	74.2					29.4					12					8.33					7.16						
Ag	mg/L	< 0.00001	0.00009	0.00002	< 0.00001	0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001					< 0.00001						
Na	mg/L	13.1	30.1	25	18.2	11.3	7.73					2.65					1.49					0.99					0.83						
Sr	mg/L	0.26	0.702	0.626	0.48	0.352	0.299					0.219					0.172					0.136					0.134						
S	mg/L	28.1	67.6	46.4	26	15.1	8.77					4.32					3.37					3.04					3.04						
Tl	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					< 0.00002						
Sn	mg/L	0.063	0.0448	0.0989	0.208	0.342	0.437					0.621					0.496					0.44					0.328						
Ti	mg/L	0.0009	0.0018	0.0014	0.0007	0.0004	0.0002					0.0002					0.0001					0.0002					0.0001						
U	mg/L	0.000698	0.0115	0.00769	0.00442	0.00253	0.00159					0.0018					0.00295					0.00306					0.00296						
V	mg/L	0.00201	0.00245	0.00128	0.00098	0.0006	0.00064					0.00066					0.00056					0.00049					0.00055						
Zn	mg/L	0.017	0.005	0.01	0.012	0.01	0.006					0.005					0.005					0.016					0.004						
Zr	mg/L	0.00011	0.00005	0.00007	0.00008	0.0001	0.00011					0.00006					0.00004					0.00014					0.00004						

Column Test - Granite Top
HC 12 Confirmation

Date		12-May-11	19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Volume mL	Input	2431	545	570	1345	540	500	600	520	580	525	535	740	330	545	545	5.35	535	540	555	525	535	525	560	525	535	690	535	555	665	1410	600	580
	Output	255	260	260	265	270	255	250	265	260	255	250	265	260	265	265	260	260	260	260	260	260	260	260	260	260	405	260	265	265	260	265	260
pH		7.54	7.88	7.69	7.37	7.64	7.54	8.24	7.46	7.53	7.47	7.55	7.37	7.64	7.53	7.66	7.86	7.64	7.56	7.33	7.34	7.35	7.95	7.41	7.47	7.76	7.89	7.5	7.63	7.5	7.57	7.42
ORP	mV	265.13	289.55	288.08	286.62	335.44	354.98	333.98	302.73	286.62	275.87	289.06	291.01	240.72	250.48	250.48	249	260	331	270.5	259.76	262.2	226.56	229.98	253.41	233.39	259.27	261.71	271.97	302.73	275.39	295
Cond.	umhos/cm	29.97	35.48	36.25	26.15	26.78	27.04	48.5	27.97	28.69	30.3	27.56	22.87	24.22	22.55	22.6	22.88	21.89	21.42	20.43	18.86	18.91	17.78	18.11	17.22	17.48	15.49	15.59	15.25	55.3	8.96	10
Acidity	mgCaCO3/L	3.96	3.95	4.71	2.17	3.76	2.3	1.71	3.33	4.52	3.33	3.12	3.07	3.77	3.04	3.65	3.36	3.44	2.48	2.07	2.31	3.29	5.84	2.75	2.88	3.39	4.25	2.31	2.44	3.37	2.94	3.5
Alkalinity	mgCaCO3/L	12.4	16.73	20.74	13.77	15.84	16.1	31.24	16.42	16.3	16.64	15.73	13.6	15.51	15.01	15.27	15.27	14.95	13.34	12.31	13.43	11.64	14.65	11.35	11.21	12.61	11.88	10.34	11.21	10.9	7.02	7.7
Sulphate	mg/L	4	<2	<2	2	<2	3	3	<2	2	<2	<2	<2	<2	2	<2	2	3	<2	2	<2	2	<2	2	<2	<2	<2	2	3	2	2	
DO	mg/L	5.7	5.7	6.3	6.22	5.23	5.37	3.9	6.27	5.98	5.68	5.22	4.88	3.78	3.59	5.45	5.6	5.75	5.45	4.87	4.59	4.98	4.6	5.35	5.4	6	7.61	6.6	6.13	2.45	6.64	6.45
Total P	mg/L	0.004	0.004	<0.002	<0.002	0.003	<0.002	<0.002	0.003	0.003	0.004	0.002	0.003	<0.002	<0.002	0.002	0.002	<0.002	0.003	<0.002	0.002	0.003	0.01	<0.002	<0.002	0.003	0.002	0.002	0.002	IP	<0.002	
Ortho P	mg/L	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001	0.002	<0.001	0.002	0.001	0.002	0.002	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	IP	<0.001	
Chloride	mg/L	2.1	2	1.8	0.9	0.7	0.6	0.5	0.7	0.3	0.3	0.3	0.2	< 0.2	< 0.2	0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2			
Fluoride	mg/L	0.1	0.1	0.11	0.08	0.09	0.08	0.07	0.07	0.07	0.11	0.07	0.06	0.06	0.06	0.08	< 0.06	0.07	< 0.06	< 0.06	< 0.06	0.14	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.08			
Hardness	mg/L	6.3	9.2	11.1	8.7	9.9					13.7					10.6					8.74					8.77						
Al	mg/L	0.0106	0.0086	0.0073	0.0054	0.0066					0.0074					0.0094					0.007					0.007						
Sb	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002					< 0.0002					< 0.0002					< 0.0002					< 0.0002						
As	mg/L	0.0007	0.0007	0.0133	0.0016	0.0008					0.0007					0.0006					0.0015					0.0031						
Ba	mg/L	0.0045	0.00643	0.0087	0.0082	0.0065					0.0075					0.0061					0.0056					0.0049						
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					< 0.00002						
Bi	mg/L	0.00002	< 0.00001	0.00002	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001					0.00003						
B	mg/L	0.0128	0.0139	0.0101	0.0094	0.0051					0.0097					0.0075					0.003					0.0027						
Cd	mg/L	0.000006	< 0.000003	0.000024	0.000014	0.000013					0.000003					0.000007					< 0.000003					< 0.000003						
Ca	mg/L	2.14	3.2	3.9	3.09	3.54					4.93					3.87					3.22					3.22						
Cr	mg/L	< 0.0005	< 0.0005	< 0.0005	0.0007	0.0006					< 0.0005					0.0021					0.0017					0.0014						
Co	mg/L	0.000047	0.000042	0.000066	0.000029	0.000033					0.000028					0.00002					0.000012					0.000012						
Cu	mg/L	0.0014	0.0032	0.003	0.0019	0.0007					0.0014					0.0006					0.0007					< 0.0005						
Fe	mg/L	< 0.002	0.003	0.003	< 0.002	0.007					0.003					0.012					0.017					0.014						
Pb	mg/L	0.00017	0.00008	0.0004	0.00009	0.00016					0.00005					0.00006					0.00016					0.00006						
Li	mg/L	0.001	0.001	0.001	< 0.001	< 0.001					< 0.001					< 0.001					< 0.001					< 0.001						
Mg	mg/L	0.223	0.299	0.336	0.246	0.266					0.351					0.221					0.172					0.163						
Mn	mg/L	0.0032	0.0056	0.0063	0.0057	0.0081					0.0084					0.0071					0.006					0.0061						
Hg	ug/L	0.01	< 0.01	0.01	< 0.01	< 0.01					< 0.01					< 0.01					0.04					0.01						
Mo	mg/L	0.00037	0.00041	0.00044	0.00035	0.00066					0.00056					0.00018					0.00011					0.00008						
Ni	mg/L	< 0.0001	0.0004	0.0008	0.0004	0.0008					0.0005					< 0.0001					0.0001					0.0003						
P	mg/L	< 0.009	0.014	< 0.009	0.046	< 0.009					0.015					< 0.009					0.01					< 0.009						
K	mg/L	1.1	1.11	1.06	0.646	0.67					0.512					0.306					0.244					0.226						
Se	mg/L	< 0.00004	0.00053	< 0.00004	0.00009	< 0.00004					0.00059					< 0.00004					< 0.00004					< 0.00004						
Si	mg/L	66.8	48.7	34.2	28.6	20.2					11.9					3.73					2.39					1.93						
Ag	mg/L	0.00002	0.00009	0.00001	0.00004	< 0.00001					< 0.00001					< 0.00001					< 0.00001					< 0.00001						
Na	mg/L	2.19	2.2	2.05	1.15	1.01					0.76					0.36					0.24					0.17						
Sr	mg/L	0.0237	0.0322	0.0367	0.0252	0.0274					0.0377					0.0231					0.0169					0.0149						
S	mg/L	0.46	0.48	0.45	0.33	0.41					0.36					0.26					0.29					0.22						
Tl	mg/L	< 0.0002	< 0.0002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					< 0.00002						
Sn	mg/L	0.501	0.627	0.707	0.504	0.542					0.568					0.499					0.423					0.358						
Ti	mg/L	< 0.0001	0.0001	< 0.0001	< 0.0001	< 0.0001					< 0.0001					< 0.0001					< 0.0001					< 0.0001						
U	mg/L	0.000022	0.000026	0.00002	0.000032	0.000028					0.000074					0.000063					0.000055					0.000047						
V	mg/L	0.00034	0.00027	0.00033	0.00028	0.00037					0.0003					0.00072					0.00026					0.00017						
Zn	mg/L	0.01	0.008	0.021	0.009	0.018					0.004					0.004					0.005					0.004						
Zr	mg/L	0.00002	0.00001	0.00002	0.00002	0.00002					0.00001					< 0.00001					0.00001					< 0.00001						

Column Test - Granite Bottom
HC 12 Confirmation

Date		12-May-11	19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Volume mL	Input	1029	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Output	255	250	260	260	265	270	255	250	260	260	260	265	260	260	265	260	260	260	255	260	265	260	260	260	260	260	265	260	260	260	265	260
pH		7.96	7.78	7.93	7.75	7.9	7.92	8.05	8.04	7.79	7.72	7.79	7.81	7.74	7.79	7.8	7.75	7.88	7.93	7.86	7.89	7.82	7.76	7.69	7.88	7.81	7.79	7.78	7.85	7.84	7.74	7.8	7.73
ORP	mV	308.1	289.06	305.17	301.75	317.87	340.33	355.95	342.28	318.35	309.08	290.03	307.61	317.38	255.37	270.01	276.85	271	283	327	289	266.11	274.9	241.69	229.98	243.16	240.72	269.04	285.15	284.66	321.28	283.2	320
Cond.	umhos/cm	164.58	293.92	311.65	297.45	268.51	238.39	226.31	212.61	205.23	202.53	197.54	185.81	187.68	183.13	178.97	173.45	174.81	172.63	172.93	185.44	164.05	161.37	158.48	153.63	149.85	147.93	142.88	140.64	131.48	170.55	128.08	124
Acidity	mgCaCO3/L	2.28	6.46	5.2	8.41	4.8	4.84	3.32	3.98	5.44	8.58	5.09	5.92	6.23	6.44	5.59	5.96	4.44	5.25	4.2	3.34	4.25	4.77	9.77	3.5	3.59	5.04	4.68	2.7	3.24	4.67	3.31	3.7
Alkalinity	mgCaCO3/L	42.81	93.59	114.45	142.47	137.63	131.57	131.31	124.56	118.32	110.34	108.4	103.78	104.97	103.18	101.88	99.63	100.58	102.16	99.2	99.2	94.27	91.74	91.19	87.59	84.85	84.51	82.05	79	77.56	75.56	74.81	72.3
Sulphate	mg/L	9	17	10	3	<2	2	3	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	3	<2	3	2	<2	<2	2	<2	2	<2	3	2	2	<2	
DO	mg/L	5.43	0.92	0.41	1.26	0.46	0.54	2.78	0.92	0.9	1.34	0.85	0.83	0.81	0.79	1.19	0.93	0.56	0.6	0.65	0.93	0.56	0.75	0.68	0.75	0.21	0.18	0.78	1.16	0.5	0.78	1.39	0.45
Total P	mg/L	0.003	0.004	0.009	<0.002	0.002	0.006	0.004	0.003	0.005	0.005	0.008	0.009	0.026	0.01	0.006	0.006	0.005	0.006	0.007	0.004	0.005	0.007	0.004	0.004	0.004	0.005	0.005	0.01	0.004	IP	0.004	
Ortho P	mg/L	0.001	0.001	0.004	0.001	0.002	0.006	0.001	0.001	0.002	0.002	0.008	0.002	0.007	<0.001	0.001	0.002	0.001	0.005	0.006	0.003	0.001	0.004	0.003	<0.001	0.003	0.002	<0.001	0.001	0.002	IP	0.003	
Chloride	mg/L	15	21	18	13	8.2	5.2	3.6	2.9	2.1	1.6	1.6	1.1	0.9	0.9	0.8	0.8	0.7	0.7	0.7	4.4	0.7	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4			
Fluoride	mg/L	0.44	1.13	1.21	1.09	0.98	0.87	0.83	0.69	0.62	0.58	0.6	0.56	0.54	0.52	0.51	0.44	0.48	0.59	0.44	0.48	0.36	< 0.06	0.41	0.42	0.42	0.4	0.4	0.38	0.38			
Hardness	mg/L	22.9	58.4	71.8	77	76.5	77.6					86.2					78.7					71.5					71.3						
Al	mg/L	0.17	0.0648	0.0396	0.0237	0.0246	0.0245					0.0272					0.0334					0.0311					0.0358						
Sb	mg/L	0.0003	0.0016	0.0017	0.0007	0.0005	0.0002					0.0003					0.0003					< 0.0002					0.0002						
As	mg/L	0.0015	0.0027	0.0034	0.0037	0.0049	0.0028					0.0015					0.0018					0.0014					0.0025						
Ba	mg/L	0.01	0.0264	0.0342	0.0405	0.0469	0.0492					0.0478					0.0419					0.0378					0.0342						
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					< 0.00002						
Bi	mg/L	< 0.00001	< 0.00001	0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001					0.00002					< 0.00001						
B	mg/L	0.0504	0.105	0.102	0.0999	0.083	0.0599					0.03					0.0209					0.0144					0.013						
Cd	mg/L	0.000024	0.000014	0.000004	< 0.000003	0.00001	0.000009					< 0.000003					< 0.000003					< 0.000003					< 0.000003						
Ca	mg/L	7.4	18.2	22.6	23.9	24.1	24.8					28.9					27.2					25.1					25.5						
Cr	mg/L	0.0012	0.003	0.0024	0.0015	0.0009	0.0012					0.0005					0.0017					0.0018					0.0019						
Co	mg/L	0.000239	0.000198	0.000234	0.000172	0.000132	0.0001					0.00008					0.000052					0.000039					0.000048						
Cu	mg/L	0.0044	0.005	0.0017	0.0013	0.001	0.0008					0.0006					< 0.0005					0.0006					0.0008						
Fe	mg/L	0.016	0.007	0.024	0.121	0.092	0.078					0.051					0.062					0.047					0.052						
Pb	mg/L	0.00017	0.00042	0.00062	0.00025	0.00013	0.00013					0.00048					0.00024					0.00035					0.00009						
Li	mg/L	0.007	0.012	0.01	0.009	0.01	0.008					0.005					0.004					0.003					0.003						
Mg	mg/L	1.08	3.14	3.76	4.24	3.98	3.8					3.45					2.65					2.13					1.87						
Mn	mg/L	0.0017	0.0082	0.0135	0.0181	0.0171	0.0178					0.0184					0.0186					0.0176					0.0174						
Hg	ug/L	0.01	0.01	0.01	0.01	< 0.01	< 0.01					< 0.01					< 0.01					0.01					0.01						
Mo	mg/L	0.00292	0.00651	0.00732	0.00733	0.0063	0.00495					0.00191					0.00106					0.00076					0.00057						
Ni	mg/L	0.0012	0.001	0.002	0.0006	0.0011	0.0014					0.0011					< 0.0001					0.0001					0.0007						
P	mg/L	<0.03	0.018	< 0.009	0.025	0.027	< 0.009					0.01					< 0.009					< 0.009					< 0.009						
K	mg/L	7.4	11.3	11	10.5	9.06	7.71					4.59					3.18					2.48					2.05						
Se	mg/L	0.00063	0.0006	0.00118	0.00051	0.00042	< 0.00004					0.00078					0.00008					< 0.00004					< 0.00004						
Si	mg/L	392	379	303	184	176	105					27.2					11.7					7.78					6.32						
Ag	mg/L	< 0.00001	0.00001	0.00001	0.00002	0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001					< 0.00001						
Na	mg/L	15.3	27	25.6	23.3	17.1	12.8					4.82					2.48					1.71					1.33						
Sr	mg/L	0.117	0.319	0.381	0.411	0.39	0.383					0.38					0.315					0.262					0.237						
S	mg/L	3.57	5.94	4.84	1.64	1.54	0.77					1.73					1.32					0.96					1.44						
Tl	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					< 0.00002						
Sn	mg/L	0.0731	0.052	0.0847	0.153	0.286	0.361					0.526					0.489					0.449					0.384						
Ti	mg/L	0.0004	0.0004	0.0003	0.0001	< 0.0001	< 0.0001					< 0.0001					< 0.0001					< 0.0001					< 0.0001						
U	mg/L	0.000069	0.00134	0.00138	0.00114	0.00121	0.00122					0.00144					0.00121					0.000926					0.000929						
V	mg/L	0.00174	0.00249	0.00147	0.00098	0.00067	0.00076					0.00038					0.00027					0.00035					0.00046						
Zn	mg/L	0.019	0.009	0.012	0.009	0.008	0.007					0.004					0.005					0.013					0.004						
Zr	mg/L	0.00013	0.00005	0.00004	0.00004	0.00006	0.00007					0.00005					0.00004					0.00005					0.00003						

Column Test - Granite Top
HC 16 Confirmation

Date		12-May-11	19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Volume mL	Input	2455	580	580	540	550	570	520	495	590	530	545	590	535	535	550	545	525	535	540	635	540	525	570	535	560	550	560	545	770	540	595	550
	Output	#N/A	260	260	260	265	270	250	220	265	260	260	250	260	260	265	265	260	265	260	260	265	260	260	260	260	260	260	260	265	260	265	260
pH		#N/A	6.87	6.36	7.44	6.01	6.49	6.1	6.4	6.9	6.53	6.54	6.59	6.34	6.58	6.27	6.45	6.76	6.9	6.27	6.27	6.08	6.48	7.01	6.32	6.21	7.01	6.71	6.53	6.94	5.91	6.27	6.63
ORP	mV	#N/A	242.67	330.56	223.14	252.44	371.09	358.39	346.19	306.64	286.13	295.41	291.99	301.26	240.72	274.9	253.41	255	251	275	275.39	244.14	146.48	208.49	164.06	258.3	146.48	225.09	182.12	301.26	278.32	312.98	291
Cond.	umhos/cm	#N/A	115	121.67	110.33	88.13	111.01	61.31	53.15	53.61	40.62	34.67	29.73	27.7	24.61	22.65	22.11	20.06	18.23	18	17.04	16.04	16.29	15.46	14.3	13.79	14.12	13.78	14.39	38.17	18.78	11.98	12
Acidity	mgCaCO3/L	#N/A	5.36	7.35	6.05	3.89	5.1	3.4	4.71	4.02	5.3	4.64	4.49	3.94	4.56	3.79	4.32	3.88	3.39	2.7	2.01	2.28	4.01	5.37	3.48	3.81	3.63	4.19	2.46	3.71	4.31	3.01	3.8
Alkalinity	mgCaCO3/L	#N/A	2.7	2.48	4.39	1.87	2.61	1.91	2.13	7.87	2.37	1.34	1.41	1.86	2.93	1.83	3.48	2.28	3.47	1.58	1.41	1.64	1.91	3.04	1.98	2.03	2.64	2.45	1.61	2.95	0.9	1.7	2.1
Sulphate	mg/L	#N/A	38	41	30	24	21	23	21	19	12	15	14	11	8	9	8	10	11	6	7	7	8	8	7	5	6	6	3	8	6	4	
DO	mg/L	#N/A	6.6	5.33	4.23	3.63	3.92	4.6	4.12	5.6	5.7	4.7	4.3	4.12	3.16	3.55	5.24	5.13	4.7	4.9	4.9	4.7	5.45	4.65	5.25	5.5	6.15	7.1	5.23	6.64	2.33	5.26	5.45
Total P	mg/L	#N/A	0.003	0.003	<0.002	<0.002	0.005	0.004	0.003	0.005	0.004	0.008	0.006	0.005	0.005	0.004	0.004	0.003	0.002	0.002	0.002	0.003	0.003	0.002	0.002	0.002	<0.002	0.003	0.003	<0.002	IP	<0.002	
Ortho P	mg/L	#N/A	<0.001	0.001	<0.001	<0.001	0.002	<0.001	<0.001	0.002	0.002	0.001	0.001	0.001	0.002	0.001	0.002	0.001	0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	IP	<0.001	
Chloride	mg/L	#N/A	0.7	0.7	0.7	0.5	0.4	0.3	0.4	0.4	0.2	0.2	< 0.2	0.2	< 0.2	< 0.2	0.3	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2			
Fluoride	mg/L	#N/A	0.08	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06	< 0.06	0.09	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06			
Hardness	mg/L	#N/A	36.2	38.6	31.1	26.1	22.1					10.4					5.61					3.99					3.5						
Al	mg/L	#N/A	0.097	0.0901	0.0629	0.0514	0.0373					0.0158					0.0119					0.012					0.0108						
Sb	mg/L	#N/A	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002					< 0.0002					< 0.0002					< 0.0002					< 0.0002						
As	mg/L	#N/A	0.0004	0.0003	0.0152	0.0014	0.0014					0.0004					0.0006					0.0004					0.0003						
Ba	mg/L	#N/A	0.012	0.0157	0.0198	0.0163	0.019					0.0085					0.0109					0.0044					0.0035						
Be	mg/L	#N/A	0.00037	0.00031	0.00028	0.00023	0.00019					0.00011					0.00008					0.00007					0.00007						
Bi	mg/L	#N/A	0.00001	< 0.00001	0.00002	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001					< 0.00001						
B	mg/L	#N/A	0.0153	0.0173	0.0152	0.016	0.0109					0.0093					0.017					0.0043					0.005						
Cd	mg/L	#N/A	0.000065	0.000065	0.00009	0.000075	0.000049					0.000023					0.000104					0.000016					0.000012						
Ca	mg/L	#N/A	7.04	7.59	6.12	5.26	4.54					2.14					1.19					0.88					0.77						
Cr	mg/L	#N/A	0.0006	< 0.0005	< 0.0005	0.0006	0.0006					< 0.0005					0.0026					0.0034					0.0036						
Co	mg/L	#N/A	0.00382	0.00458	0.00374	0.00294	0.00242					0.00133					0.000806					0.000628					0.000569						
Cu	mg/L	#N/A	0.0008	0.0014	0.0195	0.0096	0.0105					0.0034					0.006					0.002					0.002						
Fe	mg/L	#N/A	0.209	0.271	0.288	0.319	0.291					0.14					0.085					0.062					0.072						
Pb	mg/L	#N/A	0.00276	0.00189	0.00151	0.00107	0.00068					0.00032					0.00065					0.00028					0.00024						
Li	mg/L	#N/A	0.023	0.025	0.024	0.023	0.016					0.007					0.004					0.003					0.002						
Mg	mg/L	#N/A	4.51	4.76	3.83	3.15	2.61					1.23					0.641					0.434					0.381						
Mn	mg/L	#N/A	0.121	0.134	0.111	0.0938	0.0809					0.0414					0.0233					0.0164					0.0155						
Hg	ug/L	#N/A	< 0.01	< 0.01	0.01	0.01	< 0.01					< 0.01					< 0.01					0.02					0.01						
Mo	mg/L	#N/A	0.00003	0.00004	< 0.00001	0.00014	0.00026					0.0001					0.00003					0.00041					0.00006						
Ni	mg/L	#N/A	0.0099	0.0112	0.0105	0.0076	0.0073					0.0036					0.0027					0.0018					0.0017						
P	mg/L	#N/A	< 0.009	0.015	< 0.009	0.016	< 0.009					0.017					< 0.009					< 0.009					< 0.009						
K	mg/L	#N/A	2.51	3	2.7	2.47	2.24					1.42					0.91					0.702					0.595						
Se	mg/L	#N/A	0.0002	0.0006	< 0.00004	0.00013	< 0.00004					0.00018					0.00004					< 0.00004					< 0.00004						
Si	mg/L	#N/A	37.4	36.5	25.6	33.7	23.6					9.73					3.67					2.42					1.8						
Ag	mg/L	#N/A	0.00001	0.00003	0.00003	0.00002	< 0.00001					< 0.00001					< 0.00001					< 0.00001					< 0.00001						
Na	mg/L	#N/A	0.77	0.85	0.89	0.73	0.65					0.3					0.38					0.15					0.19						
Sr	mg/L	#N/A	0.0589	0.0646	0.055	0.0477	0.0419					0.0214					0.0125					0.0087					0.0077						
S	mg/L	#N/A	14.1	14.9	12.6	10.4	8.7					4.37					2.52					1.85					1.64						
Tl	mg/L	#N/A	< 0.0002	< 0.0002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002					< 0.00002						
Sn	mg/L	#N/A	0.64	0.772	0.898	0.812	0.778					0.624					0.472					0.396					0.331						
Ti	mg/L	#N/A	0.0005	0.0006	0.0004	0.0003	0.0003					0.0001					0.0001					0.0001					0.0001						
U	mg/L	#N/A	0.000111	0.000106	0.000102	0.000084	0.000053					0.000038					0.00002					0.000021					0.00002						
V	mg/L	#N/A	0.00017	0.00018	0.00017	0.00015	0.00016					0.00006					0.00065					< 0.00003					< 0.00003						
Zn	mg/L	#N/A	0.029	0.032	0.032	0.031	0.023					0.011					0.016					0.01					0.01						
Zr	mg/L	#N/A	0.00006	0.00005	0.00005	0.00005	0.00006					0.00003					0.00002					0.00003					0.00003						

Column Test - Granite Bottom
HC 16 Confirmation

Date		12-May-11	19-May-11	26-May-11	2-Jun-11	9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Volume mL	Input	534	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Output	260	255	260	260	265	265	260	230	260	260	260	260	260	260	260	260	260	265	260	260	265	260	265	260	260	260	265	260	265	260	265	265
pH		4.76	4.44	4.73	5.19	5.2	5.58	5.63	5.74	5.59	5.71	5.65	5.76	5.84	6.01	5.94	6.09	6.16	6.21	5.95	6.03	6.02	6	6.5	6.13	6.04	6.29	6.5	6.17	6.11	6.36	6.19	6.19
ORP	mV	329.58	308.1	332.03	300.78	274.9	344.23	361.32	370.6	289.55	258.3	286.13	300.29	334.96	265.62	271.97	259.27	278	265	263	352	116.69	62.01	47.85	91.79	159.17	79.58	83	105.95	199.7	229.49	195.8	194
Cond.	umhos/cm	1012.86	1636.09	1125.52	693.94	419.23	284.82	224.31	177.24	153.32	123.08	108.99	94.66	87.88	79.12	71.38	66.22	62.99	56.8	54.66	50.57	47.61	46.2	42.37	40.56	39.37	38.95	36.25	37.5	37.16	52.38	33.22	32
Acidity	mgCaCO3/L	24.2	73.16	49.17	23.51	16.65	15.16	9.54	11.58	8.41	12.26	11.67	10.41	7.49	9.25	7.75	8.3	7.72	6.8	6.85	5.81	5.7	7.22	9.92	5.89	7.02	6.91	6.9	5.22	6.25	6.06	4.84	6.1
Alkalinity	mgCaCO3/L	<0.1	#N/A	<0.1	1.73	1.59	3.04	2.12	2.84	2.26	2.4	2.59	2.71	2.2	3.08	2.92	3.63	3.29	3.7	3.26	2.88	2.85	3.47	4.33	3.44	3.83	3.94	3.84	3.2	2.79	4.13	3.81	3.6
Sulphate	mg/L	523	692	557	280	182	111	90	69	73	41	44	35	28	29	24	21	21	26	18	19	16	15	13	13	12	13	10	12	11	9	7	
DO	mg/L	5.47	3.52	0.99	0.8	0.95	1.47	1.75	1.95	2.2	0.52	0.7	0.75	1.08	0.83	1.75	0.77	0.78	0.83	0.74	0.66	0.82	0.43	0.75	0.5	0.55	1.09	2.86	0.94	0.25	0.68	3.51	0.90
Total P	mg/L	<0.002	0.004	0.014	<0.002	0.006	0.009	0.004	0.002	0.011	0.01	0.013	0.014	0.015	0.016	0.015	0.017	0.014	0.016	0.013	0.016	0.016	0.019	0.017	0.02	0.019	0.018	0.017	0.013	0.011	IP	0.013	
Ortho P	mg/L	<0.001	0.002	0.005	<0.001	0.002	0.008	0.002	0.001	0.01	0.009	0.011	0.002	0.013	0.004	0.013	0.017	0.012	0.016	0.01	0.012	0.009	0.015	0.015	0.018	0.014	0.014	0.013	0.01	0.009	IP	0.011	
Chloride	mg/L	4.9	8.6	5	2.7	1.8	1.2	0.8	0.7	0.6	1.2	0.4	0.4	0.7	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2			
Fluoride	mg/L	0.35	0.76	0.54	0.3	0.17	0.13	0.11	0.09	0.08	0.06	0.09	0.07	0.08	0.08	0.08	0.09	0.08	0.06	0.06	0.09	0.06	0.07	0.08	0.07	0.09	0.08	0.08	0.09	0.08			
Hardness	mg/L	439	783	495	272	148	92.3					29.9					16.7					11.2					10						
Al	mg/L	1.24	2.49	1.42	0.668	0.338	0.213					0.0768					0.0503					0.0486					0.0844						
Sb	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002					< 0.0002					< 0.0002					< 0.0002					< 0.0002						
As	mg/L	0.0006	0.0011	0.0043	0.0005	0.0012	0.0007					< 0.0002					0.0002					0.0002					0.0013						
Ba	mg/L	0.149	0.0498	0.0497	0.0371	0.037	0.0378					0.0345					0.0251					0.012					0.0164						
Be	mg/L	0.00427	0.00618	0.00365	0.00252	0.00129	0.00078					0.00026					0.00017					0.00012					0.00011						
Bi	mg/L	< 0.00001	< 0.00001	0.00002	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001					< 0.00001						
B	mg/L	0.0836	0.159	0.143	0.123	0.0965	0.0711					0.0353					0.0317					0.021					0.0233						
Cd	mg/L	0.000709	0.00118	0.000723	0.000352	0.000177	0.000416					0.00002					0.000013					0.000011					< 0.000003						
Ca	mg/L	85.3	161	101	54	29.5	18.5					6.07					3.43					2.28					2.07						
Cr	mg/L	0.0063	0.008	0.0057	0.0034	0.0018	0.0019					0.0006					0.0022					0.0019					0.0026						
Co	mg/L	0.0539	0.0925	0.0641	0.0341	0.0166	0.009722					0.0036					0.00183					0.00122					0.00124						
Cu	mg/L	0.0217	0.022	0.0134	0.0067	0.0048	0.0196					0.002					0.0007					0.0005					0.0018						
Fe	mg/L	3.1	5.75	5.31	3.88	2.7	2.03					1.14					0.971					0.798					0.745						
Pb	mg/L	0.00785	0.01056	0.00568	0.00476	0.00209	0.00229					0.00098					0.00014					0.00029					0.00042						
Li	mg/L	0.202	0.356	0.256	0.185	0.141	0.087					0.031					0.02					0.014					0.013						
Mg	mg/L	55	92.3	58.9	33.2	18	11.2					3.58					1.97					1.35					1.18						
Mn	mg/L	1.55	3	1.89	1.05	0.6	0.377					0.129					0.0747					0.052					0.0464						
Hg	ug/L	0.01	0.01	0.01	< 0.01	0.01	< 0.01					< 0.01					< 0.01					0.01					< 0.01						
Mo	mg/L	0.00021	0.00028	0.00028	0.00027	0.00006	0.00028					0.00008					0.00006					0.00009					0.00012						
Ni	mg/L	0.128	0.226	0.146	0.0853	0.0391	0.0255					0.0083					0.0053					0.0035					0.0033						
P	mg/L	<0.03	0.076	< 0.009	0.023	0.032	< 0.009					< 0.009					0.015					0.01					< 0.009						
K	mg/L	23.8	30.8	23.8	18.1	13.7	10.2					5.36					3.85					3.02					2.6						
Se	mg/L	0.00057	0.00056	0.00116	0.00058	0.00024	0.00013					0.0004					0.00022					< 0.00004					0.00058						
Si	mg/L	393	530	347	158	113	59.1					18.1					9.82					7.31					6.41						
Ag	mg/L	< 0.00001	< 0.00001	0.00006	< 0.00001	0.00001	0.00001					< 0.00001					< 0.00001					< 0.00001					< 0.00001						
Na	mg/L	8.03	13.8	9.3	5.88	3.56	2.52					0.93					0.64					0.36					0.38						
Sr	mg/L	0.683	1.28	0.827	0.486	0.281	0.183					0.0682					0.0392					0.0255					0.0226						
S	mg/L	165	289	186	108	61.3	37.9					13.4					7.83					5.39					4.41						
Tl	mg/L	< 0.0002	< 0.0002	< 0.0002	0.00005	0.00004	0.00003					< 0.00002					< 0.00002					< 0.00002					< 0.00002						
Sn	mg/L	0.0288	0.0376	0.0657	0.0975	0.141	0.139					0.148					0.143					0.151					0.166						
Ti	mg/L	0.0058	0.0083	0.0058	0.0029	0.0016	0.0015					0.0004					0.0002					0.0001					0.0003						
U	mg/L	0.00181	0.00304	0.00151	0.00069	0.000312	0.000178					0.000052					0.000036					0.000022					0.000049						
V	mg/L	0.00137	0.00153	0.0011	0.00075	0.00031	0.00036					0.00022					0.00021					0.00013					< 0.00003						
Zn	mg/L	0.236	0.324	0.223	0.13	0.076	0.067					0.016					0.017					0.01					0.045						
Zr	mg/L	0.00114	0.00065	0.00033	0.00017	0.0001	0.00008					0.00004					0.00008					0.00013					0.00034						

Column Test - Fine PK Top
Tuzo and Hearne Fine

Date		9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Volume mL	Input	2435	305	300	585	570	520	555	580	615	505	545	540	535	760	535	565	555	550	710	570	525	575	575	550	600	575	565	550
	Output	#N/A	270	265	265	265	260	260	260	265	250	265	270	265	280	265	270	270	270	265	270	270	265	265	270	270	265	265	260
pH		#N/A	7.65	7.49	7.7	7.48	7.47	7.46	7.57	7.4	7.55	7.47	7.51	7.64	7.53	7.61	7.32	7.32	7.34	7.71	7.36	7.4	7.52	7.66	7.36	7.49	7.31	7.4	7.34
ORP	mV	#N/A	334.47	357.91	304.19	242.67	238.76	239.25	259.27	287.59	214.84	222.16	218.26	222	239	301	263	182.61	149.41	158.2	163.57	169.92	147.94	184.08	141.6	297.36	201.17	185.54	195.8
Cond.	umhos/cm	#N/A	27.66	39.94	55.02	57.23	55.81	53.8	53.39	49.67	47.32	45.21	51.26	46.38	42.91	36.63	35.45	32.75	32.55	33.15	31.43	29.89	31.09	33.7	30.89	39.74	35.63	38.64	32.54
Acidity	mgCaCO3/L	#N/A	3.19	2.21	3.15	3.75	5.2	4.68	3.53	3.68	3.81	3.44	4.74	3.66	3.66	2.87	2.56	2.51	3.8	6.2	3.05	3.12	3.74	4.28	2.67	2.89	4.11	2.88	3.7
Alkalinity	mgCaCO3/L	#N/A	14.75	23.94	30.32	31.29	28.87	28.33	28.42	27.35	27.05	25.76	27.35	29	26.83	23.26	21.77	17.94	20.24	24.38	17.76	17.32	20.32	20.46	16.52	17.53	22.72	20.96	20.4
Sulphate	mg/L	#N/A	3	3	4	4	2	<2	<2	<2	<2	2	<2	3	4	<2	3	2	2	<2	2	2	2	<2	2	3	3	2	
DO	mg/L	#N/A	5.78	6.25	6.34	5.81	4.84	4.55	3.7	4.5	4.95	5.92	4.12	3.41	4.76	4.47	3.82	3.89	5.76	4.81	3.88	4.59	4.46	3.71	5.35	5.08	3.41	2.32	5.16
Total P	mg/L	#N/A	0.002	<0.002	0.002	0.003	0.003	0.004	0.003	0.003	0.004	<0.002	0.005	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	IP	0.002	0.002
Ortho P	mg/L	#N/A	0.002	<0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.001	0.002	0.002	0.002	0.002	0.002	<0.001	0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	IP	<0.001	<0.001
Chloride	mg/L	#N/A	< 0.2	< 0.2	0.3	0.2	0.2	0.3	< 0.2	< 0.2	< 0.2	< 0.2	1.5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.4	< 0.2	< 0.2	0.2	1.2	0.4	3.1			
Fluoride	mg/L	#N/A	0.08	0.14	0.16	0.14	0.15	0.13	0.13	0.12	0.08	0.09	0.08	0.09	0.06	< 0.06	0.08	< 0.06	< 0.06	< 0.06	< 0.06	0.06	0.06	< 0.06	< 0.06	0.06			
Hardness	mg/L	#N/A	6.2	7.5	9.7	11.3	11.5					11.6					10.3					9.85							
Al	mg/L	#N/A	0.0353	0.014	0.0149	0.0079	0.0064					0.005					0.0055					0.0043							
Sb	mg/L	#N/A	0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002					0.0029					< 0.0002					< 0.0002							
As	mg/L	#N/A	0.0005	0.0003	0.0004	0.0003	0.0006					0.0025					0.0004					0.0005							
Ba	mg/L	#N/A	0.0089	0.0142	0.0168	0.0249	0.0246					0.0241					0.0205					0.022							
Be	mg/L	#N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002							
Bi	mg/L	#N/A	0.00006	< 0.00001	0.00003	< 0.00001	0.00001					0.00002					0.00001					< 0.00001							
B	mg/L	#N/A	0.0096	0.0194	0.0246	0.0363	0.0283					0.0091					0.0049					0.0169							
Cd	mg/L	#N/A	0.000016	< 0.000003	0.000006	0.000006	0.000016					< 0.000003					< 0.000003					< 0.000003							
Ca	mg/L	#N/A	1.48	1.85	2.49	2.96	3.05					3.08					2.69					2.53							
Cr	mg/L	#N/A	0.0006	< 0.0005	< 0.0005	< 0.0005	< 0.0005					0.0025					0.0018					0.0018							
Co	mg/L	#N/A	0.000169	0.000106	0.000103	0.000102	0.00008					0.000836					0.000044					0.000021							
Cu	mg/L	#N/A	0.0014	0.0027	0.0022	0.0014	0.0005					0.0015					0.0006					0.0008							
Fe	mg/L	#N/A	0.095	0.017	0.036	0.008	0.002					0.014					0.013					0.009							
Pb	mg/L	#N/A	0.00019	0.00006	0.00005	0.00006	0.00019					0.00016					0.00007					0.00006							
Li	mg/L	#N/A	< 0.001	< 0.001	0.001	0.001	< 0.001					< 0.001					< 0.001					< 0.001							
Mg	mg/L	#N/A	0.616	0.694	0.851	0.95	0.938					0.958					0.88					0.859							
Mn	mg/L	#N/A	0.028	0.0017	0.0019	0.0012	0.0017					0.0013					0.001					< 0.0002							
Hg	ug/L	#N/A	< 0.01	0.01	0.02	0.01	< 0.01					< 0.01					0.01					0.01							
Mo	mg/L	#N/A	0.0028	0.00789	0.0105	0.00877	0.0069					0.00323					0.00231					0.0011							
Ni	mg/L	#N/A	0.0034	0.0023	0.0012	0.0017	0.0013					0.001					0.001					0.0007							
P	mg/L	#N/A	< 0.09	< 0.009	< 0.009	< 0.009	< 0.009					< 0.009					< 0.009					< 0.009							
K	mg/L	#N/A	1.98	3.42	4.53	4.69	4.46					3.6					2.61					2.4							
Se	mg/L	#N/A	< 0.00004	0.00011	0.00005	0.00047	0.00012					0.00009					0.00009					< 0.00004							
Si	mg/L	#N/A	10.2	13.1	11.1	16.9	36.4					4.36					2.6					1.87							
Ag	mg/L	#N/A	0.00002	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001							
Na	mg/L	#N/A	1.84	3.54	4.93	5.11	4.64					2.89					1.82					1.21							
Sr	mg/L	#N/A	0.014	0.0211	0.0294	0.0349	0.0351					0.0358					0.0308					0.0297							
S	mg/L	#N/A	0.48	0.81	1.12	1.21	0.95					6.4					0.5					0.32							
Tl	mg/L	#N/A	0.00003	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002							
Sn	mg/L	#N/A	0.476	0.62	0.601	0.681	0.589					0.545					0.392					0.268							
Ti	mg/L	#N/A	0.0004	0.0001	< 0.0001	< 0.0001	< 0.0001					0.0002					< 0.0001					< 0.0001							
U	mg/L	#N/A	0.000016	0.000027	0.000049	0.00003	0.000027					0.00004					0.000651					0.000007							
V	mg/L	#N/A	0.0104	0.01637	0.021	0.0198	0.0172					0.0109					0.0067					0.005							
Zn	mg/L	#N/A	0.021	0.009	0.004	0.004	0.015					0.006					0.009					0.006							
Zr	mg/L	#N/A	0.00006	0.00001	0.00003	0.00002	0.00001					0.00003					< 0.00001					0.00001							

Column Test - Fine PK Bottom
Tuzo and Hearne Fine

Date		9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Volume mL	Input	1358	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Output	65	#N/A	#N/A	255	260	260	260	275	255	250	250	240	245	260	250	265	255	255	255	250	265	265	300	260	270	255	250	245
pH		7.83	#N/A	#N/A	7.7	7.42	7.71	7.8	7.95	7.96	8.07	8.07	8.06	8.21	8.18	8.13	8.17	8.13	8.12	8.04	8.19	8.17	8.14	8.17	8.22	8.2	8.13	8.18	8.1
ORP	mV	#N/A	#N/A	#N/A	342.77	291.5	336.42	281.25	294.43	311.52	238.28	247.55	247.55	257	251	317	193.35	214.35	198.73	203.12	198.24	157.71	196.77	229.98	186.52	285.64	233.39	230.95	242.18
Cond.	umhos/cm	#N/A	#N/A	#N/A	2357.55	3769.93	1865.19	1119.33	694.67	526.58	483.57	461.04	432.56	432.82	404.49	427.75	419.74	401.6	403.34	401.2	393.83	348.19	387.45	384.4	376.23	389.8	384.21	361.23	362.74
Acidity	mgCaCO3/L	#N/A	#N/A	#N/A	7.84	12.35	14.54	9.24	6.57	7.56	6	5.42	6.33	4.28	4.48	5.64	3.48	4.27	4.57	8.28	3.33	3	4.47	4.78	2.36	3.32	4.01	2.91	3.69
Alkalinity	mgCaCO3/L	#N/A	#N/A	#N/A	227.52	293.17	119.66	119.45	147.59	167.8	183.96	185.56	182.81	187.1	179.62	190.98	191.62	192.58	190.19	193.56	190.24	172.43	186.95	189.88	184.3	193.99	187.81	184.51	182.24
Sulphate	mg/L	#N/A	#N/A	#N/A	884	2038	1068	484	174	75	55	52	47	39	46	39	32	32	30	33	25	25	22	18	17	15	13	12	
DO	mg/L	4.78	#N/A	#N/A	2.66	2.8	1.57	2.97	1.05	1.89	3.57	2.74	2.98	2.08	2.13	3.47	2.39	4.09	1.3	1.3	2.6	3.21	3	1.51	2.94	0.53	1.08	0.86	3.61
Total P	mg/L	#N/A	#N/A	#N/A	0.036	0.019	0.012	0.014	0.015	0.041	0.011	0.002	0.006	0.005	0.007	0.055	0.006	0.007	0.005	0.007	0.008	0.004	0.008	0.007	0.006	0.006	IP	0.078	
Ortho P	mg/L	#N/A	#N/A	#N/A	0.001	0.005	0.006	0.008	0.002	0.009	<0.001	0.001	0.003	0.001	<0.001	0.003	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.001	<0.001	IP	0.021	
Chloride	mg/L	#N/A	#N/A	#N/A	130	180	83	23	4.6	1.6	1	0.9	1.2	0.8	1.9	1	0.9	0.6	0.5	0.6	0.5	0.4	0.5	0.7	0.5	3.5			
Fluoride	mg/L	#N/A	#N/A	#N/A	0.49	0.41	0.52	0.87	1.23	1.39	1.14	1.58	1.71	1.71	1.42	1.64	1.72	1.45	1.73	1.72	1.83	2.07	1.96	2.09	2.16	2.45			
Hardness	mg/L	35.3	#N/A	#N/A	791	1610	915					50.2					41.9					38.3							
Al	mg/L	0.064	#N/A	#N/A	0.0039	0.0018	0.0019					0.0048					0.0131					0.0409							
Sb	mg/L	0.001	#N/A	#N/A	0.0006	0.0005	0.0003					0.0006					0.0008					0.0007							
As	mg/L	0.0015	#N/A	#N/A	0.0037	0.0036	0.0034					0.0045					0.0065					0.0068							
Ba	mg/L	0.0522	#N/A	#N/A	0.267	0.113	0.0609					0.0567					0.0599					0.0655							
Be	mg/L	< 0.00002	#N/A	#N/A	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002							
Bi	mg/L	0.00007	#N/A	#N/A	0.00002	0.00001	0.00001					< 0.00001					< 0.00001					< 0.00001							
B	mg/L	0.108	#N/A	#N/A	0.542	0.622	0.887					1.14					0.752					0.533							
Cd	mg/L	0.000057	#N/A	#N/A	0.000211	0.000238	0.00022					< 0.000003					0.000018					< 0.000003							
Ca	mg/L	9.11	#N/A	#N/A	202	391	228					12.7					9.84					8.76							
Cr	mg/L	0.0039	#N/A	#N/A	0.0016	0.0034	0.0019					0.0031					0.0018					0.0023							
Co	mg/L	0.000262	#N/A	#N/A	0.00131	0.001762	0.0011					0.000085					0.000041					0.000075							
Cu	mg/L	0.0072	#N/A	#N/A	0.01	0.0045	0.004					0.0022					0.001					0.0008							
Fe	mg/L	0.122	#N/A	#N/A	0.013	0.002	< 0.002					0.012					0.013					0.009							
Pb	mg/L	0.00026	#N/A	#N/A	0.00031	0.00014	0.00011					0.00013					0.00018					0.0001							
Li	mg/L	0.004	#N/A	#N/A	0.022	0.028	0.023					0.005					0.004					0.004							
Mg	mg/L	3.05	#N/A	#N/A	69.6	153	84					4.51					4.21					3.98							
Mn	mg/L	0.0046	#N/A	#N/A	0.0334	0.0437	0.0321					0.0013					0.001					0.0012							
Hg	ug/L	0.01	#N/A	#N/A	0.03	0.02	< 0.01					0.01					0.01					< 0.01							
Mo	mg/L	0.212	#N/A	#N/A	2.56	3.68	3.15					0.111					0.0554					0.0317							
Ni	mg/L	0.0068	#N/A	#N/A	0.025	0.0396	0.0247					0.0032					0.002					0.0029							
P	mg/L	0.069	#N/A	#N/A	< 0.009	0.009	< 0.009					0.014					< 0.009					< 0.009							
K	mg/L	12.9	#N/A	#N/A	93.9	135	116					25.5					23.8					22.8							
Se	mg/L	0.00037	#N/A	#N/A	0.00982	0.0136	0.00221					0.00005					< 0.00004					0.00018							
Si	mg/L	10.7	#N/A	#N/A	17.1	52.5	190					51.1					20.3					16.6							
Ag	mg/L	0.00078	#N/A	#N/A	0.00001	< 0.00001	< 0.00001					0.00001					< 0.00001					< 0.00001							
Na	mg/L	16.8	#N/A	#N/A	206	312	253					67.5					62.7					56.9							
Sr	mg/L	0.111	#N/A	#N/A	2.5	4.59	2.64					0.148					0.134					0.125							
S	mg/L	16.1	#N/A	#N/A	281	600	400					19.2					11.3					7.88							
Tl	mg/L	0.00004	#N/A	#N/A	0.00005	0.00002	0.00003					< 0.00002					< 0.00002					< 0.00002							
Sn	mg/L	0.336	#N/A	#N/A	0.0087	0.00684	0.00354					0.00296					0.00865					0.0047							
Ti	mg/L	0.0014	#N/A	#N/A	0.0018	0.0095	0.0076					0.0018					0.0002					0.0003							
U	mg/L	0.000512	#N/A	#N/A	0.0023	0.00243	0.00308					0.00218					0.0032					0.002323							
V	mg/L	0.0543	#N/A	#N/A	0.0414	0.0423	0.0427					0.0668					0.124					0.126							
Zn	mg/L	0.006	#N/A	#N/A	0.013	0.009	0.008					0.007					0.01					0.006							
Zr	mg/L	0.00014	#N/A	#N/A	0.00009	0.00006	0.00007					0.00006					0.00024					0.00013							

Column Test - Fine PK Top
East Lobe Fine

Date		9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Volume mL	Input	2437	625	520	565	640	525	545	550	550	700	720	635	550	580	580	575	565	1995	580	590	560	550	560	605	550	630	585	600
	Output	#N/A	270	265	275	265	255	260	255	265	250	265	265	265	265	265	265	270	265	265	265	265	265	270	265	265	265	260	260
pH		#N/A	7.25	7.19	7.73	7.66	7.25	7.54	7.62	7.46	7.67	7.59	7.66	7.86	7.69	7.76	7.57	7.54	7.51	7.94	7.55	7.38	7.74	7.85	7.63	7.73	7.56	7.56	7.49
ORP	mV	#N/A	365.72	361.32	316.4	250	271.48	250	267.57	283.69	217.77	228.02	227.05	209	241	323	238.76	241.69	211.42	216.79	224.6	234.86	217.77	249.51	215.33	280.76	248.53	251.95	256.34
Cond.	umhos/cm	#N/A	82.4	82.67	85.96	79.55	70.02	80.67	65.66	54.59	53.41	43.55	41.9	44.73	42.24	40.92	38.94	37.48	13.83	23.26	28.67	31.25	35.02	37.29	37.31	39.74	43.53	38.73	37.62
Acidity	mgCaCO3/L	#N/A	3.47	2.73	3.02	3.58	5.3	3.66	4.17	3.73	4.18	3.47	3.74	3.56	3.62	2.81	2.47	2.83	3.17	5.2	2.85	2.9	3.67	4.51	2.53	2.57	3.72	2.75	3.44
Alkalinity	mgCaCO3/L	#N/A	9.35	12.01	20.72	23.63	21.59	23.98	25.81	22.13	24.25	18.42	22.49	24.88	25.22	24.97	21.98	22.15	9.06	16.97	16.48	16.97	22.9	25.71	22.74	23.24	27.9	24.06	23.18
Sulphate	mg/L	#N/A	<2	3	<2	2	<2	<2	<2	<2	<2	2	<2	2	4	<2	2	2	<2	<2	2	<2	<2	<2	<2	2	2	<2	
DO	mg/L	#N/A	4.1	4.57	3.73	4.78	4.62	4.9	5.9	4.65	5.47	6.32	4.95	4.44	5.32	5.3	4.66	3.85	5.2	3.82	4.69	4.5	5.34	4.38	5.74	3.5	5.43	6.09	7.58
Total P	mg/L	#N/A	0.002	<0.002	<0.002	0.003	0.004	0.005	0.003	0.003	0.004	<0.002	0.003	0.002	0.003	0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	0.002	0.003	<0.002	0.003	IP	0.003	
Ortho P	mg/L	#N/A	0.001	<0.001	<0.001	0.002	0.002	0.002	0.001	0.001	0.002	<0.001	0.001	0.001	0.004	0.001	0.002	0.001	0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	IP	<0.001	
Chloride	mg/L	#N/A	18	16	14	10	8.2	10	5.6	4.4	3.5	3.1	2.1	2	1.5	1.2	1.1	0.8	0.2	0.4	0.4	0.3	0.3	0.5	0.3	1.2			
Fluoride	mg/L	#N/A	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.07	0.06	< 0.06	< 0.06	< 0.06	0.07	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06	0.06	0.11			
Hardness	mg/L	#N/A	13.5	15	17	18.2	15.8					9.4					9.91					8.28							
Al	mg/L	#N/A	0.0041	0.0044	0.0024	0.0017	0.0018					0.0035					0.0025					0.0022							
Sb	mg/L	#N/A	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002					< 0.0002					< 0.0002					< 0.0002							
As	mg/L	#N/A	0.0033	0.0007	0.0006	0.0011	0.0004					0.0004					0.0005					0.0003							
Ba	mg/L	#N/A	0.183	0.26	0.309	0.345	0.291					0.188					0.22					0.183							
Be	mg/L	#N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002							
Bi	mg/L	#N/A	0.00002	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001							
B	mg/L	#N/A	0.0271	0.107	0.0588	0.0672	0.073					0.0491					0.0335					0.0199							
Cd	mg/L	#N/A	0.000017	0.000003	0.00001	0.000009	< 0.000003					< 0.000003					0.000042					< 0.000003							
Ca	mg/L	#N/A	4.65	5.3	6.03	6.45	5.68					3.38					3.51					2.92							
Cr	mg/L	#N/A	< 0.0005	0.0006	< 0.0005	0.0006	< 0.0005					0.0024					0.0025					0.003							
Co	mg/L	#N/A	0.000115	0.000092	0.000076	0.000055	0.000033					0.000078					0.000022					0.00001							
Cu	mg/L	#N/A	0.0046	0.0023	0.0014	0.0015	0.0011					0.0011					0.0013					0.0011							
Fe	mg/L	#N/A	0.008	0.007	0.007	< 0.002	< 0.002					0.015					0.011					0.011							
Pb	mg/L	#N/A	0.00022	0.00044	0.00006	0.00003	0.00006					0.00014					0.00011					0.00005							
Li	mg/L	#N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001					< 0.001					< 0.001					< 0.001							
Mg	mg/L	#N/A	0.451	0.415	0.465	0.505	0.386					0.238					0.278					0.238							
Mn	mg/L	#N/A	0.0036	0.001	0.0012	< 0.0002	0.0007					0.0006					0.0007					< 0.0002							
Hg	ug/L	#N/A	< 0.01	< 0.01	0.01	< 0.01	< 0.01					0.01					0.01					0.01							
Mo	mg/L	#N/A	0.00008	0.00065	0.0254	0.0317	0.0306					0.00162					0.0008					0.0003							
Ni	mg/L	#N/A	0.0016	0.0013	0.0005	0.0009	0.0007					0.0006					0.0005					0.0003							
P	mg/L	#N/A	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009					< 0.009					0.013					< 0.009							
K	mg/L	#N/A	7.34	8.1	9.11	9.08	8.04					5.35					4.76					3.61							
Se	mg/L	#N/A	< 0.00004	0.00005	< 0.00004	0.00034	< 0.00004					0.00025					0.00007					< 0.00004							
Si	mg/L	#N/A	37.6	26	18.1	24.2	33.7					8.72					6.1					3.6							
Ag	mg/L	#N/A	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001							
Na	mg/L	#N/A	3.66	3.16	2.97	2.71	2.17					1.21					1.2					0.92							
Sr	mg/L	#N/A	0.0981	0.103	0.112	0.115	0.0961					0.0638					0.066					0.0501							
S	mg/L	#N/A	0.28	0.4	0.53	0.73	0.54					0.97					0.39					0.21							
Tl	mg/L	#N/A	0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002							
Sn	mg/L	#N/A	0.431	0.535	0.595	0.654	0.574					0.445					0.368					0.214							
Ti	mg/L	#N/A	< 0.0001	0.0005	< 0.0001	0.0001	< 0.0001					0.0007					< 0.0001					< 0.0001							
U	mg/L	#N/A	0.000022	< 0.000001	0.000021	0.000012	0.00002					0.00002					0.000024					0.000008							
V	mg/L	#N/A	0.00008	0.00035	0.00109	0.00076	0.00052					0.00066					0.00107					0.00067							
Zn	mg/L	#N/A	0.023	0.016	0.011	0.006	0.004					0.01					0.007					0.005							
Zr	mg/L	#N/A	0.00004	0.00001	< 0.00001	< 0.00001	0.00001					0.00007					< 0.00001					0.00001							

Column Test - Fine PK Bottom
East Lobe Fine

Date		9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Volume mL	Input	902	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Output	260	270	265	265	265	255	260	265	260	265	265	320	265	265	265	265	265	265	265	265	260	260	250	265	265	265	250	265
pH		7.38	7.05	7.26	7.32	7.08	7.12	7.38	7.22	7.62	7.96	8.01	8.28	8.49	8.75	8.79	8.98	8.97	9.23	9.05	9.17	9.13	9.22	9.2	9.43	9.18	9.16	9.33	9.09
ORP	mV	321.77	394.04	391.11	365.23	300.78	307.61	294.43	319.82	331.05	258.3	261.71	260.74	261	259	340	263	206.05	193.84	198.73	189.94	201.66	193.84	223.63	195.31	250.48	224.12	216.79	237.79
Cond.	umhos/cm	822.02	2821.05	3885.52	4802.34	3529.15	2461.83	1814.6	1422.23	1115.55	871.64	589.94	411.8	324.65	257.63	218.65	191.04	172.37	133.19	125.55	129.91	130.13	132.66	131.83	137.39	132.07	130.64	130.28	133.77
Acidity	mgCaCO3/L	2.73	7.39	4.3	5.25	6.05	7.42	4.44	6.18	5.18	4.46	2.42	2.81	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Alkalinity	mgCaCO3/L	21.27	14.06	15.93	22.21	14.01	11.63	11.84	12.87	13.06	15.7	17.45	23.96	26.65	31.33	31.76	34.55	37.49	43.64	48.06	45.23	43.35	45.38	45.96	43.58	48.33	46.32	45.5	48.17
Sulphate	mg/L	3	4	8	5	5	3	<2	<2	<2	<2	<2	2	2	5	<2	2	4	7	4	6	6	7	5	6	6	5	6	
DO	mg/L	4.76	2.19	2.28	1.39	2.44	2.5	3.6	2.71	2.98	3.57	2.59	2.39	1.27	0.92	1.8	1.76	1.97	0.98	1.14	3.2	1.71	2.26	1.44	1.54	2.98	1.14	2.14	1.98
Total P	mg/L	0.025	0.016	0.009	0.005	0.012	0.004	0.01	0.002	0.003	0.012	<0.002	0.004	0.003	0.003	<0.002	0.004	0.003	0.004	0.005	0.003	0.002	0.004	0.003	0.006	0.004	IP	0.004	
Ortho P	mg/L	0.008	0.006	0.002	0.001	0.005	0.001	0.005	0.002	0.002	<0.001	<0.001	<0.001	0.001	0.004	0.002	0.001	0.001	<0.001	<0.001	<0.001	0.001	0.001	<0.001	0.001	<0.001	IP	0.001	
Chloride	mg/L	220	980	1200	1500	980	810	470	370	290	210	140	100	70	51	38	30	24	6.9	5.6	5.4	5.9	6.3	6.4	7	6.1			
Fluoride	mg/L	0.08	0.07	0.07	0.07	0.08	0.08	0.1	0.12	0.12	0.1	0.18	0.17	0.26	0.23	0.31	0.41	0.32	0.45	0.46	0.47	0.45	0.48	0.51	0.51	0.56			
Hardness	mg/L	174	655	790	906	736	578					127					31.4					18.3							
Al	mg/L	0.0315	0.0056	0.0021	0.0017	0.0019	0.0037					0.0051					0.0026					0.0031							
Sb	mg/L	0.0003	0.0003	0.0002	0.0003	0.0002	< 0.0002					0.0002					0.0005					0.0005							
As	mg/L	0.0021	0.0123	0.0075	0.012	0.0079	0.0065					0.0031					0.0013					0.001							
Ba	mg/L	3.76	6.51	3.87	3.08	2.57	2.08					1.25					0.434					0.264							
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002							
Bi	mg/L	0.00002	0.00017	< 0.00001	0.00004	0.00003	0.00002					0.00001					< 0.00001					< 0.00001							
B	mg/L	0.165	0.236	0.231	0.22	0.274	0.348					0.585					1.02					1.49							
Cd	mg/L	0.000013	0.000057	0.000039	0.000039	0.000028	0.000021					0.000029					0.000003					< 0.000003							
Ca	mg/L	56.6	247	307	354	290	228					50.1					12.5					7.26							
Cr	mg/L	0.0008	0.002	0.0011	0.0009	0.0011	0.0007					0.0031					0.0018					0.003							
Co	mg/L	0.000269	0.000629	0.000465	0.000557	0.000345	0.00034					0.000152					0.000018					0.000018							
Cu	mg/L	0.0601	0.003	0.0027	0.0029	0.0022	0.0014					0.0012					0.0007					0.0008							
Fe	mg/L	0.014	0.008	0.018	0.012	< 0.002	0.002					0.239					0.012					0.012							
Pb	mg/L	0.00016	0.0002	0.0001	0.00006	0.00004	0.00012					0.00017					0.00006					0.00022							
Li	mg/L	< 0.001	< 0.001	0.002	< 0.001	< 0.001	< 0.001					< 0.001					< 0.001					< 0.001							
Mg	mg/L	7.88	9.34	6.02	5.08	3.18	2.09					0.405					0.068					0.05							
Mn	mg/L	0.0015	0.0031	0.0043	0.0012	0.0006	0.0005					0.081					0.0003					< 0.0002							
Hg	ug/L	0.01	0.01	< 0.01	0.03	0.01	< 0.01					0.04					0.02					0.01							
Mo	mg/L	0.00012	0.00044	0.00525	0.00503	0.00543	0.00571					0.00061					0.00052					0.00053							
Ni	mg/L	0.0028	0.0102	0.0064	0.0025	0.0069	0.0017					0.0026					0.0004					0.0005							
P	mg/L	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009					0.071					< 0.009					< 0.009							
K	mg/L	73.1	266	244	385	287	235					55.5					23					20.7							
Se	mg/L	0.00037	0.00186	0.00408	0.00058	0.00264	< 0.00004					0.00061					0.0002					0.00026							
Si	mg/L	5.28	14.6	212	666	166	57.5					19.9					13					12.9							
Ag	mg/L	< 0.00001	0.00009	< 0.00001	0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001							
Na	mg/L	20.7	127	199	334	177	82.1					10.4					7.1					5.29							
Sr	mg/L	1.33	4.75	6.1	7.15	6.98	4.87					1.36					0.352					0.208							
S	mg/L	1.62	6.24	9.22	7.92	7.57	5.42					4.92					1.66					2.41							
Ti	mg/L	0.00009	0.00012	0.00012	0.00016	0.00013	0.00012					0.00005					0.00002					0.00005							
Sn	mg/L	0.0112	0.0149	0.0717	0.00918	0.00931	0.00985					0.00717					0.00478					0.00237							
Ti	mg/L	0.0007	0.0016	0.0014	0.0018	0.0021	0.0007					0.0008					< 0.0001					0.0003							
U	mg/L	< 0.000001	0.00001	0.000113	0.000003	0.000006	0.000001					0.000014					0.000005					0.000003							
V	mg/L	0.00118	0.00043	0.00073	0.0004	0.00077	0.0003					0.00053					0.00176					0.00253							
Zn	mg/L	0.004	0.018	0.012	0.003	0.009	0.008					0.019					0.005					0.005							
Zr	mg/L	0.00001	0.00005	< 0.00001	0.00002	0.00001	0.00003					0.00003					0.00002					0.00002							

Column Test - Coarse PK Top
Tuzo and Hearne Coarse

Date		9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Volume mL	Input	2429	585	598	550	645	540	535	535	560	570	740	585	560	545	590	545	550	540	555	560	530	925	570	560	600	565	605	640
	Output	#N/A	270	265	265	260	260	260	260	270	260	265	265	265	270	270	265	270	270	265	265	270	270	265	265	270	265	265	265
pH		#N/A	7.82	7.79	7.9	7.76	7.74	7.76	7.73	7.61	7.78	7.75	7.76	7.95	7.84	7.66	7.77	7.73	7.88	8.04	7.84	7.75	8.06	8.12	7.99	7.99	7.96	7.95	7.8
ORP	mV	#N/A	361.32	353.02	312.98	261.71	267.57	253.41	276.85	290.52	225.58	241.21	243.16	231	248	245	228.02	235.35	222.65	231.93	225.09	230.95	223.14	246.58	225.58	264.64	251.95	245.11	259.76
Cond.	umhos/cm	#N/A	277.91	232.32	193.93	169.72	145.47	124.9	106.09	92.12	83.08	71.48	60.24	60.66	54.39	52.23	48.83	45.1	44.93	43.52	43.51	39.76	45.56	35.78	43.72	41.53	30.73	30.98	30.98
Acidity	mgCaCO3/l	#N/A	3.84	2.93	3.51	3.97	5.4	4.1	3.69	3.87	3.9	3.09	5.08	3.65	3.01	2.68	2.05	2.34	2.79	6.08	2.46	2.48	3.13	3.86	1.79	2.14	2.93	2.05	2.86
Alkalinity	mgCaCO3/l	#N/A	52.79	49.73	50.06	47.95	40.28	38.09	34.91	34.06	32.74	30.8	28.33	30.71	28.66	27.86	26.82	26.42	26.46	29.28	26.45	24.94	29.01	25.51	22.84	23.76	22.68	21.22	21.19
Sulphate	mg/L	#N/A	58	51	41	39	26	25	15	10	6	7	5	5	5	2	3	3	2	2	3	<2	3	<2	2	2	2	<2	
DO	mg/L	#N/A	4.01	3.85	3.93	5.39	5.4	5.7	5.53	5.95	4.01	6.7	4.67	5.13	3.71	5.11	4.97	4.7	4.73	4.82	5.35	4.61	4.94	4.53	4.96	5.63	6.57	7.24	6.5
Total P	mg/L	#N/A	0.003	0.002	0.002	0.004	0.003	0.004	0.002	0.002	0.005	<0.002	0.002	0.005	<0.002	0.003	0.003	0.002	0.003	0.002	0.002	0.002	0.002	0.002	<0.002	<0.002	IP	<0.002	
Ortho P	mg/L	#N/A	0.002	0.001	<0.001	0.002	0.001	0.002	0.001	0.002	0.001	<0.001	0.001	0.002	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	IP	<0.001	
Chloride	mg/L	#N/A	9.2	7.2	5.3	4.3	4	2.6	2.1	1.8	1.4	1.1	0.8	64	0.5	0.4	0.4	0.3	0.4	0.3	< 0.2	< 0.2	0.2	0.7	2.3	2			
Fluoride	mg/L	#N/A	0.06	0.09	0.12	0.14	0.13	0.15	0.14	0.13	0.1	0.14	0.11	0.13	0.09	0.09	0.12	0.07	< 0.06	0.07	0.09	0.1	0.12	0.08	0.09	0.12			
Hardness	mg/L	#N/A	78.4	61.3	48.2	44.2	36.9					16.8					14.8					13.7							
Al	mg/L	#N/A	0.0059	0.0039	0.0051	0.0037	0.0035					0.0031					0.0019					0.0028							
Sb	mg/L	#N/A	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002					0.0009					< 0.0002					< 0.0002							
As	mg/L	#N/A	0.0019	0.0017	0.0022	0.0015	0.0019					0.0017					0.0018					0.0014							
Ba	mg/L	#N/A	0.0177	0.0362	0.0373	0.0272	0.0147					0.0146					0.0218					0.0166							
Be	mg/L	#N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002							
Bi	mg/L	#N/A	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001							
B	mg/L	#N/A	0.0488	0.0507	0.0418	0.0437	0.0341					0.0225					0.019					0.0209							
Cd	mg/L	#N/A	0.000023	0.000008	0.00001	0.000024	< 0.000003					< 0.000003					< 0.000003					< 0.000003							
Ca	mg/L	#N/A	19.7	15.5	12.1	11.2	9.47					4.26					3.83					3.43							
Cr	mg/L	#N/A	0.0008	0.0006	0.0007	< 0.0005	< 0.0005					0.0023					0.0016					0.003							
Co	mg/L	#N/A	0.000164	0.000141	0.000117	0.000089	0.000074					0.000196					0.000042					0.000034							
Cu	mg/L	#N/A	0.0016	0.0056	0.0045	0.002	0.0034					0.0018					0.0011					0.0011							
Fe	mg/L	#N/A	0.012	0.004	0.008	0.003	< 0.002					0.024					0.006					0.013							
Pb	mg/L	#N/A	0.0006	0.00012	0.00017	0.00141	0.00007					0.00014					0.00003					0.00003							
Li	mg/L	#N/A	0.008	0.008	0.005	0.005	0.004					0.002					< 0.001					< 0.001							
Mg	mg/L	#N/A	7.09	5.52	4.35	3.97	3.21					1.5					1.29					1.24							
Mn	mg/L	#N/A	0.0037	0.0016	0.0016	0.0006	0.0015					0.0007					0.001					0.0006							
Hg	ug/L	#N/A	< 0.01	< 0.01	0.01	< 0.01	< 0.01					0.01					< 0.01					0.01							
Mo	mg/L	#N/A	0.0601	0.0561	0.0445	0.0362	0.0325					0.00915					0.00331					0.00223							
Ni	mg/L	#N/A	0.0055	0.0045	0.0033	0.0023	0.0018					0.0009					0.0009					0.0008							
P	mg/L	#N/A	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009					0.01					0.014					< 0.009							
K	mg/L	#N/A	6.95	6.93	6.8	6.89	6.05					3.96					3.07					2.69							
Se	mg/L	#N/A	0.00077	0.00065	0.00085	0.00092	< 0.00004					< 0.00004					0.00006					0.00008							
Si	mg/L	#N/A	73.6	51.2	37.8	34.7	35.5					7.7					3.84					2.76							
Ag	mg/L	#N/A	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001							
Na	mg/L	#N/A	16.9	15.1	13.1	12.6	10.5					4.88					2.4					1.61							
Sr	mg/L	#N/A	0.249	0.198	0.158	0.147	0.118					0.0549					0.0466					0.0428							
S	mg/L	#N/A	21.2	16.9	12.7	11.4	9.16					3.21					1.21					0.68							
Tl	mg/L	#N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002							
Sn	mg/L	#N/A	0.509	0.623	0.615	0.659	0.571					0.44					0.377					0.292							
Ti	mg/L	#N/A	0.0007	0.0006	0.0003	0.0003	0.0002					0.0002					< 0.0001					< 0.0001							
U	mg/L	#N/A	0.0024	0.0019	0.00155	0.00127	0.00092					0.000287					0.000083					0.000061							
V	mg/L	#N/A	0.00232	0.0061	0.0113	0.0165	0.0155					0.0153					0.0143					0.0115							
Zn	mg/L	#N/A	0.016	0.009	0.01	0.011	0.011					0.006					0.006					0.005							
Zr	mg/L	#N/A	0.00004	0.00002	0.00003	< 0.00001	< 0.00001					0.00002					< 0.00001					0.00001							

Column Test - Coarse PK Bottom
Tuzo and Hearne Coarse

Date		9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Volume mL	Input	1297	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Output	265	265	265	270	270	260	260	260	265	260	265	255	265	265	255	265	260	265	260	260	265	265	265	265	265	255	255	250
pH		8.23	8.12	8.02	7.93	7.85	7.82	7.98	8.04	8.02	8.17	8.15	8.12	8.26	8.28	8.21	8.29	8.22	8.19	8.11	8.26	8.19	8.24	8.23	8.29	8.24	8.16	8.26	8.17
ORP	mV	312.5	348.63	363.76	341.79	294.92	298.82	281.25	301.26	313.96	246.58	260.74	267.08	251	269	263	289	251.95	244.14	247.55	241.21	253.41	246.58	266.11	242.18	281.73	285.64	271.97	285.15
Cond.	umhos/cm	317.73	496.21	872.89	1407.46	1408.32	1073.69	762.82	553.29	474.53	424.4	407.24	389.06	386.32	379.35	375.72	364.72	363.51	360.22	361.28	351.52	345.73	352.85	344.23	341.69	324.49	323.74	321.11	323.54
Acidity	mgCaCO3/L	1.67	4.25	4.23	6.42	7.82	11.27	6.72	6.01	6.01	4.97	4.9	5.72	3.94	4.1	3.25	1.98	3.17	3.09	7.53	2.46	2.84	3.49	4.04	1.61	2.49	3.79	2.25	3.28
Alkalinity	mgCaCO3/L	121.43	122.38	124.67	153.49	155.41	133.58	129.74	148.6	156.96	167.76	172.06	172.94	176.7	181.09	180.11	179.94	182.12	178.27	179.33	177.82	170.74	176.55	171.99	169.13	170.08	170.23	166.61	166.66
Sulphate	mg/L	35	105	298	514	591	380	233	100	66	30	41	32	30	33	26	20	20	17	19	17	15	15	12	13	10	13	10	
DO	mg/L	2.55	1.89	0.75	1.79	2.62	3.09	3.23	2.5	3.3	1.08	3.47	2.78	2.92	2.75	2.63	2.89	2.99	3.9	3.24	2.7	1.5	2.04	2.53	1.1	0.44	3.69	4.07	2.34
Total P	mg/L	0.003	0.01	0.004	0.004	0.013	0.004	0.017	0.004	0.029	0.012	<0.002	0.007	0.002	0.005	0.007	0.01	0.004	0.008	0.006	0.005	0.007	0.005	0.007	0.007	0.004	IP	0.005	
Ortho P	mg/L	0.001	0.007	0.001	0.002	0.007	0.001	0.009	0.001	0.024	<0.001	0.002	0.002	0.001	0.003	0.001	0.002	0.002	0.008	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	IP	0.002	
Chloride	mg/L	2.8	7.6	32	54	54	33	17	8.7	5.5	3.9	2.5	3.2	2.1	1.7	1.4	1.1	0.9	0.7	1	0.5	0.5	0.6	0.9	1.3	0.4			
Fluoride	mg/L	0.93	1.03	0.88	0.66	0.66	0.87	1.18	1.41	1.62	1.31	1.92	2.49	2.09	1.84	2.08	2.21	1.85	2.21	2.36	2.38	2.64	2.41	2.49	2.51	2.73			
Hardness	mg/L	69.7	103	251	427	479	323					51.3					43.9					41.1							
Al	mg/L	0.109	0.0056	0.0032	0.0024	0.0017	0.0019					0.0043					0.0142					0.0295							
Sb	mg/L	0.0012	0.0009	0.0009	0.0006	0.0006	0.0004					0.0014					0.0007					0.0005							
As	mg/L	0.0012	0.0017	0.0017	0.0024	0.0027	0.0032					0.0065					0.0069					0.0075							
Ba	mg/L	0.0467	0.07	0.151	0.256	0.247	0.126					0.0349					0.0382					0.0364							
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002							
Bi	mg/L	0.00007	0.00002	0.00002	< 0.00001	< 0.00001	0.00002					< 0.00001					< 0.00001					< 0.00001							
B	mg/L	0.168	0.333	0.465	0.489	0.66	0.641					0.872					0.562					0.362							
Cd	mg/L	0.000077	0.000204	0.00012	0.000125	0.000088	0.000109					< 0.000003					0.000005					< 0.000003							
Ca	mg/L	17.7	26.7	65.6	111	124	84.2					13.2					11					10.1							
Cr	mg/L	0.0037	0.0031	0.0016	0.0014	0.0015	0.0007					0.0025					0.0023					0.002							
Co	mg/L	0.000347	0.000138	0.000194	0.000355	0.000346	0.000306					0.000107					0.000048					0.000063							
Cu	mg/L	0.0046	0.0017	0.0034	0.007	0.0006	0.0016					0.0009					0.0009					0.0009							
Fe	mg/L	0.158	0.066	0.002	0.007	0.002	0.002					0.009					0.02					0.032							
Pb	mg/L	0.00012	0.00021	0.00227	0.00011	0.00008	0.00006					0.00009					0.0001					0.00011							
Li	mg/L	0.006	0.007	0.009	0.01	0.009	0.006					0.003					0.002					0.002							
Mg	mg/L	6.22	8.85	21.2	36.1	41	27.4					4.48					4.01					3.88							
Mn	mg/L	0.0052	0.0094	0.0107	0.0131	0.0133	0.0105					0.0012					0.0013					0.001							
Hg	ug/L	0.01	< 0.01	0.01	0.03	0.02	< 0.01					0.01					0.01					0.01							
Mo	mg/L	0.592	1.24	1.59	1.78	1.69	1.16					0.0799					0.0419					0.0268							
Ni	mg/L	0.0084	0.006	0.0078	0.0106	0.013	0.0109					0.0023					0.0017					0.0018							
P	mg/L	0.012	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009					< 0.009					< 0.009					< 0.009							
K	mg/L	14.2	20.9	33.7	50.1	52.5	43.6					19.3					17.5					18.2							
Se	mg/L	0.00081	0.00188	0.00464	0.00319	0.00259	0.00056					0.00053					0.00005					0.00007							
Si	mg/L	10.7	17.6	31.2	152	273	265					43.5					19.6					16.5							
Ag	mg/L	0.00002	0.00002	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001							
Na	mg/L	24.8	45.6	82.2	120	136	107					53.1					53.1					53.5							
Sr	mg/L	0.213	0.324	0.808	1.31	1.52	0.993					0.157					0.137					0.128							
S	mg/L	14	42.7	103	159	191	139					13.7					7.61					5.96							
Tl	mg/L	0.00003	0.00003	< 0.00002	0.00002	< 0.00002	0.00002					< 0.00002					< 0.00002					< 0.00002							
Sn	mg/L	0.0103	0.0463	0.0111	0.0336	0.0106	0.0065					0.00733					0.00864					0.00911							
Ti	mg/L	0.0021	0.0016	0.0016	0.0038	0.0031	0.0026					0.0005					0.0002					0.0002							
U	mg/L	0.00192	0.0032	0.00293	0.00293	0.00374	0.00431					0.00391					0.00388					0.003937							
V	mg/L	0.0599	0.0937	0.0898	0.0481	0.0287	0.0264					0.102					0.0589					0.0402							
Zn	mg/L	0.006	0.004	0.004	0.005	0.005	0.006					0.002					0.004					0.004							
Zr	mg/L	0.0002	0.00033	0.00009	0.00005	0.00003	0.00006					0.00006					0.00026					0.0001							

Column Test - Coarse PK Top
East Lobe Coarse

Date		9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Volume mL	Input	2479	605	630	520	580	600	500	535	575	525	530	510	595	540	540	555	555	540	580	565	520	580	560	530	730	565	635	545
	Output	#N/A	270	265	265	265	265	260	260	265	260	295	260	265	270	265	270	270	270	270	270	260	270	270	265	265	260	265	260
pH		#N/A	7.43	7.08	7.51	7.5	7.51	7.49	7.54	7.45	7.66	7.59	7.7	7.85	7.76	7.43	7.5	7.52	7.54	7.79	7.59	7.56	7.74	7.85	7.7	7.55	7.55	7.5	7.49
ORP	mV	#N/A	346.67	353.02	293.94	274.41	276.36	263.18	283.2	290.03	232.91	240.72	244.62	241	264	313	234.86	261.23	254.39	248.53	245.11	260.74	250.97	270.99	240.23	289.06	276.85	223.63	291.01
Cond.	umhos/cm	#N/A	118.18	122.52	114.79	114.79	112.28	92.66	91.19	71.43	69.07	59.57	58.69	60.66	63.55	51.74	46.6	44.23	43.86	44.19	43.13	42.17	44.89	45.6	50.99	42.03	41.63	53.39	41.77
Acidity	mgCaCO3/L	#N/A	3.68	3.46	3.33	3.79	5.4	4.65	4.11	3.75	4.06	3.27	4.07	4.05	3.66	3.65	2.74	3.45	3.79	6.71	3.04	3.21	4.24	4.74	2.5	4.36	3.3	3.91	3.56
Alkalinity	mgCaCO3/L	#N/A	7.24	10.76	13.58	21.6	16.58	16.55	20.73	20.48	22.44	20.5	24.65	25.28	27.68	24.03	21.7	21.78	22.58	27.17	22.62	23.44	25.91	26.56	24.27	26.23	25.32	29.09	25.26
Sulphate	mg/L	#N/A	<2	2	2	5	<2	<2	<2	<2	<2	2	<2	2	3	<2	2	3	2	<2	3	<2	2	<2	2	3	3	<2	
DO	mg/L	#N/A	6.02	6.78	6.46	6.3	5.7	5.06	5.6	5.05	5.67	4.61	4.24	4.97	4.28	4.12	4.12	4.22	4.23	3.81	4.07	4.15	5.74	4.72	4.96	5.07	4.87	5.58	5.1
Total P	mg/L	#N/A	0.003	0.002	0.003	0.004	0.003	0.005	0.004	0.006	0.01	<0.002	0.004	0.003	0.005	<0.002	0.003	0.003	0.005	0.003	0.004	0.003	0.004	0.008	0.003	0.004	IP	0.003	
Ortho P	mg/L	#N/A	<0.001	0.001	<0.001	0.002	0.001	0.002	0.002	0.002	<0.001	<0.001	0.002	0.002	0.004	0.001	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	IP	0.001	
Chloride	mg/L	#N/A	30	27	23	18	27	16	15	11	8.9	7.8	5.8	5.6	5.1	3.6	3.1	2.8	2.1	2.3	1.8	1.5	1.3	1.6	2.9	1.2			
Fluoride	mg/L	#N/A	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.07	0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06	0.06	< 0.06	0.07	0.06	0.08	0.08	0.07			
Hardness	mg/L	#N/A	15.8	20.2	21.6	25.4	24.1					14.4					13.2					12							
Al	mg/L	#N/A	0.0029	0.0014	0.002	0.0021	0.0017					0.0018					0.0027					0.0029							
Sb	mg/L	#N/A	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002					0.0003					< 0.0002					< 0.0002							
As	mg/L	#N/A	0.0017	0.0003	0.0003	0.0005	0.0007					0.0005					0.0011					0.0012							
Ba	mg/L	#N/A	0.0889	0.144	0.165	0.177	0.201					0.171					0.159					0.156							
Be	mg/L	#N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002							
Bi	mg/L	#N/A	0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001							
B	mg/L	#N/A	0.02	0.0396	0.0491	0.0578	0.0583					0.0568					0.0461					0.0389							
Cd	mg/L	#N/A	0.000007	0.000006	0.000008	0.000004	0.000003					< 0.000003					0.000003					< 0.000003							
Ca	mg/L	#N/A	5.3	7.2	7.8	8.78	9.03					5.51					5.01					4.54							
Cr	mg/L	#N/A	0.0011	< 0.0005	0.0006	< 0.0005	< 0.0005					0.0013					0.0027					0.0032							
Co	mg/L	#N/A	0.000107	0.000088	0.000086	0.000059	0.000041					0.000039					0.000032					0.000021							
Cu	mg/L	#N/A	0.0011	0.0029	0.003	0.0006	0.0017					0.0008					0.0015					0.0008							
Fe	mg/L	#N/A	0.01	0.003	0.007	0.004	< 0.002					0.008					0.017					0.021							
Pb	mg/L	#N/A	0.00055	0.0001	0.00007	0.00007	0.00004					0.00007					0.00007					0.00014							
Li	mg/L	#N/A	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001					< 0.001					< 0.001					< 0.001							
Mg	mg/L	#N/A	0.617	0.552	0.509	0.84	0.364					0.162					0.17					0.153							
Mn	mg/L	#N/A	0.0032	0.0009	0.0011	0.0005	0.0007					0.0002					0.0006					0.0003							
Hg	ug/L	#N/A	< 0.01	< 0.01	0.01	< 0.01	< 0.01					0.01					0.01					0.01							
Mo	mg/L	#N/A	0.00015	0.0152	0.0189	0.0212	0.0124					0.00111					0.00053					0.00022							
Ni	mg/L	#N/A	0.0016	0.0014	0.001	0.001	0.0007					0.0003					0.0004					0.0005							
P	mg/L	#N/A	< 0.009	< 0.009	< 0.009	< 0.009	0.01					< 0.009					0.012					< 0.009							
K	mg/L	#N/A	10.2	10.7	10.4	9.86	10.1					6.54					4.52					4.44							
Se	mg/L	#N/A	0.00017	0.00037	0.00018	0.00042	< 0.00004					< 0.00004					< 0.00004					0.00008							
Si	mg/L	#N/A	63.8	40.1	29.6	36.7	35.6					12.2					65.6					21.3							
Ag	mg/L	#N/A	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001							
Na	mg/L	#N/A	5.81	5.2	4.38	4.82	3.48					1.66					1.22					0.92							
Sr	mg/L	#N/A	0.104	0.132	0.129	0.135	0.142					0.0763					0.0626					0.0492							
S	mg/L	#N/A	0.3	0.39	0.45	1.64	0.43					0.53					0.41					0.37							
Tl	mg/L	#N/A	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002							
Sn	mg/L	#N/A	0.451	0.564	0.534	0.651	0.594					0.575					0.429					0.298							
Ti	mg/L	#N/A	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001					< 0.0001					< 0.0001					< 0.0001							
U	mg/L	#N/A	0.000014	0.000019	0.000023	0.000147	0.000034					0.00003					0.00003					0.000018							
V	mg/L	#N/A	0.00032	0.001	0.00093	0.0021	0.00045					0.00115					0.00078					0.0006							
Zn	mg/L	#N/A	0.015	0.01	0.007	0.01	0.006					0.002					0.011					0.005							
Zr	mg/L	#N/A	0.00002	< 0.00001	0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001					0.00002							

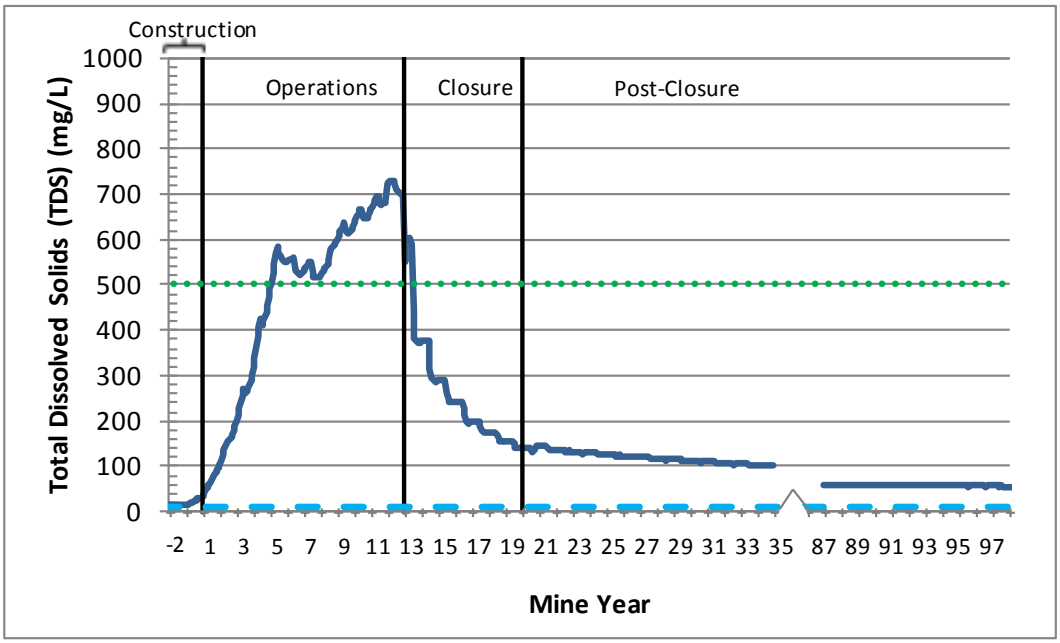
Column Test - Coarse PK Bottom
East Lobe Coarse

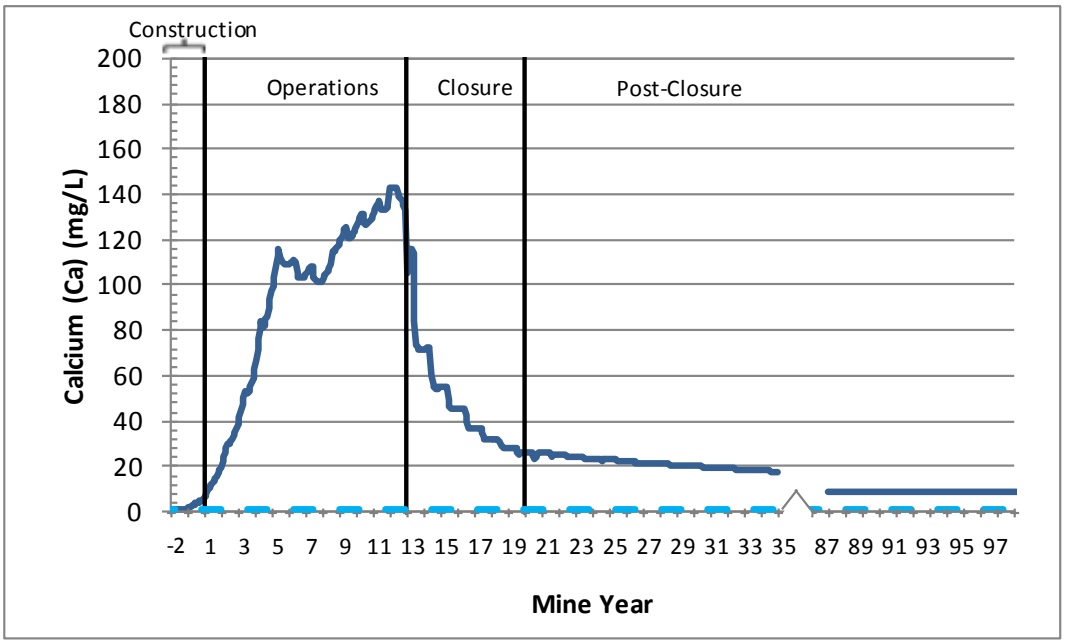
Date		9-Jun-11	16-Jun-11	23-Jun-11	30-Jun-11	7-Jul-11	14-Jul-11	21-Jul-11	28-Jul-11	4-Aug-11	11-Aug-11	18-Aug-11	25-Aug-11	1-Sep-11	8-Sep-11	15-Sep-11	22-Sep-11	29-Sep-11	6-Oct-11	13-Oct-11	20-Oct-11	27-Oct-11	3-Nov-11	10-Nov-11	17-Nov-11	24-Nov-11	1-Dec-11	8-Dec-11	15-Dec-11
Cycle		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Volume mL	Input	728	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
	Output	265	270	270	275	260	260	265	265	265	255	265	270	265	265	265	270	265	265	270	280	260	270	270	265	265	260	265	265
pH		7.54	7.2	7.52	7.55	7.43	7.68	7.98	8.08	8.11	8.3	8.46	8.42	8.61	8.67	8.69	8.89	8.86	8.99	8.86	9.15	9.06	9.22	9.2	9.33	9.34	9.04	9.19	9.36
ORP	mV	343.26	384.27	386.23	341.79	307.61	308.59	297.36	314.45	323.24	252.44	264.16	269.53	270	299	321	301	234.37	229	225.58	205.07	225.09	213.37	234.86	237.79	213.37	200.19	251.95	249.02
Cond.	umhos/cm	1943.08	3943.07	3051.73	2387.37	2044.37	1584.53	1251.48	1028.81	858.87	725.24	618.36	523.51	472.25	410.53	360.72	316.7	280.32	258.94	243.51	213.75	203.15	191.37	188.17	148.94	177.31	162.97	153.11	144.13
Acidity	mgCaCO3/L	2.64	7.33	4.1	4.02	5.55	6.19	3.41	2.79	2.75	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Alkalinity	mgCaCO3/L	33.47	23.14	15.26	13.61	15.11	14.33	14.89	13.22	15.24	17.2	20.1	23.27	24.86	24.67	26.19	26.23	26.82	29.79	35.44	34.26	33.29	37.42	38.67	41.09	38.17	38.07	40.14	42.47
Sulphate	mg/L	3	3	4	<2	3	2	<2	2	<2	<2	<2	<2	<2	4	<2	<2	2	2	<2	3	2	3	<2	3	3	4	2	
DO	mg/L	4.88	0.81	3.54	1.41	2.06	1.4	0.99	0.55	0.65	0.88	1.08	0.75	0.53	0.65	0.45	0.7	0.6	0.79	0.75	0.69	0.85	0.58	1.38	1.1	0.77	0.97	0.55	0.6
Total P	mg/L	0.003	0.014	0.01	0.003	0.013	0.003	0.009	0.004	0.006	0.008	<0.002	0.005	0.002	0.004	<0.002	0.004	0.004	0.004	0.003	0.003	0.002	0.004	0.008	0.004	0.004	IP	0.005	
Ortho P	mg/L	0.002	0.008	0.002	0.002	0.005	0.001	0.009	0.002	0.001	<0.001	<0.001	0.001	0.001	0.003	0.001	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	IP	0.001	
Chloride	mg/L	520	1200	870	690	550	430	330	270	220	180	150	140	110	100	80	74	60	52	50	39	34	31	30	25	22			
Fluoride	mg/L	< 0.06	< 0.06	0.06	0.06	0.08	0.08	0.1	0.1	0.11	0.09	0.14	0.11	0.16	0.11	0.16	0.24	0.16	0.18	0.23	0.22	0.3	0.28	0.28	0.28	0.28			
Hardness	mg/L	324	647	608	536	488	399					149					72.8					43.1							
Al	mg/L	0.0039	0.004	0.0019	0.0028	0.002	0.0016					0.0021					0.0039					0.0027							
Sb	mg/L	< 0.0002	0.0002	0.0002	< 0.0002	< 0.0002	< 0.0002					0.0004					< 0.0002					0.0002							
As	mg/L	0.0055	0.013	0.0059	0.0055	0.0042	0.004					0.0023					0.0018					0.0014							
Ba	mg/L	2.8	3.8	3.05	2.5	2.77	2.2					1.39					0.775					0.506							
Be	mg/L	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002	< 0.00002					< 0.00002					< 0.00002					< 0.00002							
Bi	mg/L	0.00011	0.00006	< 0.00001	< 0.00001	< 0.00001	0.00002					< 0.00001					< 0.00001					< 0.00001							
B	mg/L	0.165	0.167	0.216	0.234	0.282	0.3					0.459					0.582					0.81							
Cd	mg/L	< 0.000003	0.000105	0.000012	0.000021	0.000018	0.000009					0.000006					0.000007					< 0.000003							
Ca	mg/L	110	243	236	210	193	158					59					29					17.2							
Cr	mg/L	0.002	0.0035	0.002	0.0013	0.0012	0.0009					0.0021					0.0017					0.0018							
Co	mg/L	0.000319	0.000486	0.00034	0.000391	0.000219	0.000226					0.000133					0.000043					0.000024							
Cu	mg/L	0.0154	0.0033	0.0024	0.0034	0.001	0.0009					0.0006					0.0008					< 0.0005							
Fe	mg/L	0.005	0.015	< 0.002	0.01	0.003	< 0.002					0.018					0.012					0.007							
Pb	mg/L	0.00012	0.00044	0.00004	0.00007	0.00004	0.00002					0.00006					0.00014					0.00002							
Li	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001					< 0.001					< 0.001					< 0.001							
Mg	mg/L	11.8	10.1	4.28	2.63	1.77	1.16					0.291					0.121					0.058							
Mn	mg/L	0.0014	0.0038	0.0009	0.0016	< 0.0002	< 0.0002					0.0002					0.0003					< 0.0002							
Hg	ug/L	0.03	0.01	< 0.01	0.03	0.02	< 0.01					0.03					0.01					0.01							
Mo	mg/L	0.00013	0.0003	0.00307	0.00362	0.00337	0.00237					0.00043					0.00033					0.00024							
Ni	mg/L	0.0049	0.0082	0.003	0.0024	0.0045	0.001					0.0003					0.0004					0.0006							
P	mg/L	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009	< 0.009					< 0.009					0.015					< 0.009							
K	mg/L	132	297	186	193	157	131					51.4					30.4					26							
Se	mg/L	0.00101	0.00205	0.00051	0.00121	0.00112	< 0.00004					0.00043					0.00029					< 0.00004							
Si	mg/L	162	529	211	173	101	57.2					20.1					63					42.3							
Ag	mg/L	< 0.00001	0.00005	< 0.00001	< 0.00001	< 0.00001	< 0.00001					< 0.00001					< 0.00001					< 0.00001							
Na	mg/L	89.7	215	147	102	70.9	44.4					12.3					7.24					5.08							
Sr	mg/L	2.32	6.12	5.09	4.5	4.02	3.05					1.31					0.636					0.354							
S	mg/L	2.61	5.61	5.62	4.12	4.65	3.37					1.73					1.15					1.15							
Tl	mg/L	0.00008	0.00014	0.00011	0.00009	0.0001	0.00007					0.00005					0.00008					0.0001							
Sn	mg/L	0.00692	0.0113	0.0578	0.0605	0.0252	0.0129					0.0108					0.0234					0.0189							
Ti	mg/L	0.0039	0.0024	0.0013	0.0012	0.0015	0.0005					0.0003					0.0001					< 0.0001							
U	mg/L	< 0.000001	0.000012	0.000008	0.000016	0.000012	< 0.000001					0.000008					0.000013					0.000006							
V	mg/L	0.00295	0.00087	0.00078	0.00073	0.00069	0.00043					0.00081					0.00115					0.00167							
Zn	mg/L	0.012	0.007	0.004	0.004	0.004	0.003					0.003					0.009					0.004							
Zr	mg/L	0.00002	0.00003	< 0.00001	0.00001	< 0.00001	< 0.00001					0.00001					< 0.00001					0.00001							

APPENDIX 8.IV

WATER QUALITY TIME SERIES PLOTS FOR KENNADY LAKE AND AREA 8

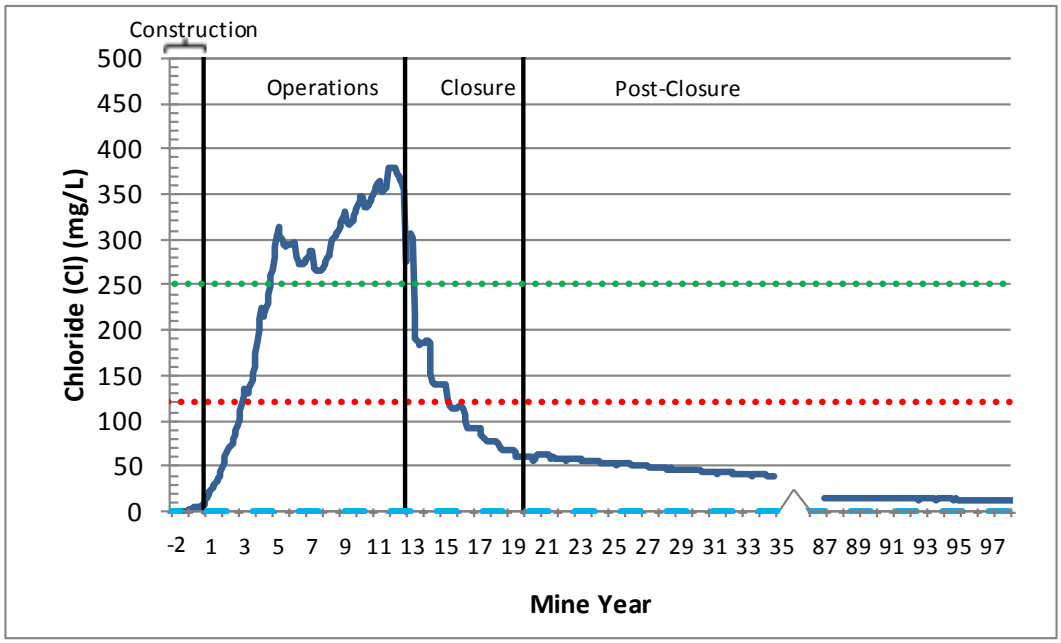
Nutrients and Anions - Kennady Lake (Areas 3 and 5 – Construction and Operations, and Areas 3 to 7 – Closure and Post-closure)

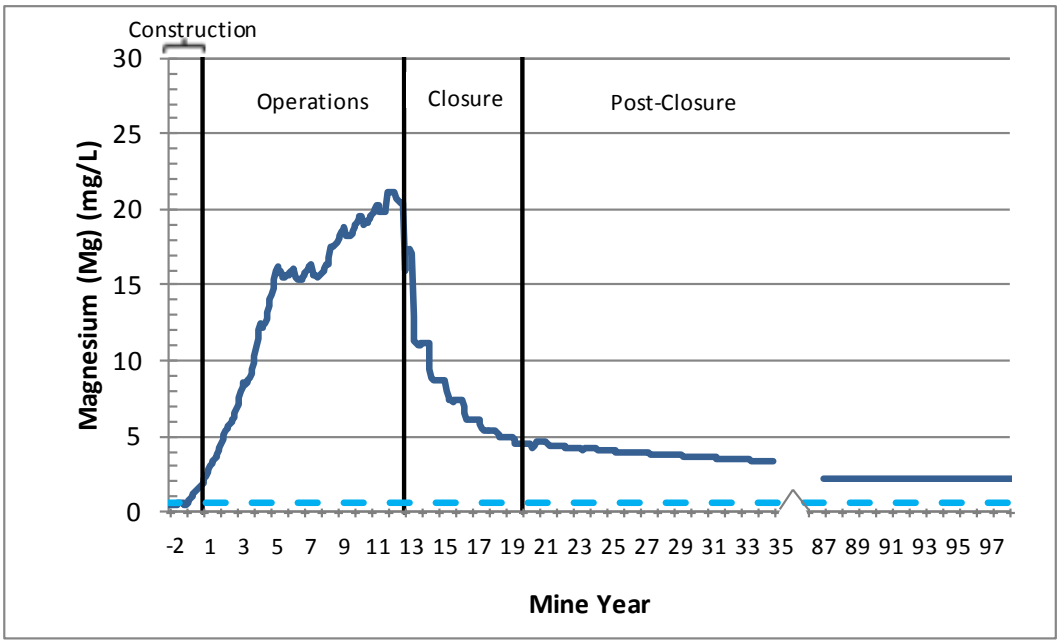


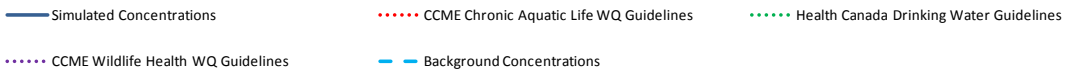


Simulated Concentrations
CCME Chronic Aquatic Life WQ Guidelines
Health Canada Drinking Water Guidelines
CCME Wildlife Health WQ Guidelines
Background Concentrations

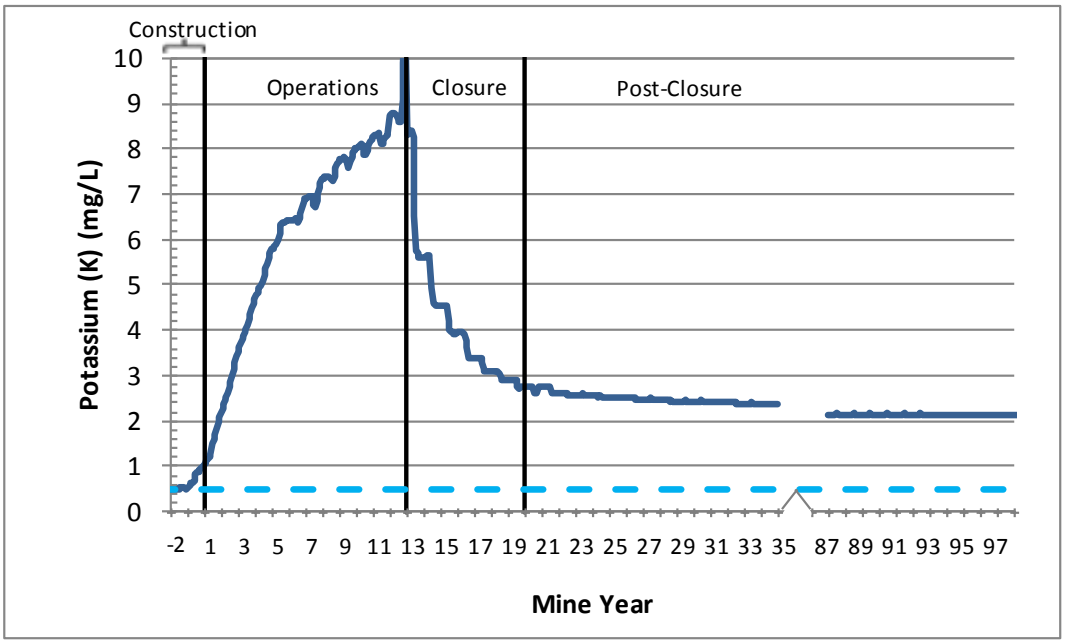
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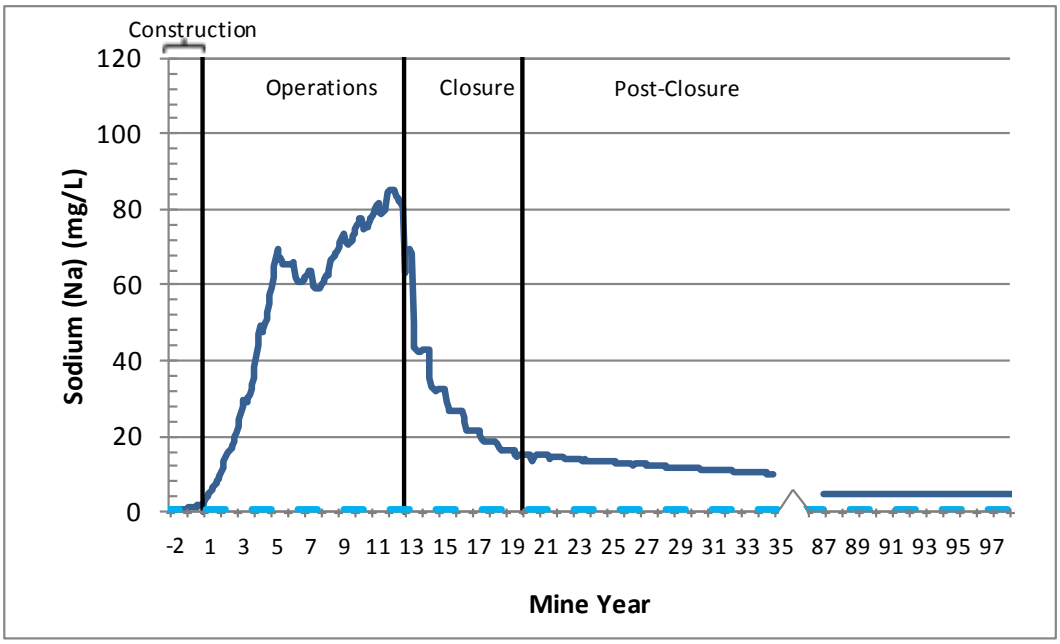


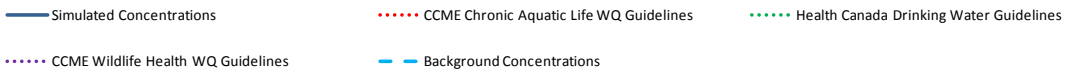




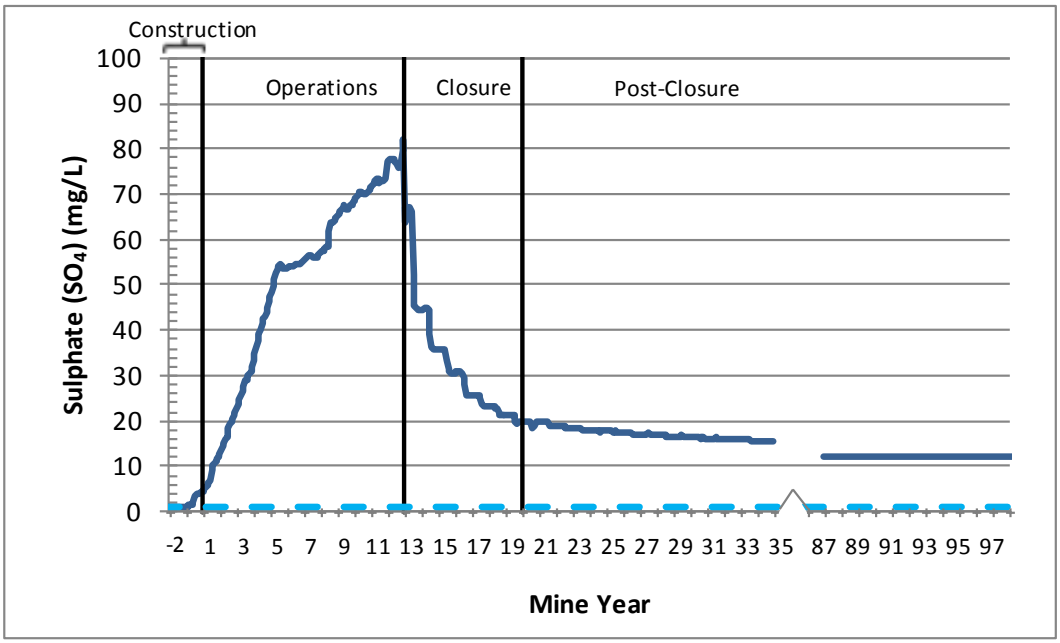
Nutrients and Anions - Kennady Lake (Areas 3 and 5 – Construction and Operations, and Areas 3 to 7 – Closure and Post-closure) (continued)

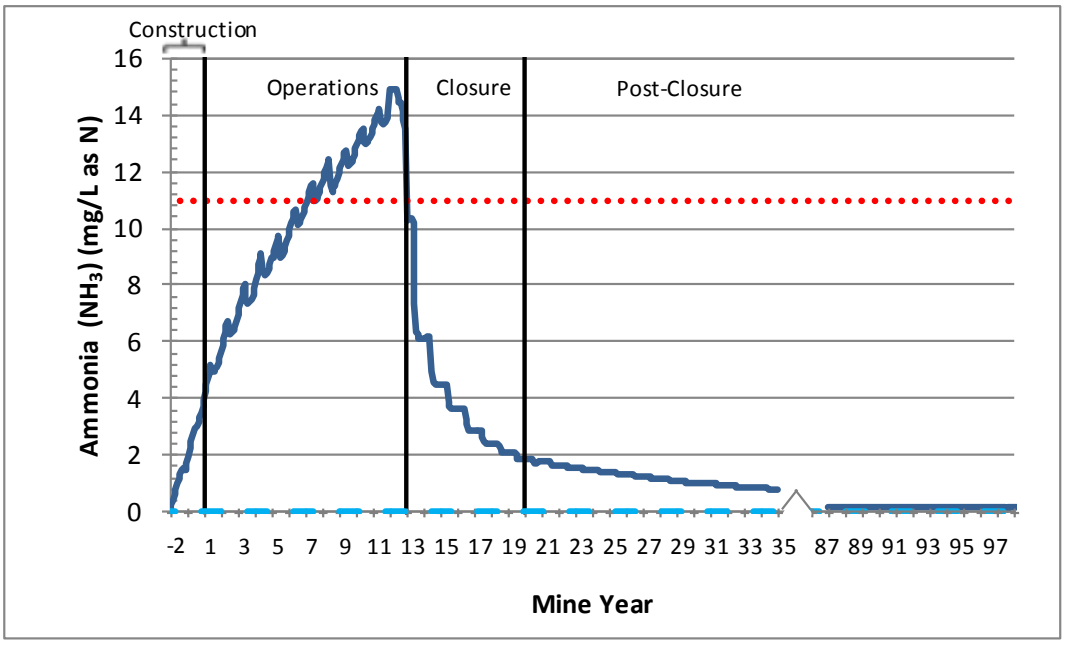






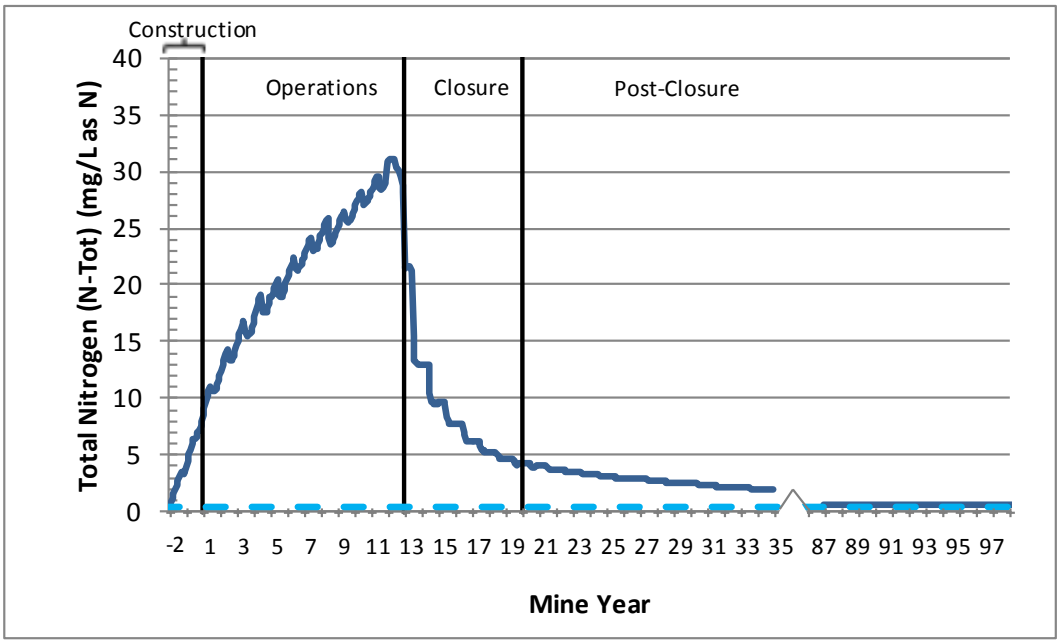
Nutrients and Anions - Kennady Lake (Areas 3 and 5 – Construction and Operations, and Areas 3 to 7 – Closure and Post-closure) (continued)

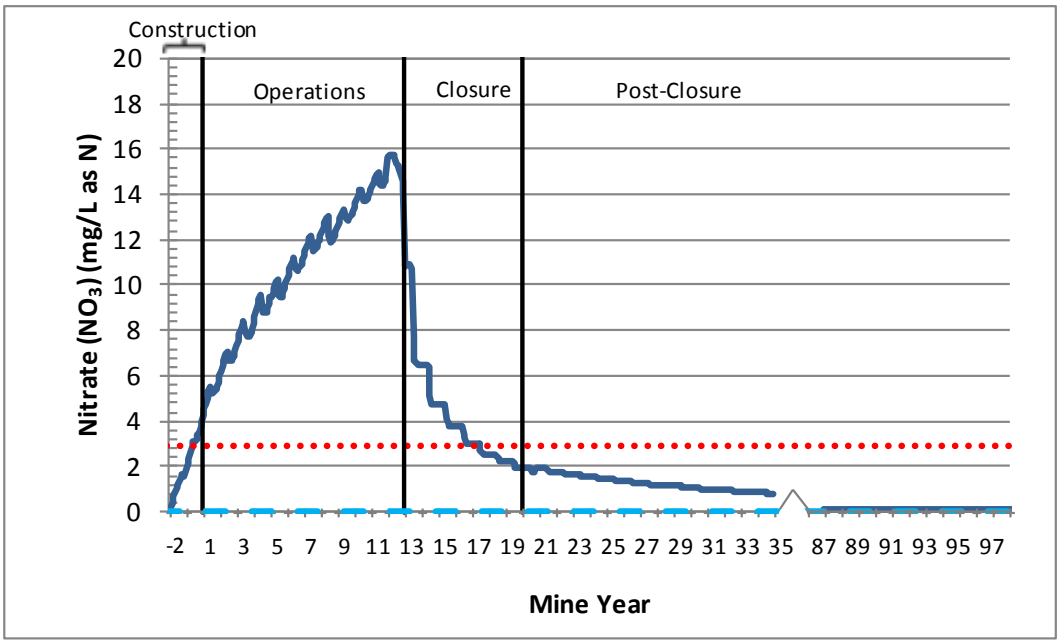




Simulated Concentrations
CCME Chronic Aquatic Life WQ Guidelines
Health Canada Drinking Water Guidelines
CCME Wildlife Health WQ Guidelines
Background Concentrations

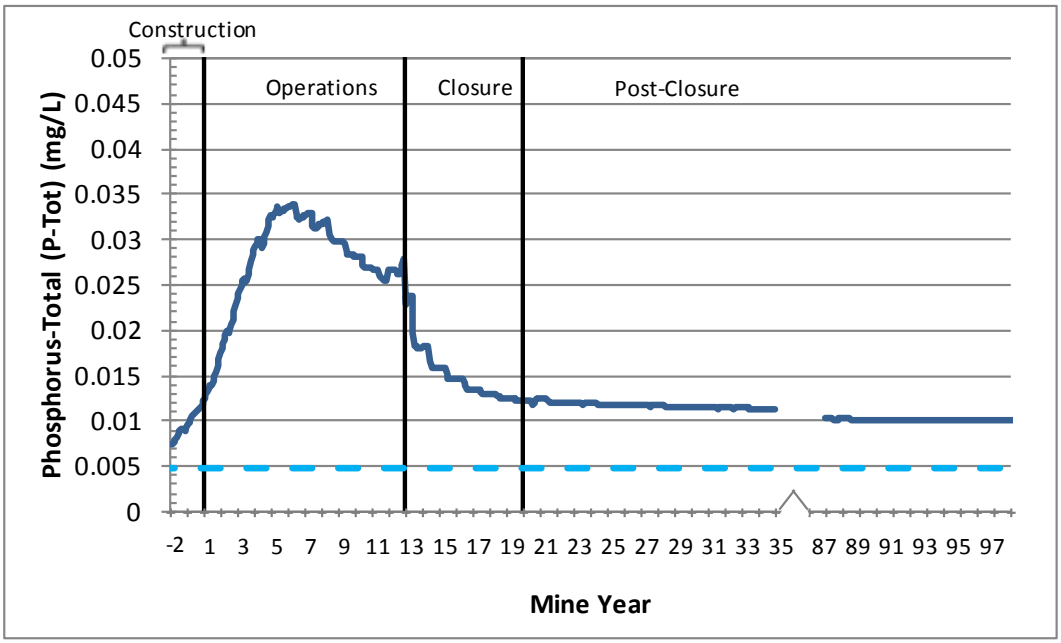
Nutrients and Anions - Kennady Lake (Areas 3 and 5 – Construction and Operations, and Areas 3 to 7 – Closure and Post-closure) (continued)

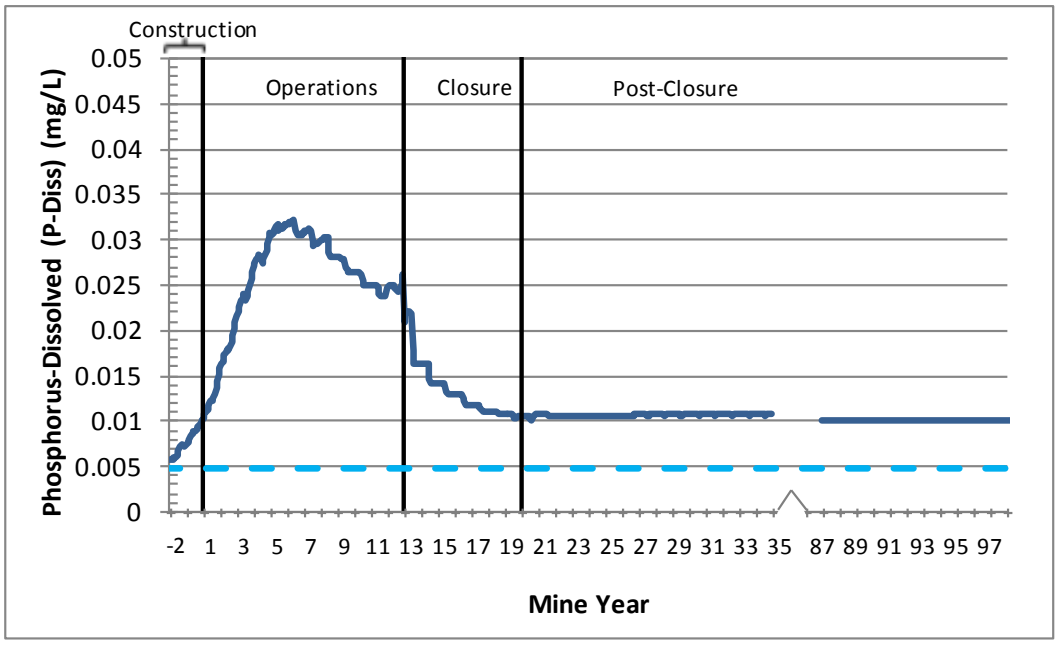




Simulated Concentrations
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Health Canada Drinking Water Guidelines
CCME Wildlife Health WQ Guidelines
Background Concentrations

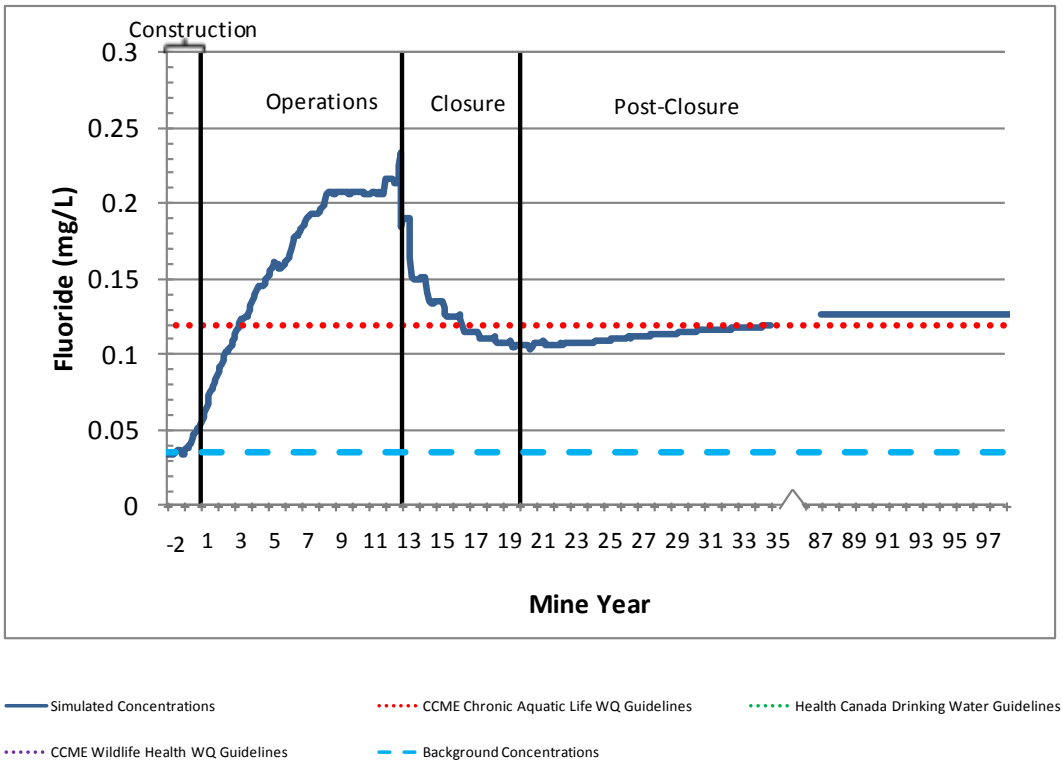
Nutrients and Anions - Kennady Lake (Areas 3 and 5 – Construction and Operations, and Areas 3 to 7 – Closure and Post-closure) (continued)



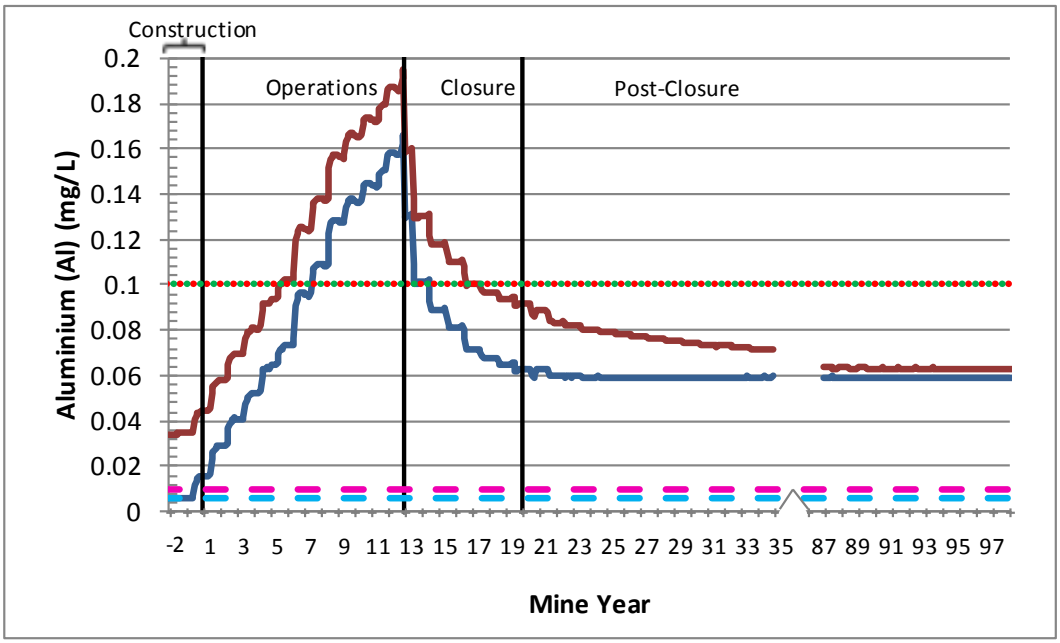


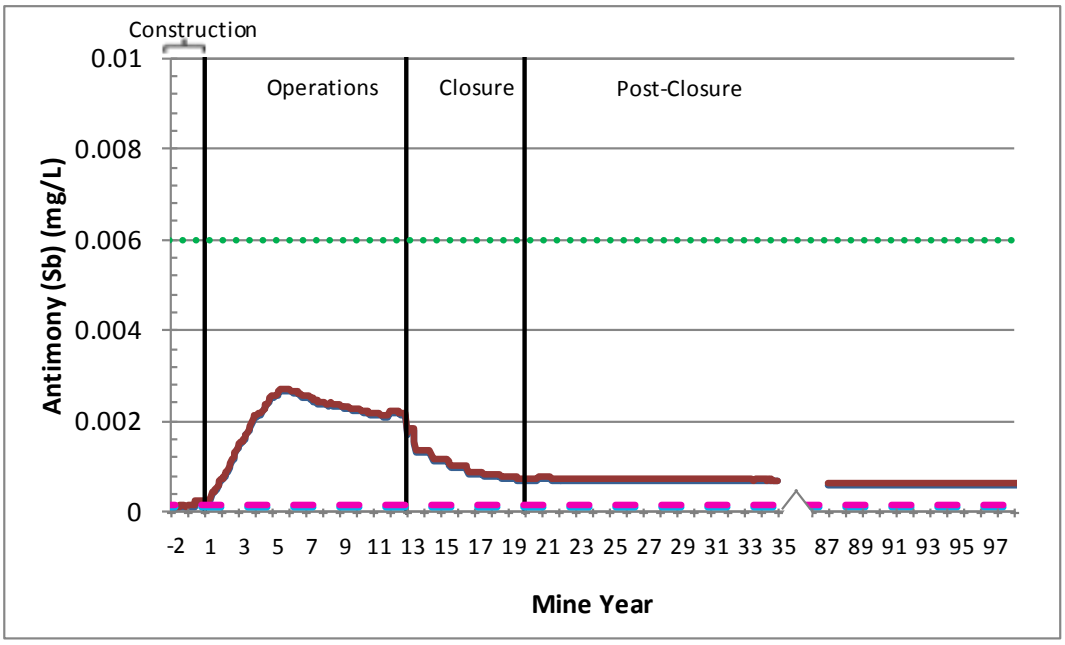
Simulated Concentrations
CCME Chronic Aquatic Life WQ Guidelines
Health Canada Drinking Water Guidelines
CCME Wildlife Health WQ Guidelines
Background Concentrations

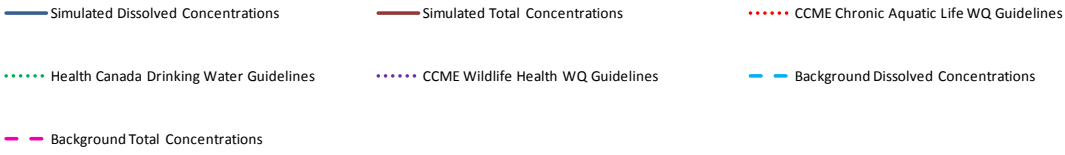
Nutrients and Anions - Kennady Lake (Areas 3 and 5 – Construction and Operations, and Areas 3 to 7 – Closure and Post-closure) (continued)



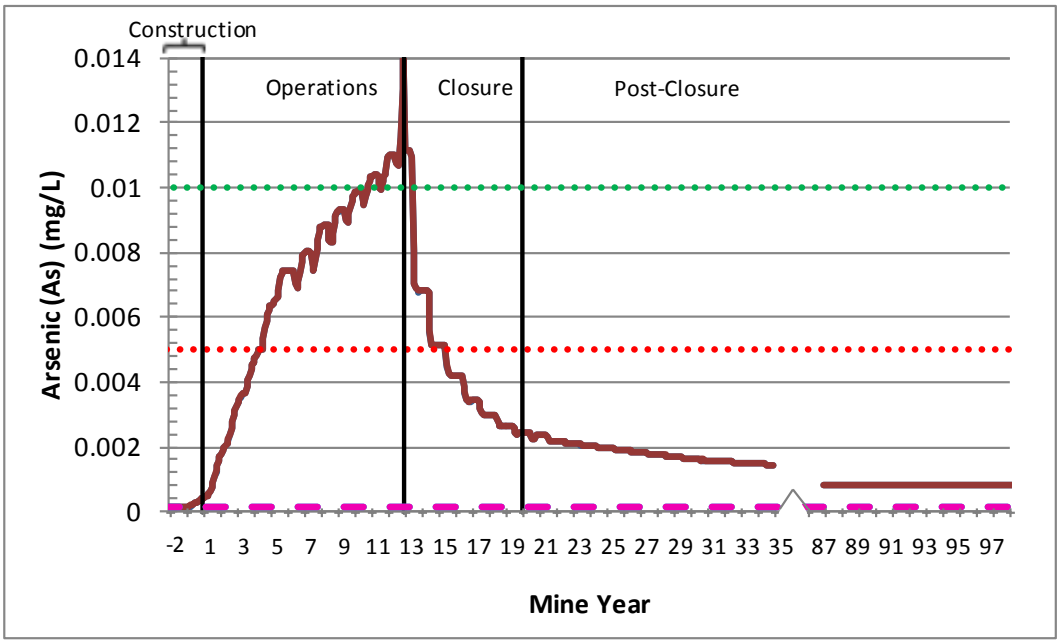
Dissolved and Total Metals - Kennady Lake (Areas 3 and 5 – Construction and Operations, and Areas 3 to 7 – Closure and Post-closure)

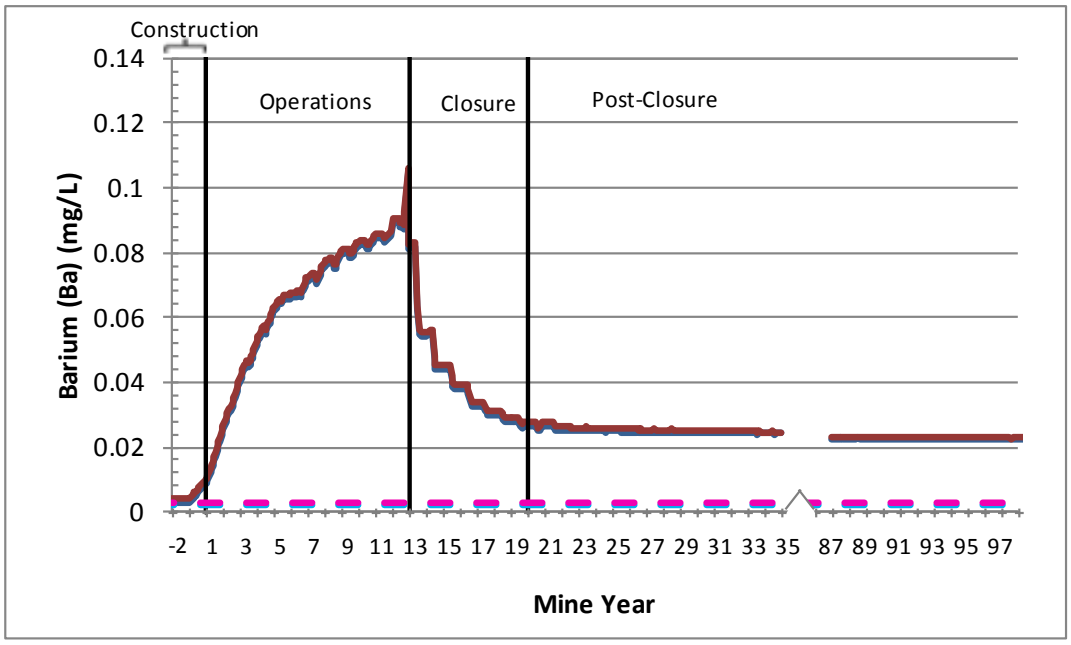


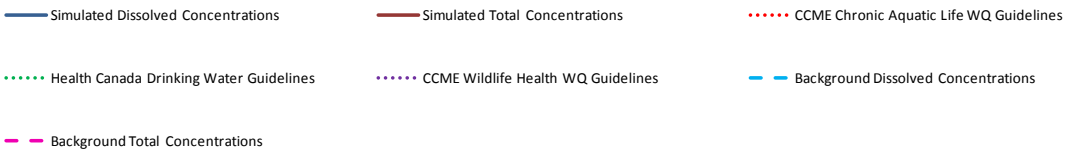




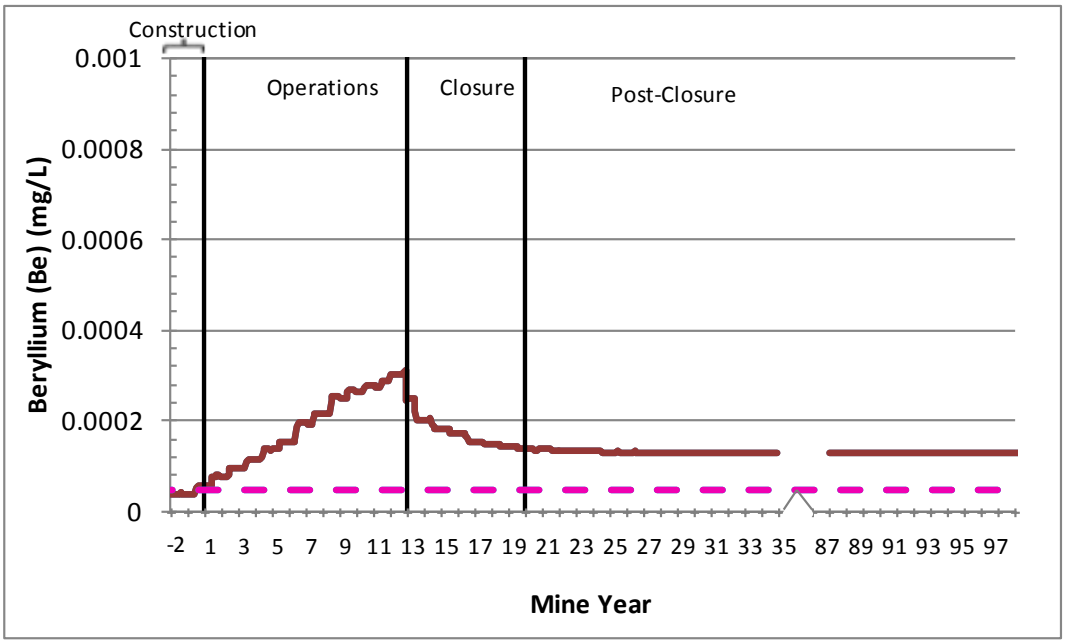
Dissolved and Total Metals - Kennady Lake (Areas 3 and 5 – Construction and Operations, and Areas 3 to 7 – Closure and Post-closure) (continued)

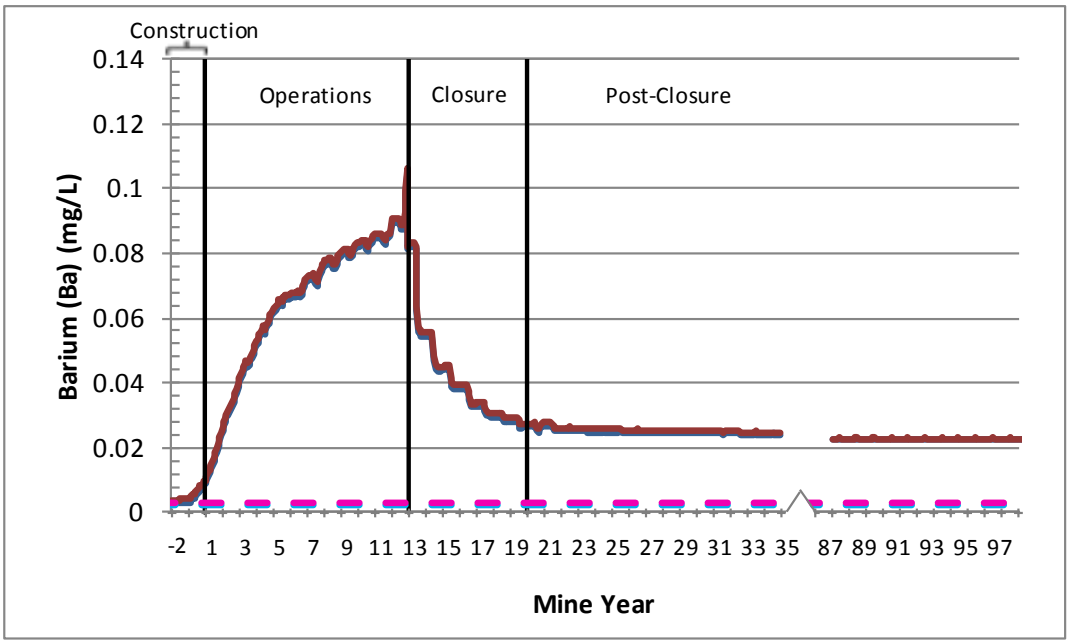


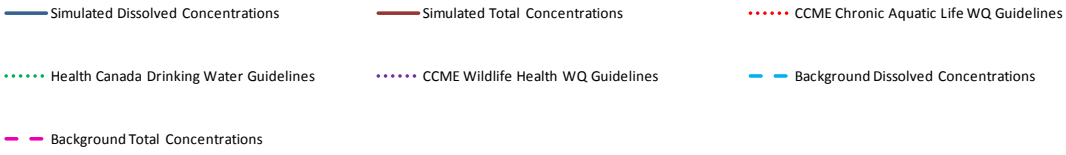




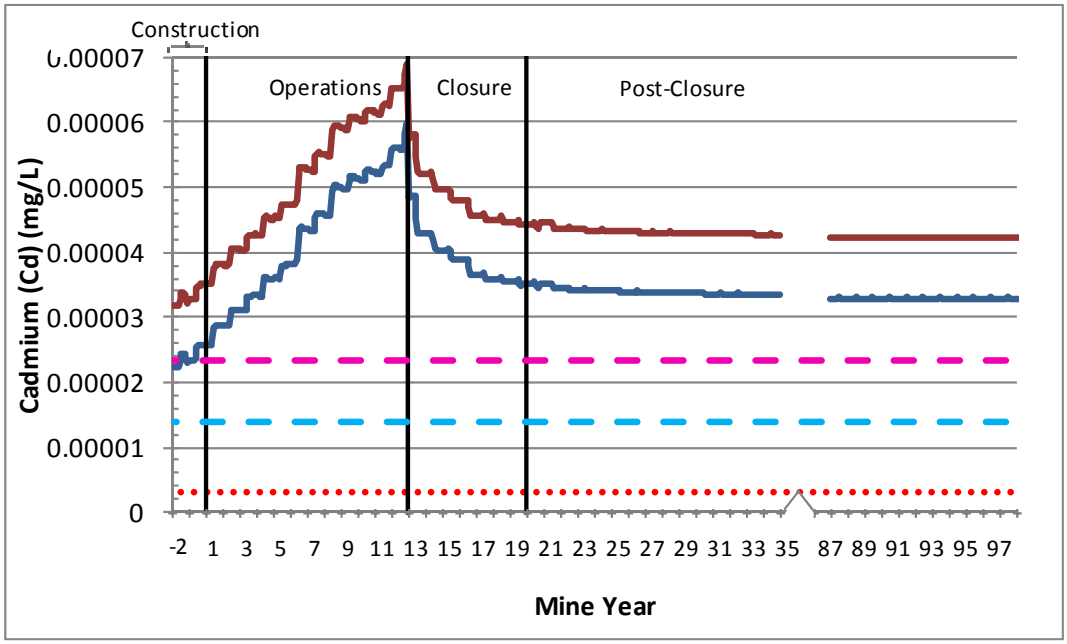
Dissolved and Total Metals - Kennady Lake (Areas 3 and 5 – Construction and Operations, and Areas 3 to 7 – Closure and Post-closure) (continued)

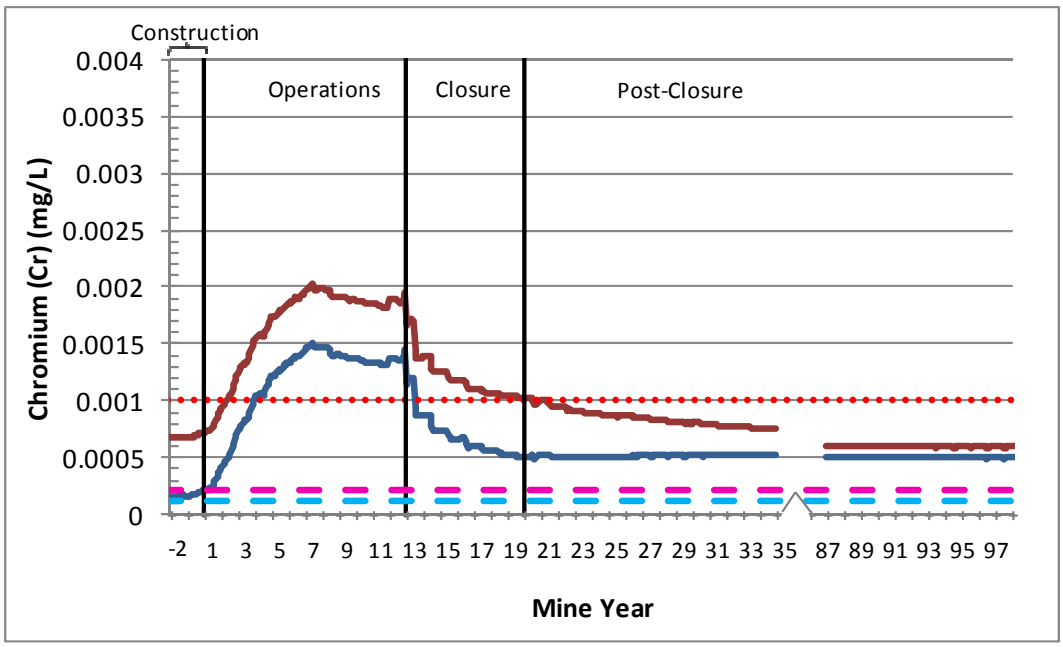






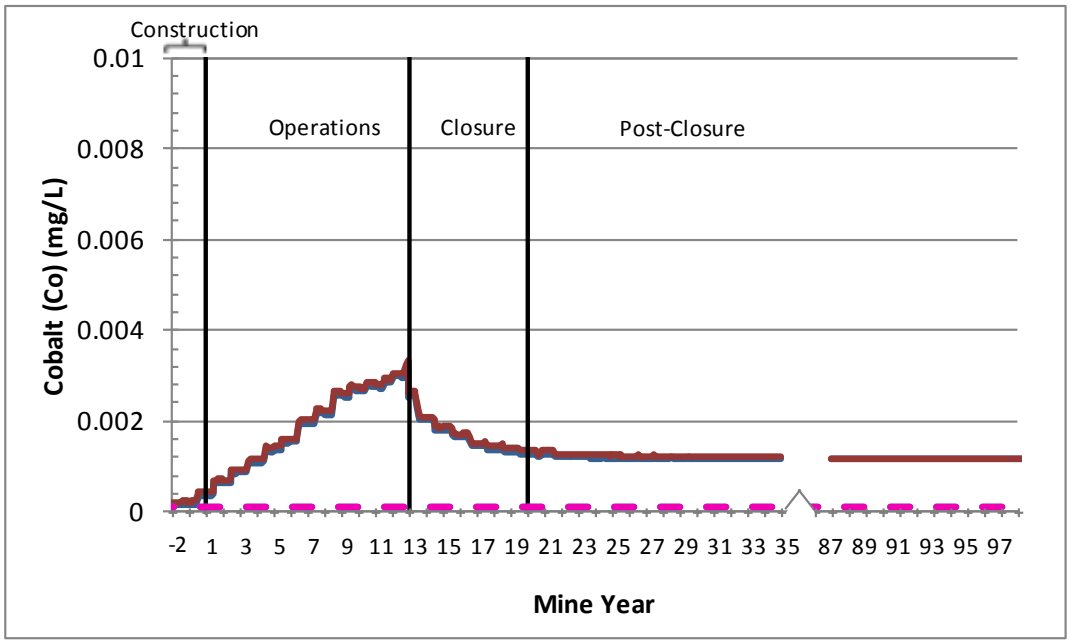
Dissolved and Total Metals - Kennady Lake (Areas 3 and 5 – Construction and Operations, and Areas 3 to 7 – Closure and Post-closure) (continued)

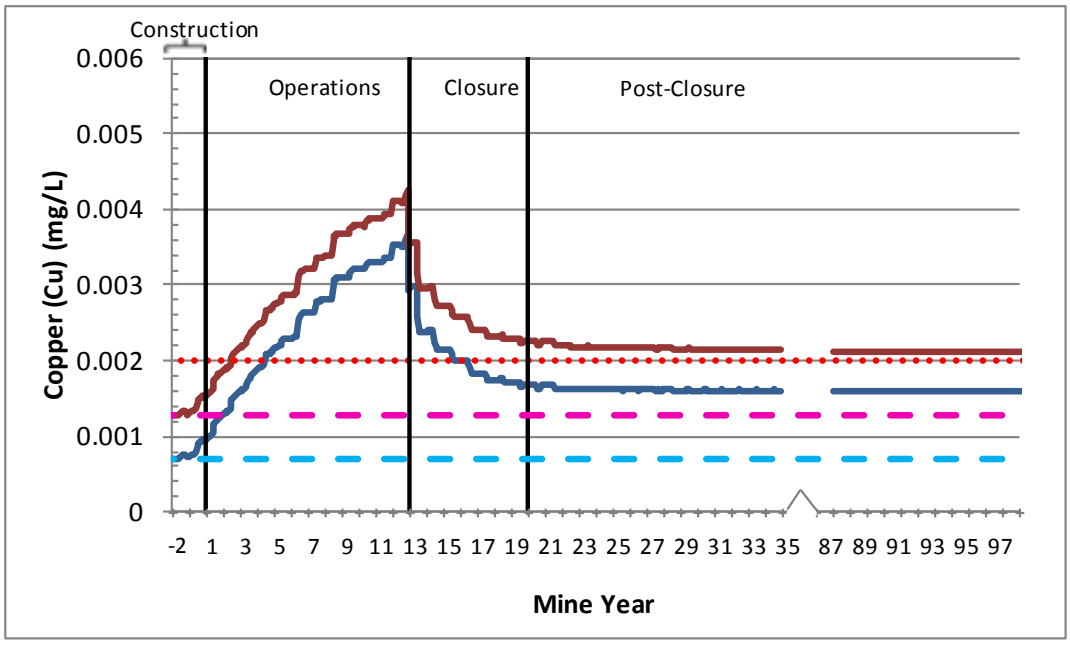


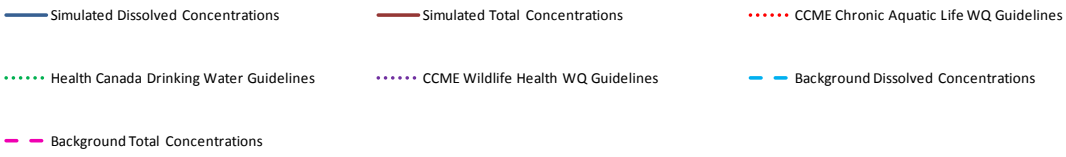


Simulated Dissolved Concentrations
Simulated Total Concentrations
CCME Chronic Aquatic Life WQ Guidelines
Health Canada Drinking Water Guidelines
CCME Wildlife Health WQ Guidelines
Background Dissolved Concentrations
Background Total Concentrations

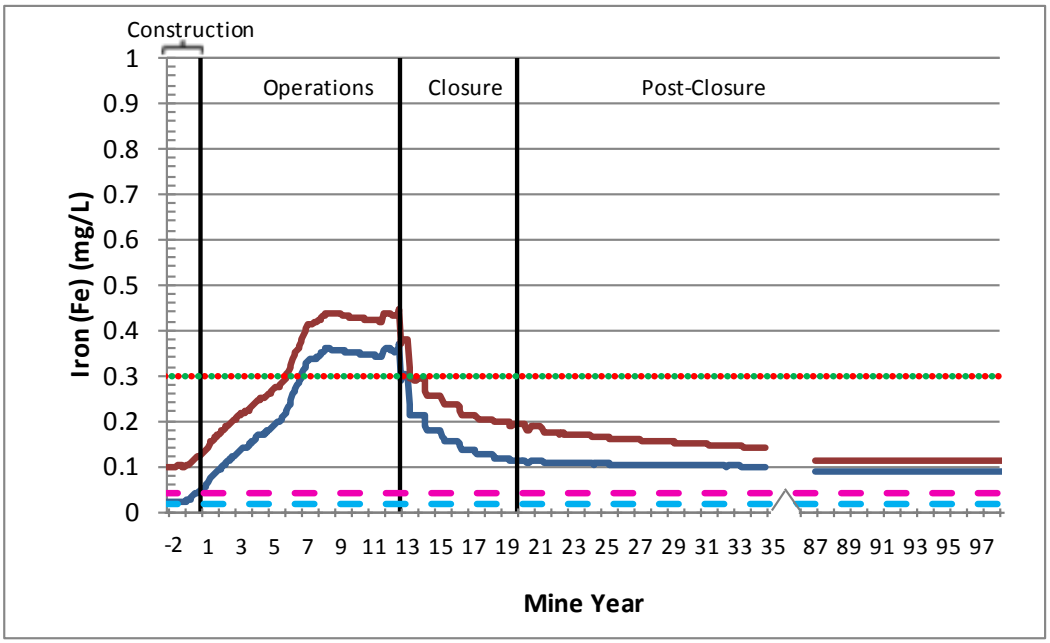
Dissolved and Total Metals - Kennady Lake (Areas 3 and 5 – Construction and Operations, and Areas 3 to 7 – Closure and Post-closure) (continued)

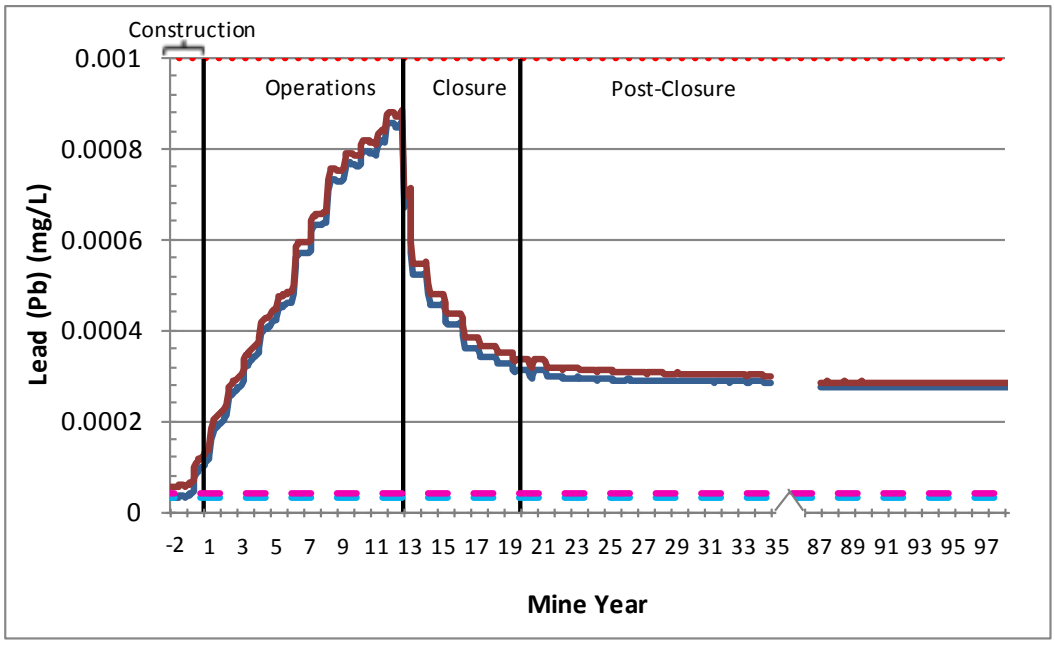






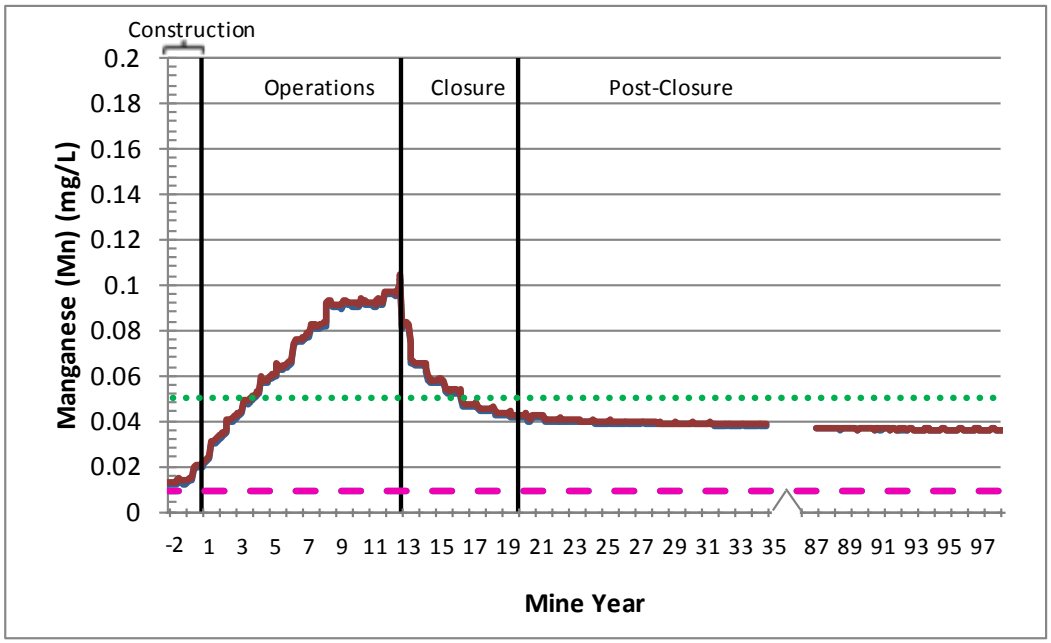
Dissolved and Total Metals - Kennady Lake (Areas 3 and 5 – Construction and Operations, and Areas 3 to 7 – Closure and Post-closure) (continued)

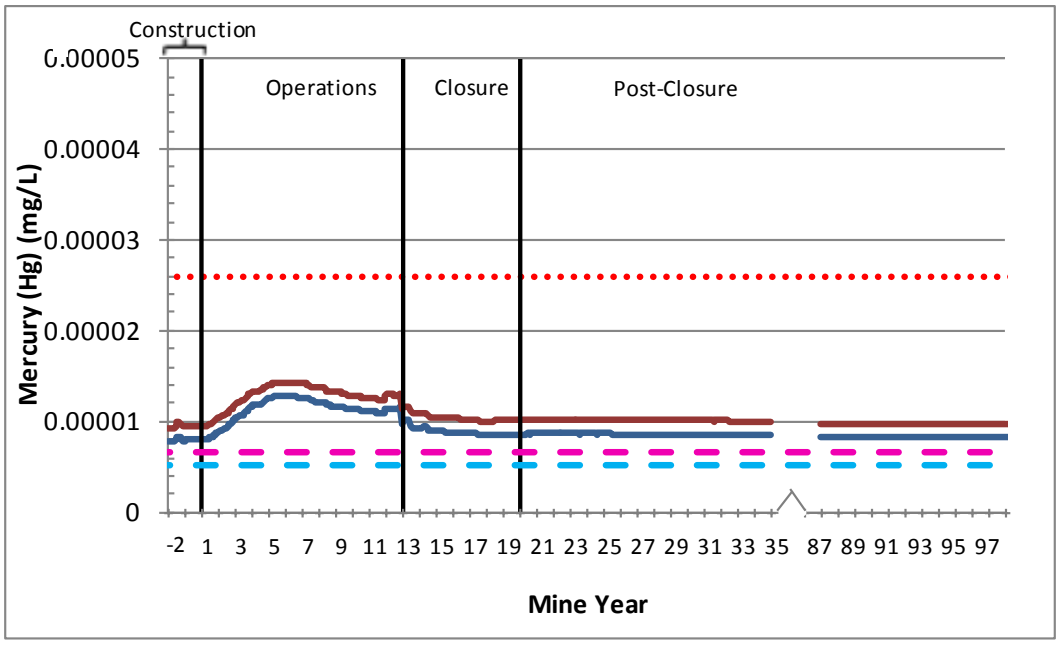




Simulated Dissolved Concentrations
Simulated Total Concentrations
CCME Chronic Aquatic Life WQ Guidelines
Health Canada Drinking Water Guidelines
CCME Wildlife Health WQ Guidelines
Background Dissolved Concentrations
Background Total Concentrations

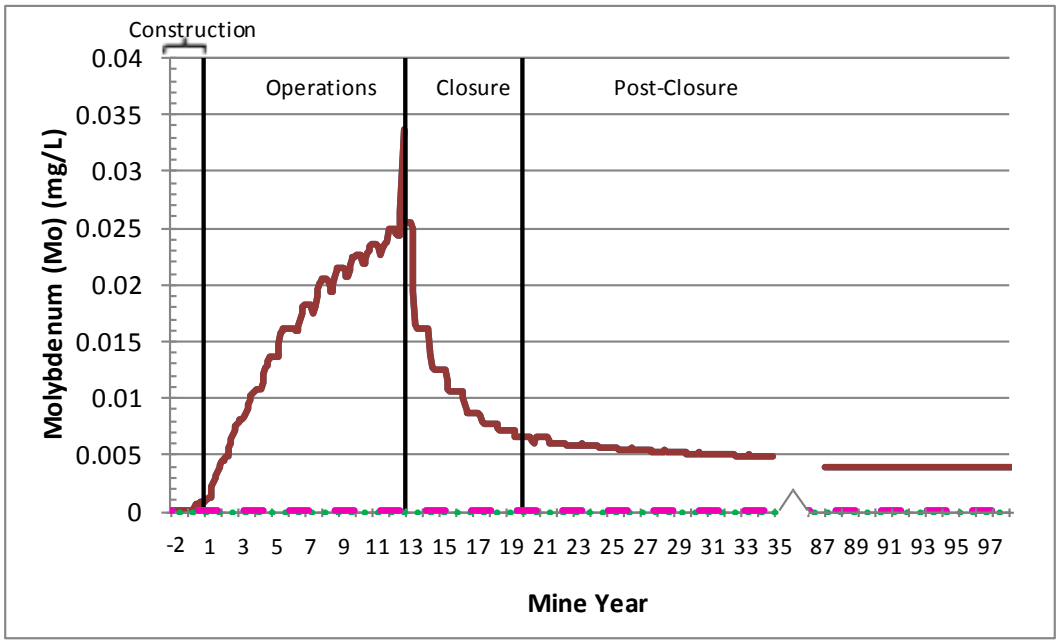
Dissolved and Total Metals - Kennady Lake (Areas 3 and 5 – Construction and Operations, and Areas 3 to 7 – Closure and Post-closure) (continued)

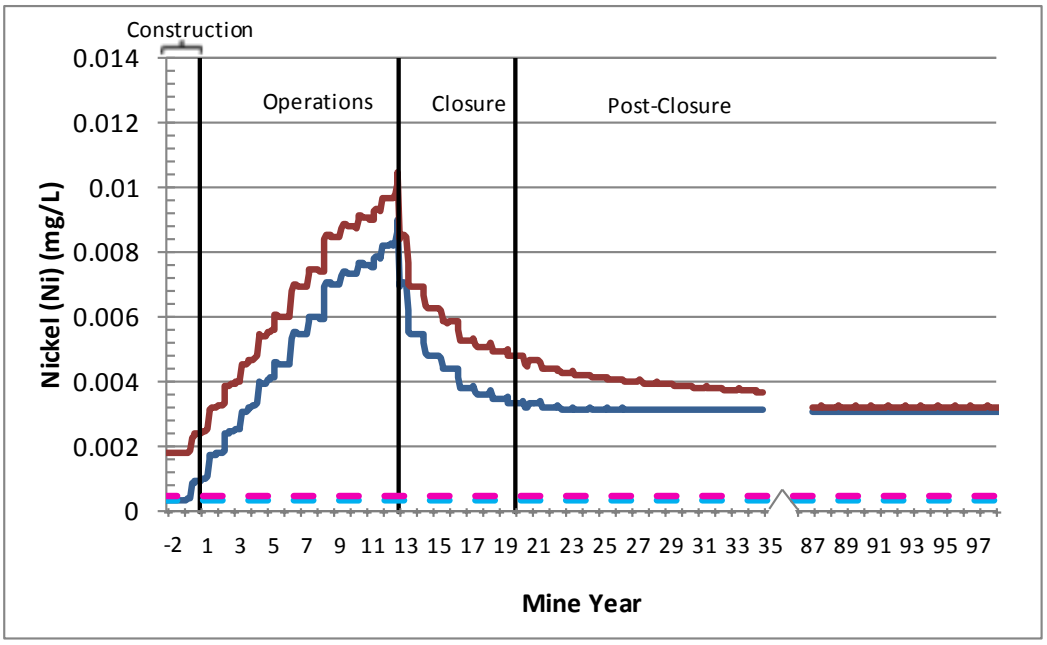




Simulated Dissolved Concentrations
Simulated Total Concentrations
CCME Chronic Aquatic Life WQ Guidelines
Health Canada Drinking Water Guidelines
CCME Wildlife Health WQ Guidelines
Background Dissolved Concentrations
Background Total Concentrations

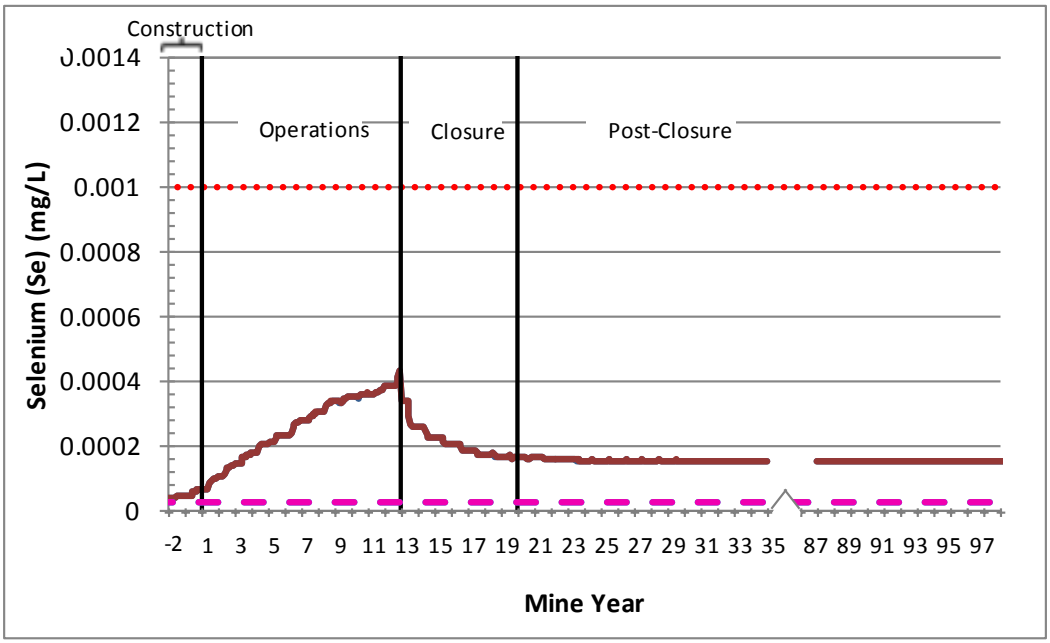
Dissolved and Total Metals - Kennady Lake (Areas 3 and 5 – Construction and Operations, and Areas 3 to 7 – Closure and Post-closure) (continued)

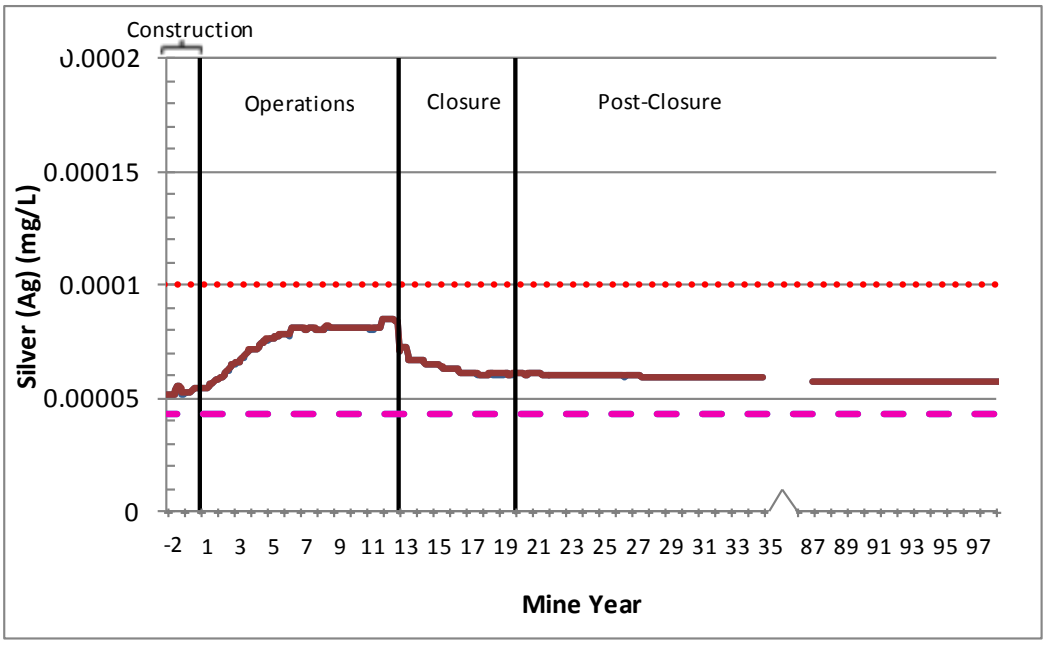




Simulated Dissolved Concentrations
Simulated Total Concentrations
CCME Chronic Aquatic Life WQ Guidelines
Health Canada Drinking Water Guidelines
CCME Wildlife Health WQ Guidelines
Background Dissolved Concentrations
Background Total Concentrations

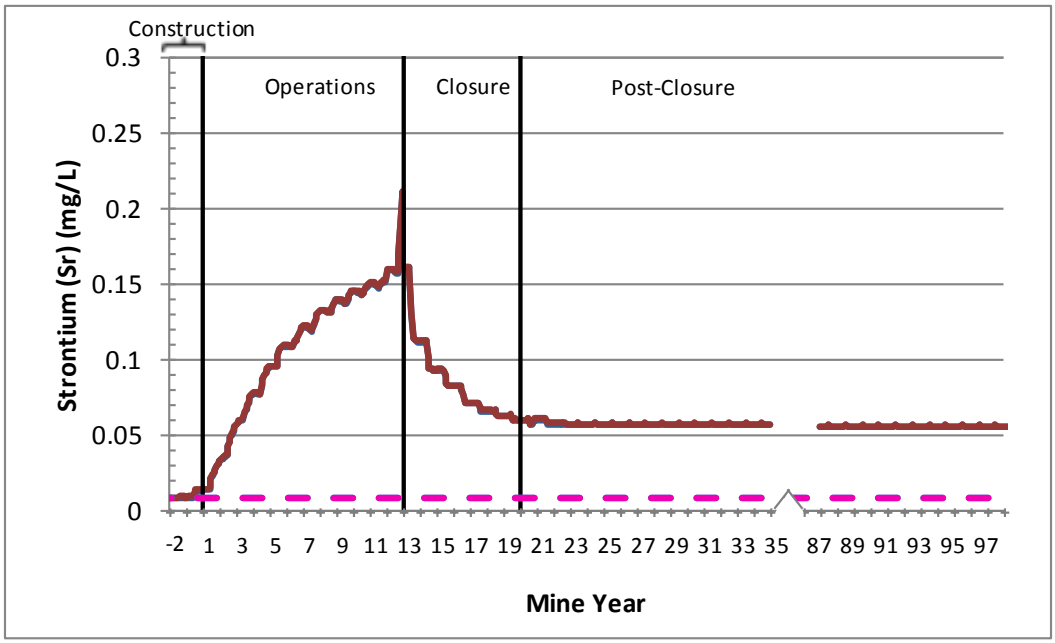
Dissolved and Total Metals - Kennady Lake (Areas 3 and 5 – Construction and Operations, and Areas 3 to 7 – Closure and Post-closure) (continued)

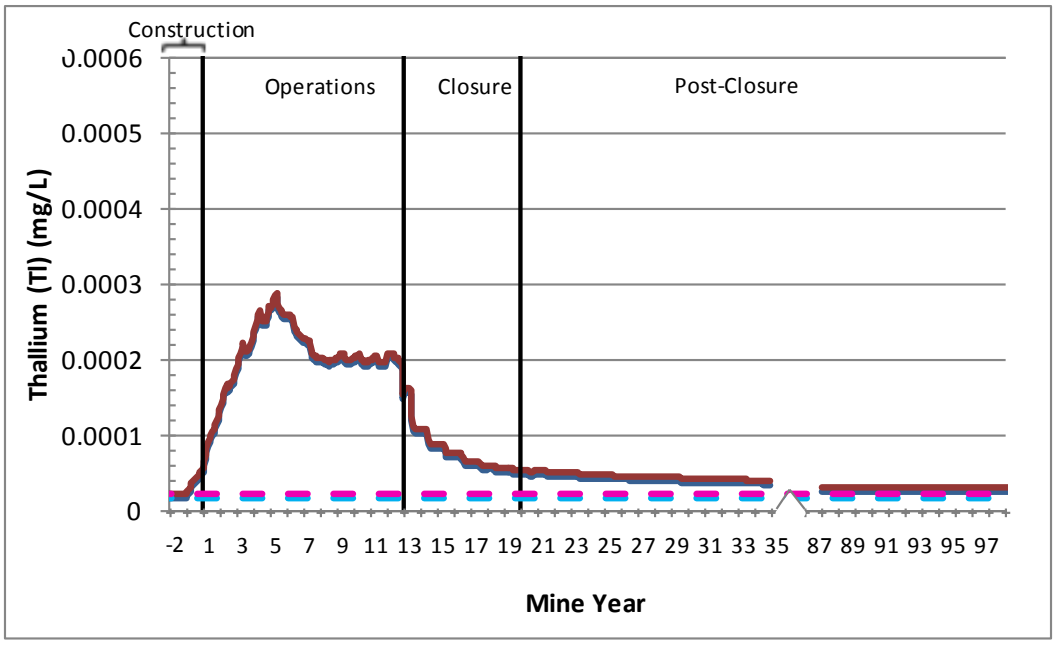




Simulated Dissolved Concentrations
Simulated Total Concentrations
CCME Chronic Aquatic Life WQ Guidelines
Health Canada Drinking Water Guidelines
CCME Wildlife Health WQ Guidelines
Background Dissolved Concentrations
Background Total Concentrations

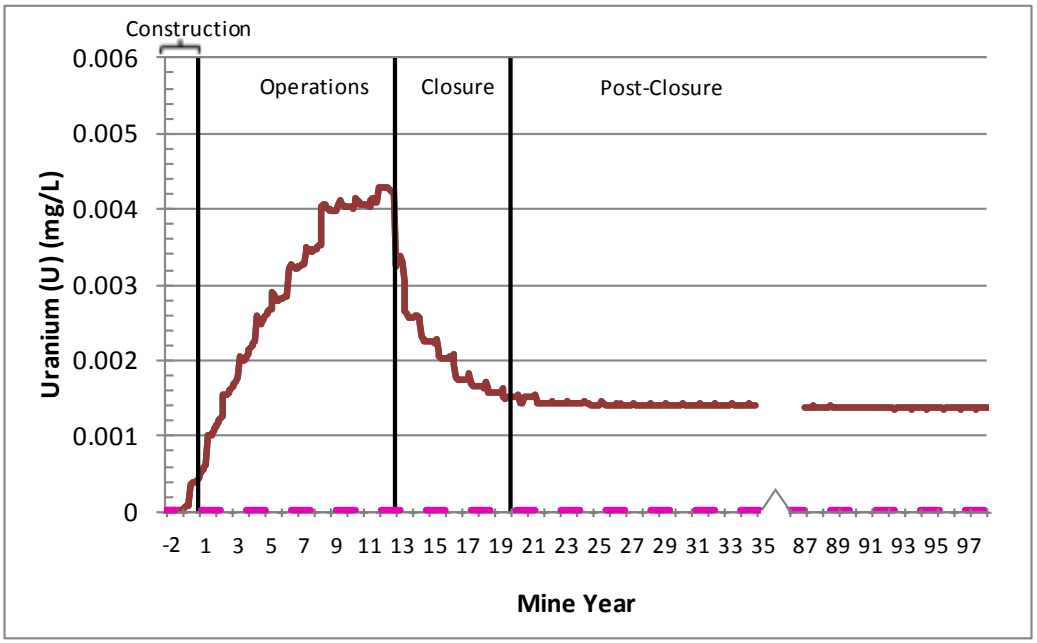
Dissolved and Total Metals - Kennady Lake (Areas 3 and 5 – Construction and Operations, and Areas 3 to 7 – Closure and Post-closure) (continued)

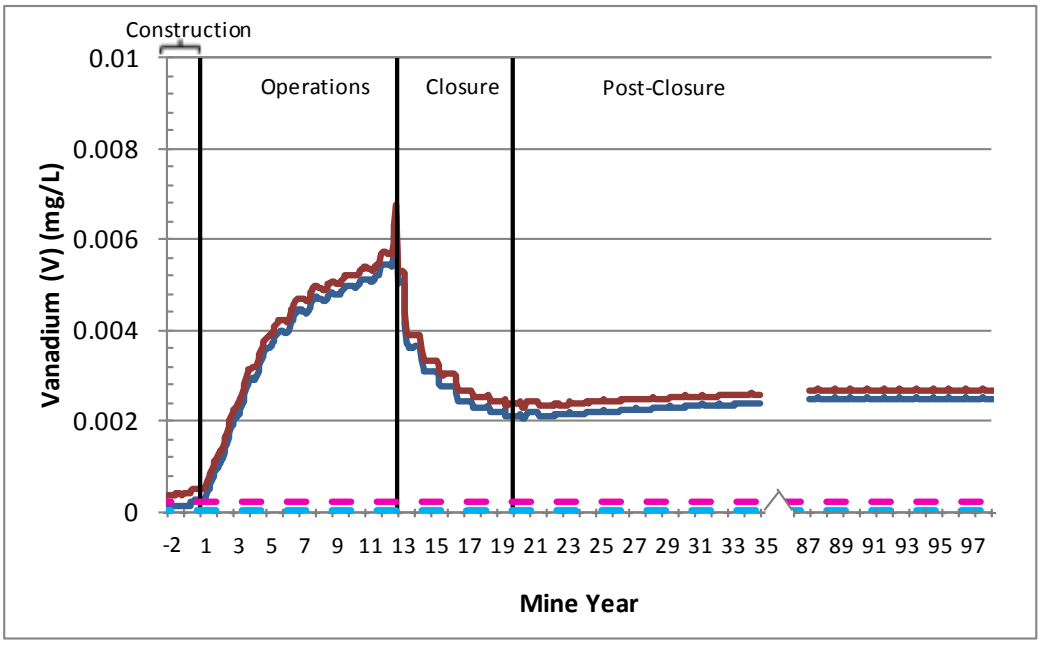




Simulated Dissolved Concentrations
Simulated Total Concentrations
CCME Chronic Aquatic Life WQ Guidelines
Health Canada Drinking Water Guidelines
CCME Wildlife Health WQ Guidelines
Background Dissolved Concentrations
Background Total Concentrations

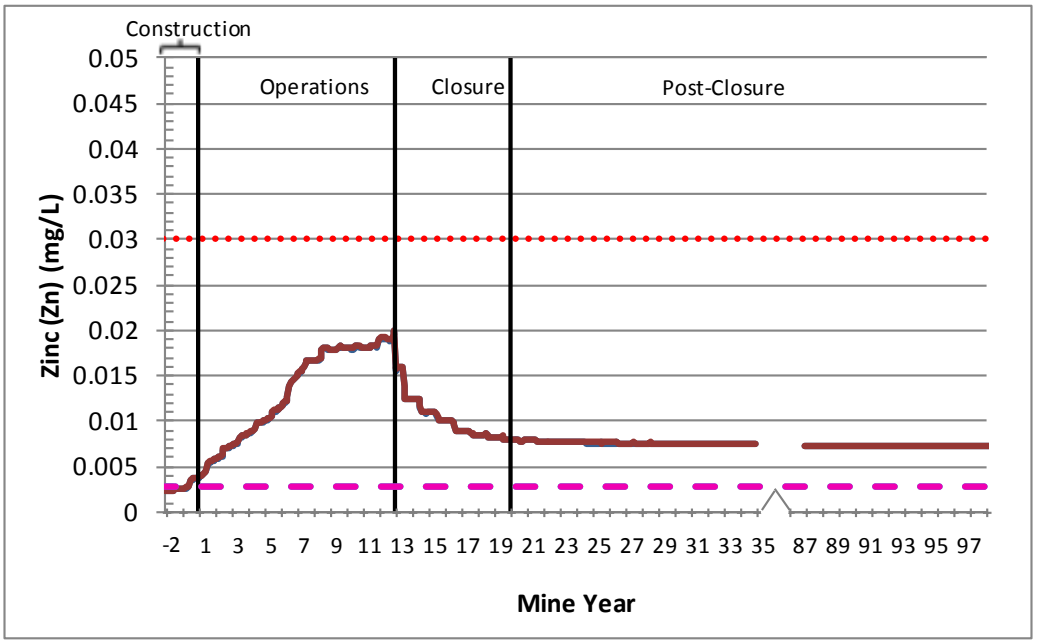
Dissolved and Total Metals - Kennady Lake (Areas 3 and 5 – Construction and Operations, and Areas 3 to 7 – Closure and Post-closure) (continued)



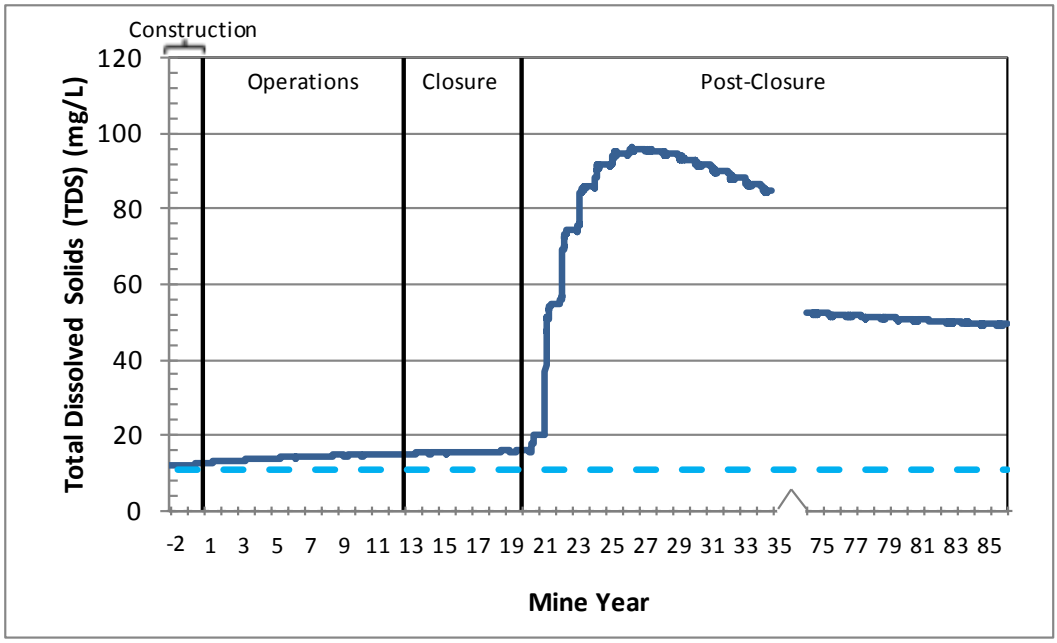


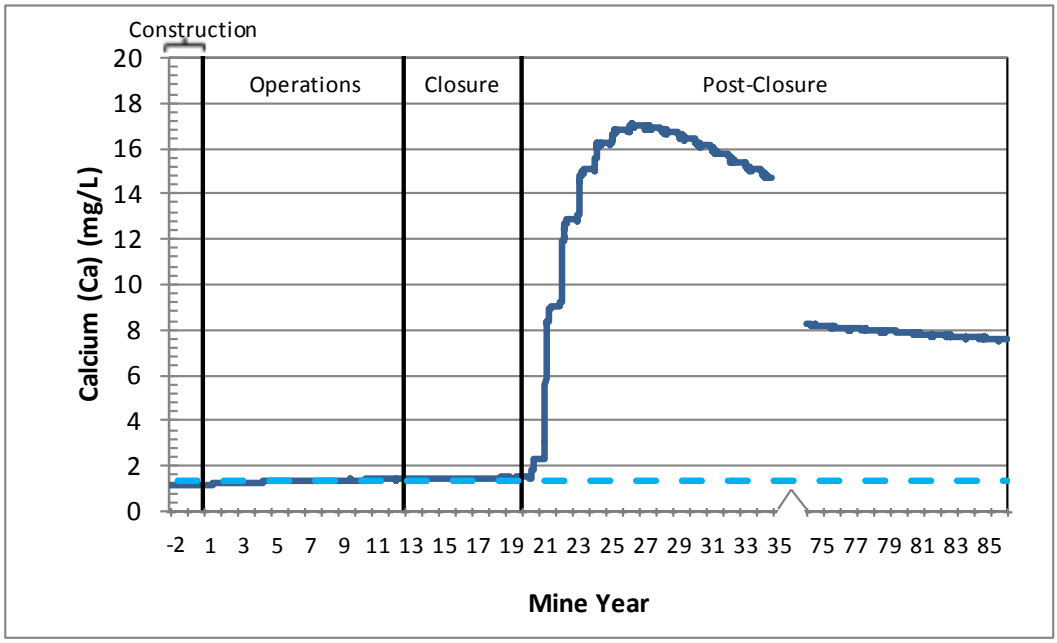
Simulated Dissolved Concentrations
Simulated Total Concentrations
CCME Chronic Aquatic Life WQ Guidelines
Health Canada Drinking Water Guidelines
CCME Wildlife Health WQ Guidelines
Background Dissolved Concentrations
Background Total Concentrations

Dissolved and Total Metals - Kennady Lake (Areas 3 and 5 – Construction and Operations, and Areas 3 to 7 – Closure and Post-closure) (continued)



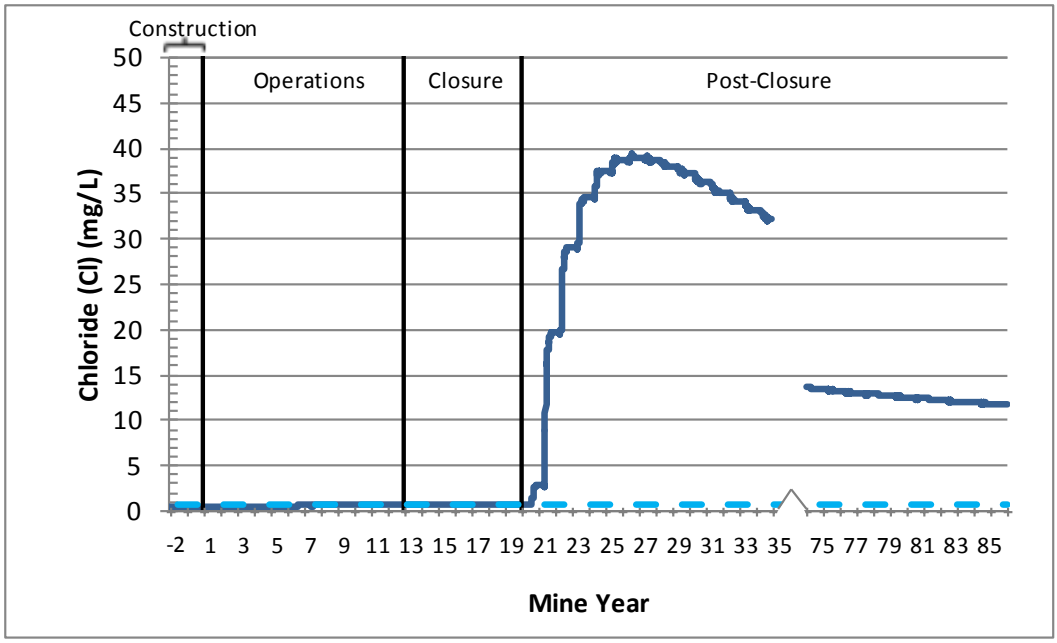
Nutrients and Anions - Area 8

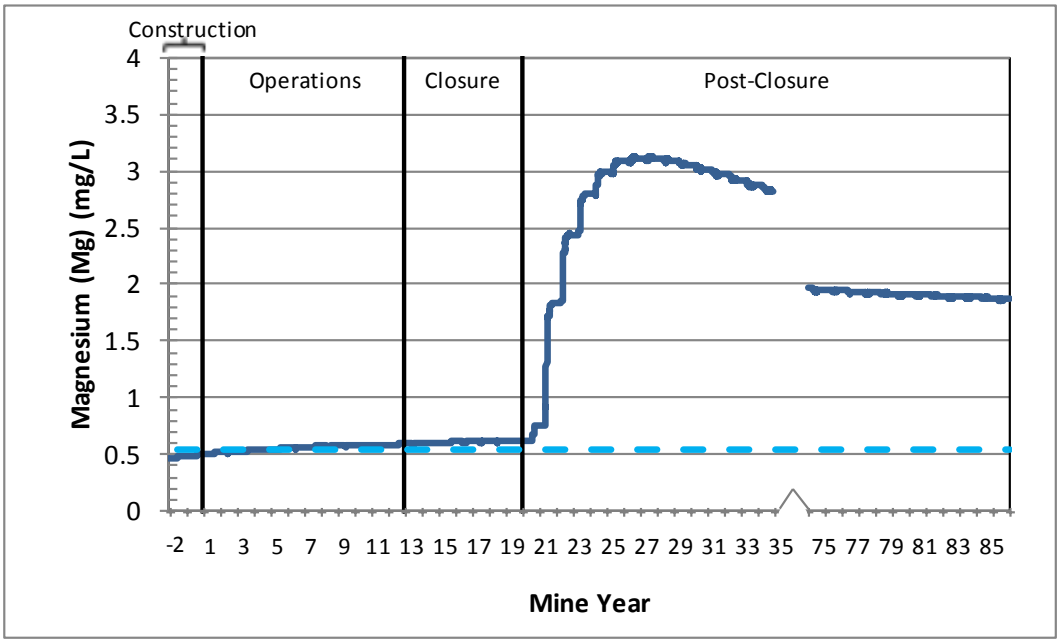


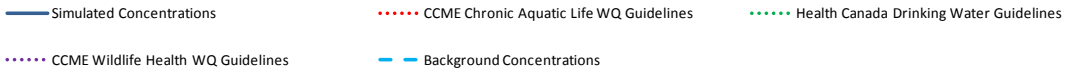


Simulated Concentrations
CCME Chronic Aquatic Life WQ Guidelines
Health Canada Drinking Water Guidelines
CCME Wildlife Health WQ Guidelines
Background Concentrations

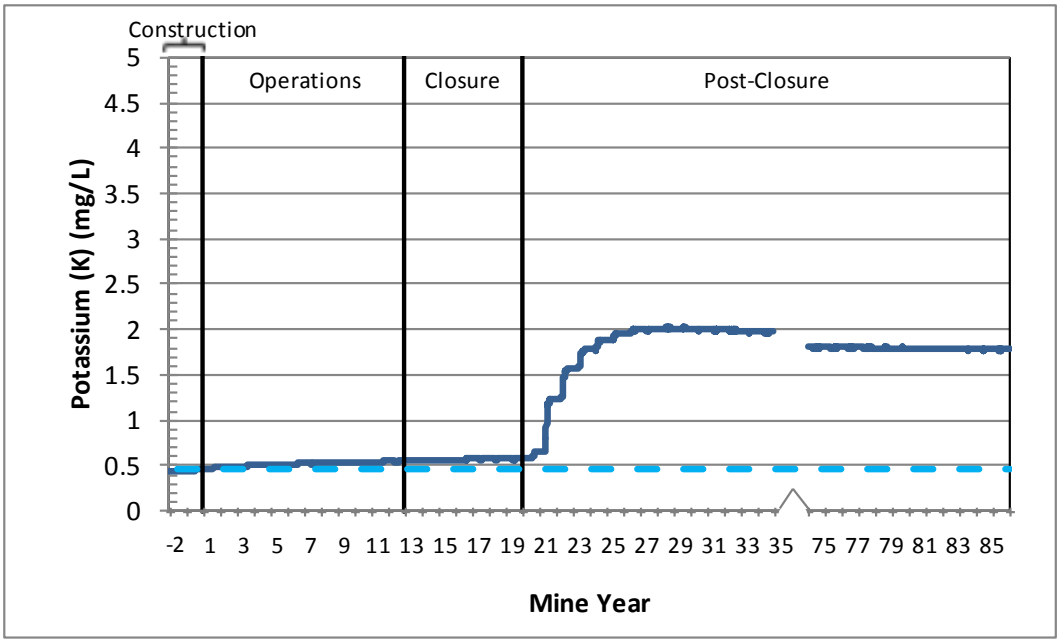
Nutrients and Anions - Area 8 (continued)

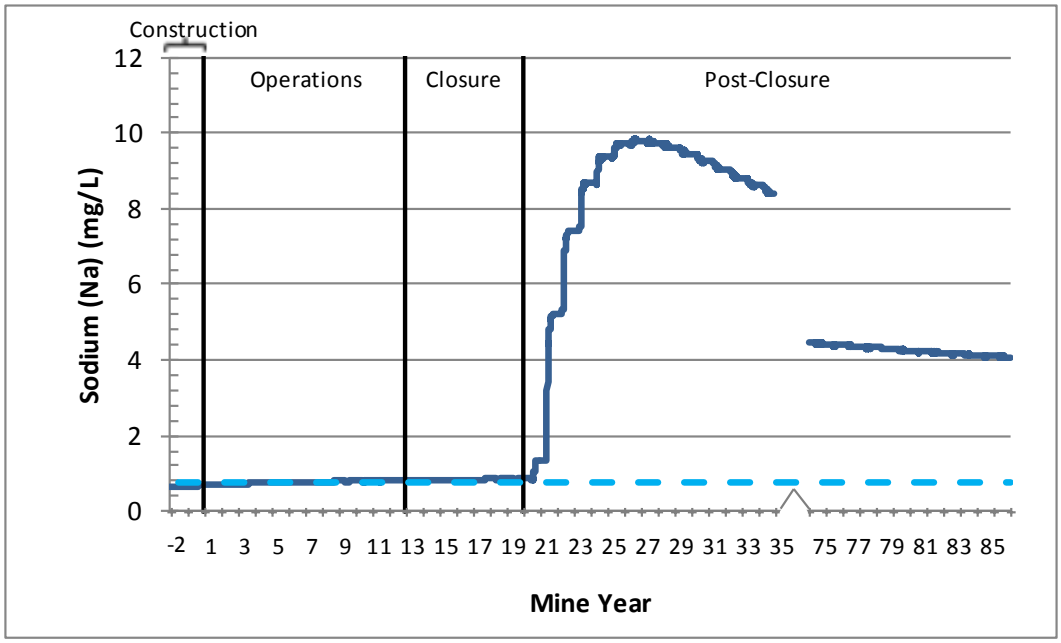






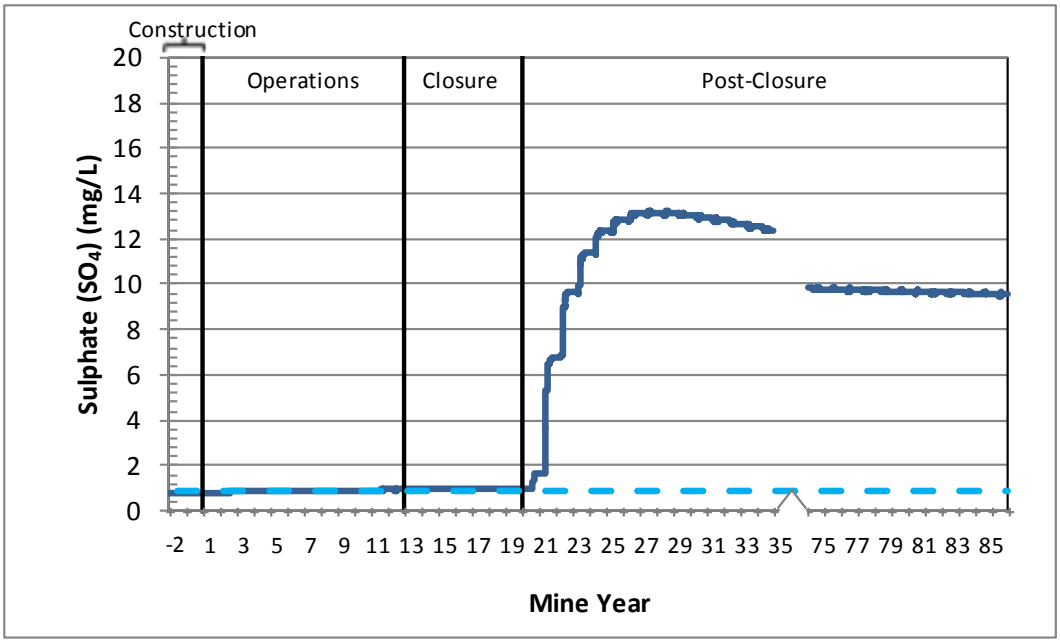
Nutrients and Anions - Area 8 (continued)

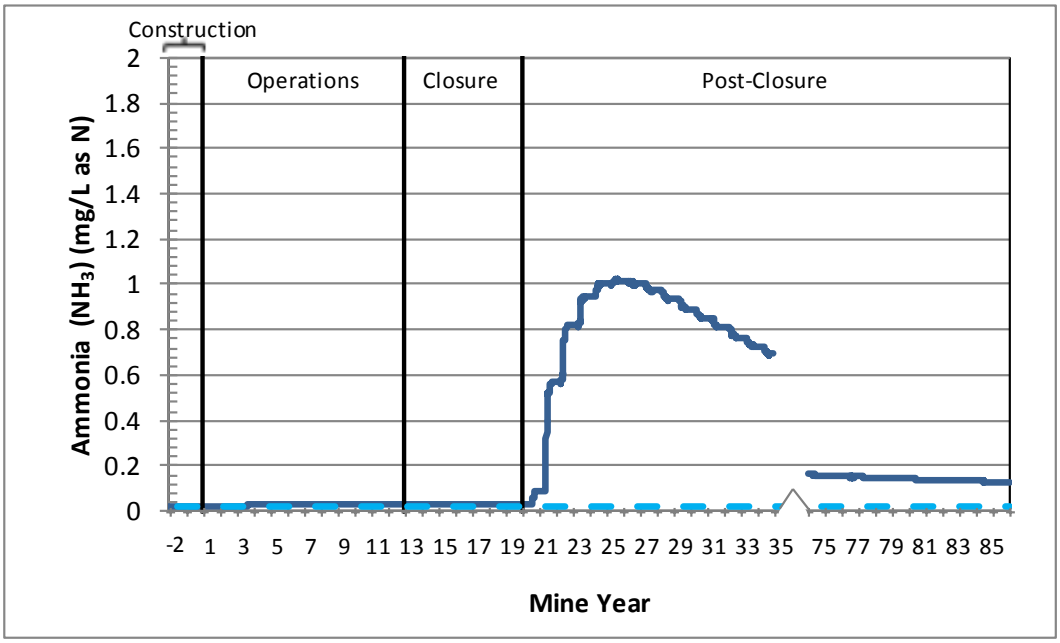




Simulated Concentrations
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Health Canada Drinking Water Guidelines
CCME Wildlife Health WQ Guidelines
Background Concentrations

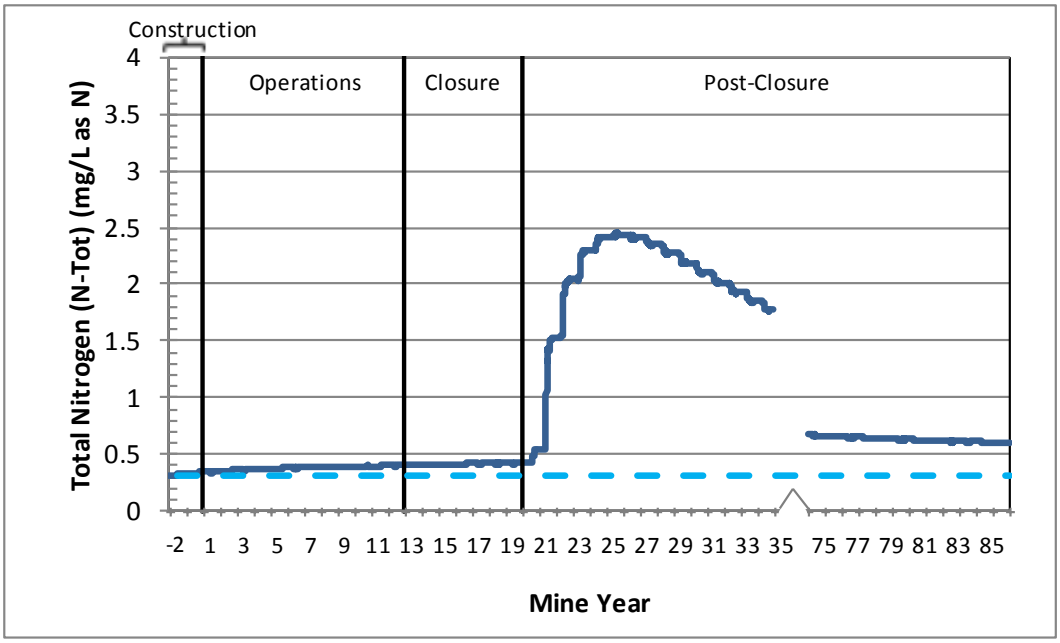
Nutrients and Anions - Area 8 (continued)

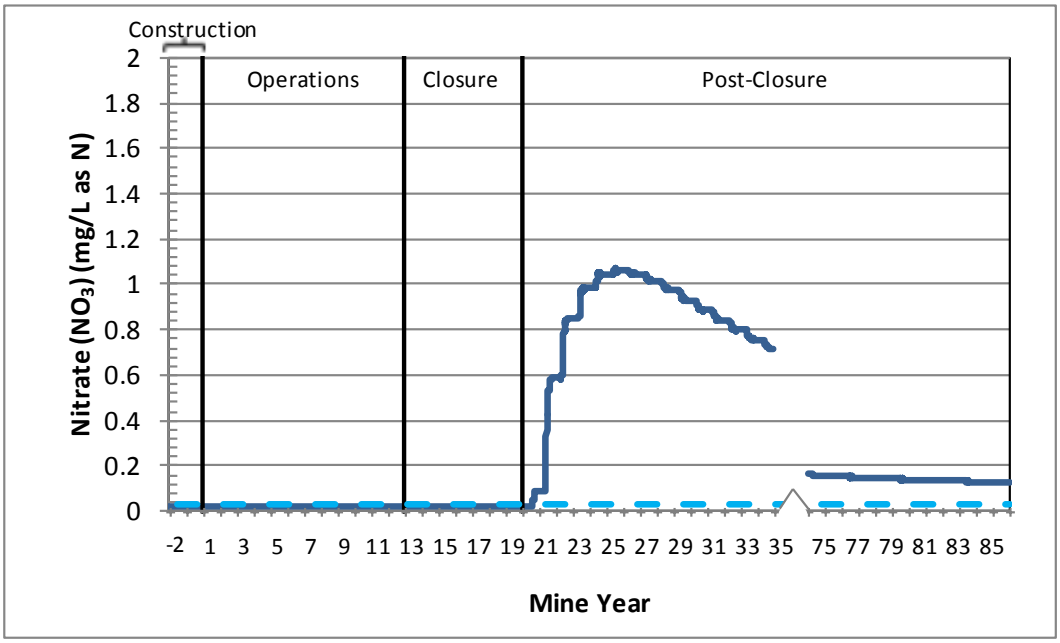




Simulated Concentrations
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Health Canada Drinking Water Guidelines
CCME Wildlife Health WQ Guidelines
Background Concentrations

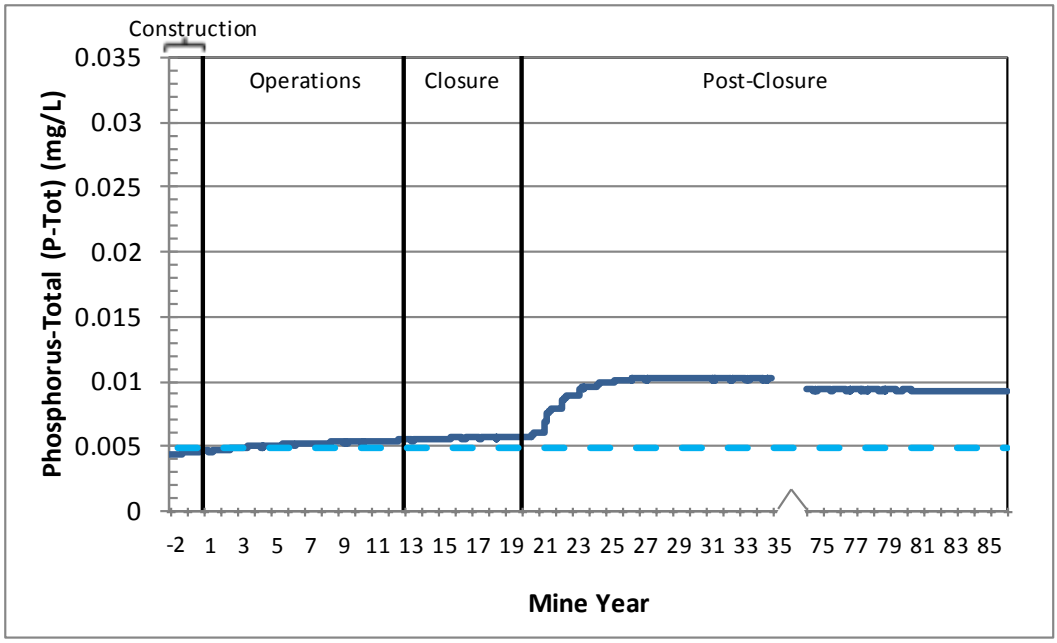
Nutrients and Anions - Area 8 (continued)

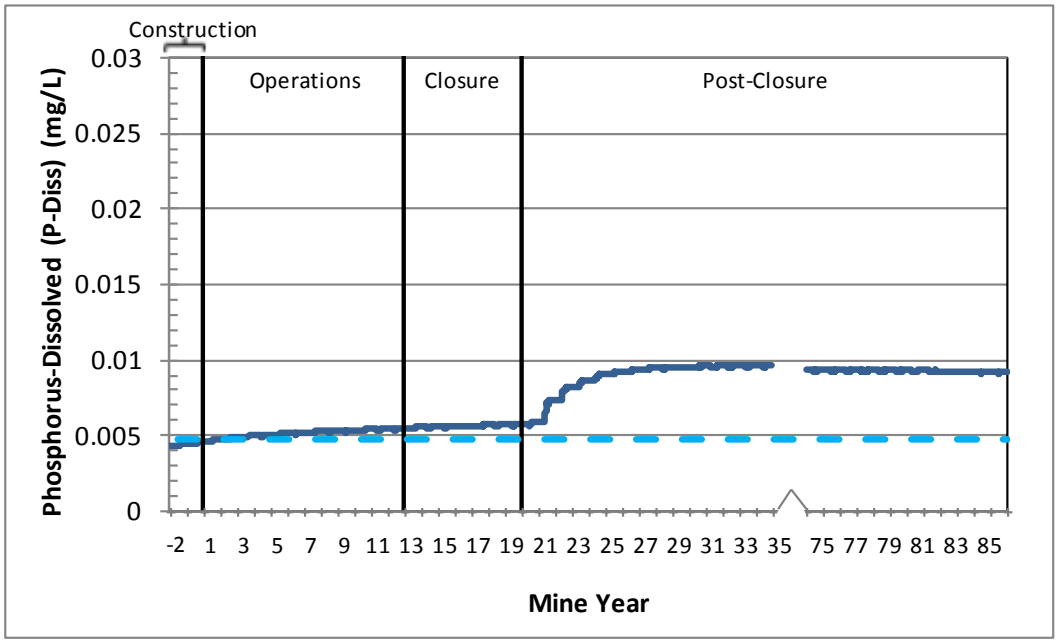




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Background Concentrations

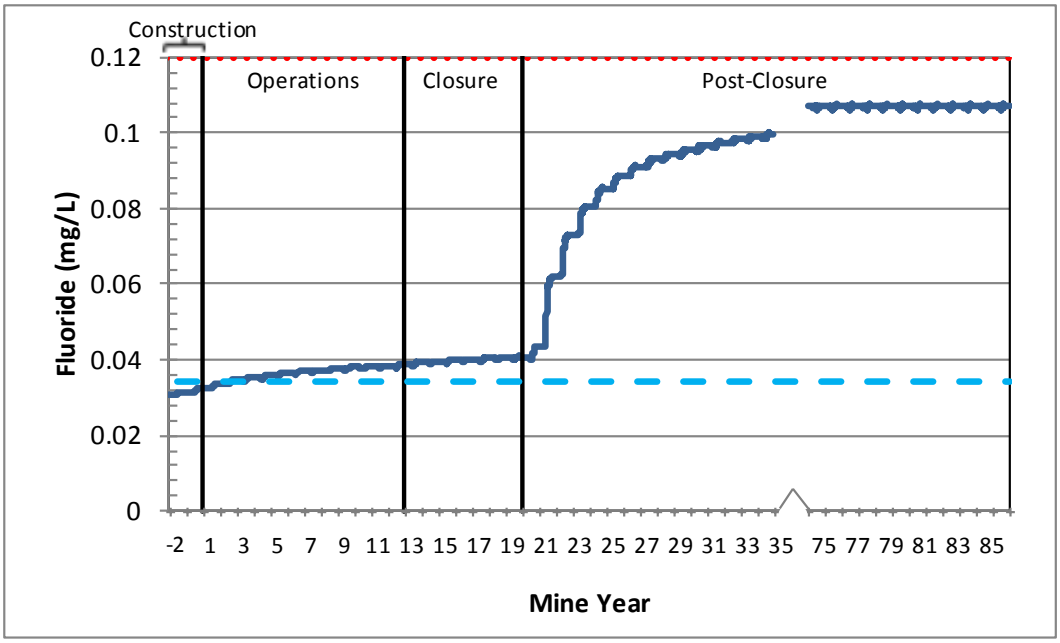
Nutrients and Anions - Area 8 (continued)



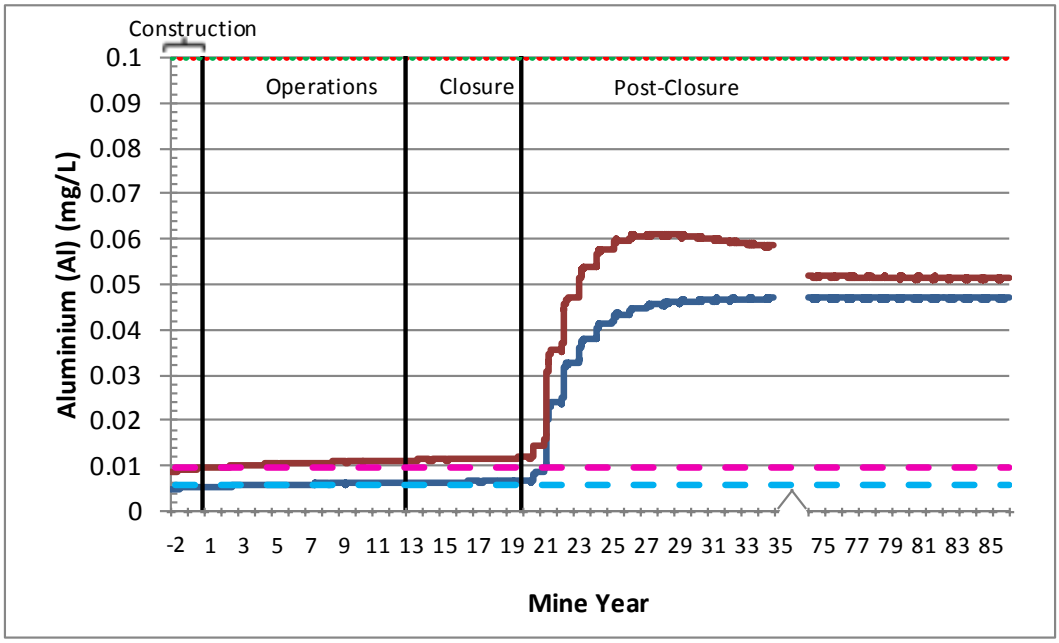


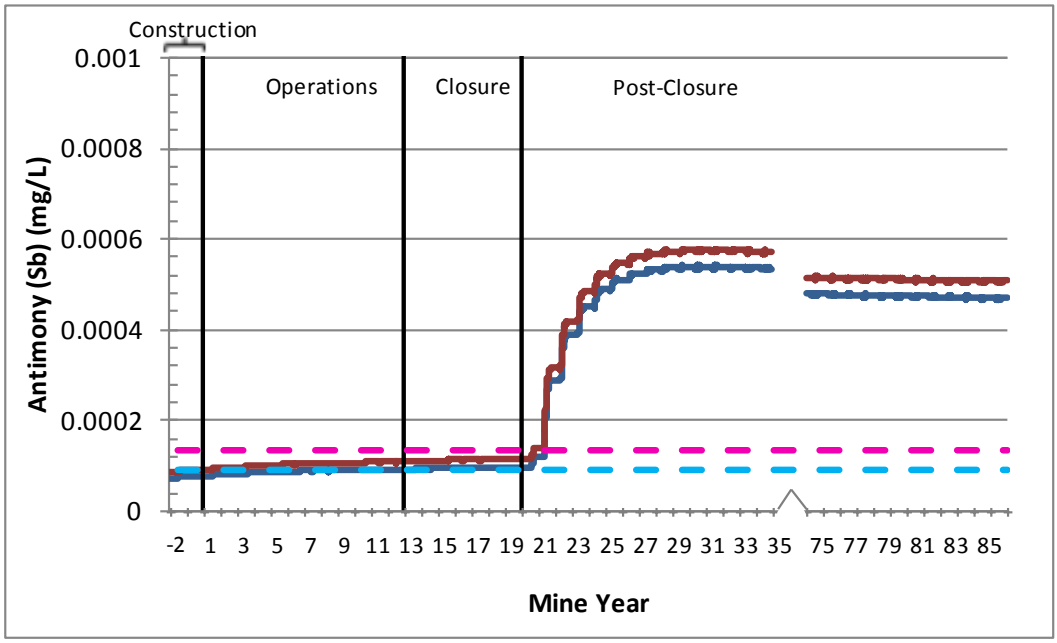
Simulated Concentrations
CCME Chronic Aquatic Life WQ Guidelines
Health Canada Drinking Water Guidelines
CCME Wildlife Health WQ Guidelines
Background Concentrations

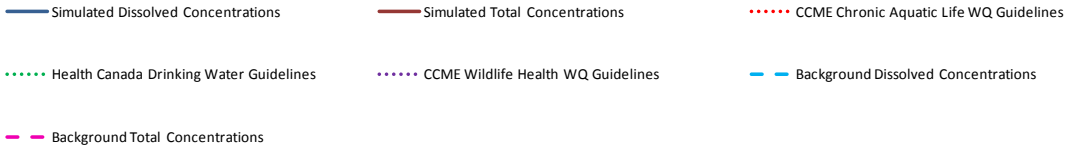
Nutrients and Anions - Area 8 (continued)



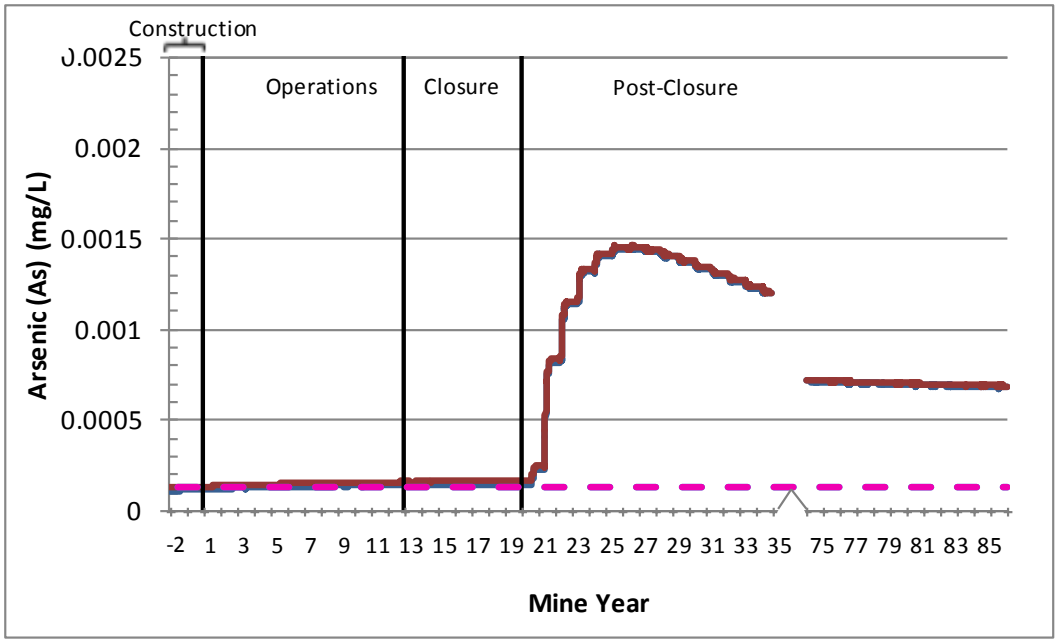
Dissolved and Total Metals - Area 8

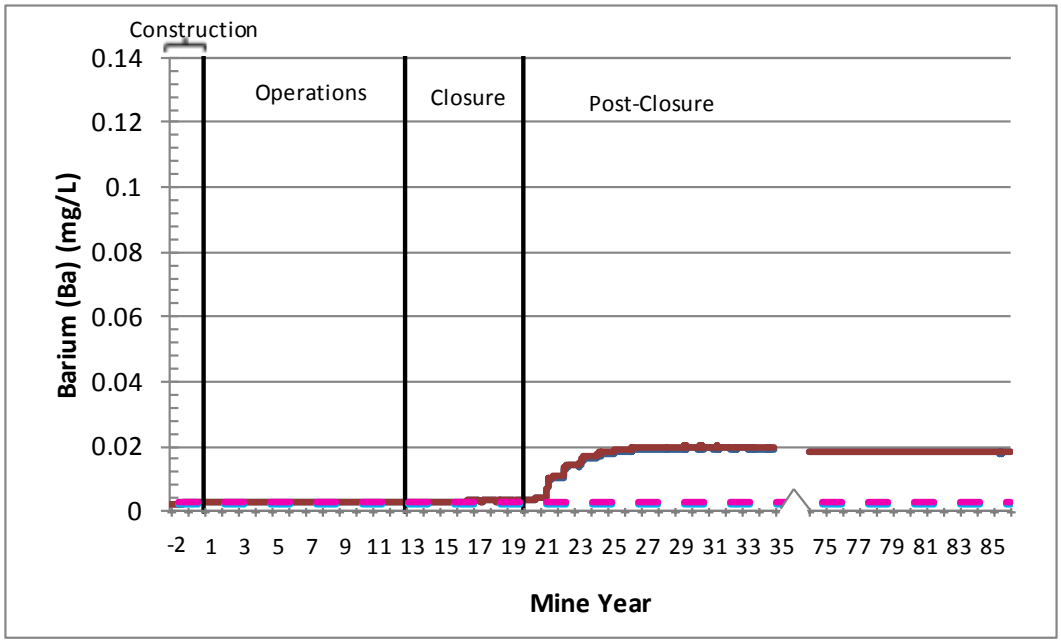


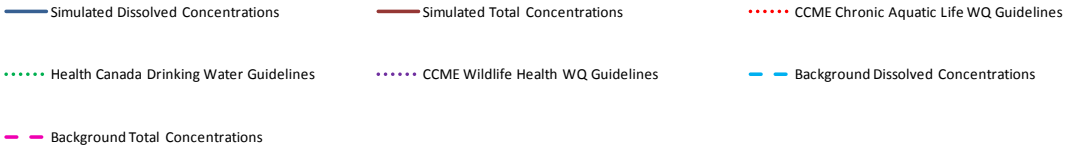




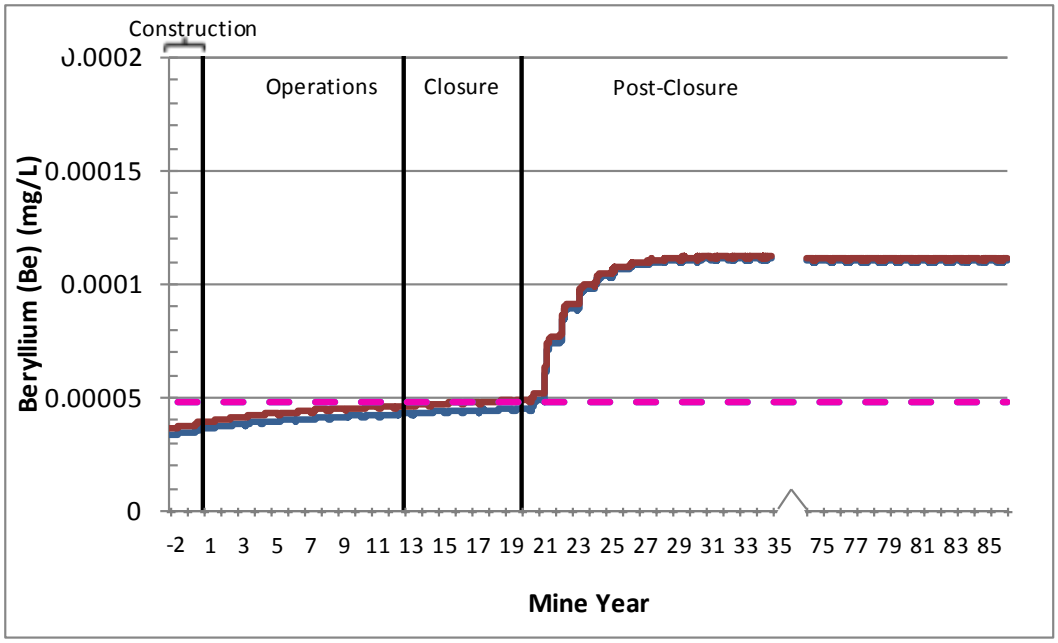
Dissolved and Total Metals - Area 8 (continued)

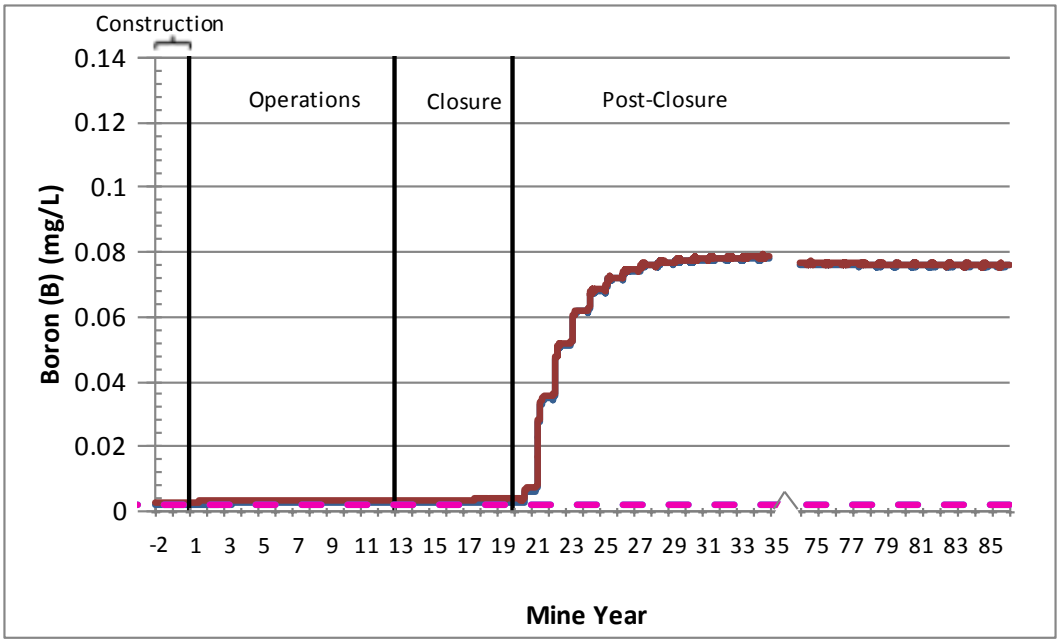


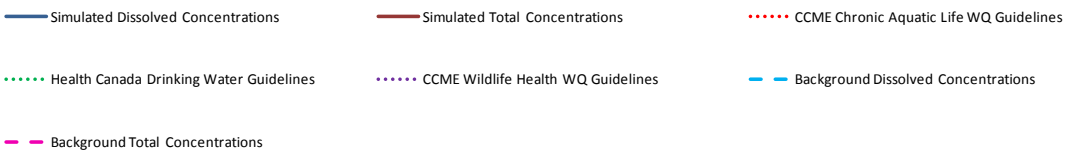




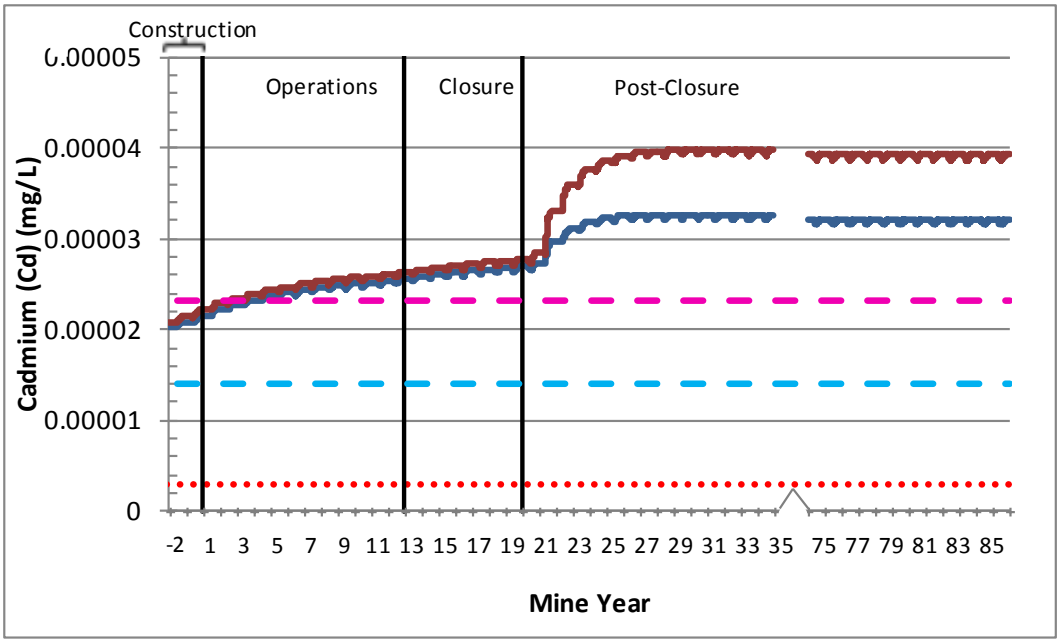
Dissolved and Total Metals - Area 8 (continued)

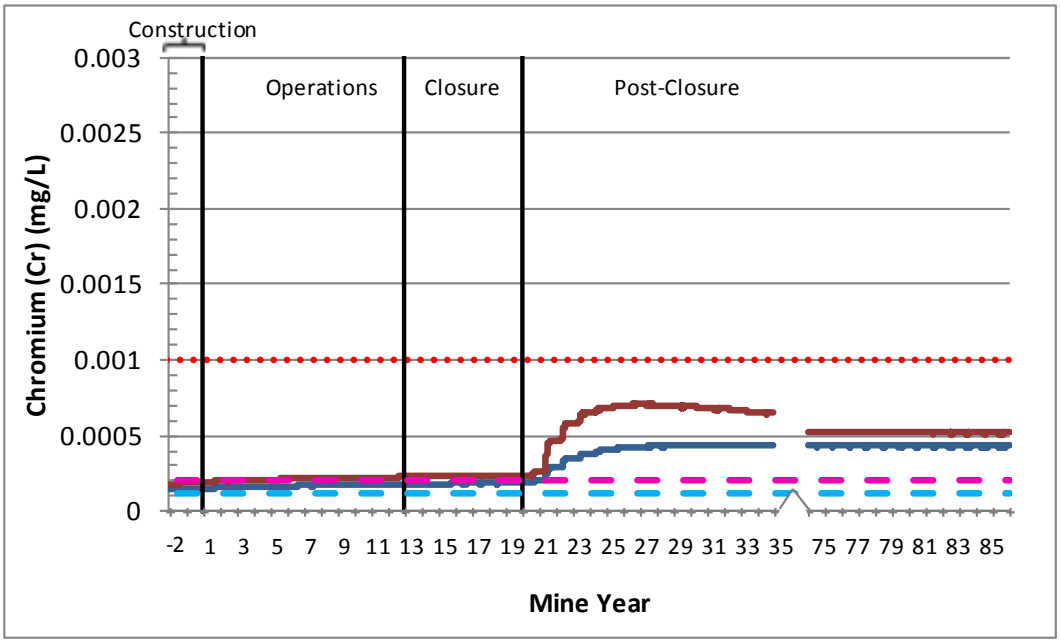






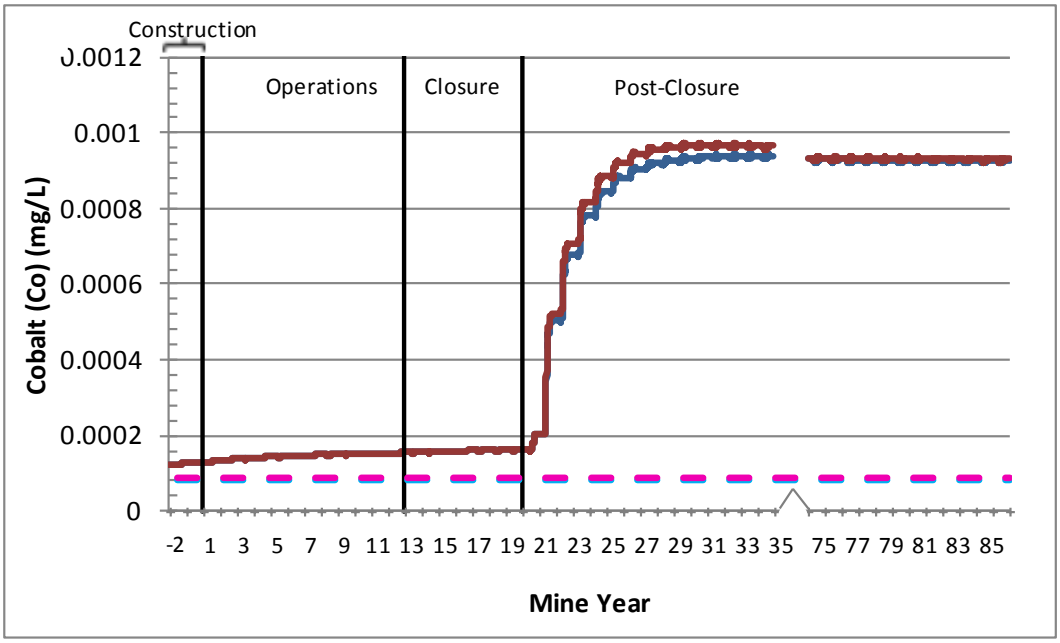
Dissolved and Total Metals - Area 8 (continued)

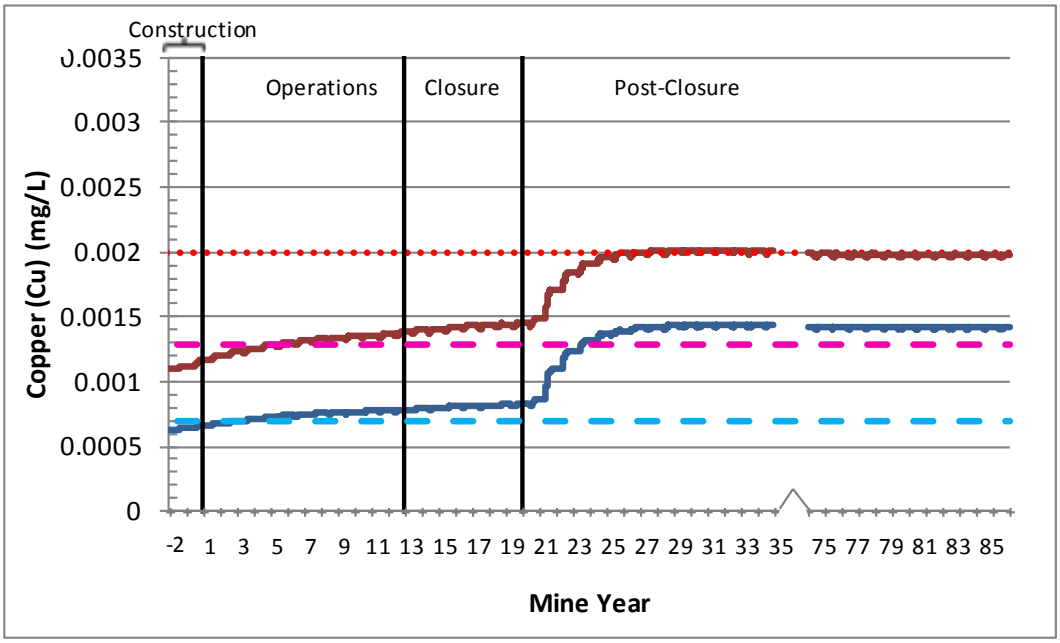


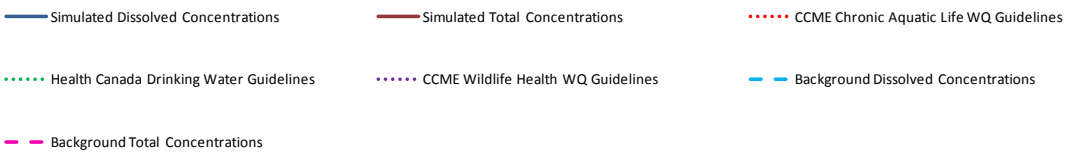


Simulated Dissolved Concentrations
Simulated Total Concentrations
CCME Chronic Aquatic Life WQ Guidelines
Health Canada Drinking Water Guidelines
CCME Wildlife Health WQ Guidelines
Background Dissolved Concentrations
Background Total Concentrations

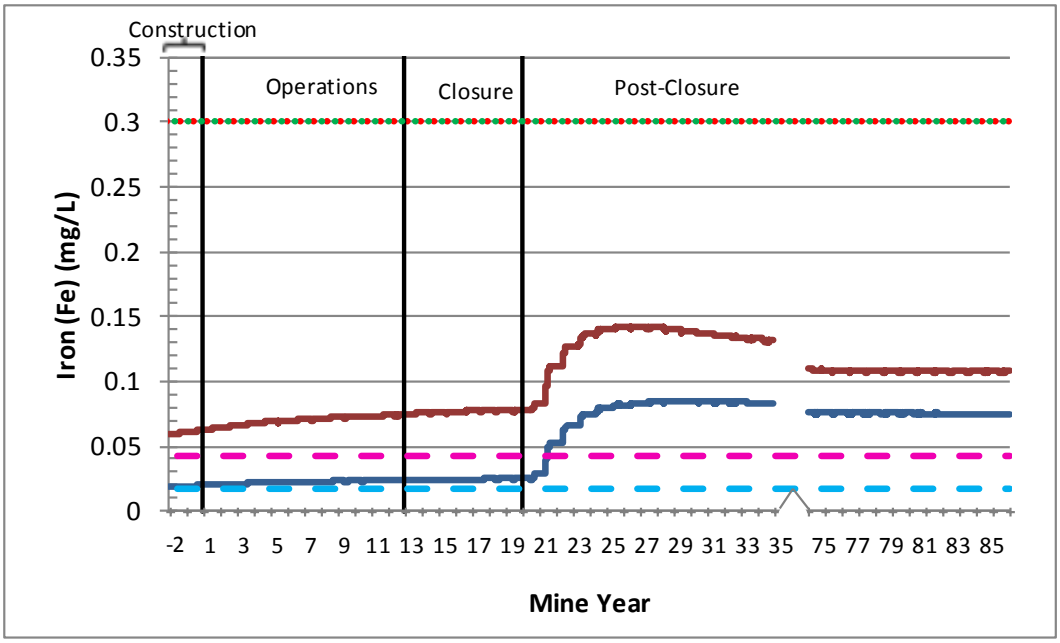
Dissolved and Total Metals - Area 8 (continued)

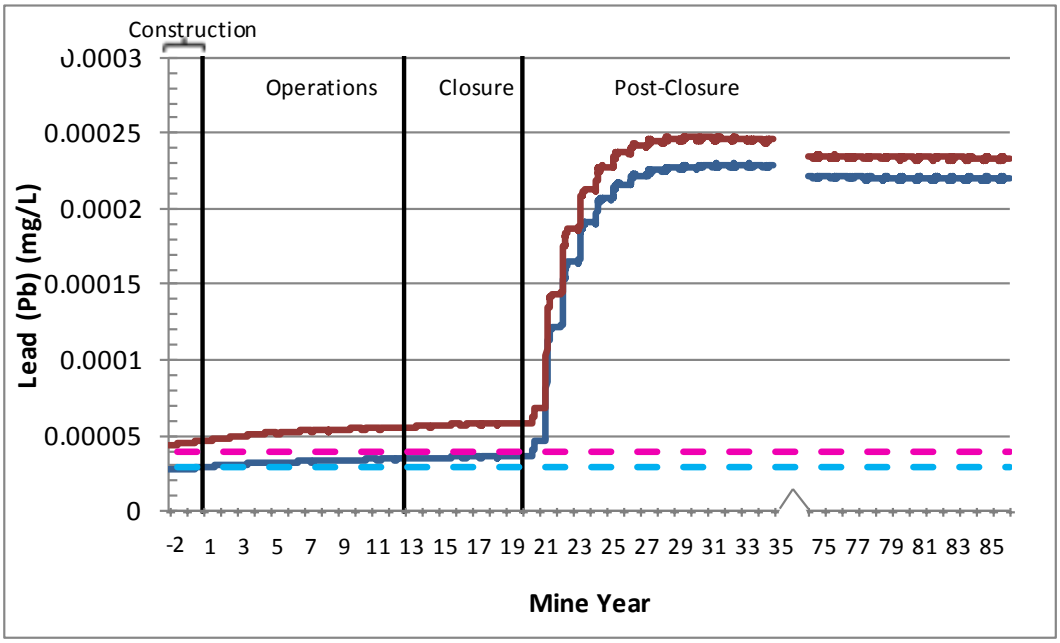


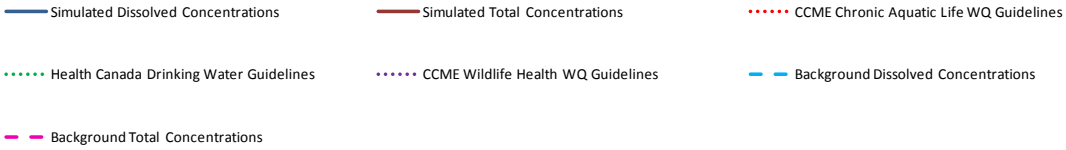




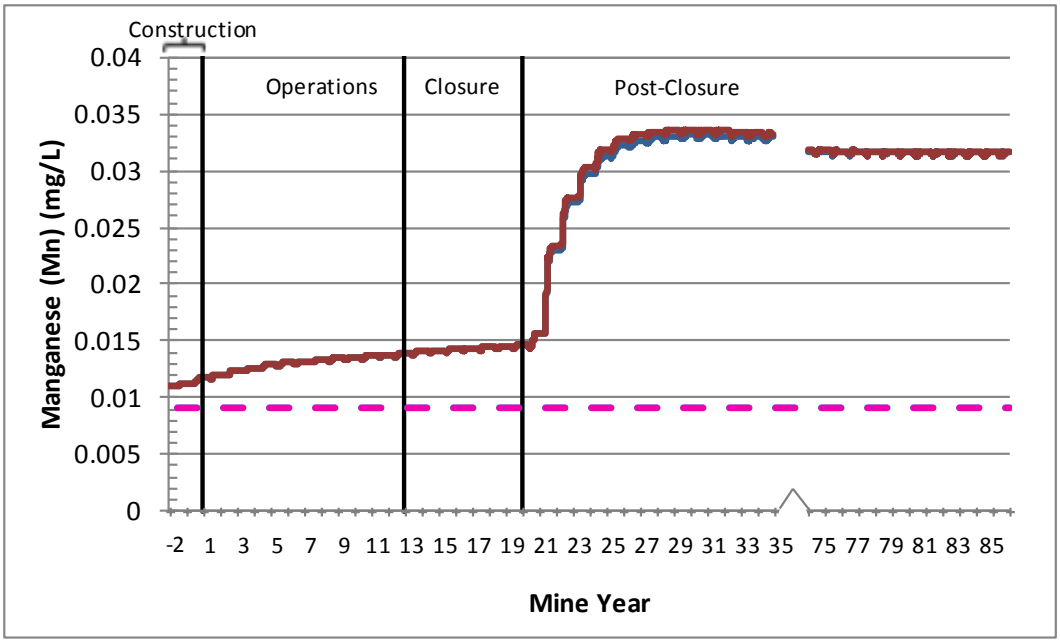
Dissolved and Total Metals - Area 8 (continued)

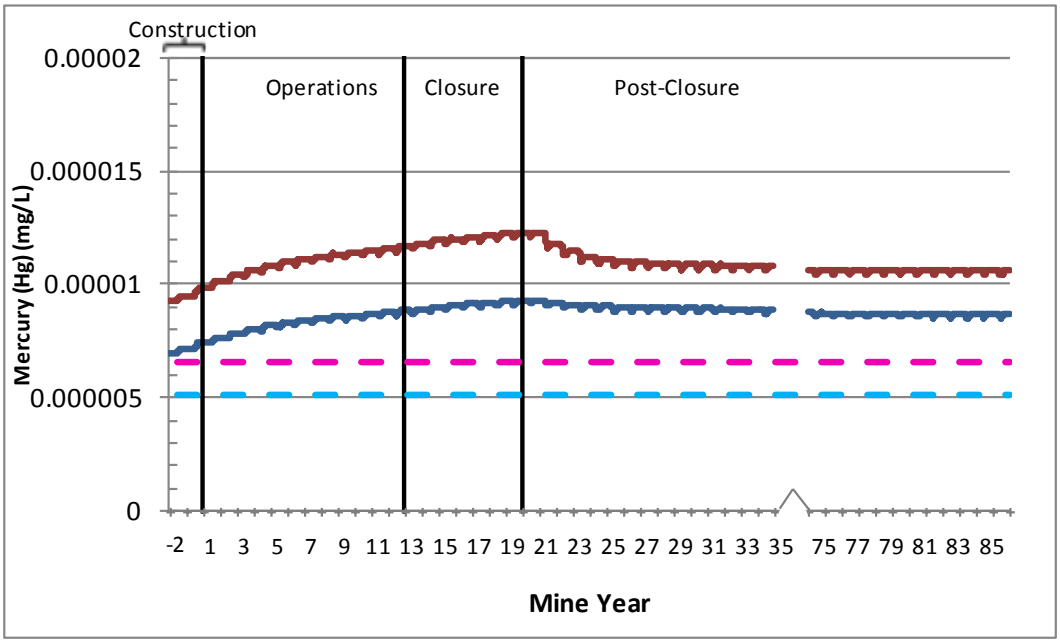


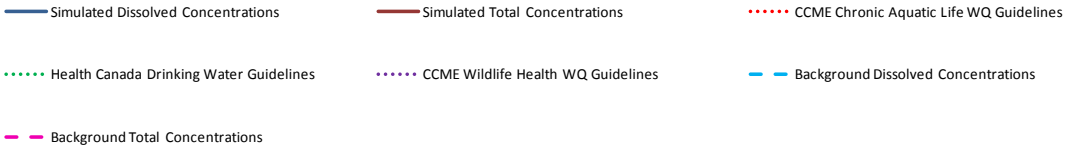




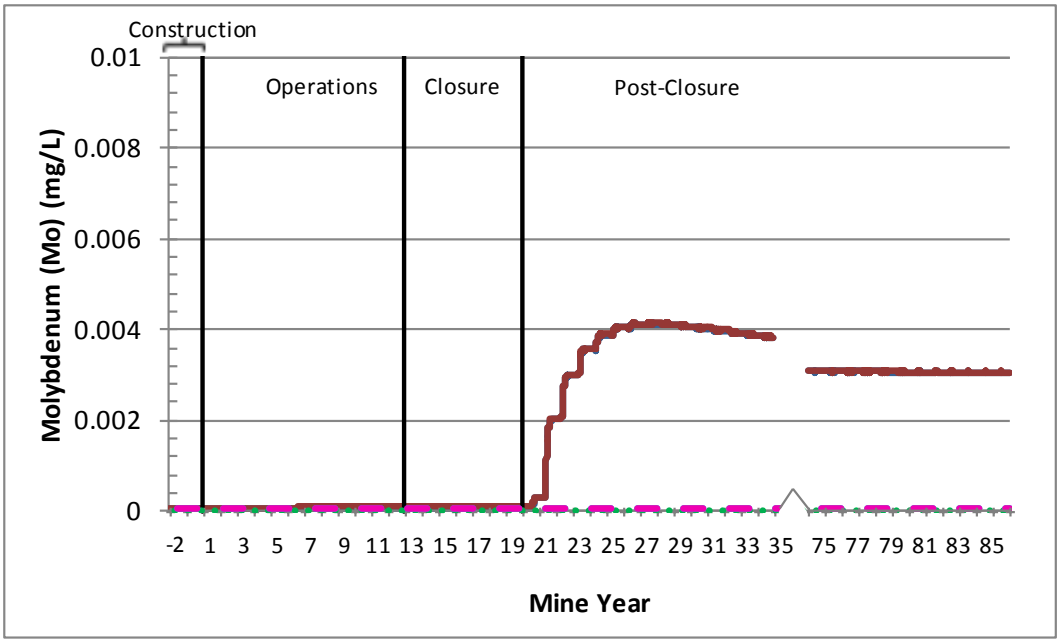
Dissolved and Total Metals - Area 8 (continued)

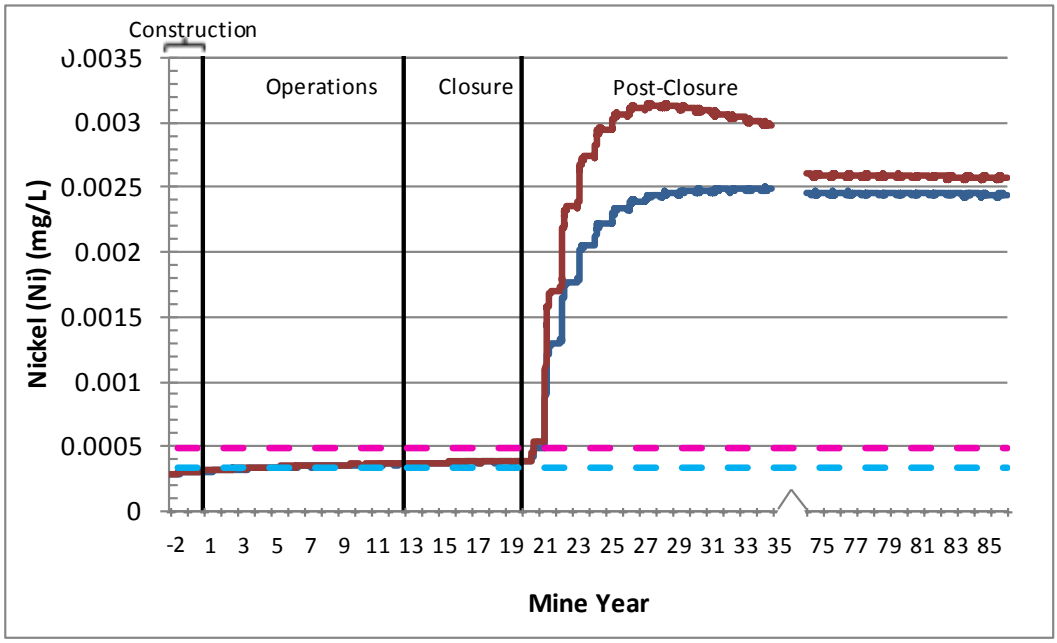


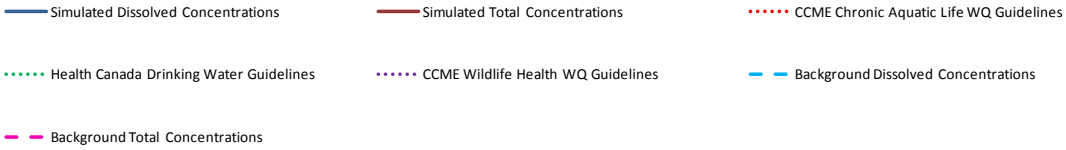




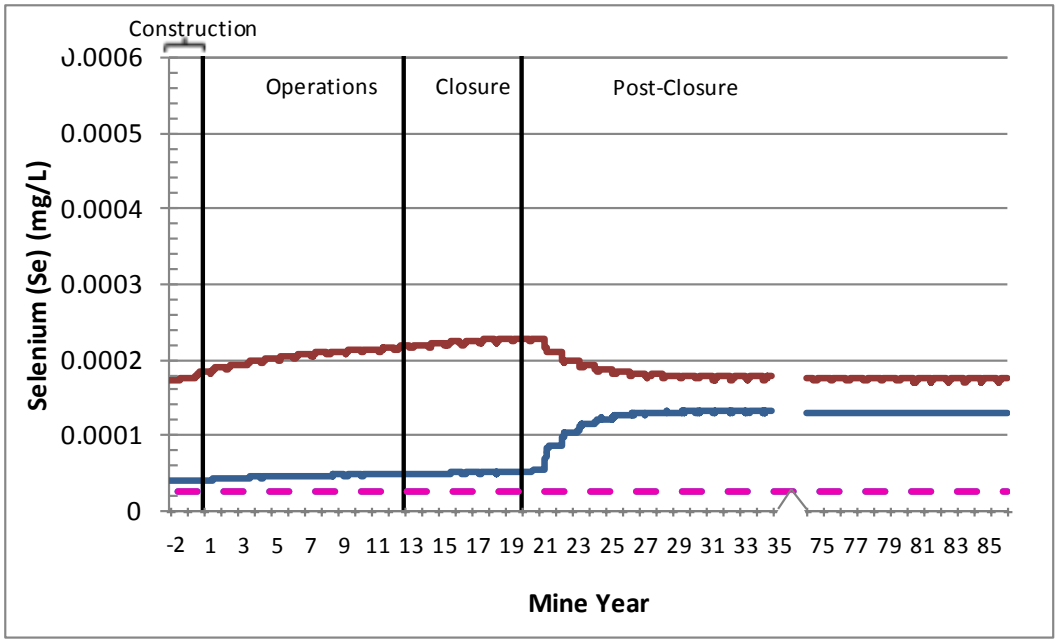
Dissolved and Total Metals - Area 8 (continued)

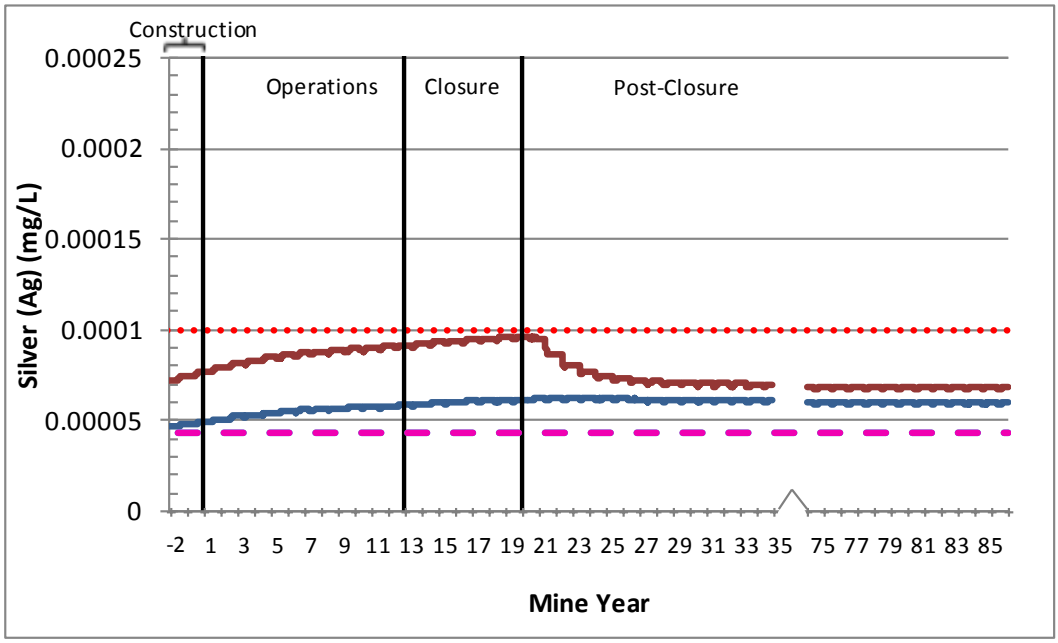


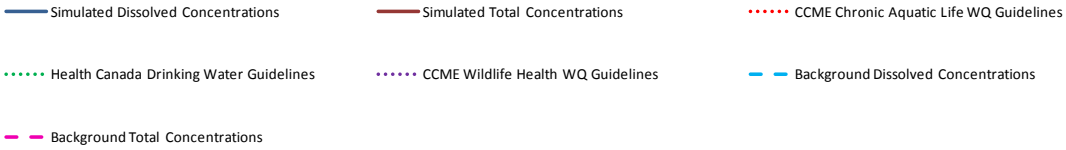




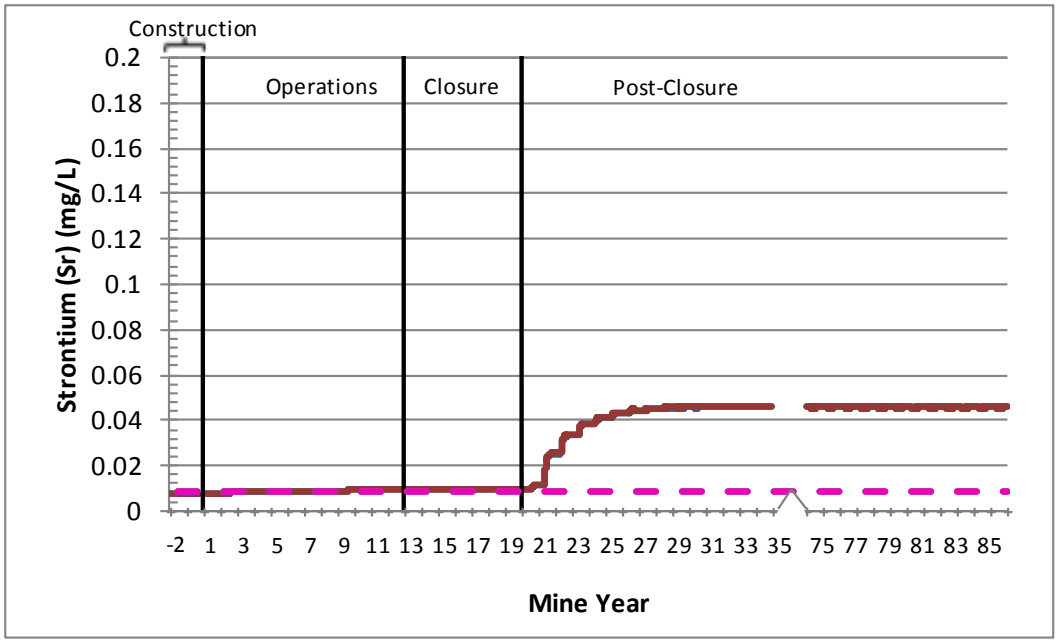
Dissolved and Total Metals - Area 8 (continued)

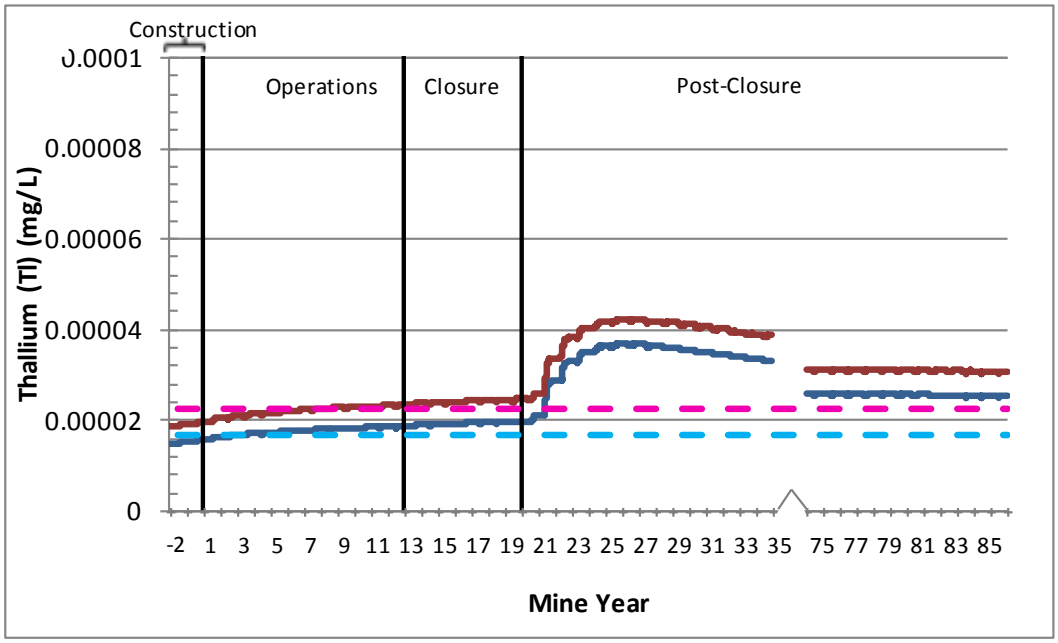


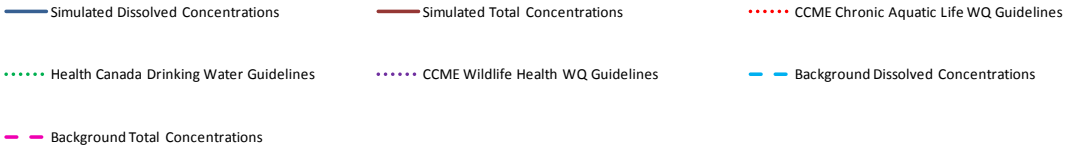




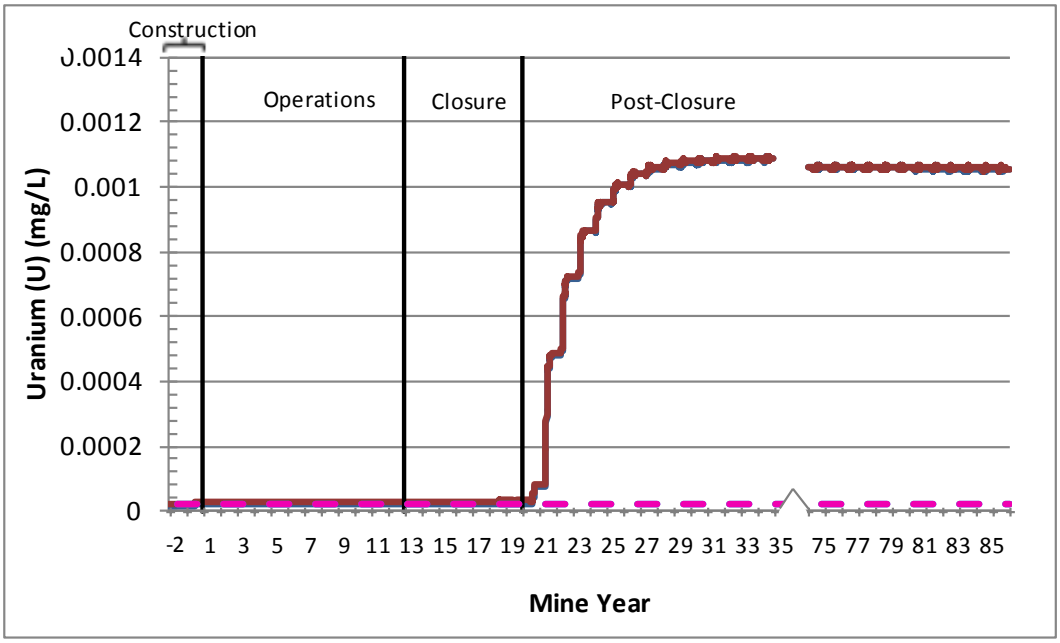
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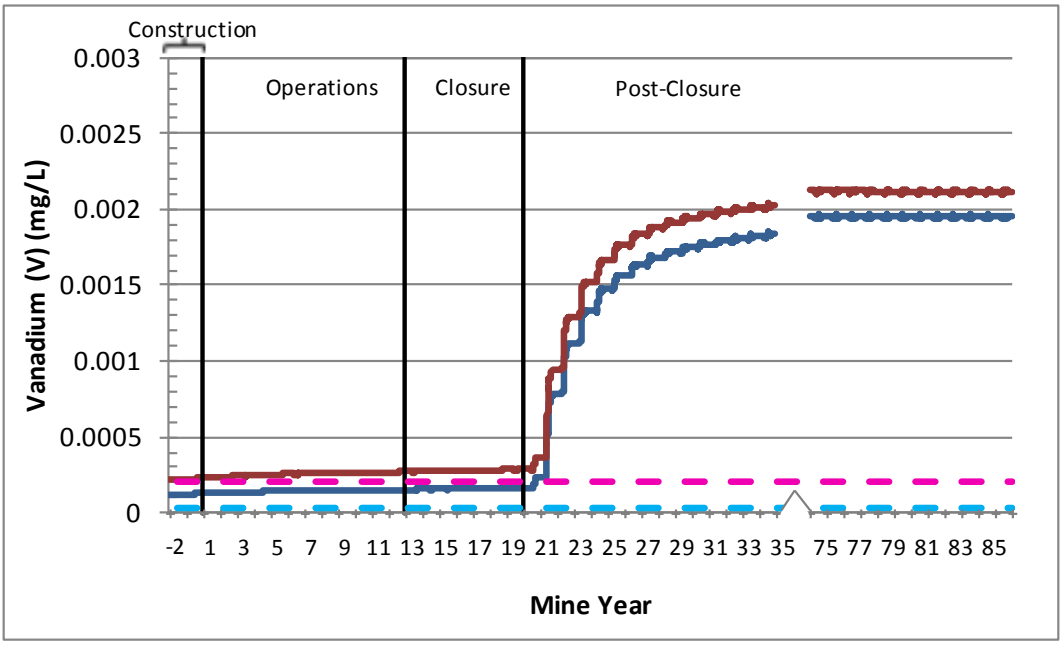


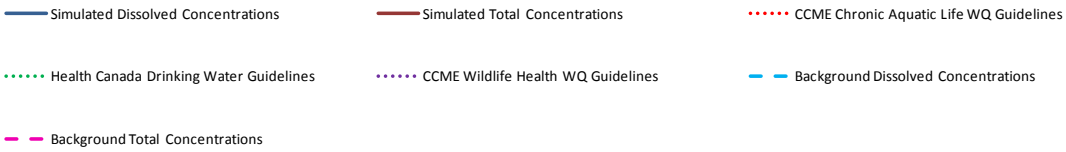




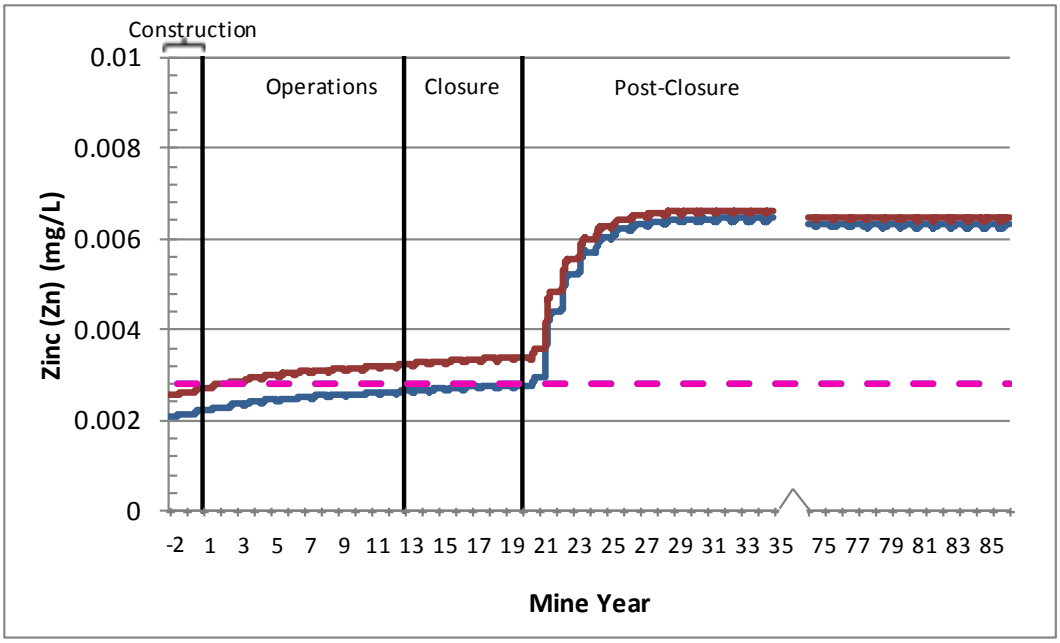
Dissolved and Total Metals - Area 8 (continued)







Dissolved and Total Metals - Area 8 (continued)



APPENDIX 8.V

DISSOLVED OXYGEN AND NUTRIENT MODEL REPORT

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Attachment 8.V.1 Vertical Profiles Of Temperature, Total Dissolved Solids And Dissolved Oxygen For Calibration

8.V.1 INTRODUCTION

This technical memorandum describes the water quality model developed to predict post-closure concentrations of nutrients and dissolved oxygen (DO) in Kennady Lake. The model accounted for anticipated post-closure conditions of the De Beers Canada Inc. (De Beers) Gahcho Kué Project. The model scenarios were used to refine or confirm empirically derived end-of-winter DO concentrations in specific depth zones of Kennady Lake generated for the 2011 EIS Update (De Beers 2011).

The model setup, calibration and post-closure sensitivity analysis are described in Section 8.V.2. Post-closure water quality predictions for Kennady Lake are presented in Section 8.V.3. Finally, data gaps and model uncertainty are discussed in Section 8.V.4, and recommendations for future monitoring and modelling are provided in Section 8.V.5.

8.V.2 METHODS

8.V.2.1 MODEL PLATFORM

Three-dimensional (3-D) hydrodynamic and water quality modelling was completed to predict post-closure concentrations of nutrients and dissolved oxygen (DO) in Kennady Lake. The model was developed in the Generalized Environmental Modelling System for Surfacewaters (GEMSS®). GEMSS is an integrated system of 3-D hydrodynamic and transport modules embedded in a geographic information and environmental data system. GEMSS is in the public domain and has been used for similar studies throughout North America and worldwide including a 3-D water quality model that was developed for the De Beers Snap Lake Mine (Golder 2011). GEMSS was developed in the mid-1980s as a hydrodynamic platform for transport and fate modelling. The hydrodynamic platform ("kernel") provides 3-D flow fields from which the distribution of various constituents can be computed. The constituent transport and fate computations are grouped into modules. The modules used for Kennady Lake simulations were the hydrodynamic and transport module and the water quality module.

The theoretical basis of the hydrodynamic kernel of GEMSS is the 3-D Generalized, Longitudinal-Lateral-Vertical Hydrodynamic and Transport model which was first presented in Edinger and Buchak (1980) and subsequently in Edinger and Buchak (1985). This computation has been peer reviewed and published (Edinger and Buchak 1995; Edinger and Kolluru 1999; Edinger et al. 1994, 1997). The "kernel" is an extension of the well-known longitudinal-vertical transport model written by Buchak and Edinger (1984) that forms the hydrodynamic and transport basis of water quality model CE-QUAL-W2 (US Army Engineer Waterways Experiment Station 1986). Improvements to the transport scheme, construction of the constituent modules, incorporation of supporting software tools, geographical information system (GIS) interoperability, visualization tools, graphical user interface, and post-processors have been developed by Kolluru et al. (1998, 1999, 2003), and Kolluru and Fichera (2003).

The "Modified WASP5" module was used for simulating water quality in Kennady Lake. The Modified WASP5 module is comprised mainly of formulae from the United States Environmental Protection Agency's (U.S. EPA's) Water Quality Analysis Simulation Program (WASP) model (Ambrose et al. 1993), adapted to fit within the GEMSS framework. This module was used to simulate nutrients and oxygen-related constituents.

8.V.2.2 MODEL SEGMENTATION

Because Kennady Lake will be modified by dykes and pits in post-closure, separate model grids were developed for calibration and closure simulations. For the calibration time period, 2000 to 2011, a 3-D grid (Figure 8.V-1) was developed that covers Area 3/5, Area 4, Area 6 and Area 7 of Kennady Lake, with the exception of some small bays that are not anticipated to affect the overall circulation of water and constituents in the lake. The grid spacing was approximately 200 metres (m) horizontally, and vertical resolution was one metre. The grid comprised a total of 18 active layers and 836 active cells.

For the post-closure time period, 2033 to 2044, a 3-D grid (Figure 8.V-2) was developed that covers Areas 3 and 5, Area 4, Area 6 and Area 7. The grid spacing was approximately 200 m horizontally, and vertical resolution was one metre above an elevation of 400 m and two metres below an elevation of 400 m. The Tuzo and Hearne pits were modelled to a depth of 40 m (380 m elevation). The grid comprised a total of 31 active layers and 1287 active cells.

8.V.2.3 INPUTS

All known and anticipated point and non-point source inflows to the lake were included as inputs to the Kennady Lake model. Inputs to the lake are classified as meteorological, hydrologic and chemical, as described in the following sections.

8.V.2.3.1 Meteorological Inputs

Meteorological inputs are key drivers of lake circulation and thermal dynamics. The forcing data required for this hydrodynamic model are as follows:

- air temperature;
- dew point temperature;
- wet bulb temperature;
- atmospheric pressure;
- wind direction;
- wind speed; and
- solar radiation.

Figure 8.V-1 Calibration Model Grid in Plan View

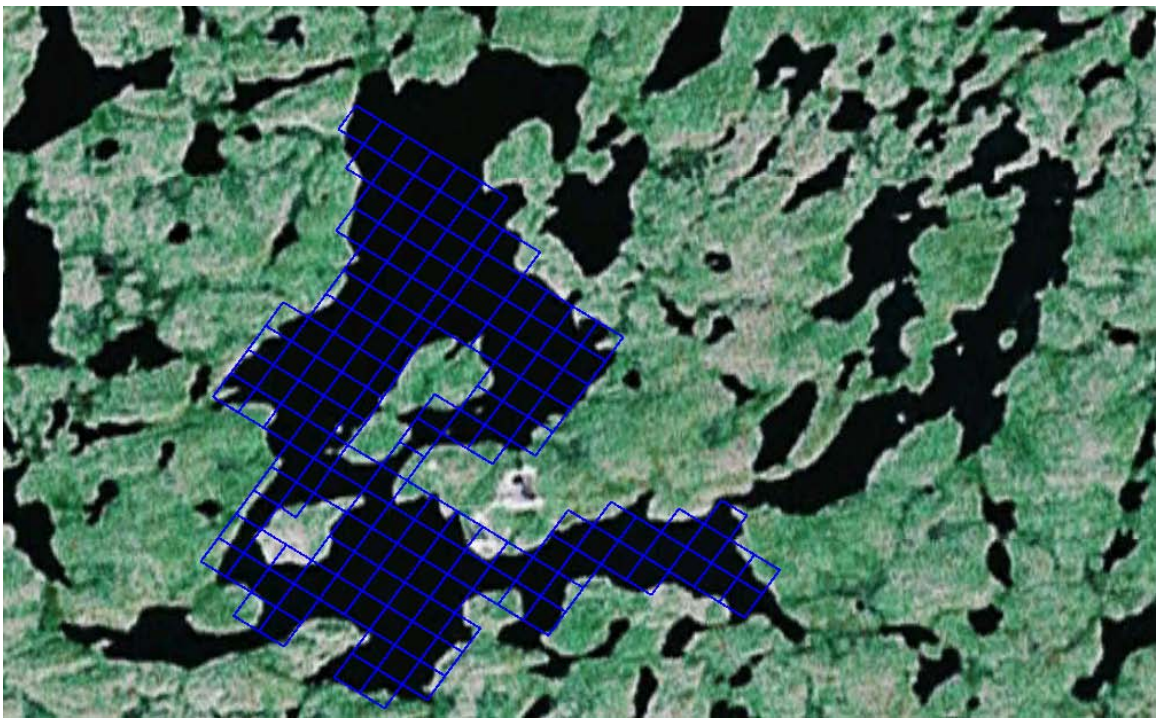
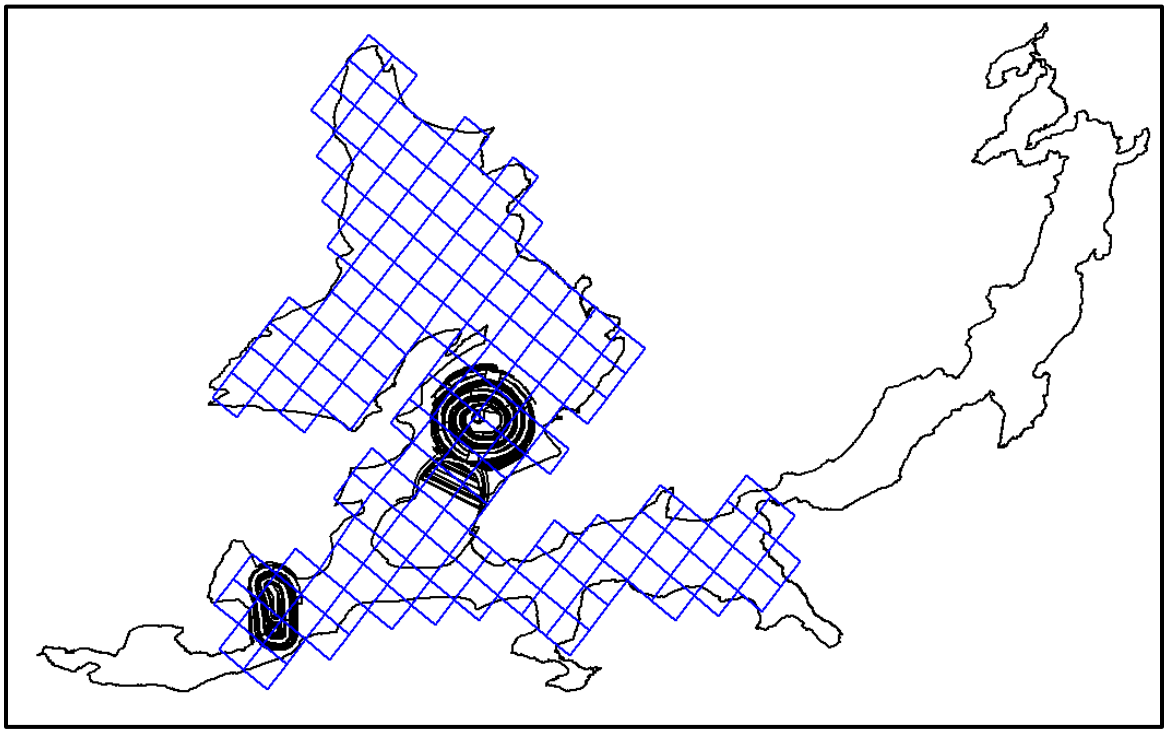


Figure 8.V-2 Post-closure Model Grid in Plan View



For the calibration time period, an hourly time-series was constructed for each of these inputs from observed data from the meteorological station at Snap Lake, NWT. Where gaps existed in this dataset, data from the Environment Canada station at the Yellowknife Airport were used. These data were purchased directly from Environment Canada. The time-series used to calibrate the model was repeated for the post-closure simulation without modification.

8.V.2.3.2 Hydrologic Inputs

In both the calibration and post-closure models, the water balance was consistent with the GoldSim water quality model described in Volume 8, Appendix 8.II, Section 8.II.2. For the calibration time period, the main hydrologic inputs to the lake were tributary and non-point inflows from the Kennady Lake basin. In the model, the main outflow from the lake was represented as the channel between Area 7 and Area 8. These inputs are shown schematically in Figure 8.V-3, along with monthly flow rates. For the post-closure time period, the main hydrologic inputs to Kennady Lake were tributary and non-point inflows from the Kennady Lake basin, inflows from the Fine Processed Kimberlite Containment (PKC) Facility (mitigated), Coarse Processed Kimberlite (PK) Pile, West Mine Rock Pile (mitigated) and South Mine Rock Pile. These inputs are shown schematically in Figure 8.V-4, along with projected monthly flow rates.

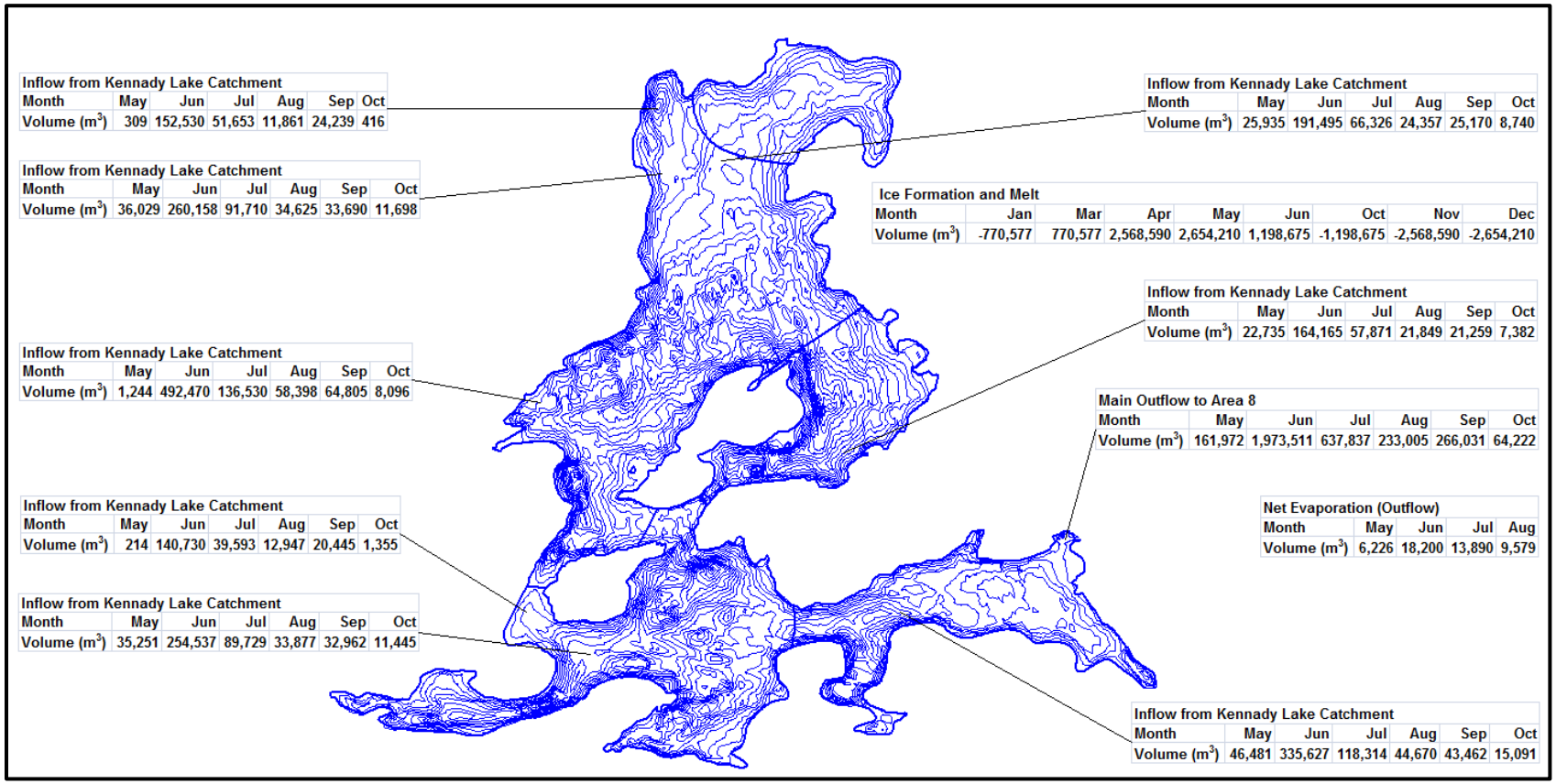
In both the calibration and post-closure models, a water withdrawal was included for ice formation each winter from October to January, and a discharge was returned back to the lake each spring from March to June to simulate melting. Melting dates and volumes were derived from observed ice measurements at Snap Lake, NWT (Golder 2011). The water withdrawn and returned for ice formation had no associated constituents, meaning that salts were rejected from the ice and remained within Kennady Lake.

8.V.2.3.3 Chemical Inputs

Water quality data for Kennady Lake and inflows were obtained from baseline monitoring programs completed by various consultants during open-water and ice-covered seasons between 1995 and 2011. Details of these programs can be found in De Beers (2011). Water quality monitoring stations used for the Kennady Lake model are shown in Figure 8.V-5.

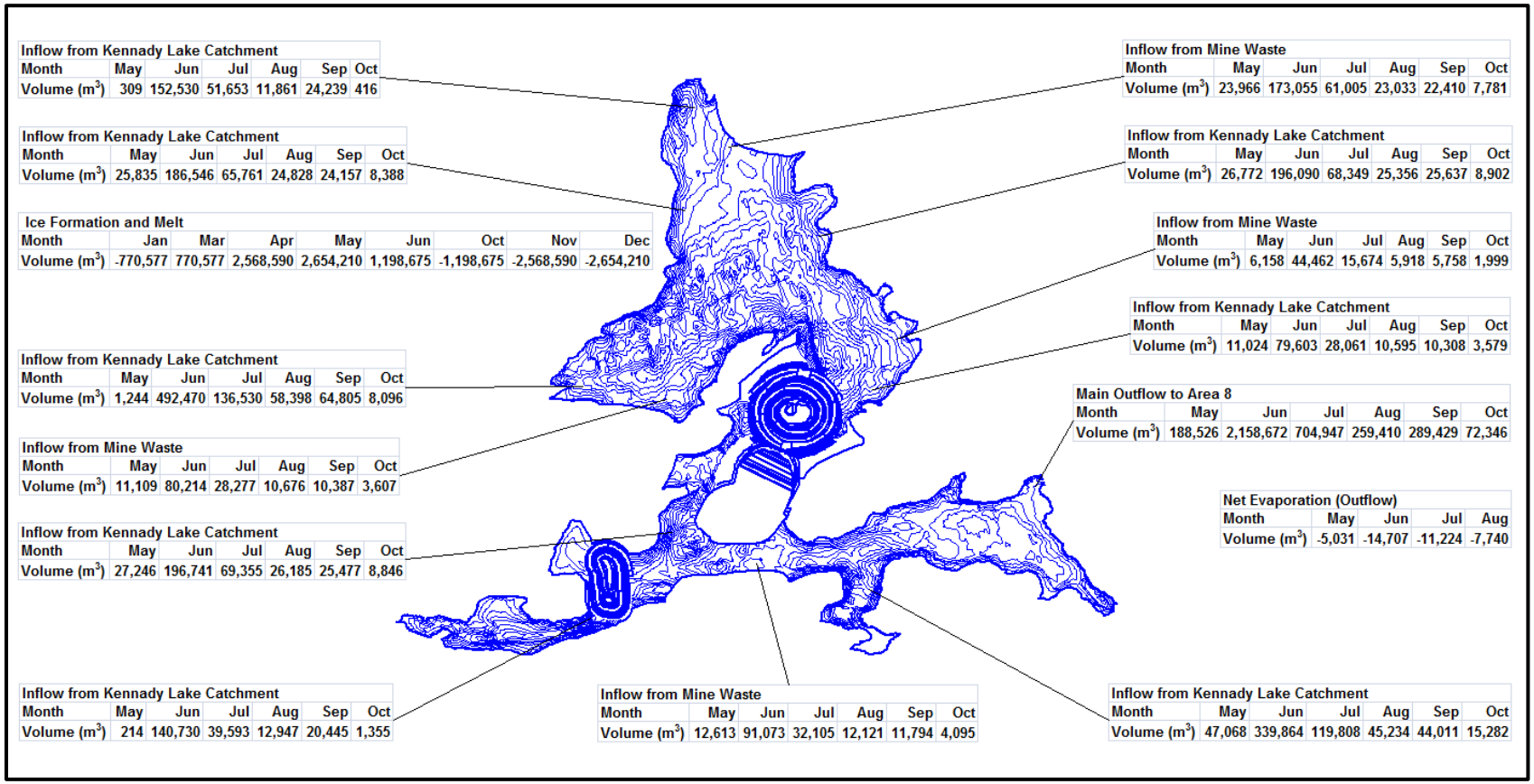
In-lake samples were used to initialize lake concentrations for the start of simulations (January 1, 2000). Subsequently, in-lake samples were used for calibration, and not as forcing data.

Figure 8.V-3 Kennady Lake Inflows and Outflows for the Calibration Time Period



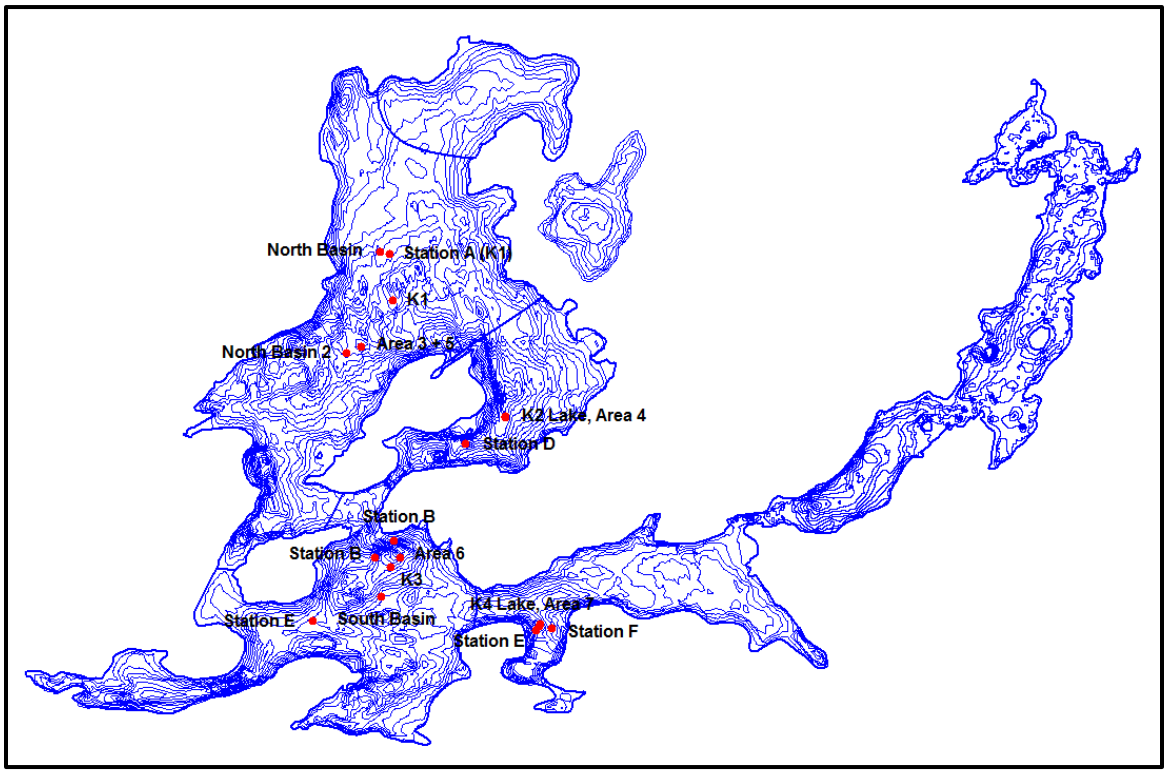
m^3 = cubic metres.

Figure 8.V-4 Kennady Lake Inflows and Outflows for the Post-closure Time Period



m^3 = cubic metres.

Figure 8.V-5 Water Quality Monitoring Stations Used for the Kennady Lake Model



For both the calibration and post-closure time periods, measured data from tributaries were used to represent inflows to Kennady Lake. The number of samples available for inflows was not sufficient to construct seasonal time series, so annual average concentrations were used to represent inflow constituent chemistry. A value of half the detection limit was applied to non-detect data.

Initial in-lake constituent concentrations for the start of post-closure simulations (January 1, 2033) and inflow constituent concentrations from the Fine PKC Facility (mitigated), Coarse PK Pile, West Mine Rock Pile (mitigated) and South Mine Rock Pile were obtained from the GoldSim water quality model (see Volume 8, 8.II, Section 8.II.2).

8.V.2.4 MODELLED CONSTITUENTS

The modelled constituents included those most relevant to DO levels in Kennady Lake (Table 8.V-1). The calibration of each group of constituents is described in Section 8.V.2.5.

Table 8.V-1 Modelled Water Quality Constituents

Group	Constituent
Hydrodynamic	temperature
	total dissolved solids
Oxygen-related	dissolved oxygen
	biochemical oxygen demand
Nutrients	ammonia
	nitrate
	orthophosphate
	phytoplankton (as chlorophyll *a*)

For the post-closure time period, initial in-lake orthophosphate concentrations and inflow orthophosphate concentrations from the Fine PKC Facility (mitigated), Coarse PK Pile, West Mine Rock Pile (mitigated) and South Mine Rock Pile were represented by dissolved phosphorus concentrations from the GoldSim water quality model. In the GoldSim water quality model, post-closure concentrations of dissolved phosphorus represented at least 85 per cent (%) of the total phosphorus concentrations.

8.V.2.5 MODEL CALIBRATION

The model was calibrated to observed data from 2001 to 2011. The dataset presented two challenges to calibration. First, the water quality data were limited and discontinuous so calibration mainly focussed on the periods of 2004 and 2011. Second, much of the data were near or below detection. Challenges associated with input and calibration data are discussed further in Section 8.V.4.

8.V.2.5.1 Hydrodynamic Calibration

The first step in the calibration was to achieve a water balance within the model. This was done by using monthly inflow and outflow volumes generated from a water balance model completed in GoldSim (see Volume 8, Appendix 8.II, Section 8.II.2).

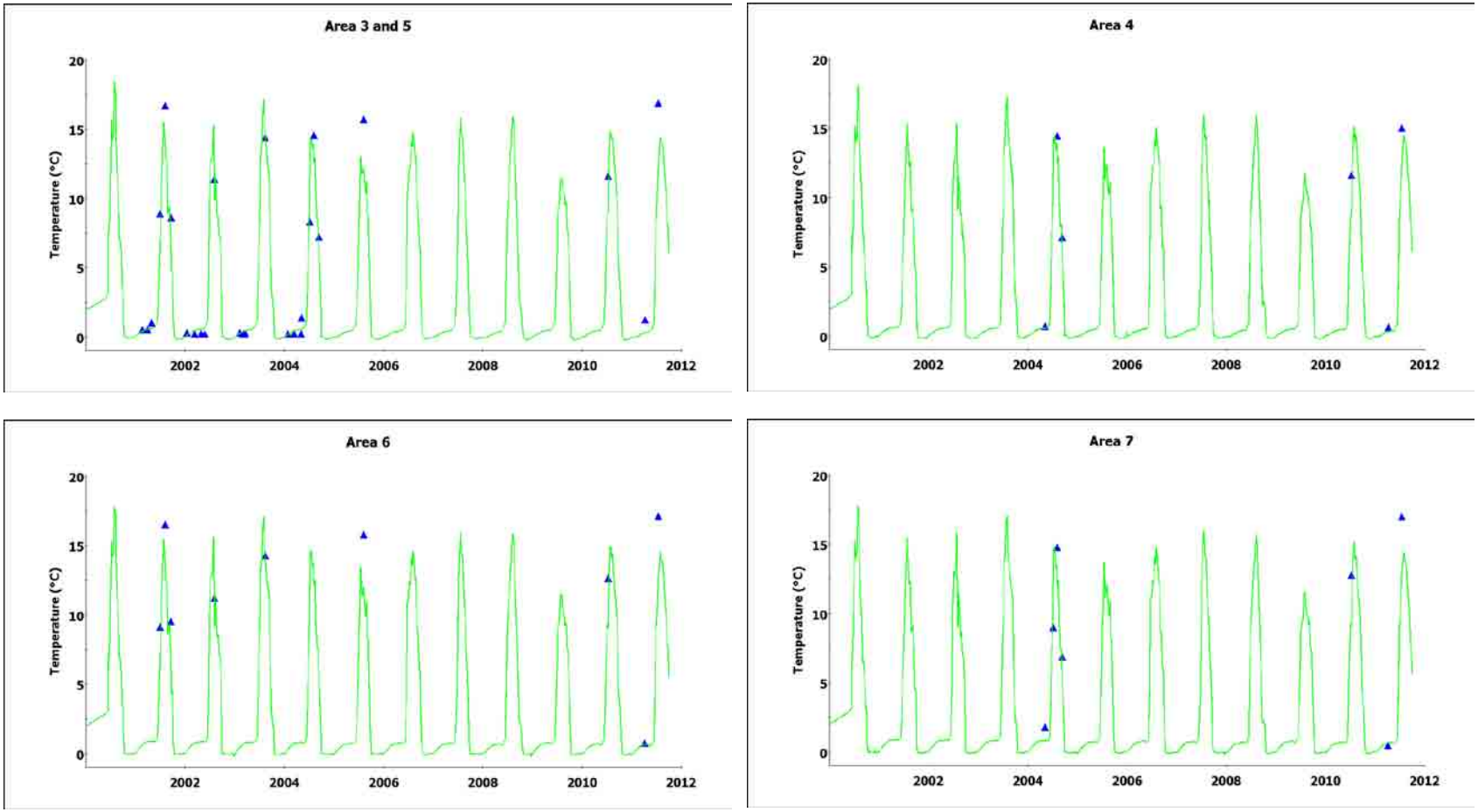
The hydrodynamic component of the model was calibrated to align observed and predicted thermal and transport behaviour in Kennady Lake. Adjustment of variables is standard practice during calibration (Cole and Wells 2008), as the goal of calibration is to apply the formulas and constants that most closely approximate the behaviour of the system of study. Default model values were used for most thermal variables, with the following exceptions:

- The vegetative and topogaphic shading factor was adjusted from 0.06 to 0.0. This variable accounts for the amount of shade that is applied to the incoming solar radiation. Adjusting the shading factor from 0.06 to 0.0 indicates that neither vegetative nor topographic features of the landscape are casting a significant shadow over the lake.
- To improve thermal profiles during ice-covered seasons, sediment heat exchange was added to the model. Based on the calibration, the sediment temperature was set at a constant value of four degrees Celsius (°C) and the sediment-water heat exchange coefficient was set at 3×10^{-7} metres per second (m/s). Additionally, a negative heat load of three degrees Celsius cubic metre per second (°C m^3/s) was added to the surface of the lake to simulate an ice-water heat exchange.

During ice-covered seasons, the predicted thermal profiles fit the observed profiles well (see vertical profiles in Attachment 8.V.1). During open-water seasons, the alignment between observed and predicted thermal conditions in Kennady Lake was variable. Predicted temperature profiles were generally colder than observed profiles. The lack of alignment between observed and predicted conditions during open-water seasons was likely due to the lack of site-specific meteorological data. Difficulties during temperature calibration are often associated with obtaining meteorological data from a weather station that is located in different terrain or at large distances from the waterbody that one intends to model. Under ideal circumstances, meteorological data would be obtained from a weather station deployed onsite (Cole and Wells 2008). A time-series plot of surface temperatures at various locations in Kennady Lake is shown in Figure 8.V-6.

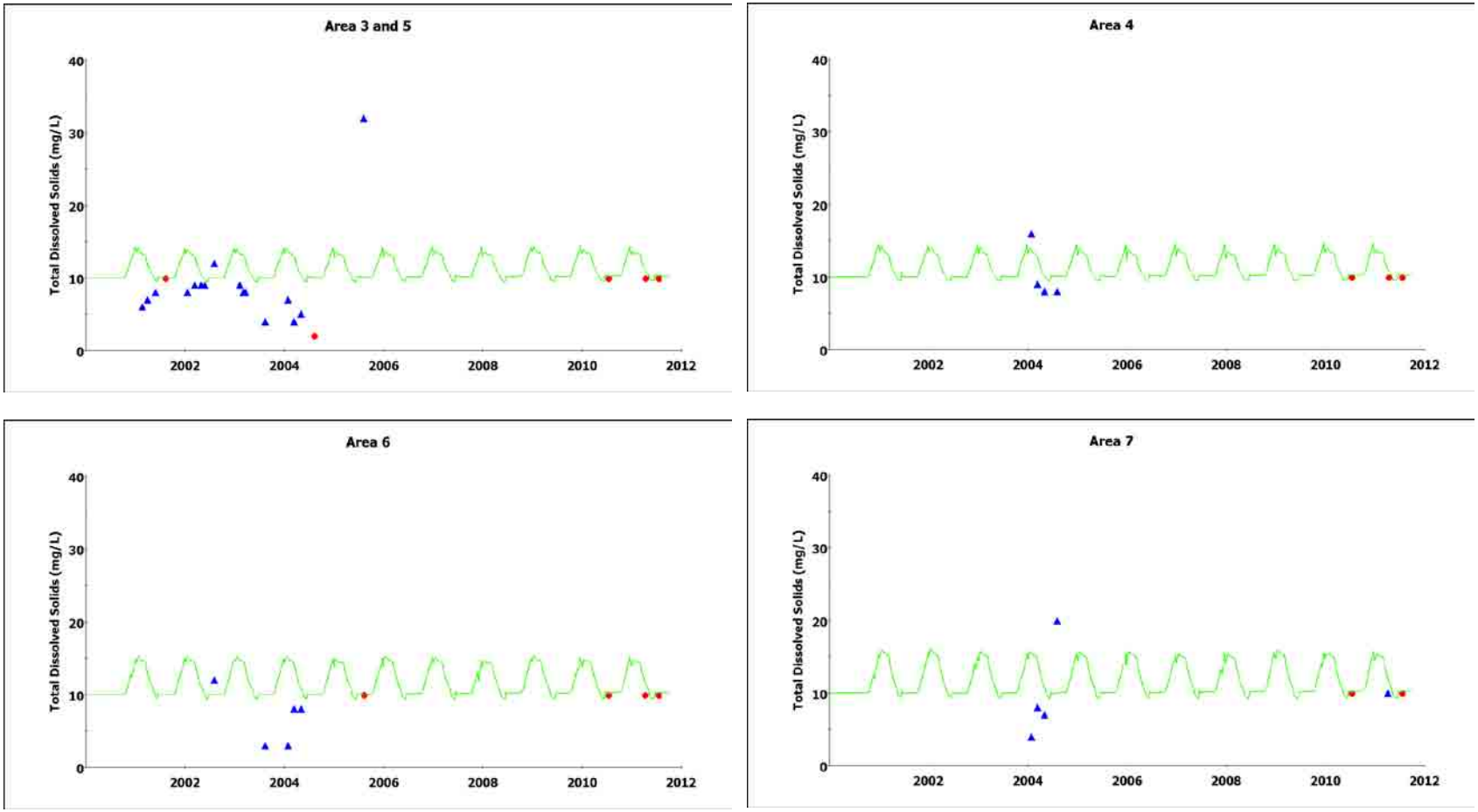
The horizontal component of the transport calibration was limited by low TDS concentrations in Kennady Lake, with the majority of samples being at or near the method detection limit. For the calibration period, the TDS concentration in Kennady Lake was assumed to be approximately 10 milligrams per litre (mg/L) (Figure 8.V-7).

Figure 8.V-6 Calibration Plots for Temperature



Note: Solid line represents model predictions; triangles represent measured data.
°C = degrees Celsius

Figure 8.V-7 Calibration Plots for Total Dissolved Solids



Note: Solid line represents model predictions; triangles represent measured data; dots represent measured data that was reported as less than detection.
mg = milligrams; L = litre.

Note that the cyclical annual patterns evident in the time-series figures of TDS and other conservative constituents presented in this report are due to salt rejection during ice formation and melting. The magnitude of these cycles varies, depending on the depth of the lake at the location that the time-series represents.

For the vertical component of the transport calibration, observed specific conductivity profile data were compared to predicted TDS profiles. The calibration was considered adequate if the observed specific conductivity profiles and the predicted TDS profiles followed the same vertical pattern, while recognizing that the absolute values would not be expected to match. The alignment between observed specific conductivity profiles and predicted TDS profiles was generally good (Attachment 8.V.1) and showed that Kennady Lake is well-mixed vertically during open-water conditions.

8.V.2.5.2 Oxygen and Related Constituent Calibration

Oxygen-related variables include sediment oxygen demand (SOD), biochemical oxygen demand (BOD), reaeration rates, decay rates, and temperature correction factors. Default values were applied for all DO rates and coefficients (Table 8. V-2) with the exception of a temperature-corrected SOD rate of -0.25 grams of oxygen per square metre per day (g $O_2/m^2/d$), which was applied based on calibration.

The DO calibration time-series is presented in Figure 8.V-8. The cyclical annual patterns present are due in part to oxygen exclusion from the ice during ice formation. As a consequence, water at the ice-water interface can be supersaturated in DO, as has been observed in Arctic lakes (Craig et al. 1992). The modelled results were generally within 1 mg/L of observed concentrations with the exception of observed DO concentrations greater than 16 mg/L during ice-covered seasons. It was not clear whether the measured concentrations greater than 16 mg/L were true values; they were well above the maximum DO saturation level in water of 14.6 mg/L (Tchobanoglous and Schroeder 1985).

The observed DO vertical profiles in Kennady Lake decreased with depth and time during ice-covered seasons and remained relatively constant with depth and time during open-water seasons. During all seasons, the model matched observed vertical profiles reasonably well, with the main exception being that the model did not match observed concentrations that were well above the saturation point (Attachment 8.V.1). In the littoral zones of Kennady Lake, observed vertical DO profile concentrations are greater than 12 mg/L during ice-covered seasons. One possible source of this oxygen may be photosynthesis as has been observed in Arctic lakes under ice (Craig et al. 1992) although this has not been confirmed in Kennady Lake.

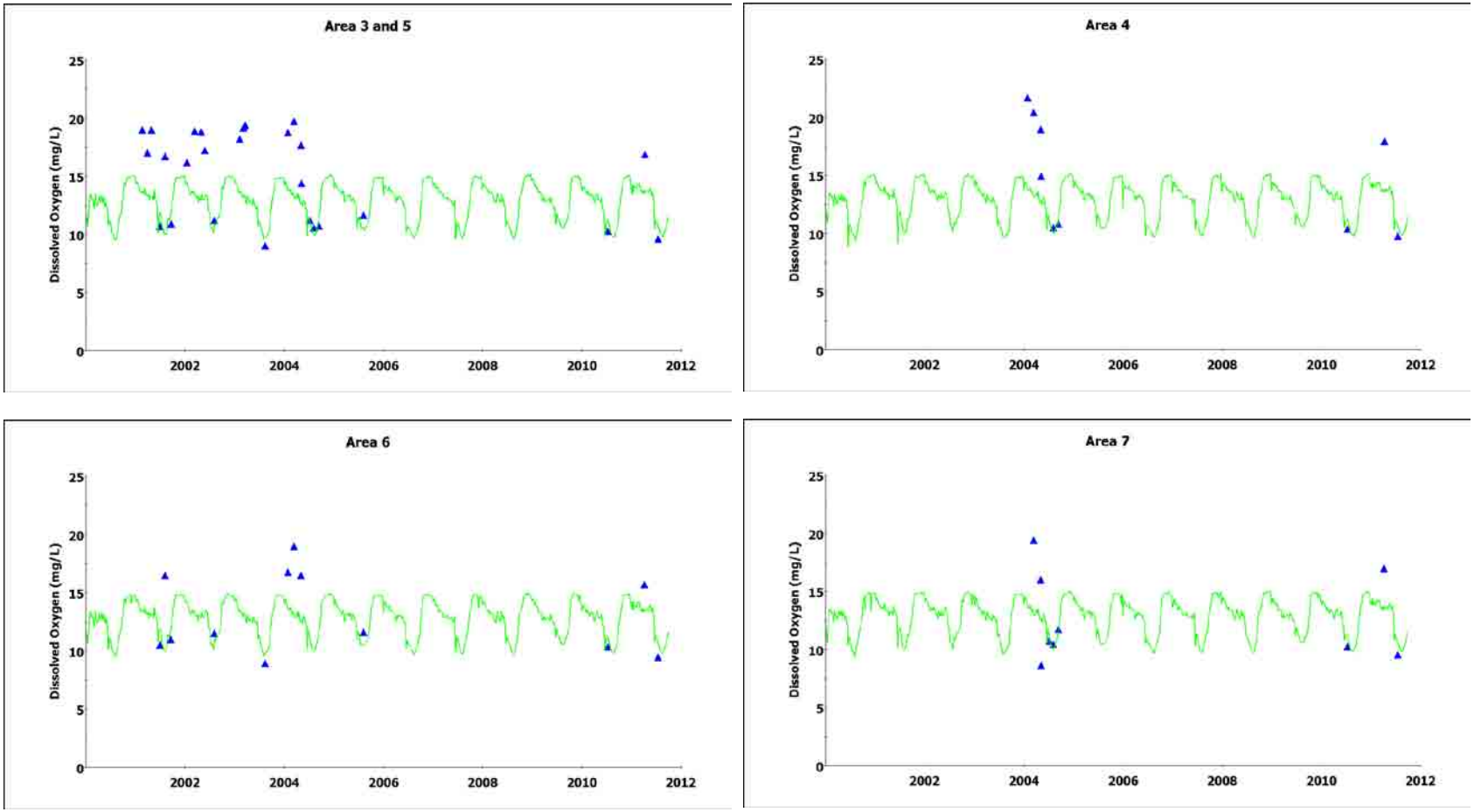
Table 8.V-2 Rates and Coefficients Applied to the Dissolved Oxygen Calibration

Description	Value Applied[(a)]	Units
Surface DO reaeration formulation	Wanninkhof et al. (1991)	-
Background SOD	**-0.25**	g $O_2/m^2/d$
Temperature coefficient	1.047	-
Empirical coefficient of algae contribution to SOD	0.02	-
Empirical coefficient of CBOD_P contribution to SOD	0.07	-
Empirical coefficient of ON_P contribution to SOD	0.07	-
Factor to increase the reaeration rate	1	-
Temperature correction for reaeration	1.024	-
Oxygen to carbon ratio	2.67	g O_2/g C
Deoxygenation rate at 20°C	0.15	1/d
Temperature correction for deoxygenation	1.047	-
Half saturation constant for oxygen limitation	0.5	g O_2/m^3
Oxygen from dead algae	0.5	-
Settling rate of CBOD	0.08	m/d
Stoichiometric equivalent between CBOD and phosphorous	0.004	-
Stoichiometric equivalent between CBOD and nitrogen	0.006	-
Stoichiometric equivalent between CBOD and carbon	0.32	-

[(a)] All values are default values unless shown in bold.

DO = dissolved oxygen; SOD = sediment oxygen demand; CBOD = carbonaceous biochemical oxygen demand; P = particulate, ON = organic nitrogen; C = carbon; °C = degrees Celsius; g = grams; O_2 = oxygen; m = metre; d = day; m^2 = square metre; m^3 = cubic metre; - = dimensionless.

Figure 8.V-8 Calibration Plots for Dissolved Oxygen



Note: Solid line represents model predictions; triangles represent measured data.
mg = milligrams; L = litre.

8.V.2.5.3 Nutrients and Phytoplankton Calibration

The constituents included in the nutrient module were ammonia, nitrate, orthophosphate and phytoplankton. Rates and coefficients applied to the nutrient module are listed in Table 8.V-3. As a starting point, default model values were applied to the calibration. In some cases, model coefficients from the calibrated Snap Lake model (Golder 2011) were applied. The Snap Lake model was calibrated to a similar system in the region and should be representative of processes in Kennady Lake. Although the Snap Lake model also had some challenges related to non-detect data, it had a much more continuous dataset because that mine has been operating for several years. Model coefficients that were changed from default values were as follows:

- The nitrification rate was adjusted from 0.02 per day (/d) to 0.0075/d. This rate was selected for the Kennady Lake model based on calibration of the Snap Lake model.
- The phosphorus to carbon ratio was adjusted from 0.025 to 0.015 grams of phosphorus per gram of carbon (g P/g C). This constant was selected for the Kennady Lake model based on calibration of the Snap Lake model.
- The ratio of carbon to chlorophyll *a* was adjusted from 70 to 20. This constant was selected for the Kennady Lake model to improve phytoplankton calibration. A carbon to chlorophyll *a* ratio of 20 lies within the range of literature values for total phytoplankton presented in Bowie et al. (1985).
- The half-saturation constant for nitrogen uptake was adjusted from 0.001 to 0.025 grams of nitrogen per cubic metre (g N/m^3). This constant was selected for the Kennady Lake model to decrease the nitrogen uptake rate of phytoplankton over a wider range of in-lake ammonia concentrations and improve ammonia calibration.
- The grazing rates due to zooplankton were set to 0/d based on calibration of the Snap Lake model.
- The phytoplankton death rate was adjusted from 0.015/d to 0.005/d based on calibration of the Snap Lake model.
- The phytoplankton maximum growth rate was adjusted from 2/d to 1/d. This rate was selected for the Kennady Lake model to improve the nutrient calibration.
- The half-saturation constant for phosphorus uptake was adjusted from 0.001 to 0.002 grams of phosphorus per cubic metre (g P/m^3). This constant was selected for the Kennady Lake model to decrease the phosphorus uptake rate of phytoplankton over a wider range of in-lake orthophosphate concentrations and improve orthophosphate calibration.
- The phytoplankton settling velocity was adjusted from 0.05 to 0.02 metres per day (m/d). This constant was selected for the Kennady Lake model to improve the phytoplankton calibration.

Table 8.V-3 Rates and Coefficients Applied to the Nutrient Calibration

Description	Value Applied[(a)]	Units
Ammonia		
Nitrogen to carbon ratio	0.25	g N/g C
Organic nitrogen mineralization rate	0.0075	1/d
Temperature coefficient	1.08	-
Nitrifcation rate	**0.0075**	1/d
Temperature coefficient	1.08	-
Half saturation constant for oxygen limitation of nitrification	2.0	g O_2/m^3
Sediment release type for ammonia	0	-
Sediment flux of ammonia	0	g $N/m^2/d$
Fraction of SOD	0.45	-
Half saturation constant for nitrogen mineralization	1.0	g C/m^3
Nitrate		
Denitrification rate at 20°C	0.09	1/d
Temperature coefficient	1.08	-
Michaelis constant for denitrification	0.1	g O_2/m^3
Sediment flux of nitrate	0	g $N/m^2/d$
Inorganic Phosphate		
Phosphorus to carbon ratio	**0.015**	g P/g C
Dissolved organic phosphorus mineralization at 20°C	0.22	1/d
Temperature coefficient	1.08	-
Half saturation constant for phosphorus mineralization	5.0	g C/m^3
Sediment release of phosphorus	1.5	g $P/m^2/d$
Phytoplankton		
Ratio of carbon to chlorophyll *a*	**20**	-
Saturating light intensity	200	$cal/m^2/s$
Half saturation constant for nitrogen uptake	**0.025**	g N/m^3
Zooplankton grazing mode	Linear grazing	-
Grazing rate due to microzooplankton	**0**	1/d
Grazing rate due to macrozooplankton	**0**	1/d
Temperature coefficient	1.045	-
Death rate	**0.005**	1/d
Maximum growth rate	**1**	1/d
Temperature coefficient	1.068	-
Half saturation constant for phosphorus uptake	**0.002**	g P/m^3
Fraction dissolved inorganic phosphorus	0.70	-
Endogenous respiration rate at 20°C	0.015	1/d
Temperature coefficient	1.045	-
Settling velocity	**0.02**	m/d
Excretion fraction of phytoplankton	0.1	-
Assimilation efficiency of zooplankton grazing	0.5	-
Light attenuation coefficient due to pure water	0.32	-
Light attenuation coefficient due to chlorophyll *a*	0.016	-
Light attenuation coefficient due to suspended solids	0.094	-
Dissolved and Particulate Organic Nitrogen		
Organic nitrogen from dead algae	0.5	-
Organic matter settling velocity	0.08	m/d
Particulate organic nitrogen to carbon ratio	0.25	-
Dissolved and Particulate Organic Phosphorus		
Organic phosphorus from dead algae; fraction to dissolved component	0.5	-
Organic matter settling velocity	0.08	m/d
Particulate organic phosphorus to carbon ratio	0.75	-

[(a)] All values are default values unless shown in bold.

SOD = sediment oxygen demand; °C = degrees Celsius; g = grams; O_2 = oxygen; m = metre; d = day; N = nitrogen; C = carbon; m^2 = square metre; m^3 = cubic metre; P = phosphorus; $cal/m^2/s$ = calories per square metre per second; - = dimensionless.

Given the uncertainty associated with a limited and discontinuous dataset where much of the data were near or below detection, the predicted ammonia, nitrate and orthophosphate concentrations are believed to be a "best guess" approximation of nutrient levels in Kennady Lake (Figures 8.V-9 to 8.V-11). The main objectives of the nutrient calibration were to obtain accurate model predictions for DO concentrations and phytoplankton growth in Kennady Lake, and the calibrated model predicted both DO concentrations and phytoplankton growth (Figure 8.V-12 and Attachment 8.V.1) reasonably well.

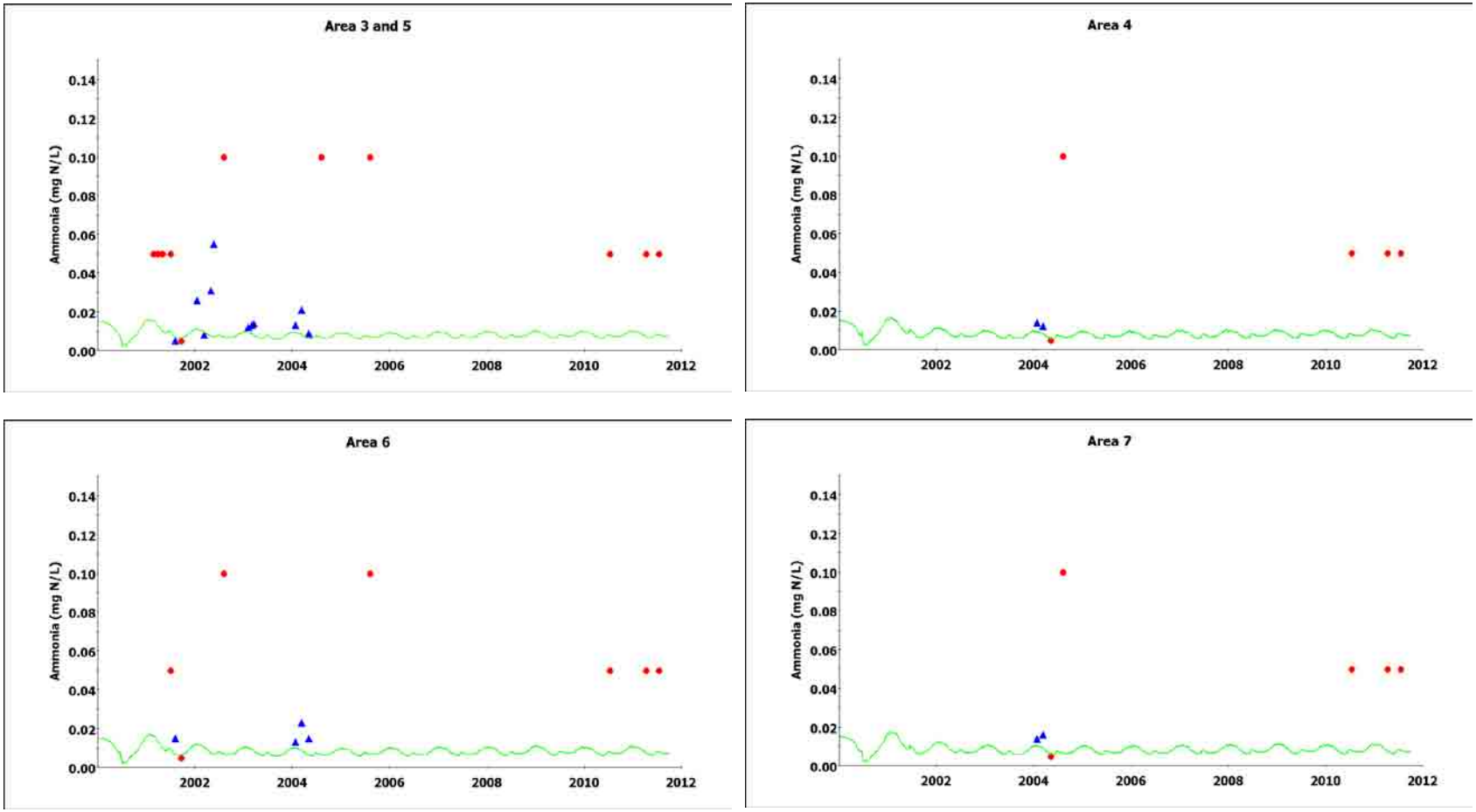
8.V.2.6 KENNADY LAKE POST-CLOSURE SENSITIVITY ANALYSIS

Because of the uncertainty associated with using non-detect values in the calibration dataset and because conditions in Kennady Lake during the post-closure time period are anticipated to be different than conditions in the lake during the calibration time period, a sensitivity analysis was completed for the post-closure time period. The sensitivity analysis was conducted by modifying model input variables, one variable per simulation, and analyzing the response of the model to that change. Thus, the sensitivity of model results to a change in that variable was gauged. This information can then be used to attribute a level of confidence or certainty to model predictions (Section 8.V.4).

In the sensitivity analysis, model rates and coefficients that could directly or indirectly affect DO and phytoplankton concentrations were varied between minimum and maximum values (Table 8.V-4). Unless noted in Table 8.V-4, the minimum and maximum values used for the sensitivity analysis were obtained from the model user manual.

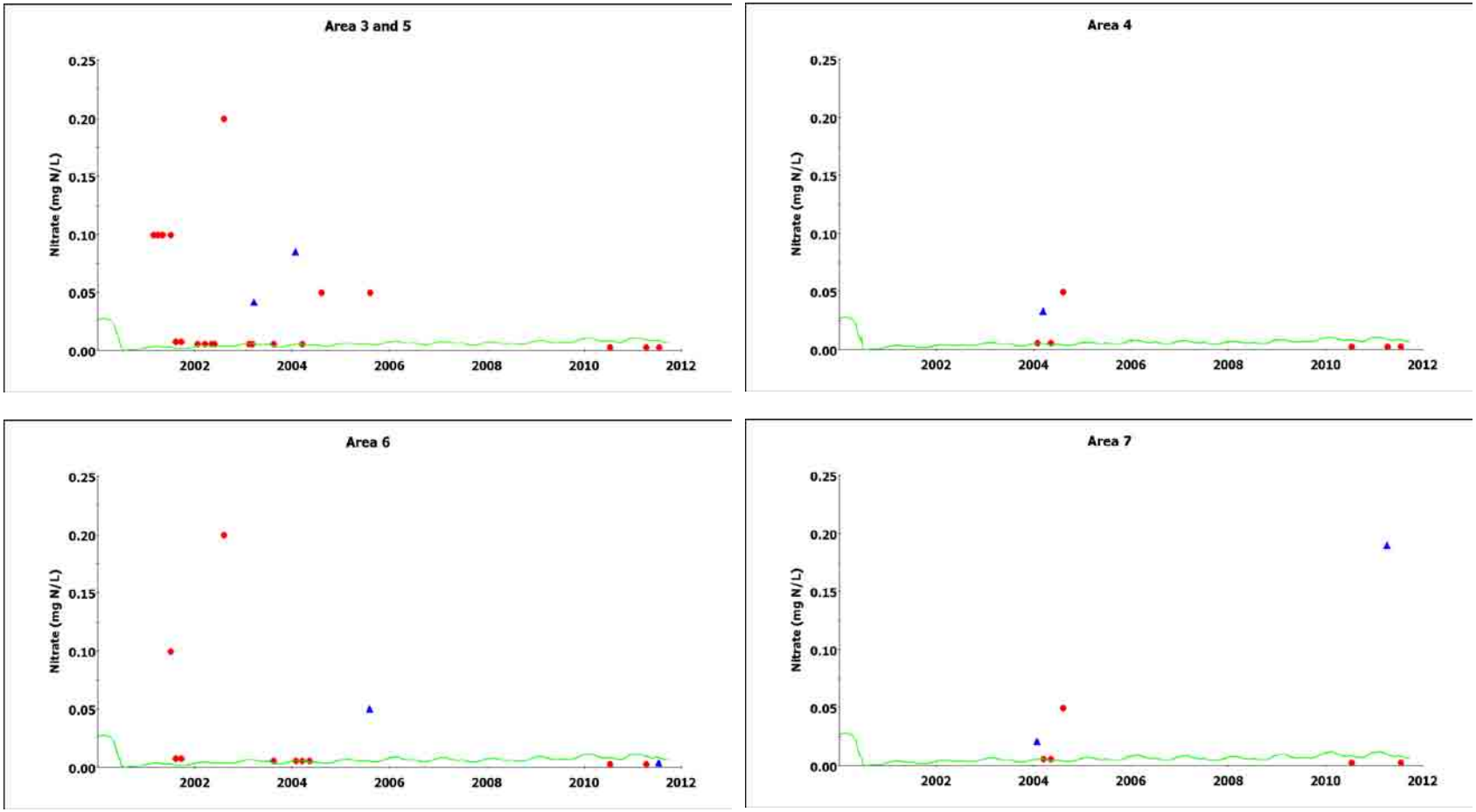
A "Base" Run was selected to represent Kennady Lake for simulating post-closure conditions. The base run consisted of all of the calibrated model coefficients from the calibration time period except SOD. In the calibration time period, an SOD value of -0.25 g $O_2/m^2/d$ was found to be appropriate for simulating DO, especially under ice. However, it was assumed that post closure conditions would result in a 50% increase in SOD due to mine-related inputs and biological growth that may occur during operations. Thus, a value of -0.375 g $O_2/m^2/d$ was used for the base run. In setting the prescriptive SOD value, the internally calculated SOD due to biological growth was over-riden. Therefore, an additional SOD load, equal to double the background load, was simulated in the sensitivity analysis. The SOD values used in the sensitivity analysis were within the range of values for winter oxygen depletion rates in Canadian lakes (Babin and Prepas 1985).

Figure 8.V-9 Calibration Plots for Ammonia



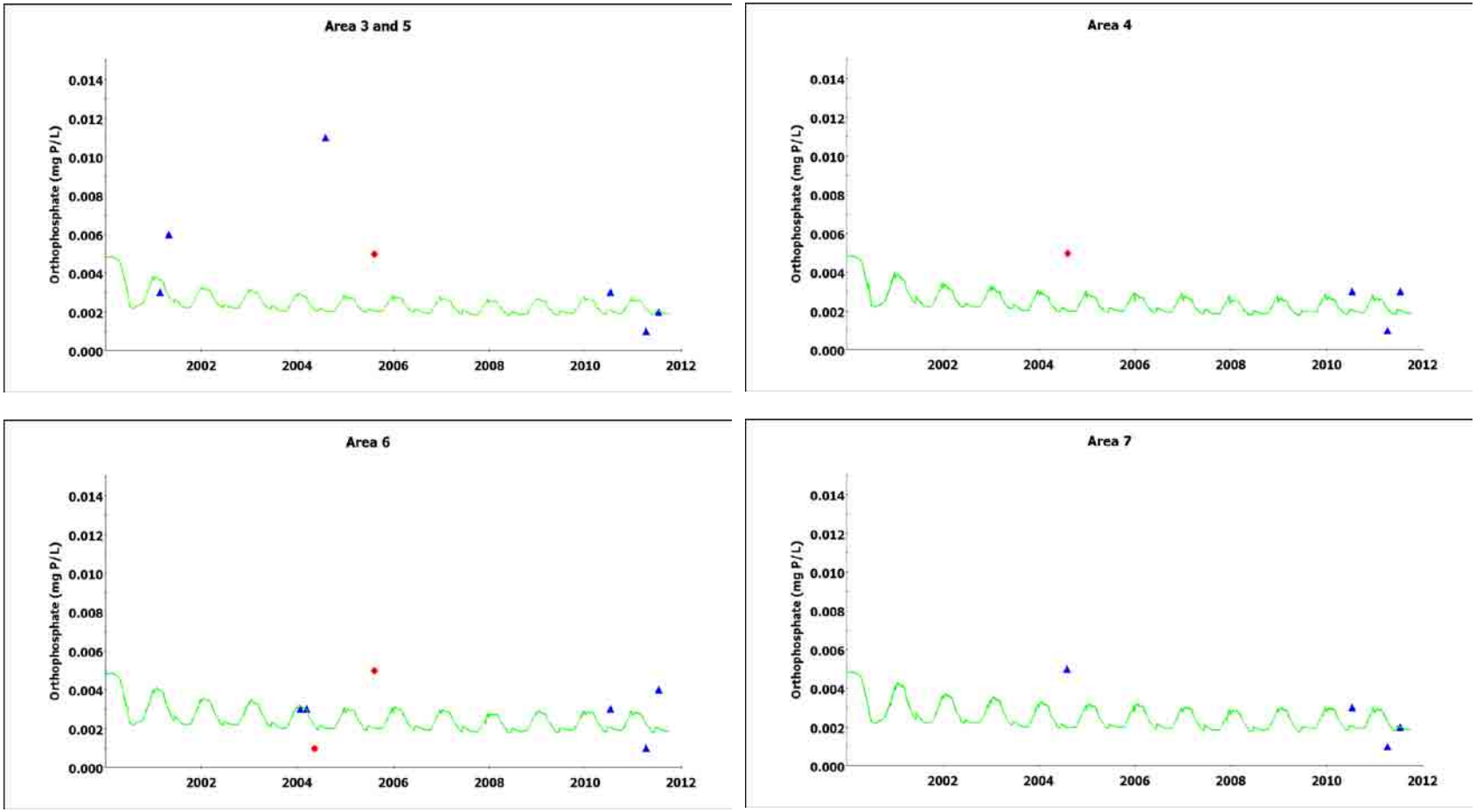
Note: Solid line represents model predictions; triangles represent measured data; dots represent measured data that were reported as less than detection.
mg = milligrams; L = litre; N = nitrogen.

Figure 8.V-10 Calibration Plots for Nitrate



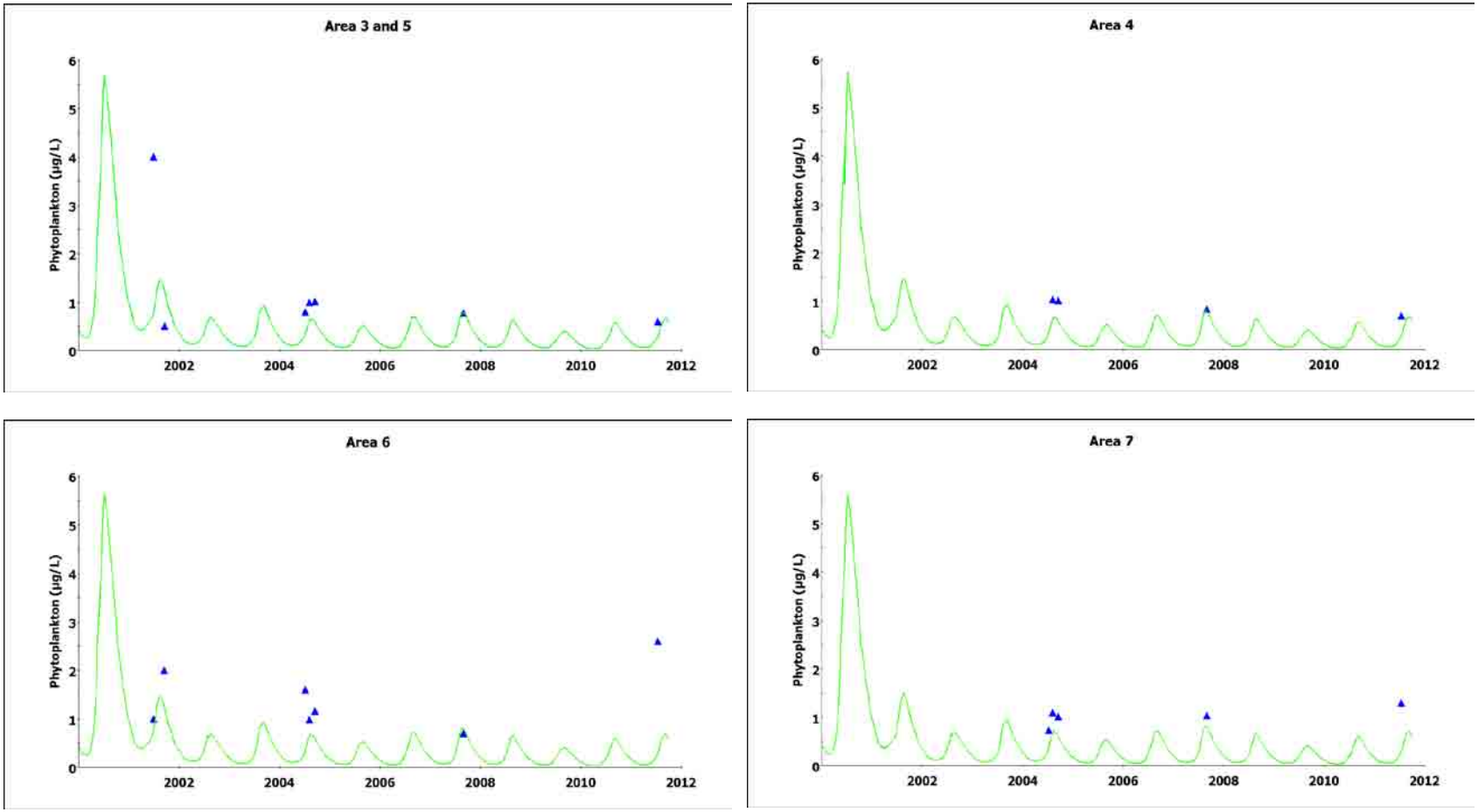
Note: Solid line represents model predictions; triangles represent measured data; dots represent measured data that were reported as less than detection.
mg = milligrams; L = litre; N = nitrogen.

Figure 8.V-11 Calibration Plots for Orthophosphate



Note: Solid line represents model predictions; triangles represent measured data; dots represent measured data that were reported as less than detection.
mg = milligrams; L = litre; P = phosphorus.

Figure 8.V-12 Calibration Plots for Phytoplankton



Note: Solid line represents model predictions; triangles represent measured data.
µg = micrograms; L = litre.

Table 8.V-4 Rates and Coefficients Applied to Post-closure Sensitivity Analysis

Description	Base Run[(a)]	Values Applied		Units
		Run 01	Run 02	
Ratio of carbon to chlorophyll *a*	20	10	100	-
Fraction dissolved inorganic phosphorus	0.70	0.60	0.85	-
Nitrification rate	0.0075	0.005	0.13	1/d
Maximum phytoplankton growth rate	1	0.01	4.0	1/d
Endogenous respiration rate at 20°C	0.015	0.01[b]	0.20	1/d
Half saturation constant for oxygen limitation of decomposition	0.50	0.10	1.0	g O_2/m^3
Deoxygenation rate at 20°C	0.15	0.01	0.20	1/d
Half saturation constant for nitrogen uptake	0.025	0.001	0.050[c]	g N/m^3
Half saturation constant for phosphorus uptake	0.002	0.001	0.003[c]	g P/m^3
Half saturation constant for oxygen limitation of nitrification	2.0	1.5	2.5	g O_2/m^3
SOD	-0.375	-0.25	-0.50	g $O_2/m^2/d$
Temperature coefficient for nitrification	1.08	1.047	2.0	-
Temperature coefficient for maximum phytoplankton growth rate	1.068	1.047	1.08	-
Temperature coefficient for denitrification	1.08	1.047	2.0	-
Phytoplankton settling velocity	0.02	0.01[d]	0.5	m/d
CBOD_P settling velocity	0.08	0.05	0.5	m/d
ON_P settling velocity	0.08	0.05	0.5	m/d

[(a)] The values of the rates and coefficients applied in the base run were from model calibration with the exception of the SOD rate. It was increased from -0.25 $gO_2/m^2/d$ to -0.375 $gO_2/m^2/d$.

[(b)] The minimum phytoplankton endogeneous respiration rate was obtained from Cole and Wells (2008).

[(c)] The maximum values used for the half saturation constant for nitrogen and phosphorus uptake were obtained from Schladow and Hamilton (1997).

[(d)] The minimum value used for the phytoplankton settling velocity was obtained from Bowie et al. (1985).

°C = degrees Celsius; SOD = sediment oxygen demand; CBOD = carbonaceous biochemical oxygen demand; ON = organic nitrogen; P = particulate; d = day; g = grams; O_2 = oxygen; m^3 = cubic metre; m^2 = square metre; m = metre; - = dimensionless.

The objective of the sensitivity analysis was to examine the effects that changes to rates and coefficients had on the following predictions:

- the average volume of Kennady Lake with a DO concentration greater than 5 mg/L at the end of the ice-covered season. A DO concentration greater than 5 mg/L was selected because 5 mg/L represents the acute guideline for the protection of aquatic life for cold water species excluding the larval stages (AENV 1999);
- the average volume of Kennady Lake with a DO concentration greater than or equal to 6.5 mg/L at the end of the ice-covered season. A DO concentration greater than or equal to 6.5 mg/L was selected because

6.5 mg/L represents the chronic guideline for the protection of aquatic life for cold water species excluding the larval stages (CCME 1999). A DO threshold for larval stages was not considered necessary because the lake is predicted to be well oxygenated at all times during the open water season;

- the maximum phytoplankton concentration in Kennady Lake; and
- the whole-lake average orthophosphate concentration.

Model outputs were calculated for the years 2040 to 2044. These years were selected to allow the conditions in the lake to stabilize after an initial period of uptake of nutrients and growth of phytoplankton in the model. The results during these years are considered representative of the early years of the post-closure Kennady Lake.

8.V.3 RESULTS

The water volume of the post-closure model grid representing Kennady Lake with the Tuzo and Hearne pits modelled to a depth of 40 m was 55,550,000 cubic metres (m^3). For the post-closure base run, the average volumes of Kennady Lake with a dissolved oxygen (DO) concentration greater than 5 mg/L and 6.5 mg/L just prior to ice melting were predicted to be approximately 47,172,000 m^3 and 44,390,000 m^3, respectively.

Of the 17 rates and coefficients tested in the sensitivity analysis, sediment oxygen demand (SOD) is predicted to have the largest effect on the average volume of Kennady Lake with a DO greater than either threshold (Table 8.V-5). Figures 8.V-13 to 8.V-15 show predicted DO profiles in the littoral zone, an open water zone and in the Hearne Pit of Kennady Lake as a result of changes to the SOD rate. Changes to any of the remaining parameters were predicted to change the volume of lake water above either threshold by less than two percent from the post-closure base run.

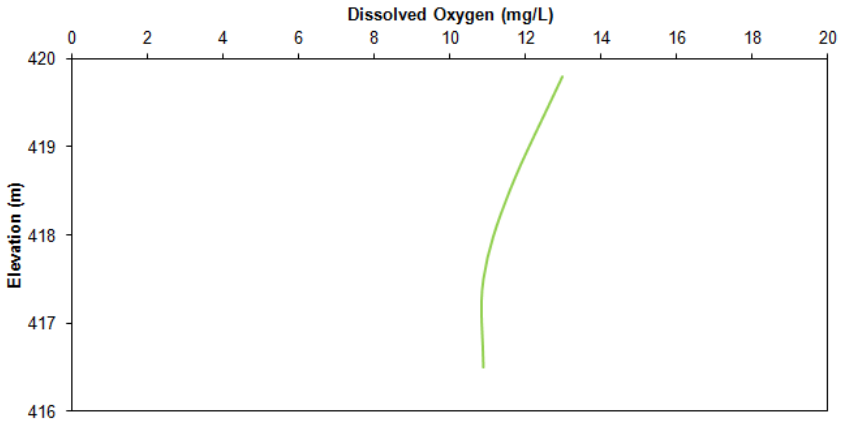
Table 8.V-5 Average Volumes of Kennady Lake with Dissolved Oxygen Concentrations >5 mg/L and ≥6.5 mg/L

Scenario	Average Lake Volume with DO >5 mg/L [m^3]	Change in Lake Volume from Base Run [%]	Average Lake Volume with DO ≥6.5 mg/L [m^3]	Change in Lake Volume from Base Run [%]
Base run	47,172,000		44,389,000	
SOD run 01	51,351,000	8.9	49,215,000	10.9
SOD run 02	41,205,000	-12.7	28,581,000	-35.6

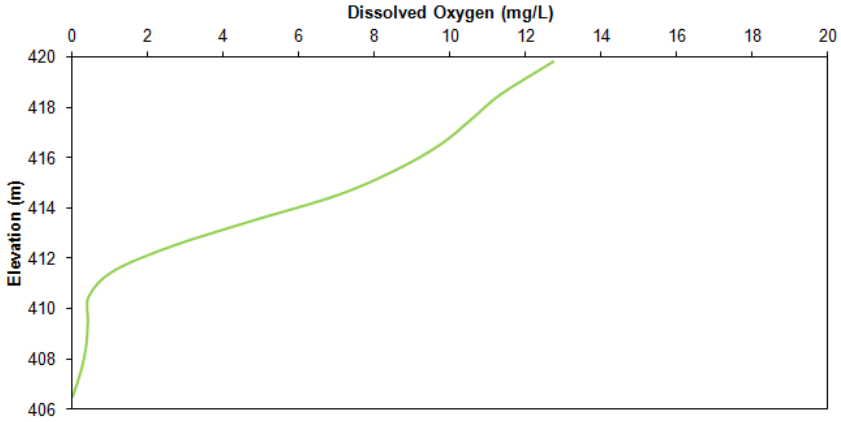
> = greater than; mg = milligrams; L = litre; m^3 = cubic metres; % = percent; DO = dissolved oxygen.

Of the 17 rates and coefficients tested in the sensitivity analysis, the ones that exerted the greatest influence on the average whole-lake orthophosphate concentrations were also predicted to have the largest effect on the maximum phytoplankton concentrations because these variables are interdependent. The rates and coefficients that had the greatest influence on orthophosphate and phytoplankton concentrations were the carbon to chlorophyll *a* ratio, the maximum phytoplankton growth rate, the phytoplankton endogeneous respiration rate and the phytoplankton settling velocity. Time series for these and other sensitivity runs are shown in Figures 8.V-16 to 8.V-24. In each figure, the calibration time series is also shown for comparison to post-closure conditions.

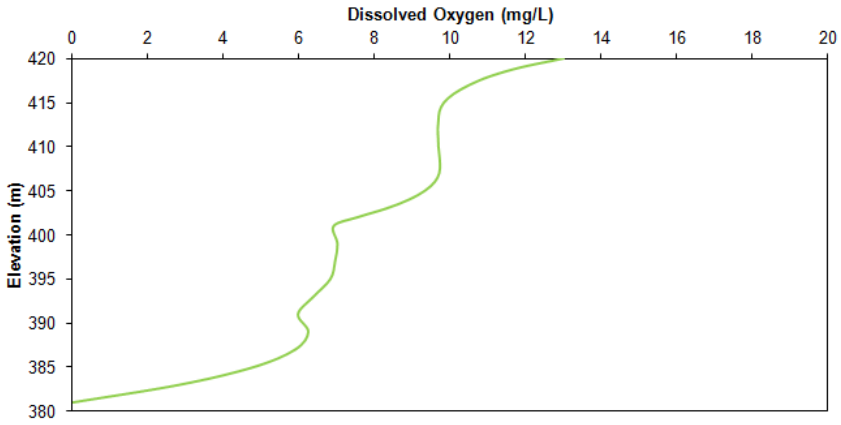
Figure 8.V-13 Winter Dissolved Oxygen Profiles in (a) the Littoral Zone, (b) an Open Water Zone and (c) the Hearne Pit of Kennady Lake in Post-closure with a Sediment Oxygen Demand of -0.375 g $O_2/m^2/d$



(a)



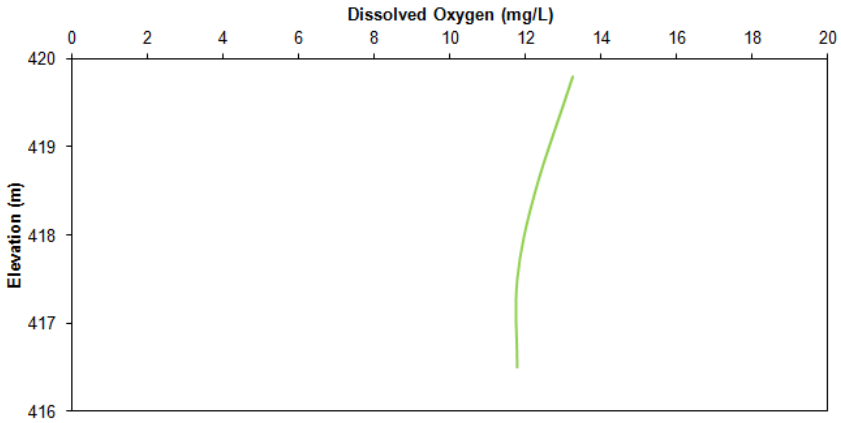
(b)



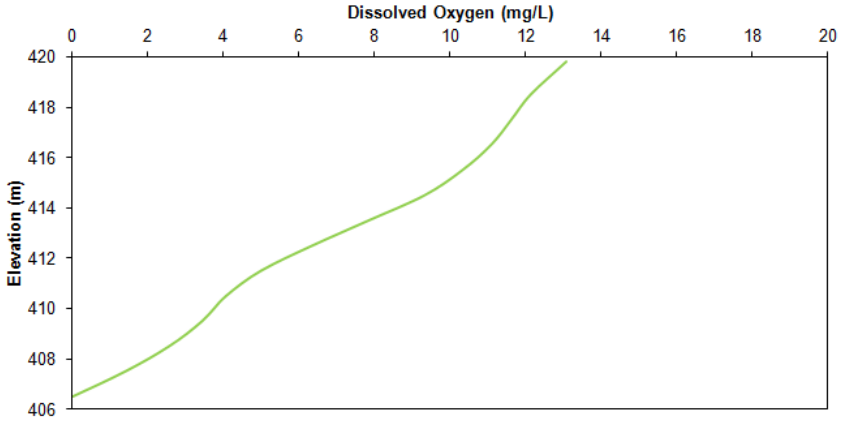
(c)

mg = milligrams; L = litre; m = metre; g = grams; O_2 = oxygen; m^2 = square metre; d = day.

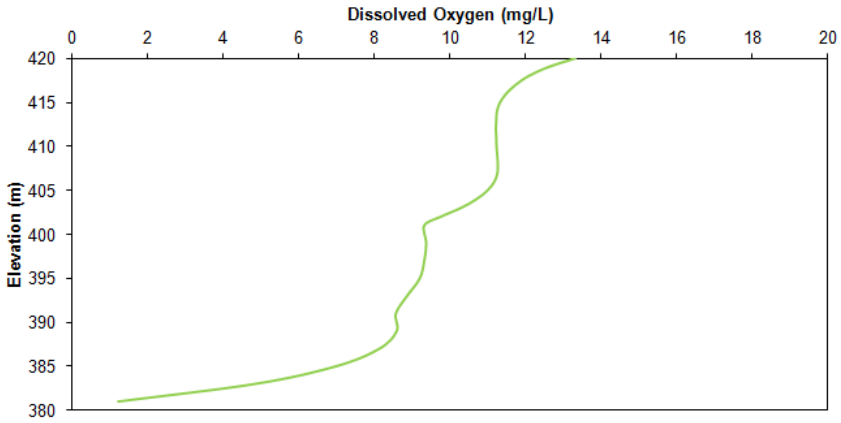
Figure 8.V-14 Winter Dissolved Oxygen Profiles in (a) the Littoral Zone, (b) an Open Water Zone and (c) the Hearne Pit of Kennady Lake in Post-closure with a Sediment Oxygen Demand of -0.250 g $O_2/m^2/d$



(a)



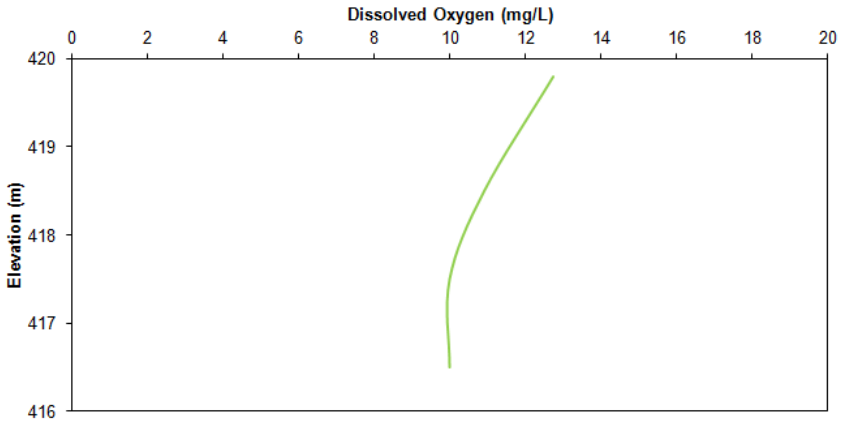
(b)



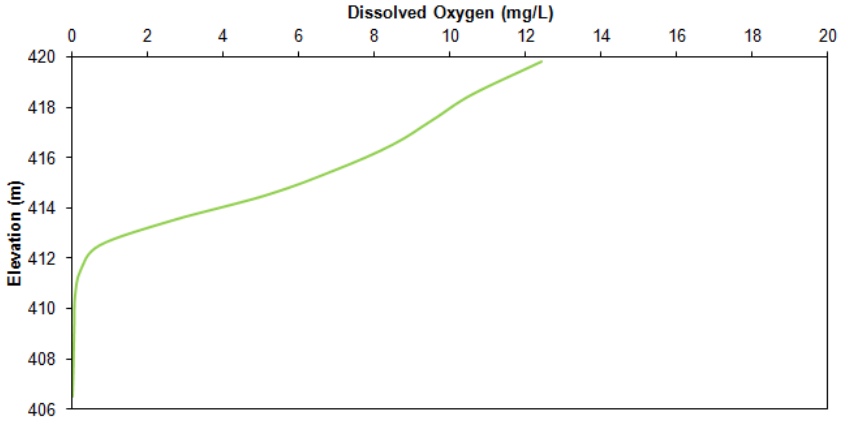
(c)

mg = milligrams; L = litre; m = metre; g = grams; O_2 = oxygen; m^2 = square metre; d = day.

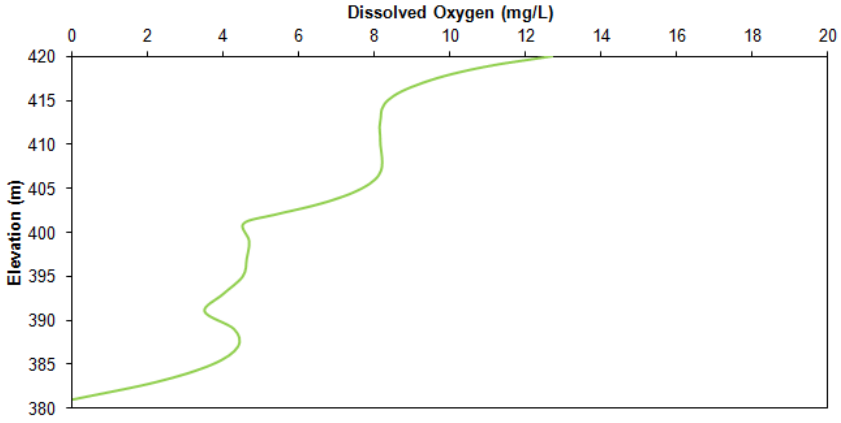
Figure 8.V-15 Winter Dissolved Oxygen Profiles in (a) the Littoral Zone, (b) an Open Water Zone and (c) the Hearne Pit of Kennady Lake in Post-closure with a Sediment Oxygen Demand of -0.500 g $O_2/m^2/d$



(a)



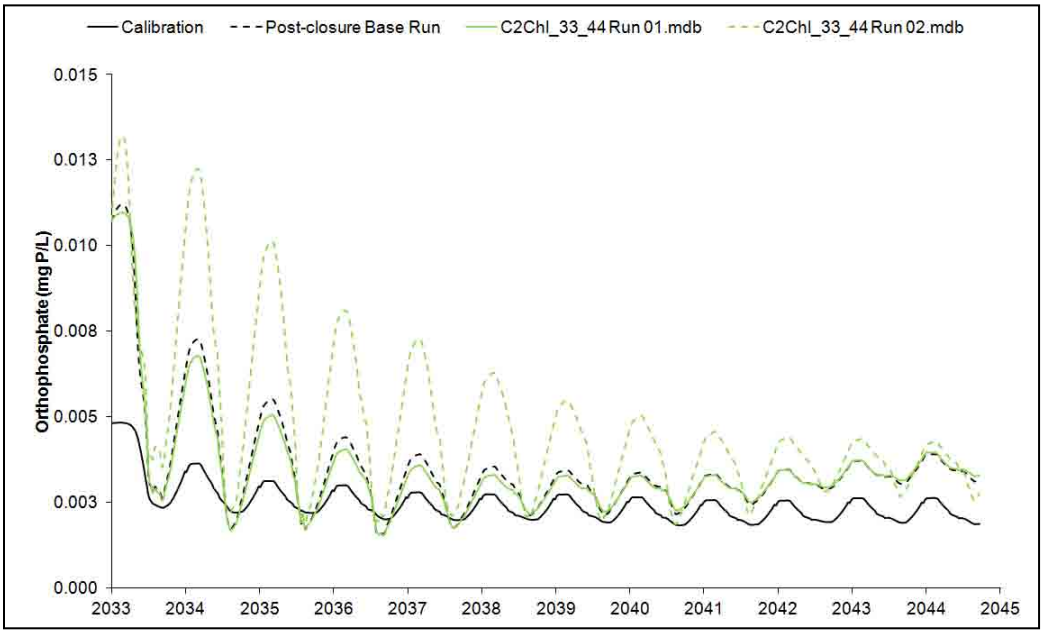
(b)



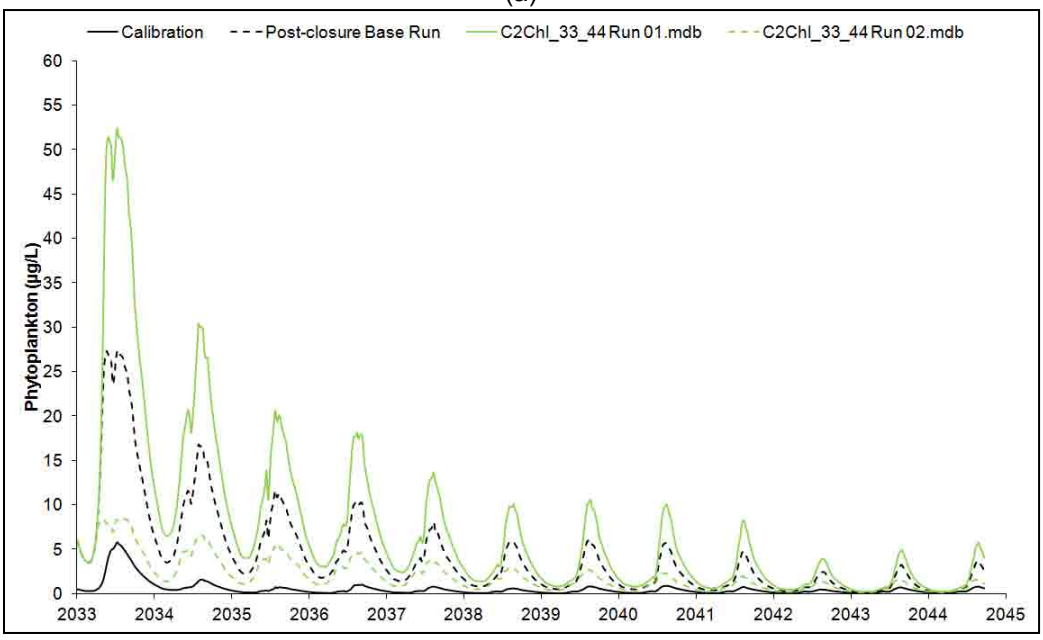
(c)

mg = milligrams; L = litre; m = metre; g = grams; O_2 = oxygen; m^2 = square metre; d = day.

Figure 8.V-16 The Effect of the Carbon to Chlorophyll *a* Ratio on (a) Whole-lake Average Orthophosphate Concentrations and (b) Maximum Phytoplankton Concentrations in the Surface Waters of Kennady Lake in Post-closure



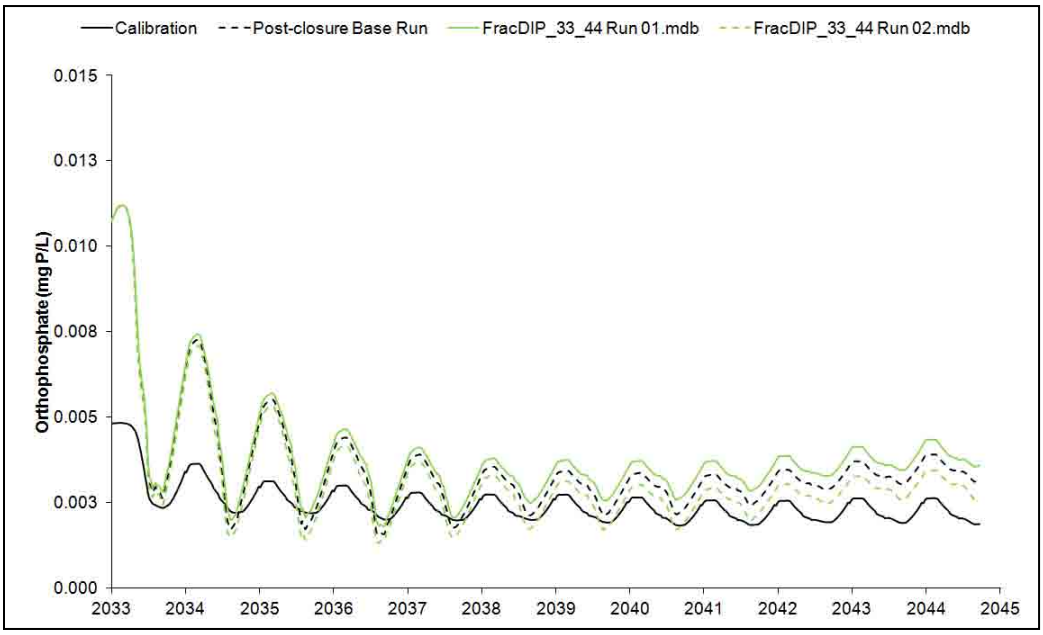
(a)



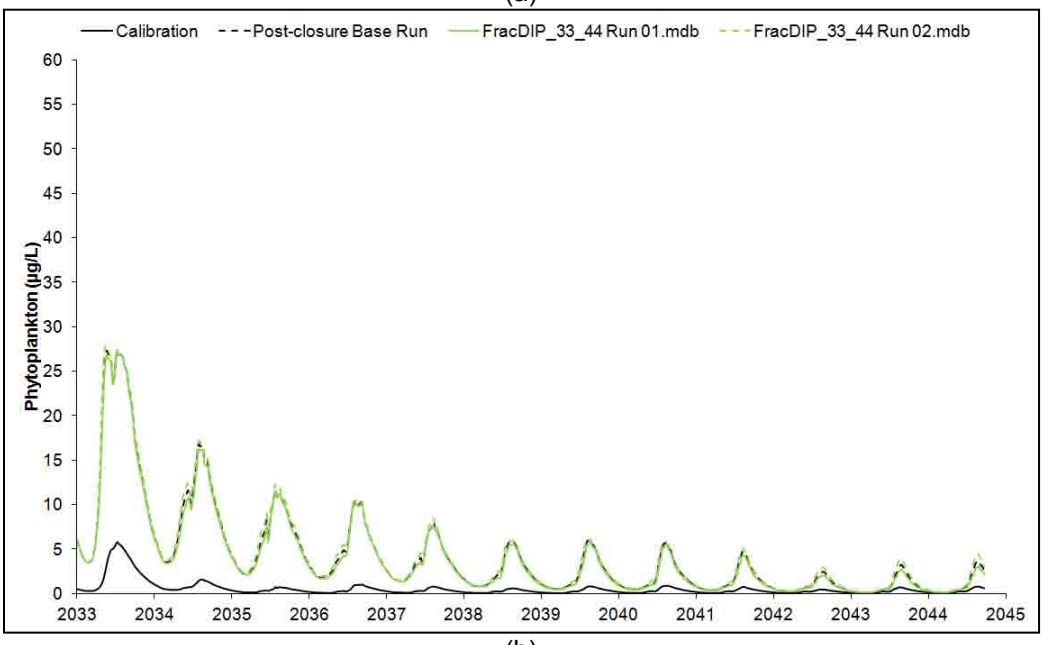
(b)

mg = milligrams; L = litre; µg = micrograms.

Figure 8.V-17 The Effect of the Fraction of Dissolved Inorganic Phosphorus on (a) Whole-lake Average Orthophosphate Concentrations and (b) Maximum Phytoplankton Concentrations in the Surface Waters of Kennady Lake in Post-closure



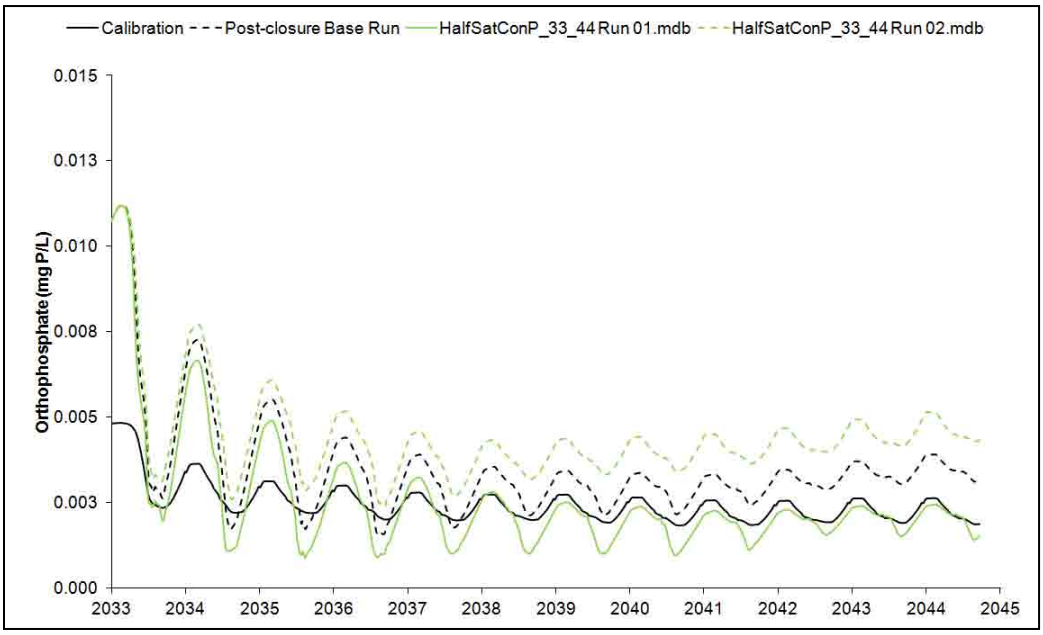
(a)



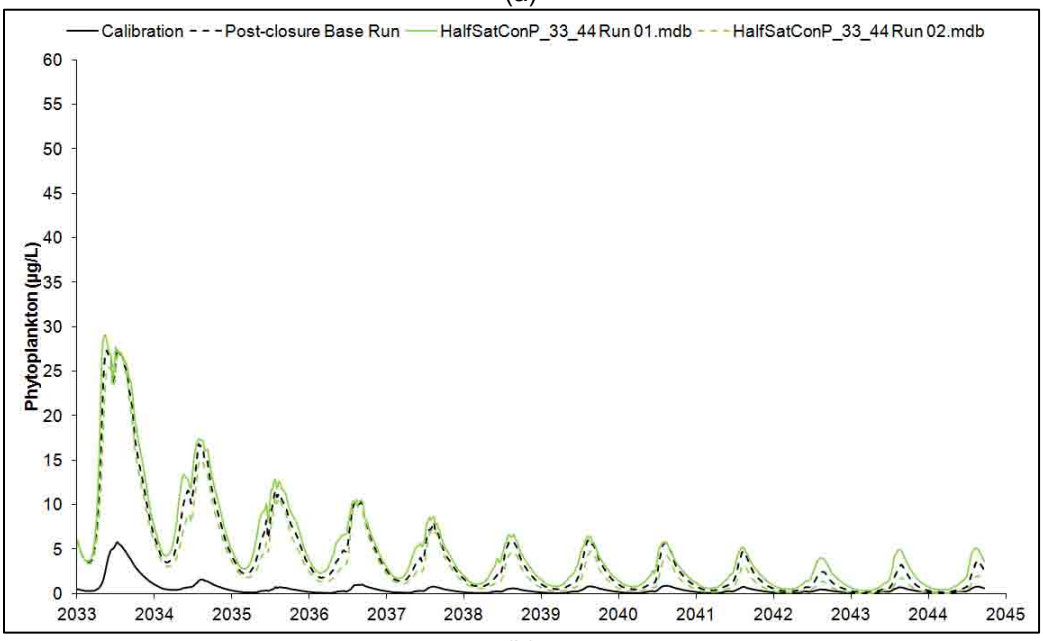
(b)

mg = milligrams; L = litre; µg = micrograms.

Figure 8.V-18 The Effect of the Half Saturation Constant for Phosphorus Uptake on (a) Whole-lake Average Orthophosphate Concentrations and (b) Maximum Phytoplankton Concentrations in the Surface Waters of Kennady Lake in Post-closure



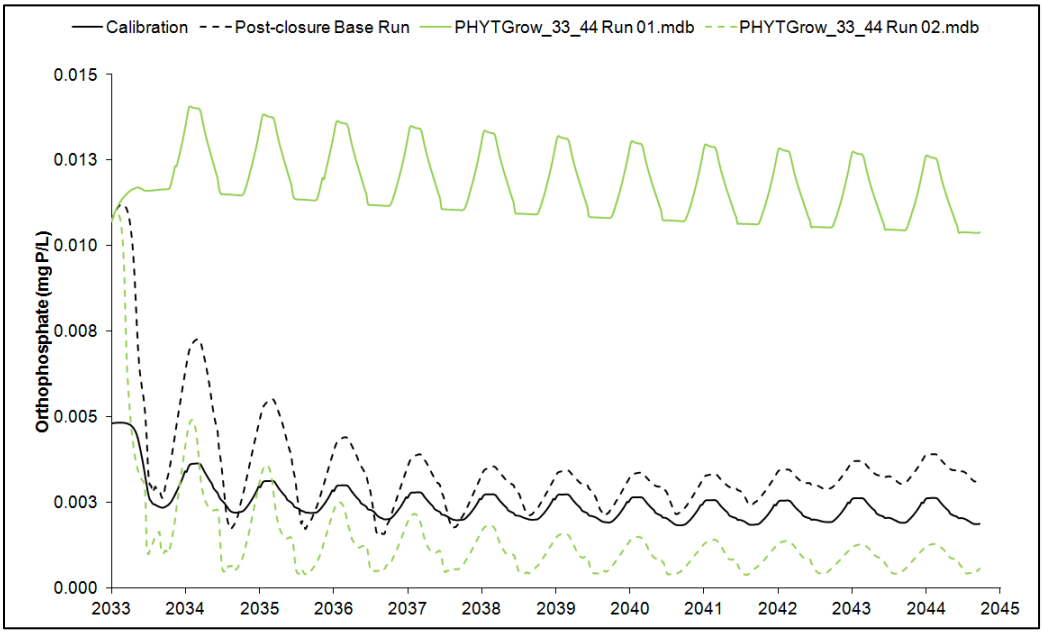
(a)



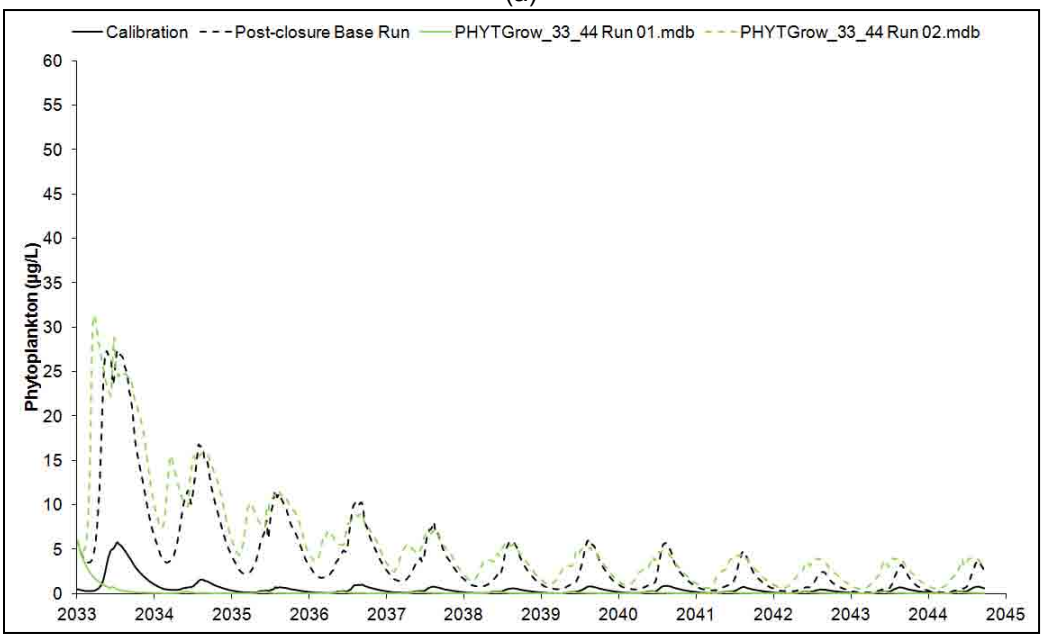
(b)

mg = milligrams; L = litre; µg = micrograms.

Figure 8.V-19 The Effect of the Maximum Phytoplankton Growth Rate on (a) Whole-lake Average Orthophosphate Concentrations and (b) Maximum Phytoplankton Concentrations in the Surface Waters of Kennady Lake in Post-closure



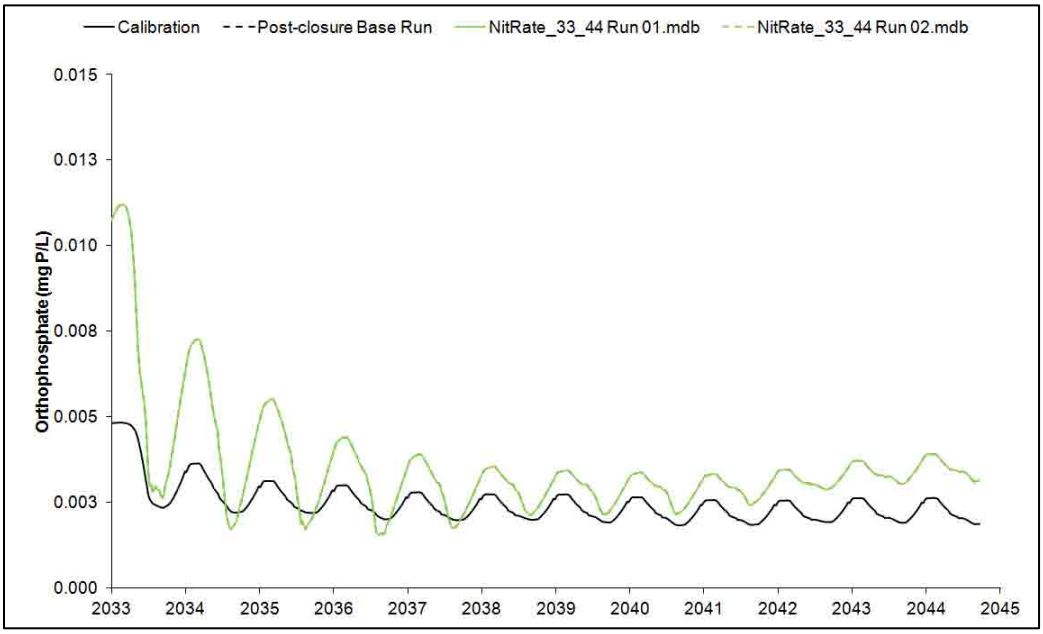
(a)



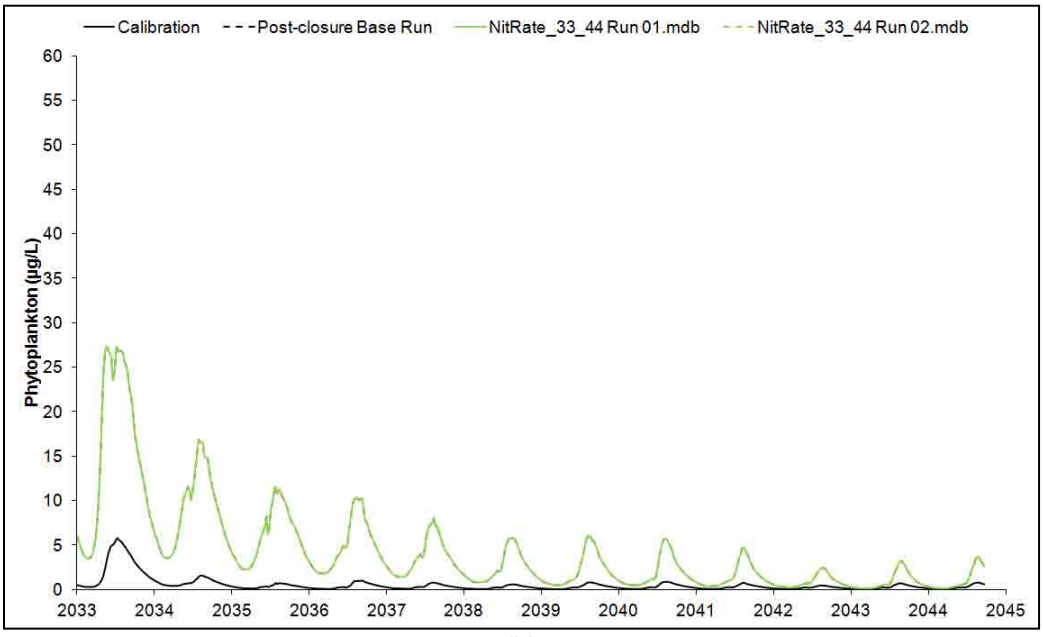
(b)

mg = milligrams; L = litre; µg = micrograms.

Figure 8.V-20 The Effect of the Nitrification Rate on (a) Whole-lake Average Orthophosphate Concentrations and (b) Maximum Phytoplankton Concentrations in the Surface Waters of Kennady Lake in Post-closure



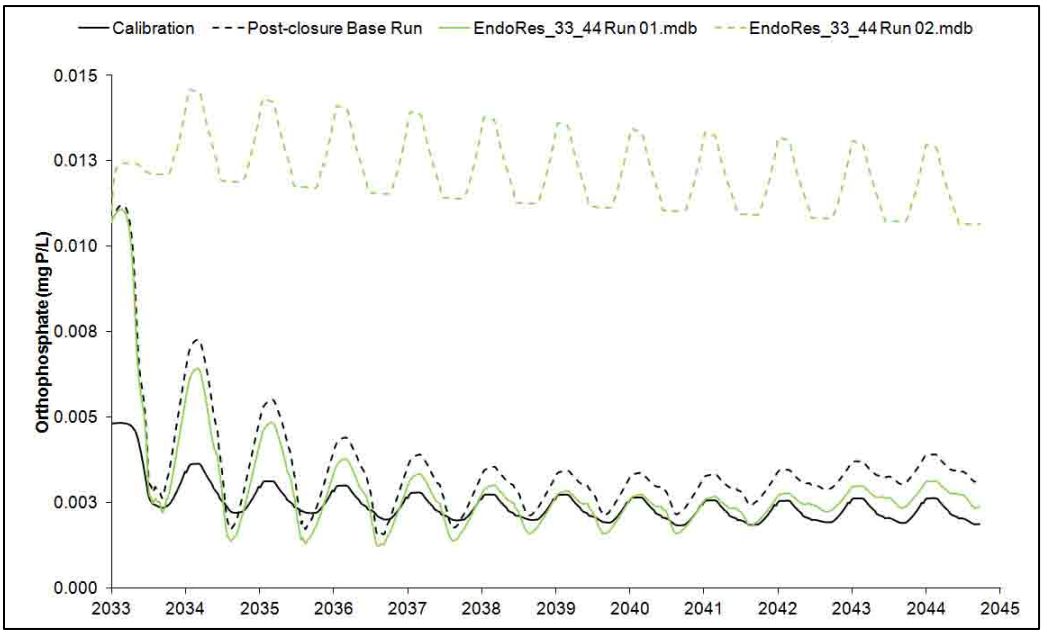
(a)



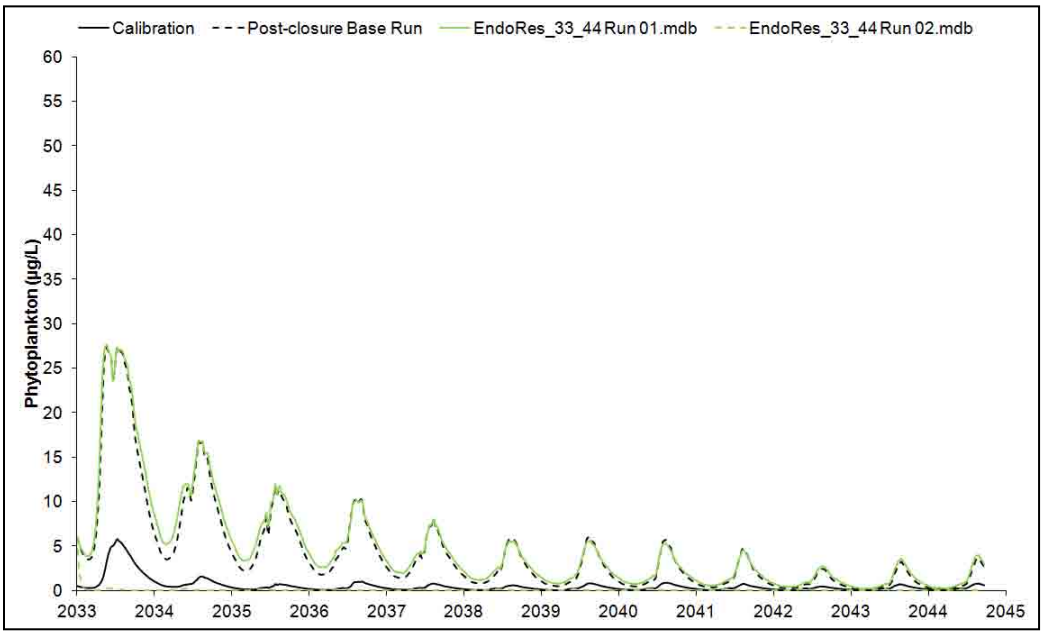
(b)

mg = milligrams; L = litre; µg = micrograms.

Figure 8.V-21 The Effect of the Phytoplankton Endogeneous Respiration Rate on (a) Whole-lake Average Orthophosphate Concentrations and (b) Maximum Phytoplankton Concentrations in the Surface Waters of Kennady Lake in Post-closure



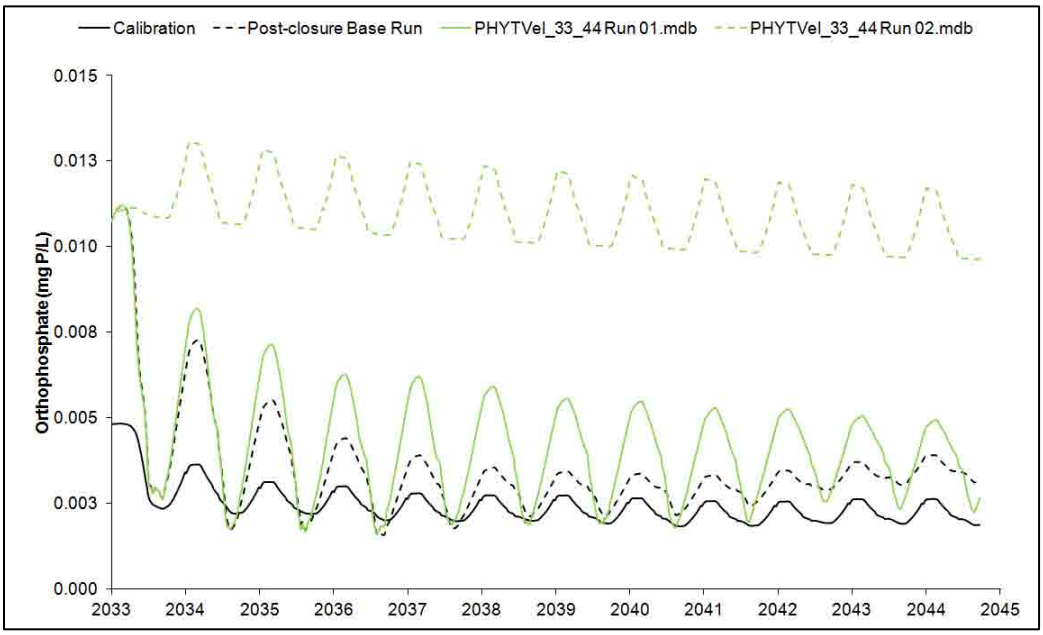
(a)



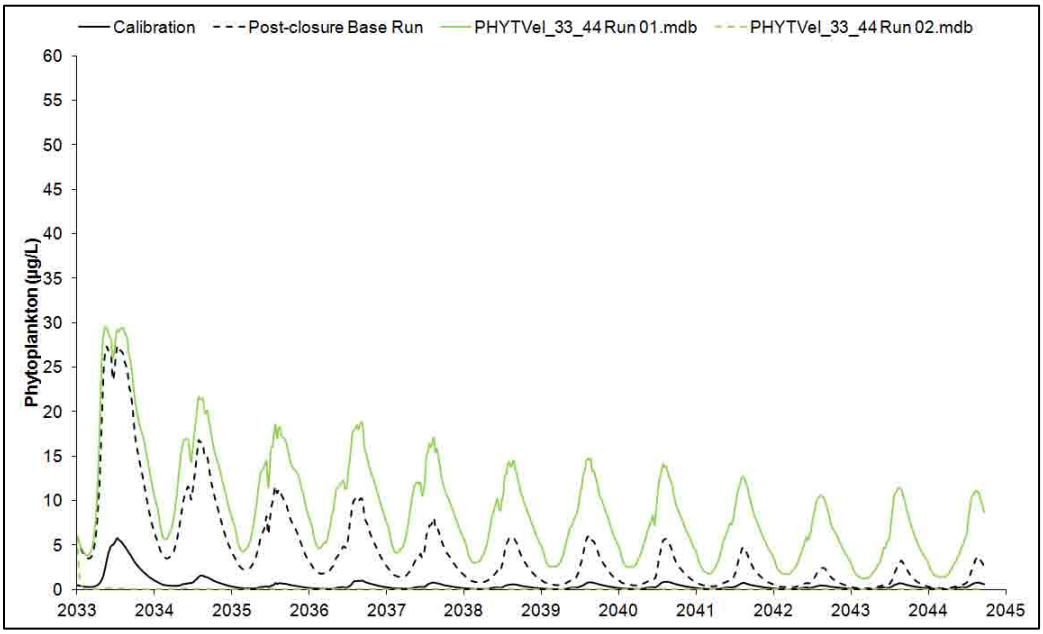
(b)

mg = milligrams; L = litre; µg = micrograms.

Figure 8.V-22 The Effect of the Phytoplankton Settling Velocity on (a) Whole-lake Average Orthophosphate Concentrations and (b) Maximum Phytoplankton Concentrations in the Surface Waters of Kennady Lake in Post-closure



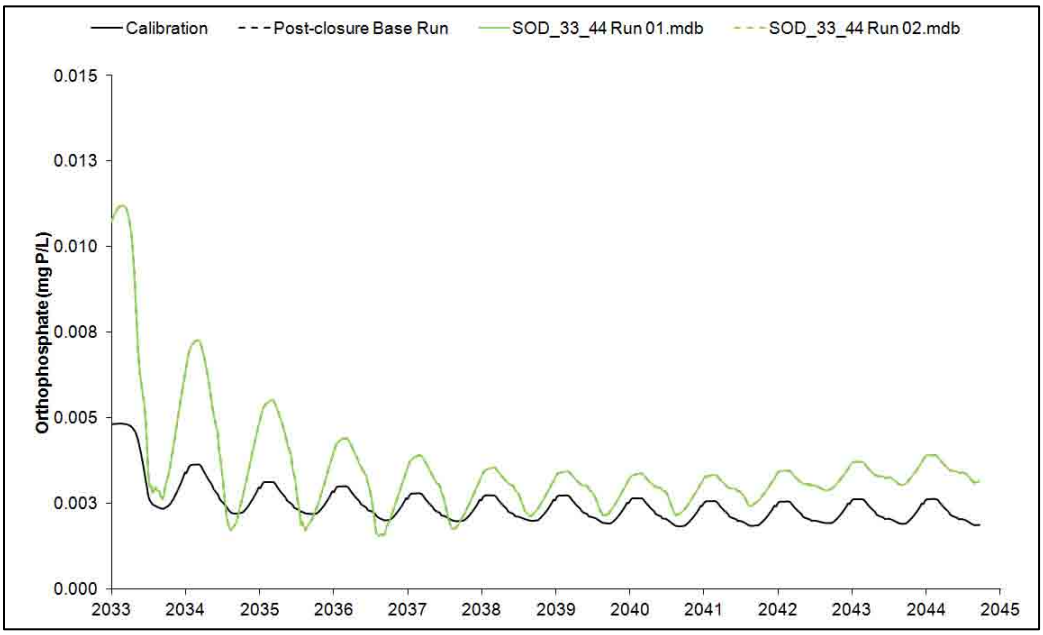
(a)



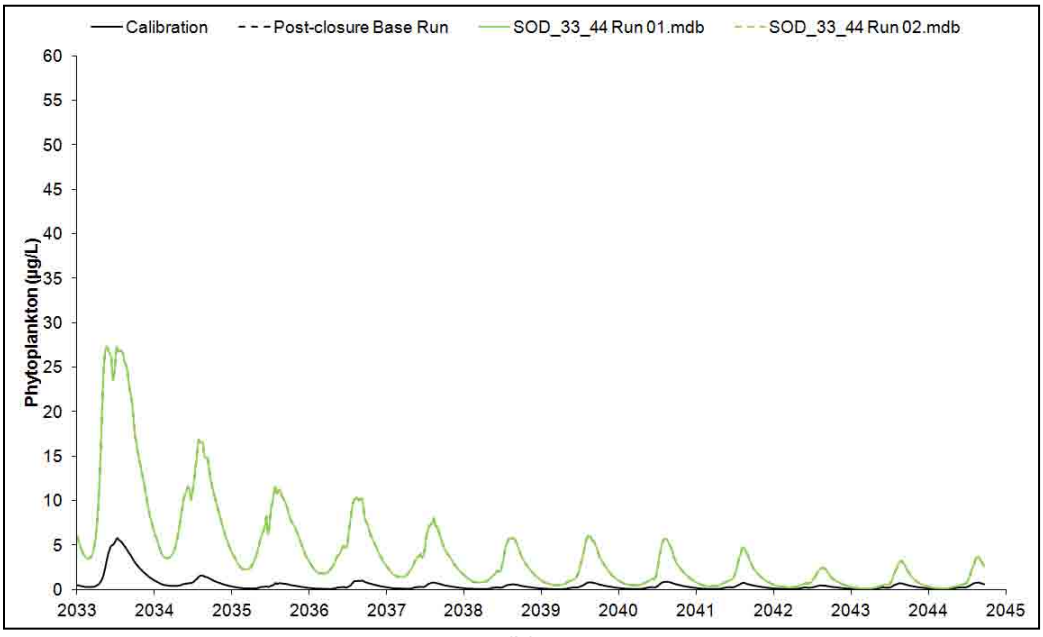
(b)

mg = milligrams; L = litre; µg = micrograms.

Figure 8.V-23 The Effect of SOD on (a) Whole-lake Average Orthophosphate Concentrations and (b) Maximum Phytoplankton Concentrations in the Surface Waters of Kennady Lake in Post-closure



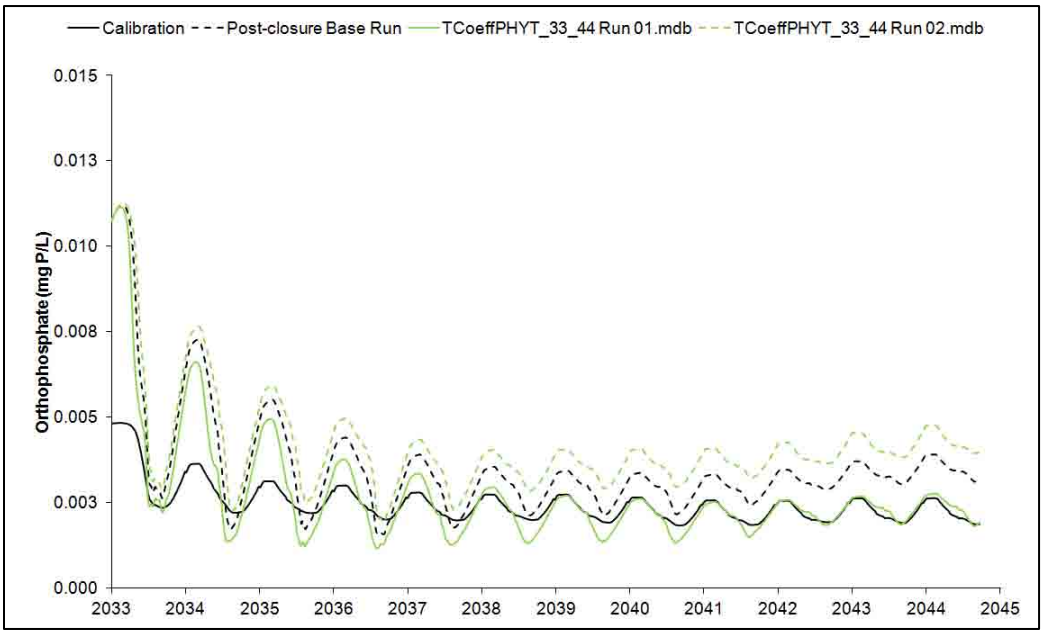
(a)



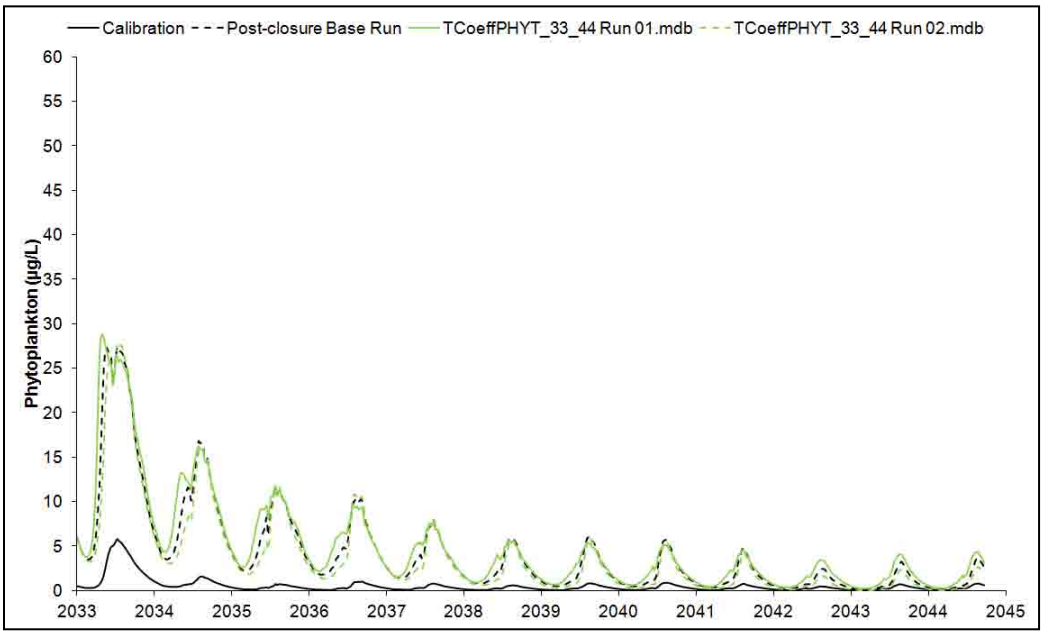
(b)

mg = milligrams; L = litre; µg = micrograms.

Figure 8.V-24 The Effect of the Temperature Coefficient for the Maximum Phytoplankton Growth Rate on (a) Whole-lake Average Orthophosphate Concentrations and (b) Maximum Phytoplankton Concentrations in the Surface Waters of Kennady Lake in Post-closure



(a)



(b)

mg = milligrams; L = litre; µg = micrograms.

In GEMSS, the maximum phytoplankton growth rate is modified by several factors including a nutrient limiting function. The nutrient limiting function takes the minimum value of a function dependent on the presence of nitrogen or inorganic phosphorus. Whichever function is minimal is considered to be the limiting nutrient. In the post-closure time period, phosphorus is anticipated to be the limiting nutrient based on modeled concentrations. Therefore, orthophosphate concentrations are predicted to be affected by rates and coefficients associated with the phytoplankton constituent equation, and nitrogen-related rates and coefficients are predicted to have little effect on any of the oxygen, phosphorus or phytoplankton concentrations.

Figure 8.V-16 indicates that a decrease in the carbon to chlorophyll *a* ratio from 20 in the post-closure base run to 10 would increase the maximum phytoplankton concentrations in the surface waters of Kennady Lake and consequently decrease average whole-lake orthophosphate concentrations. An increase in the carbon to chlorophyll *a* ratio from 20 to 100 would decrease the maximum phytoplankton concentrations in the surface waters of Kennady Lake and consequently increase average whole-lake orthophosphate concentrations.

Figure 8.V-17 indicates that a decrease in the fraction of dissolved inorganic phosphorus from 0.70 in the post-closure base run to 0.60 would increase average whole-lake orthophosphate concentrations in Kennady Lake in post-closure. An increase in the fraction of dissolved inorganic phosphorus from 0.70 to 0.85 would decrease average whole-lake orthophosphate concentrations. The fraction of dissolved inorganic phosphorus represents the phosphorus that is available for uptake by phytoplankton. Changes to the fraction of dissolved inorganic phosphorus are predicted to have negligible effects on the maximum phytoplankton concentrations in the surface waters of Kennady Lake in post-closure.

Figure 8.V-18 indicates that a decrease in the half saturation constant for phosphorus uptake from 0.002 g P/m^3 in the post-closure base run to 0.001 g P/m^3 would decrease average whole-lake orthophosphate concentrations in Kennady Lake in post-closure. An increase in the half saturation constant for phosphorus uptake from 0.002 g P/m^3 to 0.003 g P/m^3 would increase average whole-lake orthophosphate concentrations. Decreasing the half saturation constant for phosphorus uptake increases the rate at which phytoplankton consume phosphorus. Therefore, the average whole-lake orthophosphate concentration decreases.

Figure 8.V-19 indicates that a decrease in the maximum phytoplankton growth rate from 1/d in the post-closure base run to 0.01/d would decrease the maximum phytoplankton concentrations in the surface waters of Kennady Lake

and consequently increase average whole-lake orthophosphate concentrations. An increase in the maximum phytoplankton growth rate from 1/d to 4/d would increase the maximum phytoplankton concentrations in the surface waters of Kennady Lake and consequently decrease average whole-lake orthophosphate concentrations.

Figure 8.V-20 indicates that changes to the nitrification rate would have no effect on average whole-lake orthophosphate concentrations or maximum phytoplankton concentrations in the surface waters of Kennady Lake in post-closure.

Figure 8.V-21 indicates that a decrease in the phytoplankton endogeneous respiration rate from 0.015/d in the post-closure base run to 0.01/d would slightly increase the maximum phytoplankton concentrations in the surface waters of Kennady Lake and consequently decrease average whole-lake orthophosphate concentrations. An increase in the phytoplankton endogeneous respiration rate from 0.015/d to 0.20/d would decrease the maximum phytoplankton concentrations in the surface waters of Kennady Lake and consequently increase average whole-lake orthophosphate concentrations.

Figure 8.V-22 indicates that an increase in the phytoplankton settling velocity from 0.02 m/d in the post-closure base run to 0.50 m/d would decrease the maximum phytoplankton concentrations in the surface waters of Kennady Lake and consequently increase average whole-lake orthophosphate concentrations. A decrease in the phytoplankton settling velocity from 0.02/d to 0.01/d would increase the maximum phytoplankton concentrations in the surface waters of Kennady Lake and consequently increase average whole-lake orthophosphate concentrations. In this case, phytoplankton respiration is supplying orthophosphate to the water column at a faster rate than phytoplankton growth is consuming it.

Figure 8.V-23 indicates that changes to the SOD rate would have no effect on average whole-lake orthophosphate concentrations or maximum phytoplankton concentrations in the surface waters of Kennady Lake in post-closure.

Figure 8.V-24 indicates that at a given temperature, an increase in the temperature coefficient for the maximum phytoplankton growth rate from 1.068 in the post-closure base run to 1.08 would decrease the maximum phytoplankton growth rate which slightly decreases the maximum phytoplankton concentrations in the surface waters of Kennady Lake and increases orthophosphate concentrations. At a given temperature, a decrease in the temperature coefficient for the maximum phytoplankton growth rate from 1.068 in the post-closure base run to 1.047 would increase the maximum phytoplankton growth rate which

slightly increases the maximum phytoplankton concentrations in the surface waters of Kennady Lake and decreases orthophosphate concentrations.

8.V.3.1 SUMMARY

Of the 17 rates and coefficients tested in the sensitivity analysis, the following parameters were predicted to have a large effect on whole-lake average orthophosphate concentrations and maximum phytoplankton concentrations in Kennady Lake in post-closure:

- carbon to chlorophyll *a* ratio;
- maximum phytoplankton growth rate;
- phytoplankton endogeneous respiration rate; and
- phytoplankton settlng velocity.

None of these four rates and coefficients were predicted to change the volume of late-winter Kennady Lake that has a DO concentration above 5 or 6.5 mg/L by more than 2%.

Of the 17 rates and coefficients tested in the sensitivity analysis, the only parameter that is predicted to have a large effect on DO concentrations in Kennady Lake in post-closure is SOD. For the post-closure base run with an SOD of -0.375 g $O_2/m^2/d$, the volume of Kennady Lake that is predicted to have a DO concentration greater than 5 mg/L and greater than or equal to 6.5 mg/L is 47,172,000 m^3 and 44, 389,000 m^3. Under an SOD of -0.250 g $O_2/m^2/d$, the volume of Kennady Lake that is predicted to have a DO concentration greater than 5 mg/L and greater than or equal to 6.5 mg/L increases by approximately 9% and 11% compared to the post-closure base run. Under an SOD of -0.500 g$O_2/m^2/d$, the volume of Kennady Lake that is predicted to have a DO concentration greater than 5 mg/L and greater than or equal to 6.5 mg/L decreases by approximately 13% and 36% compared to the post-closure base run.

8.V.4 MODEL UNCERTAINTY

When modelling environmental systems, events, inputs, and processes that control the behaviour of complex systems are not known with complete certainty. Vicens et al. (1975) divide uncertainty in environmental systems into two main categories: structural and data-related. Structural uncertainty refers to the possibility that the method or model used to simulate the system may not be adequate. Data-related uncertainty refers to the input variables that drive model behaviour and output.

Structural uncertainty is described in Section 8.V.4.1. Data-related uncertainties are described in Section 8.V.4.2 and a summary is provided in Section 8.V.4.3.

8.V.4.1 STRUCTURAL UNCERTAINTY

For this assessment, it was assumed that structural uncertainty was negligible, since the water quality model software, GEMSS, has been tested and reviewed for several projects, and was demonstrated to be structurally sound.

8.V.4.2 DATA-RELATED UNCERTAINTY

8.V.4.2.1 Total Dissolved Solids and Nutrients

Data-related uncertainty in total dissolved solids (TDS) and nutrient concentrations was high for the following reasons:

- the dataset used for the calibration time period lacked complete temporal coverage; and
- both inflow and in-lake TDS and nutrient concentrations were near or below detection limits.

As discussed in Section 8.V.2.5, because the dataset used for calibration was discontinuous, the calibration focused on the periods of 2004 and 2011 where data were available. A dataset with the majority of values below detection limits is of limited value in model calibration. As discussed in Section 8.V.2.5.3, uncertainty in TDS and nutrient concentrations was accounted for during calibration of the model by applying rates and coefficients from the calibrated Snap Lake model. Despite uncertainty in TDS and nutrient concentrations, the calibrated model was able to predict dissolved oxygen (DO) and phytoplankton concentrations in Kennady Lake reasonably well.

8.V.4.2.2 Oxygen-related Constituents

Data-related uncertainty in sediment oxygen demand (SOD) during the calibration time period was low. As discussed in Section 8.V.2.5.2, an SOD value of -0.25 g $O_2/m^2/d$ was found to be appropriate for simulating DO, especially under ice.

Data-related uncertainty in SOD during the post-closure time period was high for the following reasons:

- In post-closure, Kennady Lake is predicted to become more productive due to mine related inputs and biological growth that may occur during operations. The SOD is the movement of oxygen from the water column into the bottom sediment and consists of microbial and macrobenthic respiration and oxidation of reduced solids (Matisoff and Neeson 2005). Therefore, because Kennady Lake is predicted to be more productive in post-closure, SOD in post-closure is expected to be greater than SOD during calibration.
- Oxygen depletion rates during ice-covered seasons are affected by a number of factors including the depth of the waterbody (White et al. 2008). In post-closure, SOD may be expected to vary in Kennady Lake with higher SOD rates expected in shallower areas of the lake.
- Although the Tuzo and Hearne pits will have bottom elevations of approximately 121 and 229 m in post-closure, the pits were modelled to an elevation of 380 m to keep simulation times manageable, and the SOD rate was conservatively applied at this elevation. By applying the SOD at an elevation of 380 m, the SOD is expected to have a larger effect on DO concentrations in Kennady Lake than it would have if the SOD was applied at 121 and 229 m elevations (i.e., the model is expected to under-predict DO in a region of the pits near 380 m).

As discussed in Section 8.V.2.6, to account for uncertainty in SOD in post-closure, SOD was increased by 50% and a sensitivity analysis was completed by varying the SOD value up to twice the pre-development value and analyzing the response of DO concentrations to that change.

8.V.4.2.3 Meteorological Inputs

Data-related uncertainty in meteorological inputs was moderate because meteorological inputs to the model were obtained from a meteorological station at Snap Lake, NWT. The Snap Lake station is located within the region, but is not close enough to be considered site-specific. As discussed in Section 8.V.2.5.1, difficulties during thermal calibration are often associated with

obtaining meteorological data from a weather station that is located in different terrain or at large distances from the waterbody that one intends to model. However, the calibrated model simulated water temperatures well enough, especially during the ice-covered season, to account for key processes that affect oxygen concentrations in Kennady Lake.

8.V.4.2.4 Post-closure Model Performance

As discussed in Section 8.V.2.6, future model performance under the present calibration is uncertain for the following reason:

- Conditions in Kennady Lake during the post-closure time period are anticipated to be different than conditions in the lake during the calibration time period due to mine related inputs and biological growth that may occur during operations. Therefore, the calibrated model coefficients may need to be modified for the post-closure time period.

To account for uncertainty in the future model performance under the present calibration, a sensitivity analysis was completed on model rates and coefficients that could directly or indirectly affect DO and phytoplankton concentrations (Section 8.V.2.6). The sensitivity analysis indicated that most changes to most model rates and coefficients would change the volume of Kennady Lake above DO thresholds by less than 2%.

8.V.4.2.5 Ice Formation and Melting

Data-related uncertainty with respect to ice formation and melting involves the following:

- The length of the ice-covered season. In the model, ice forms on the lake from mid October to January of each year and ice melts from mid March to mid June of each year. Therefore, the length of the ice-covered season is eight months.
- The thickness of the ice. In the model, Kennady Lake is completely covered by ice with a thickness of 1.4 m.

As discussed in Section 8.V.2.3.2, ice forming and melting dates and volumes were derived from observed ice measurements at Snap Lake, NWT. Therefore, the length of the ice-covered season and the thickness of the ice should be reasonably close to true values.

8.V.4.3 SUMMARY

The calibrated Kennady Lake model predicts future DO concentrations in Kennady Lake reasonably well. The calibrated model was able to accurately predict DO concentrations during the calibration time period with the exception of observed DO concentrations that were well above the saturation point. Many of the rates and coefficients from the calibrated Snap Lake model were applied to the Kennady Lake model calibration. The Snap Lake mine has been in operation for several years and has a much more robust dataset. A sensitivity analysis was completed to evaluate the effects of changes to key variables and address uncertainties in SOD. The SOD is predicted to have the largest effect on DO concentrations in Kennady Lake in post-closure. Overall, considering the data-related uncertainties and the performance of the pre-development calibration, the confidence in predicting future DO concentrations in Kennady Lake is assessed as moderate.

Recommendations to improve future modelling and reduce uncertainties are provided in Section 8.V.5.

8.V.5 RECOMMENDATIONS

The modelling relied on a wide array of monitoring data, including hydrologic, water quality and meteorological inputs. The following recommendations are provided to improve future modelling and reduce uncertainties in predicting future DO concentrations in Kennady Lake:

- Monitoring of water quality parameters including total dissolved solids (TDS), temperature, dissolved oxygen (DO), chlorophyll *a* and nutrients should continue during both open-water and ice-covered seasons to create a more continuous baseline dataset. Monitoring locations should include tributary inflows to Kennady Lake and established in-lake sampling stations.
- Four variables that could be added to routine monitoring include biochemical oxygen demand (BOD), sediment oxygen demand (SOD), ice thickness and snowpack depth. Uptake of DO by heterotrophic respiration is a key component of DO modelling. The BOD is a measure of the potential oxygen consumed during heterotrophic respiration. The SOD is a key driver of DO concentrations, especially during ice-covered seasons. The SOD may change with time if biological growth increases; measuring this variable may lead to improved DO forecasting abilities. Ice thickness measurements could improve the calibration. Ice formation and melting dates together with ice thickness drive salt rejection and freshwater replacement, which in turn affect stratification and overall concentrations of all constituents. Snowpack depth measurements would help refine assumptions regarding photosynthesis in Kenady Lake during ice-covered seasons.
- A meteorological station should be deployed onsite and parameters including air temperature, dew point temperature, wet bulb temperature, atmospheric pressure, wind direction, wind speed and solar radiation should be monitored hourly to create a meteorological file that can be used as input for future modelling.

The following recommendations are provided to more accurately predict general post-closure water quality concentrations in Kennady Lake:

- Once the mine is in operation and producing waste, the Kennady Lake model should be updated. As discussed in Section 8.V.4.2.1, uncertainties exist with the current calibration because baseline TDS and nutrient concentrations in Kennady Lake are discontinuous and are near or below detection. Updating the model would increase confidence in future model predictions.
- Once the mine is closed, an evaluation of post-closure model predictions should be conducted and if necessary, the model should be updated.

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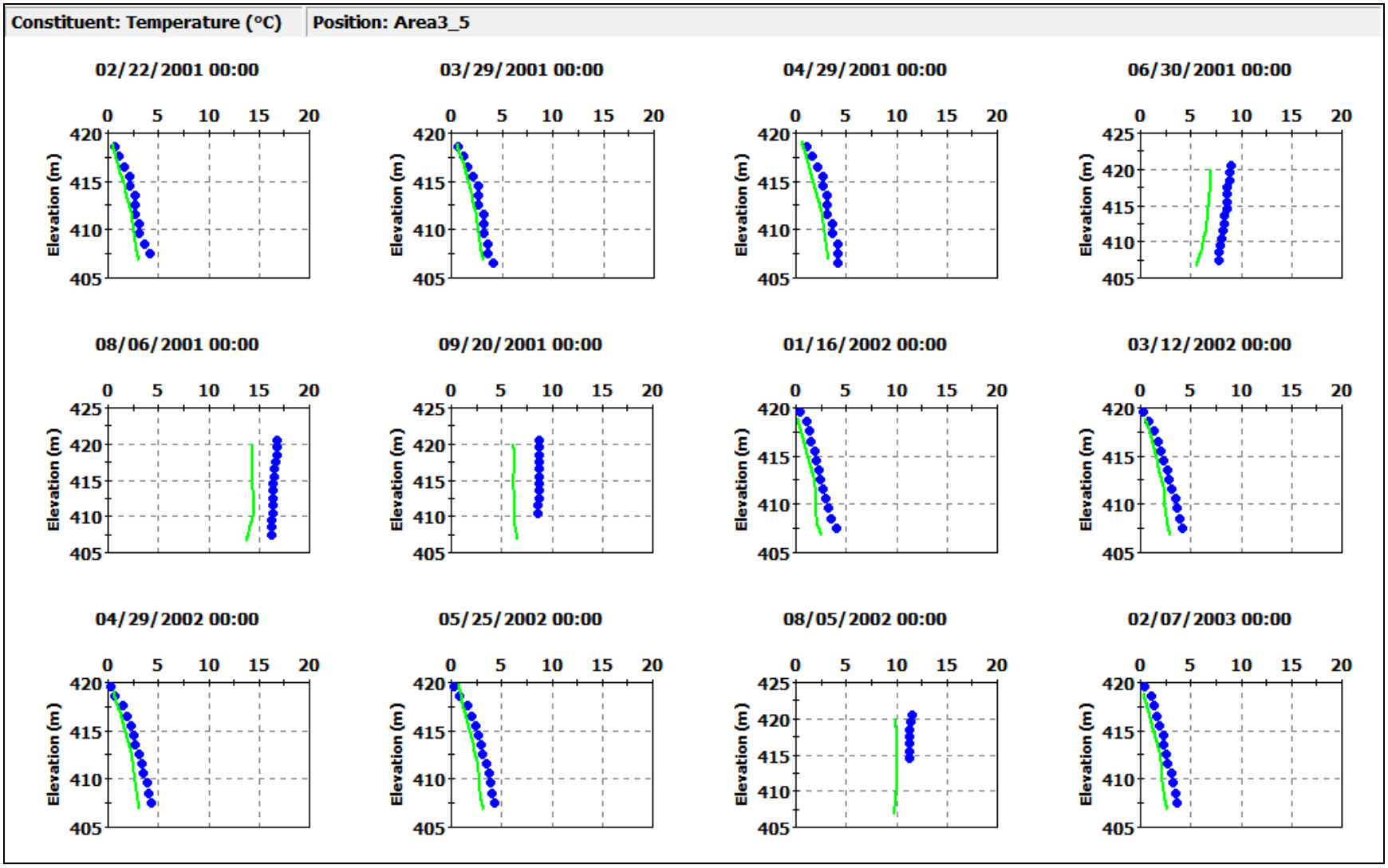
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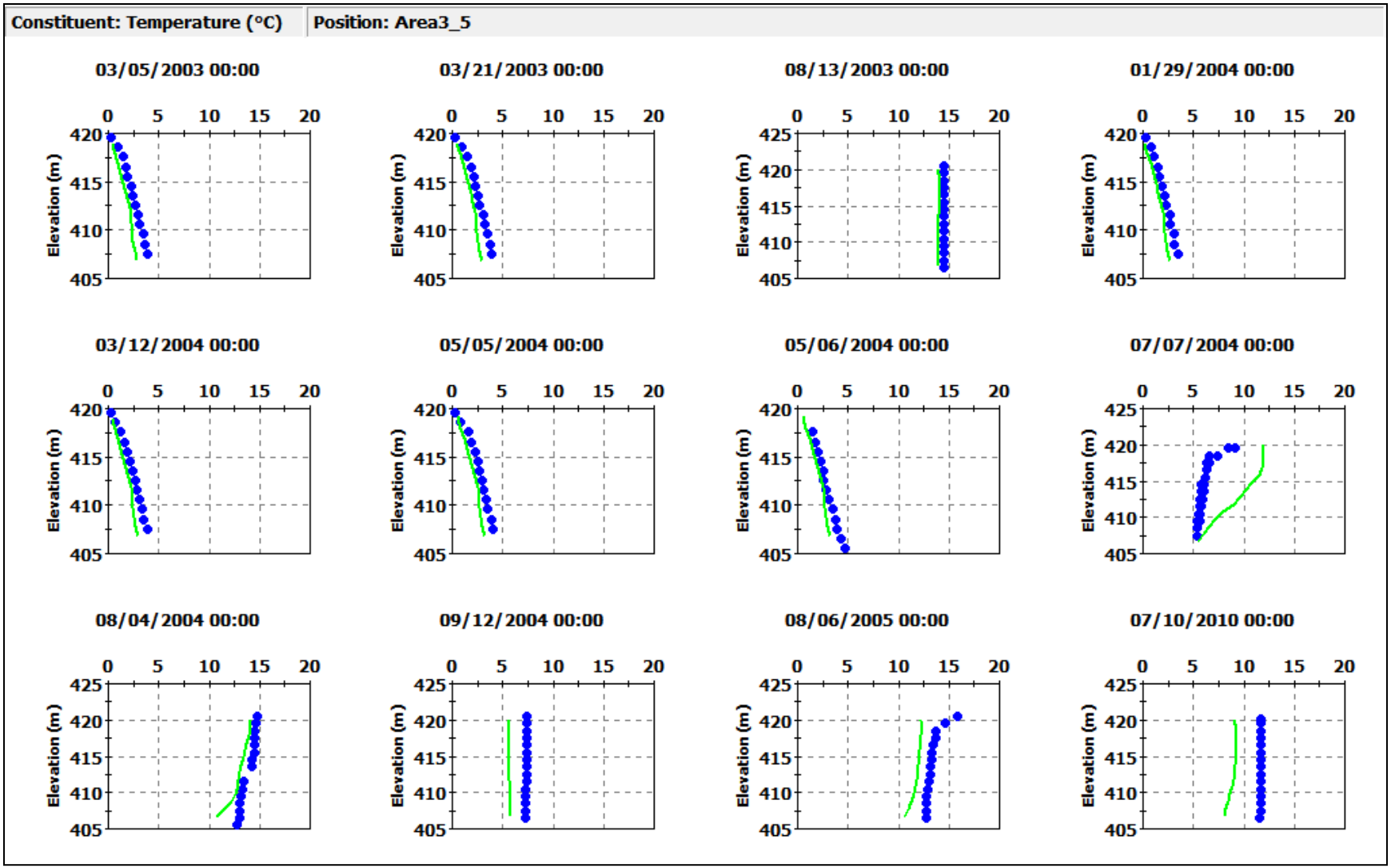
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ATTACHMENT 8.V.1

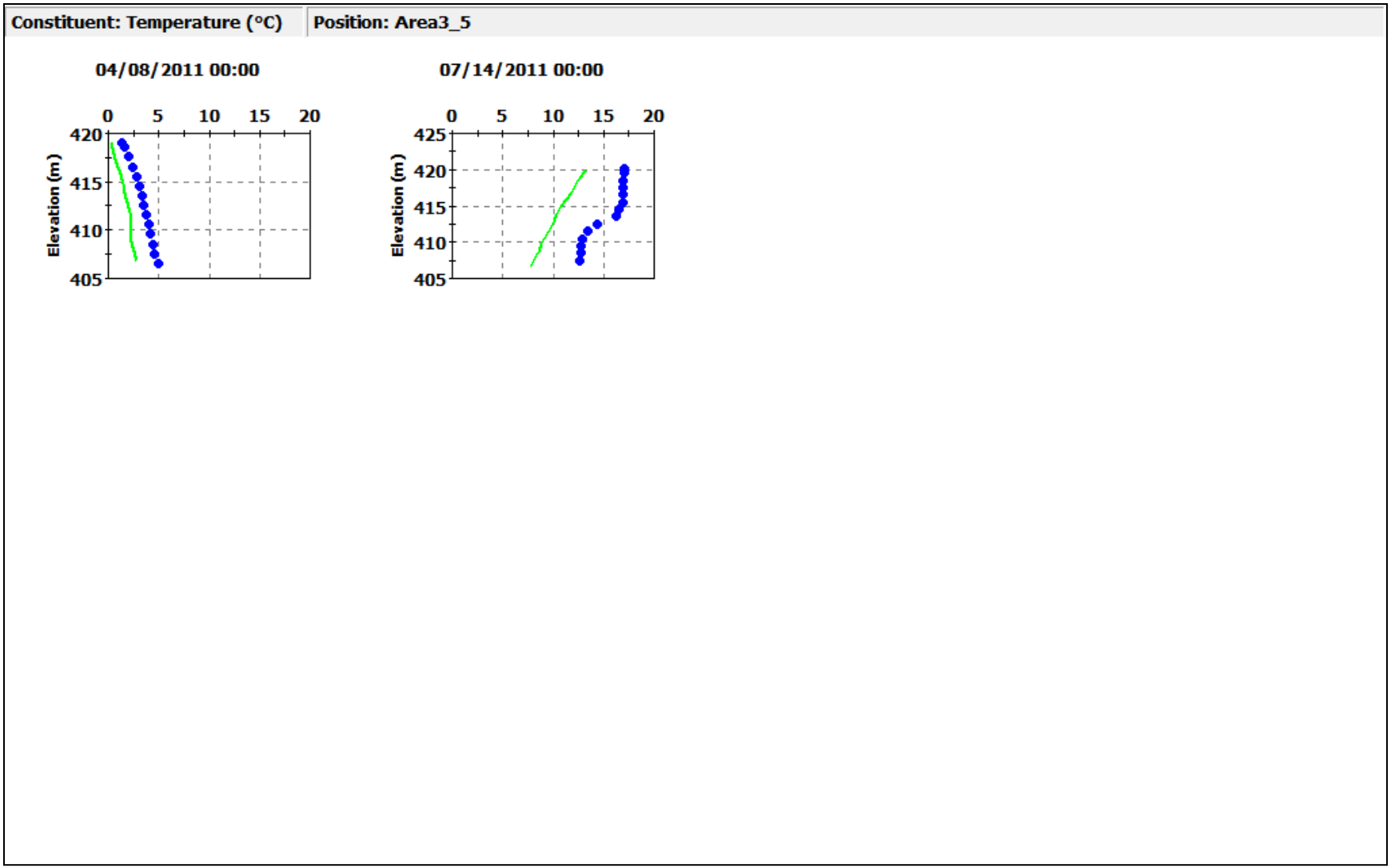
VERTICAL PROFILES OF TEMPERATURE, TOTAL DISSOLVED SOLIDS AND DISSOLVED OXYGEN FOR CALIBRATION



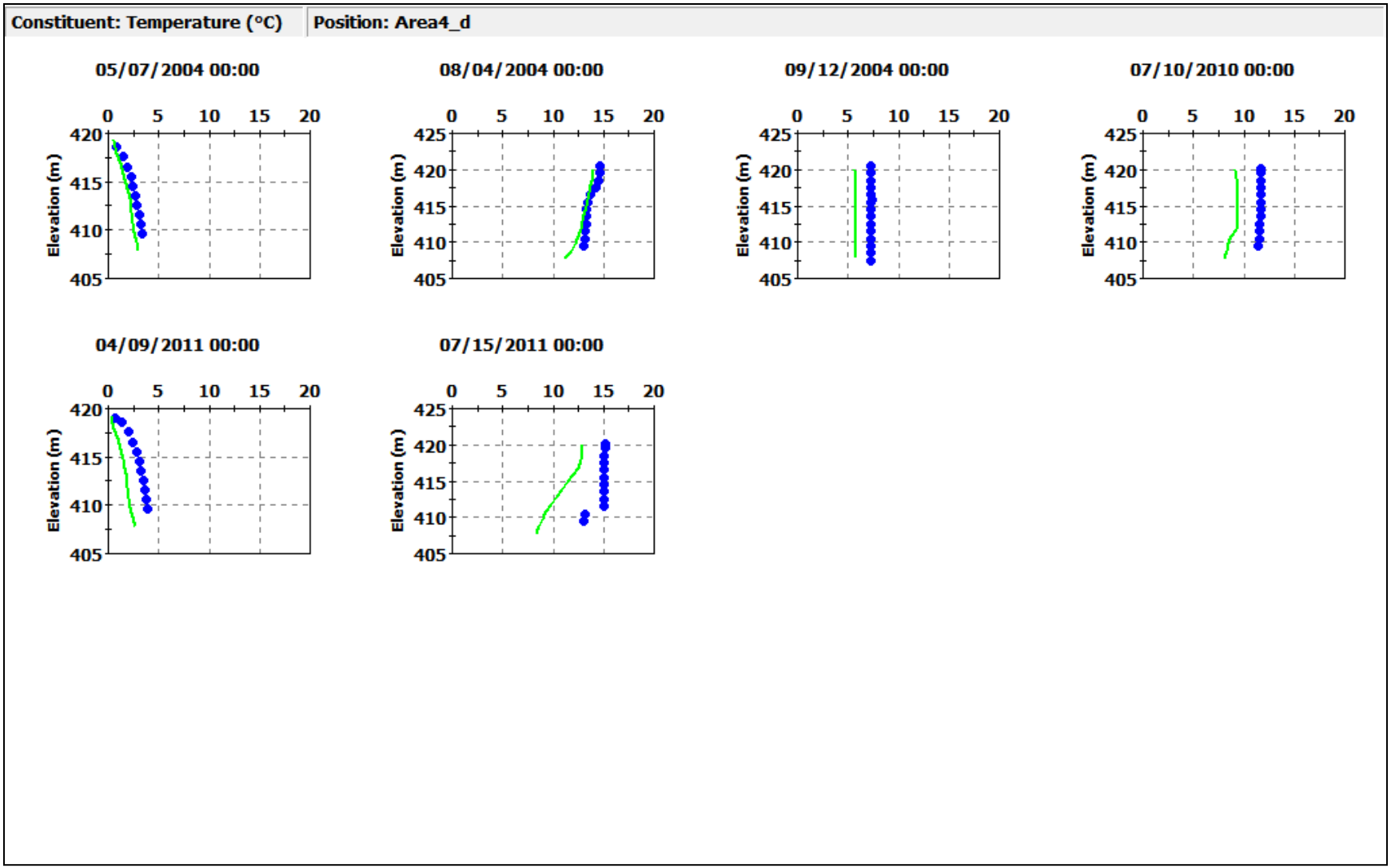
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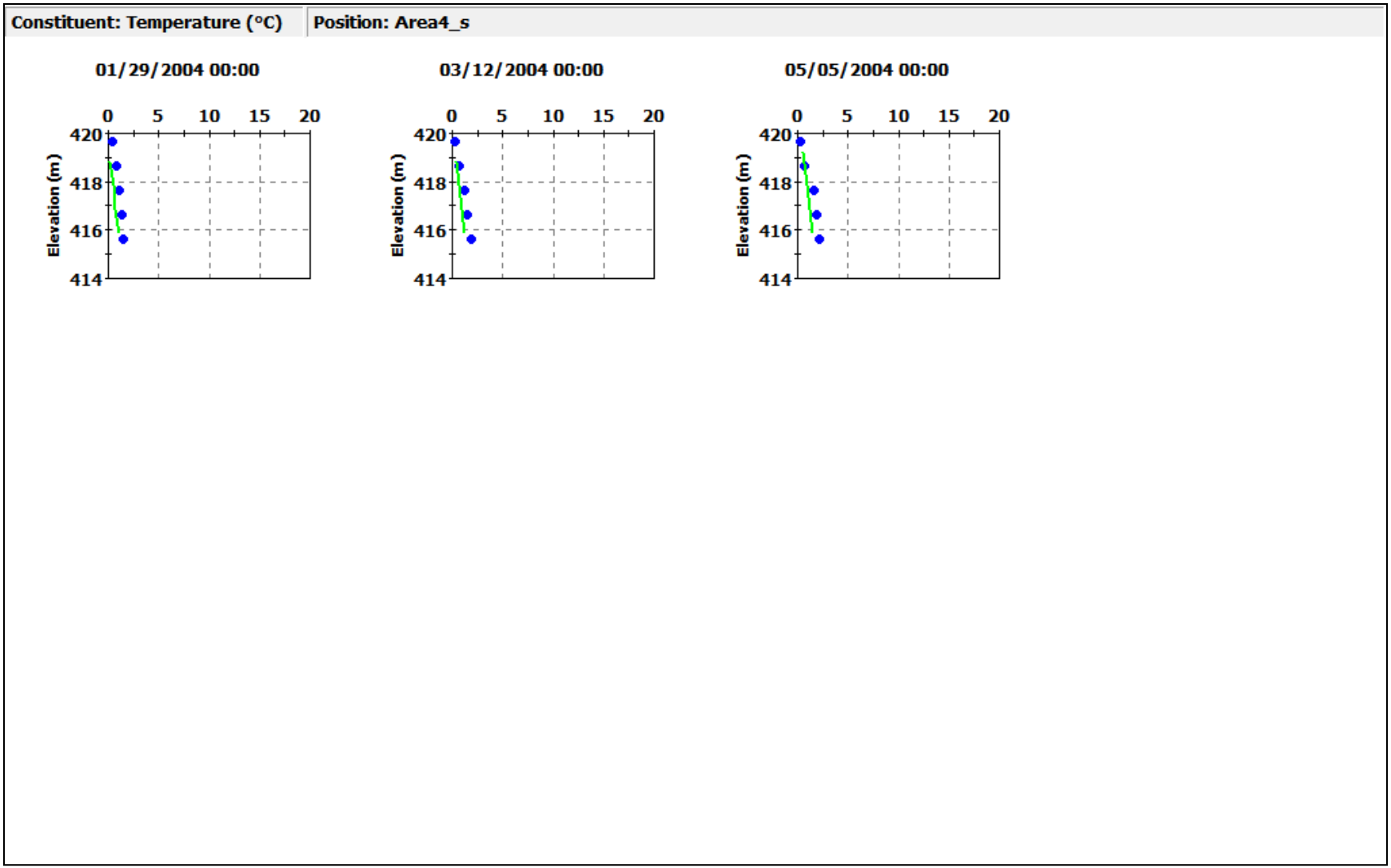
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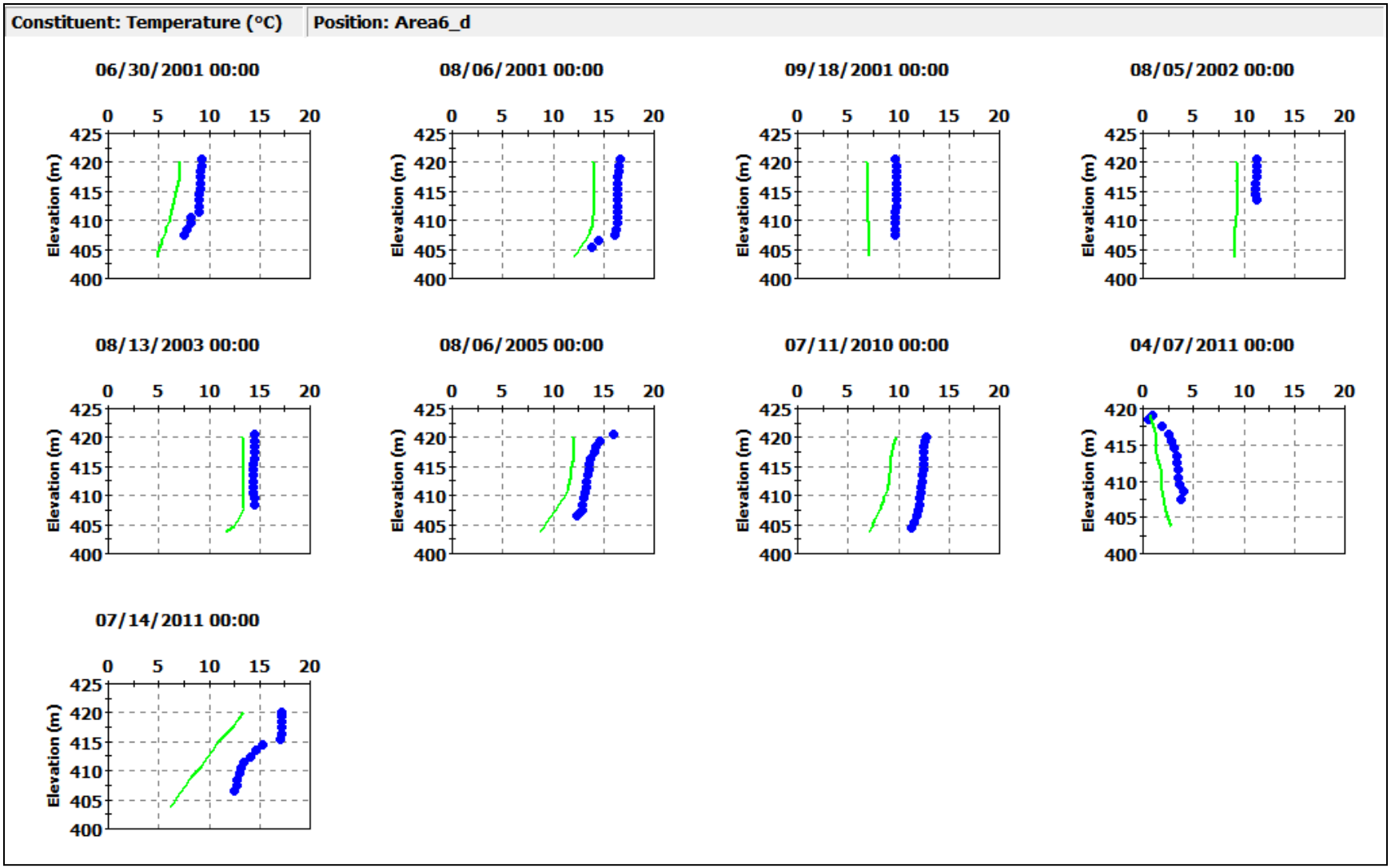
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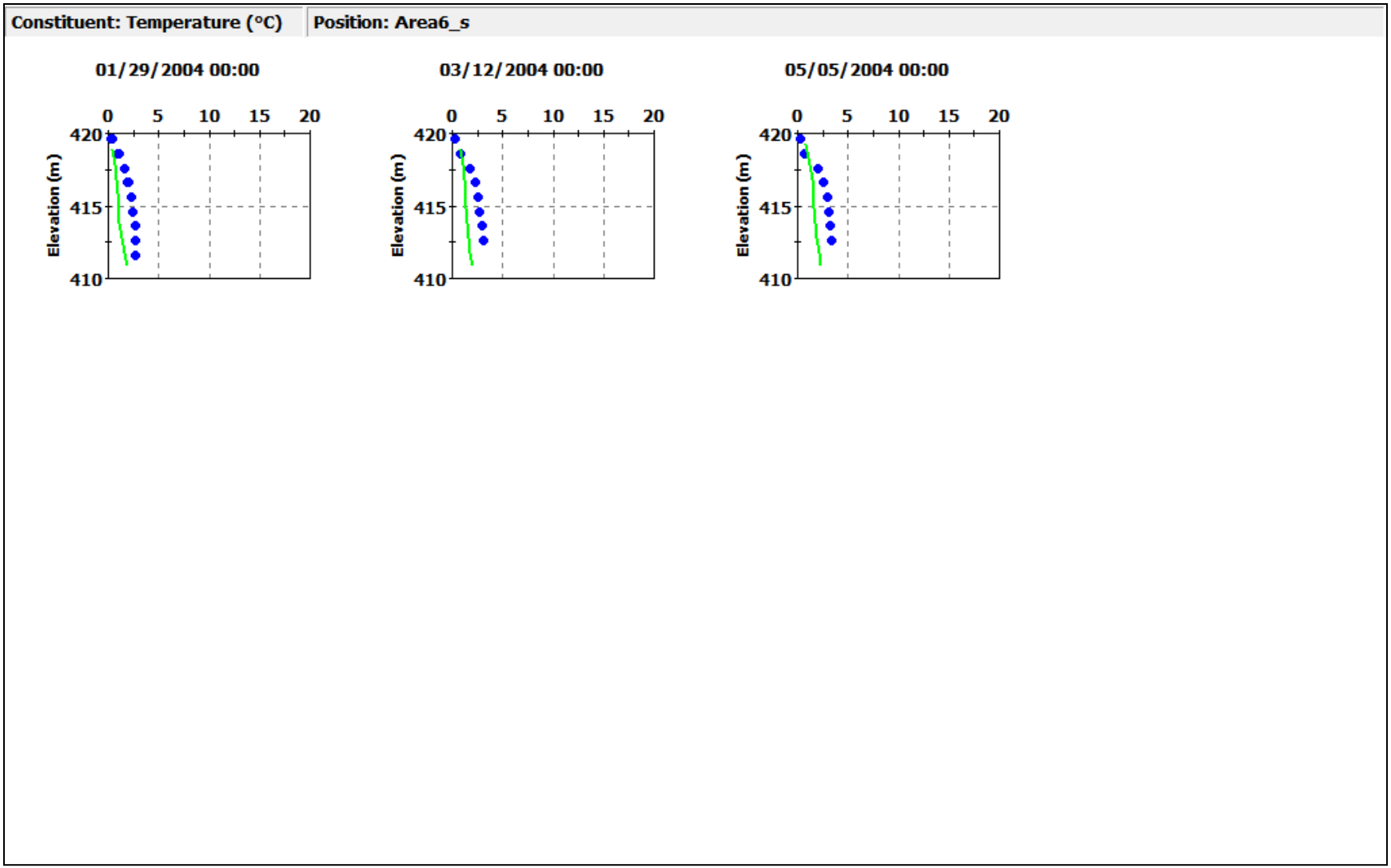
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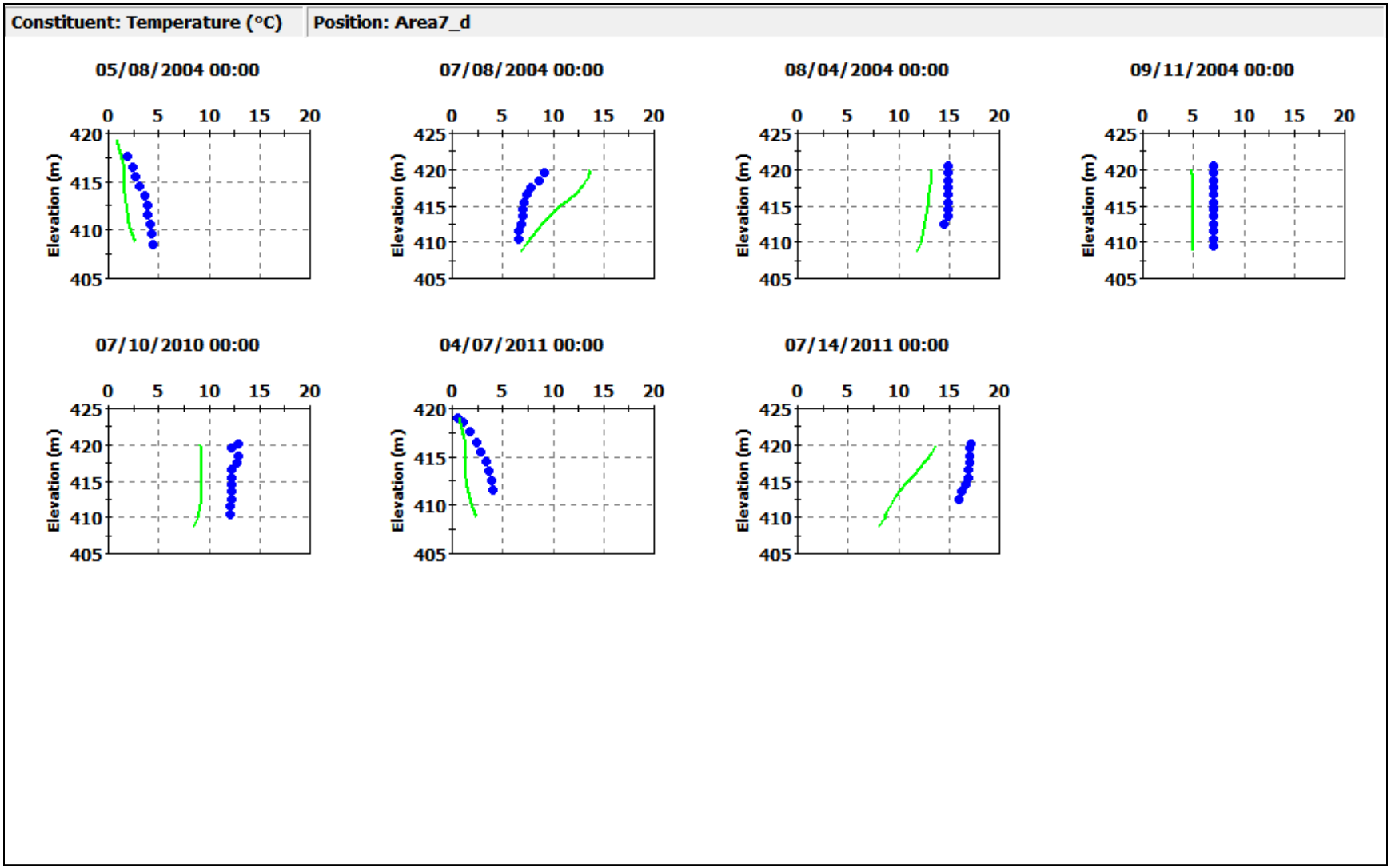
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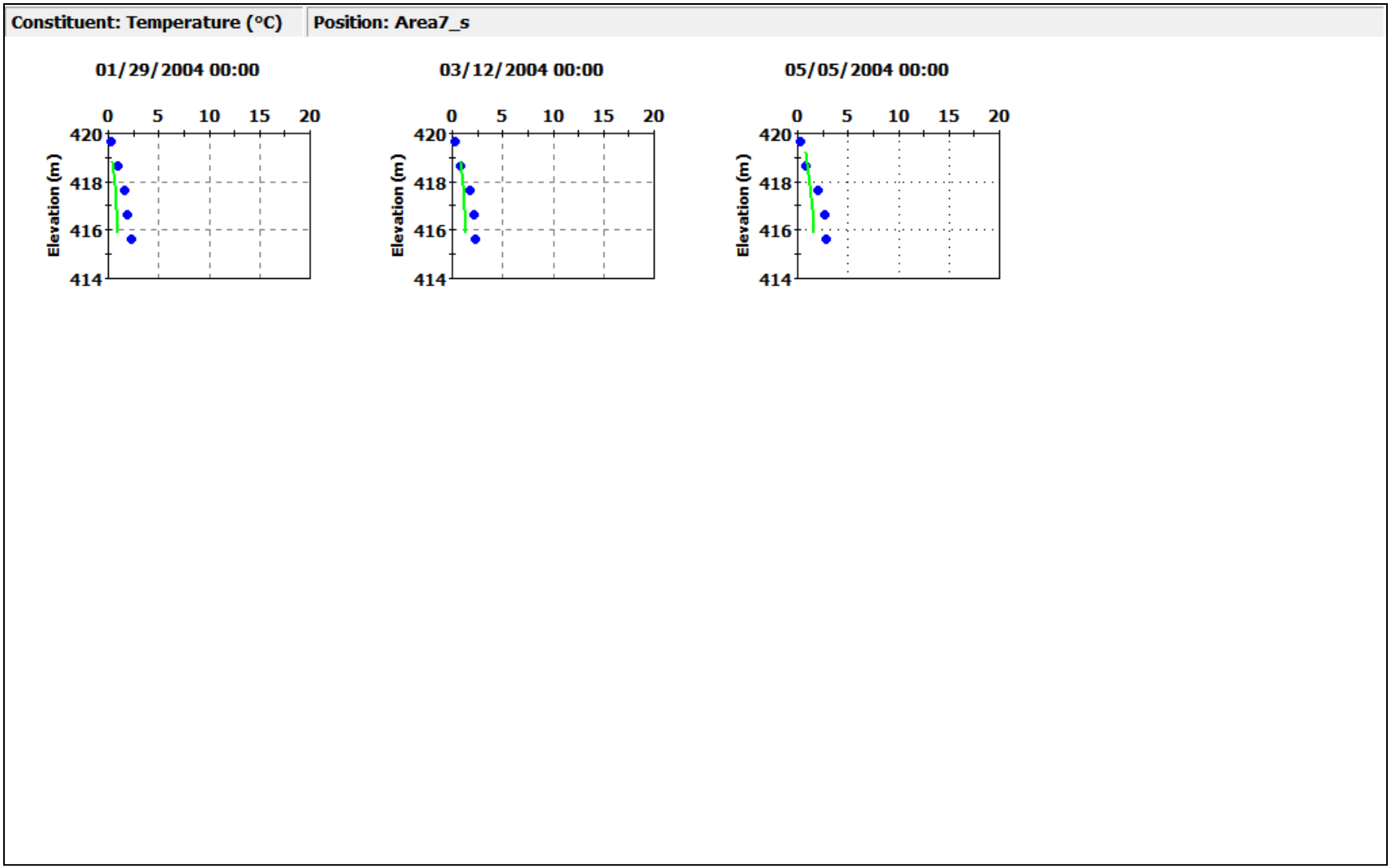
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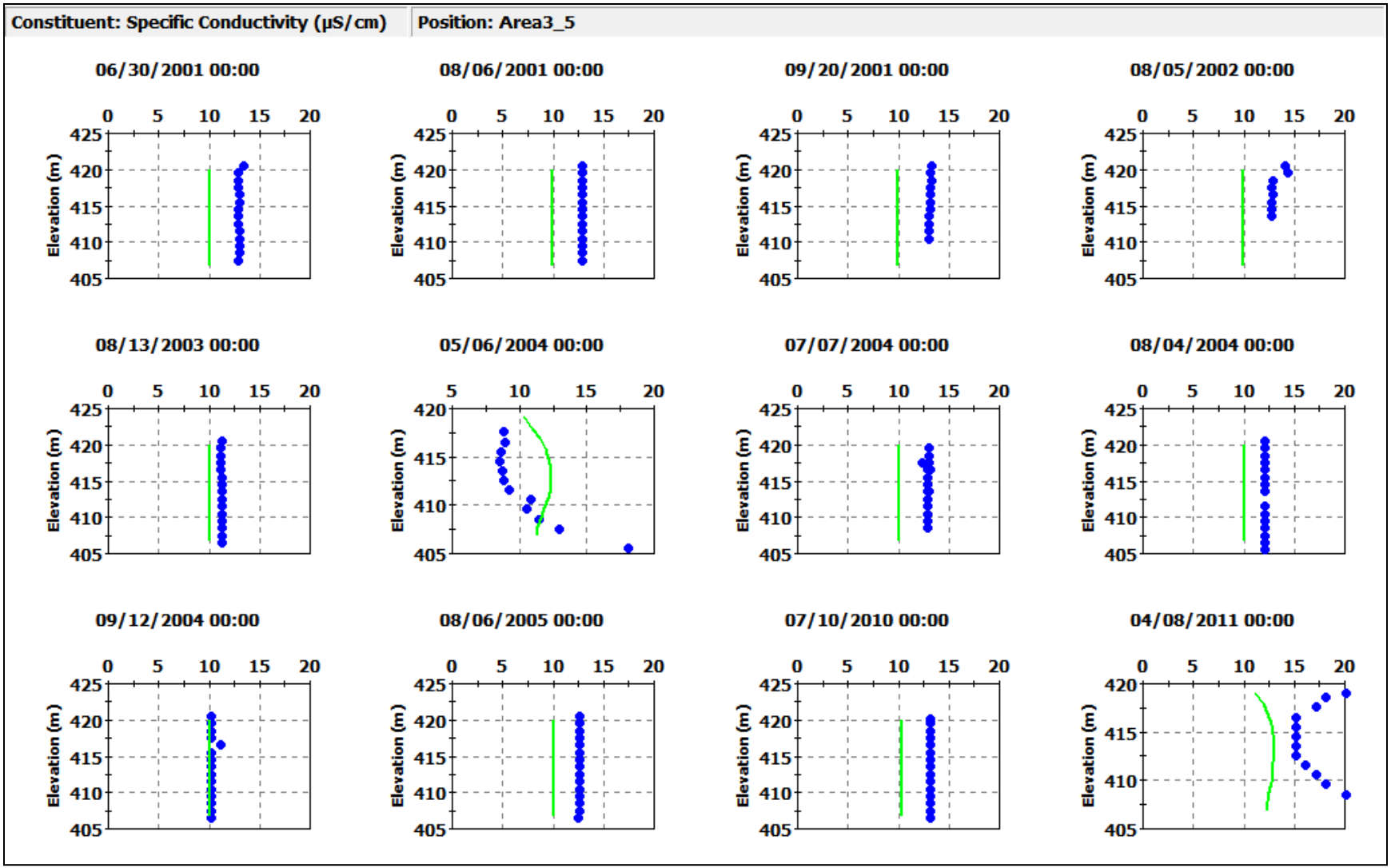
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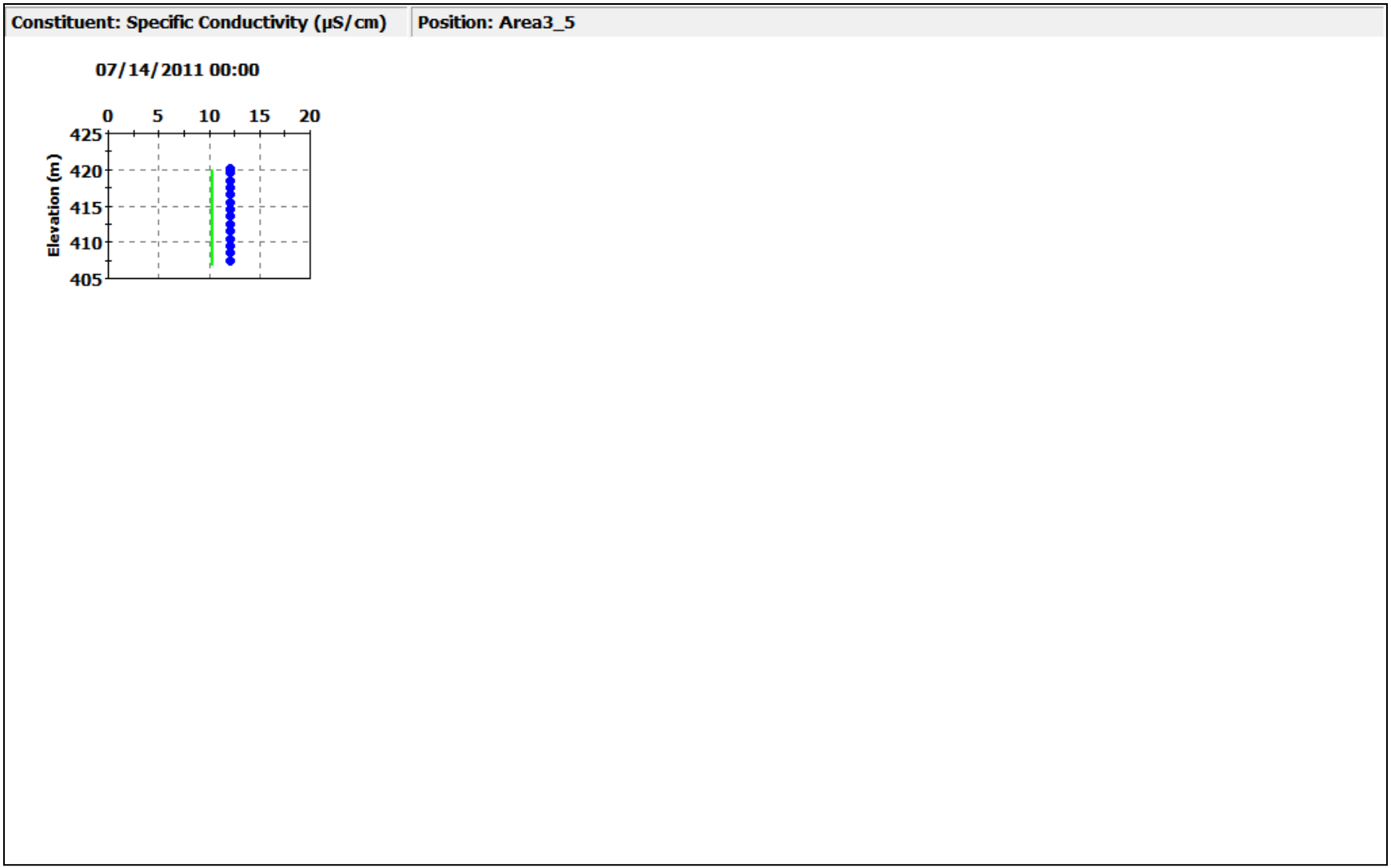
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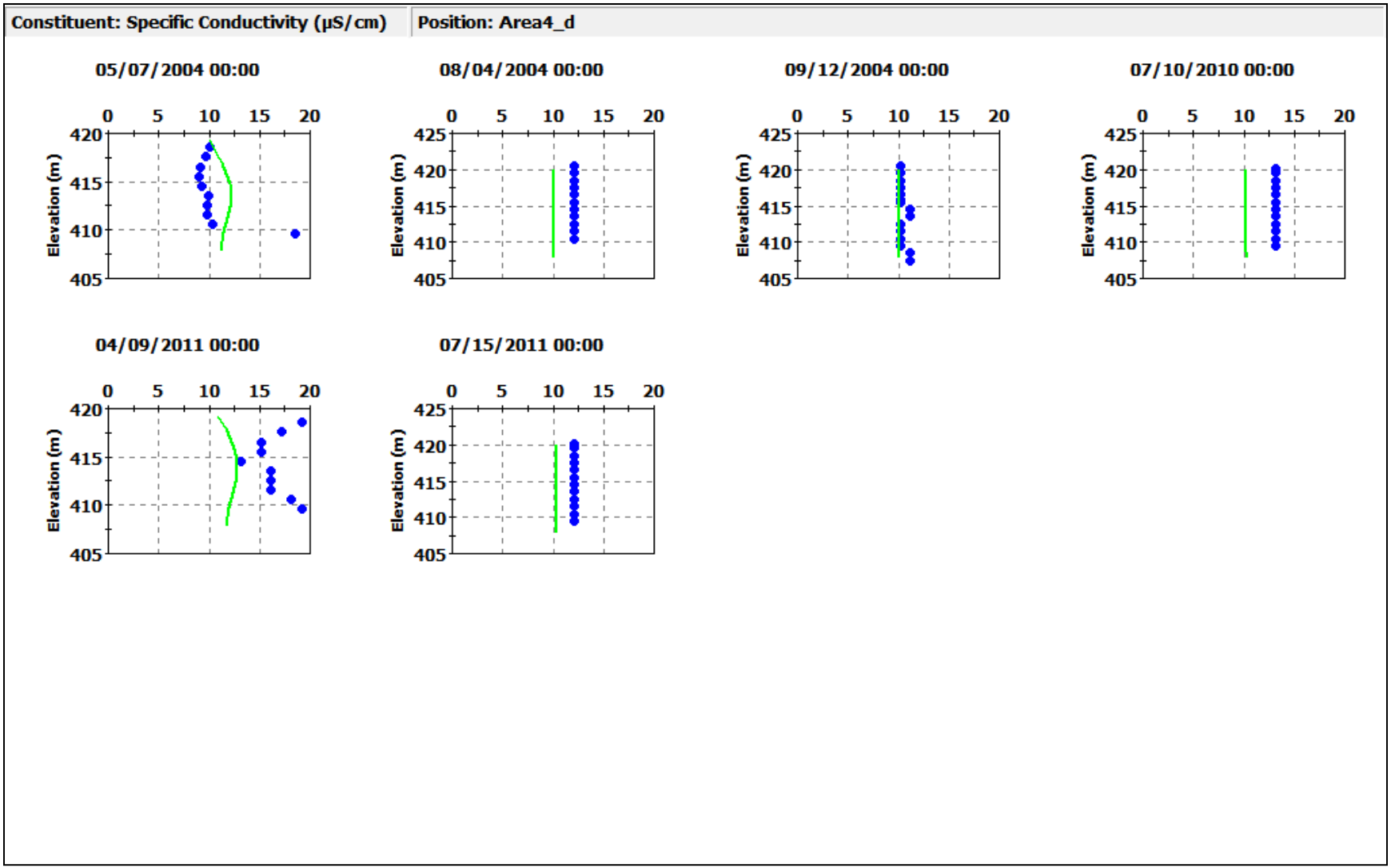
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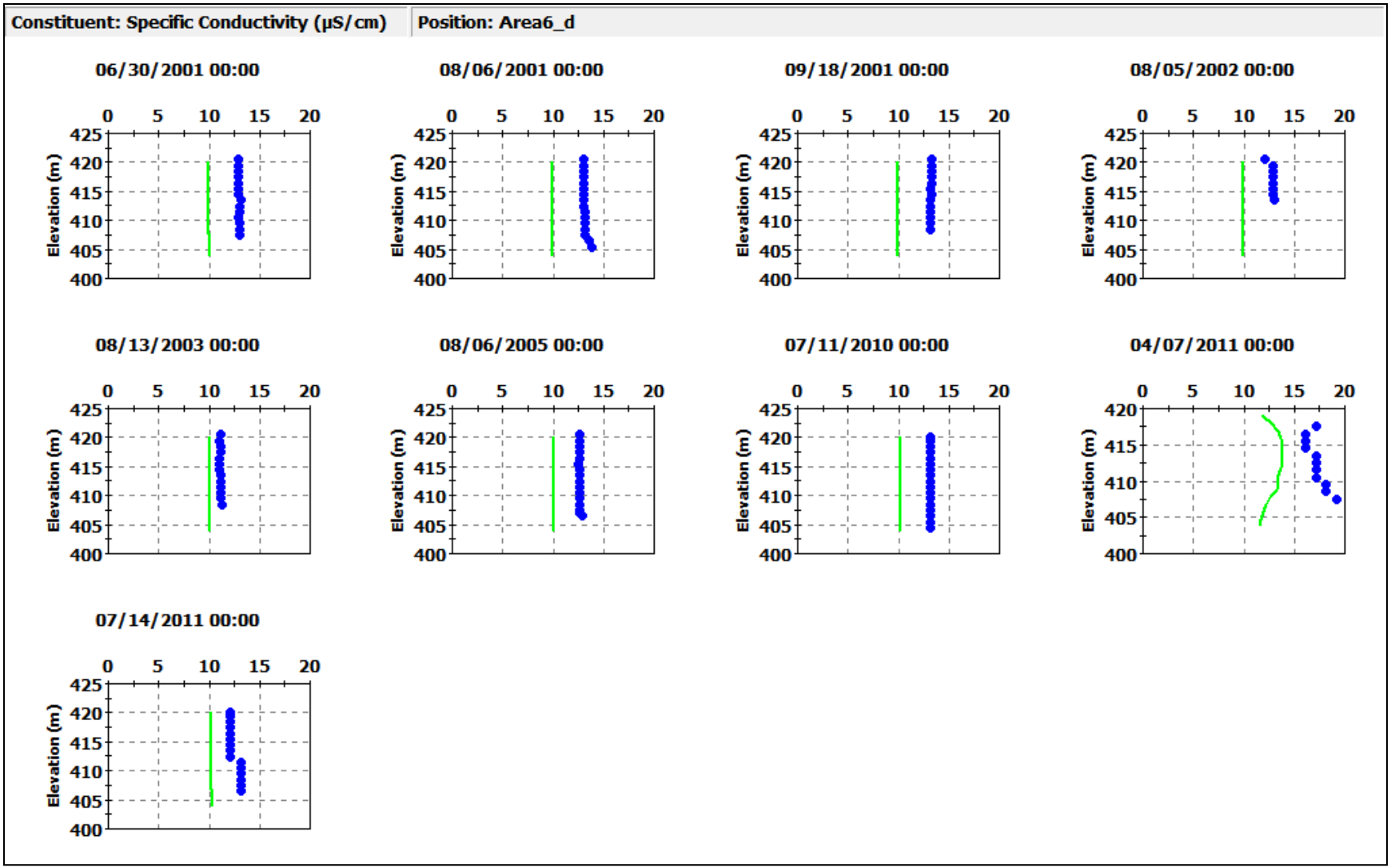
Note: Solid line represents model total dissolved solids predictions; dots represent measured specific conductivity data.
m = metre; µS = microsiemens; cm = centimetre.



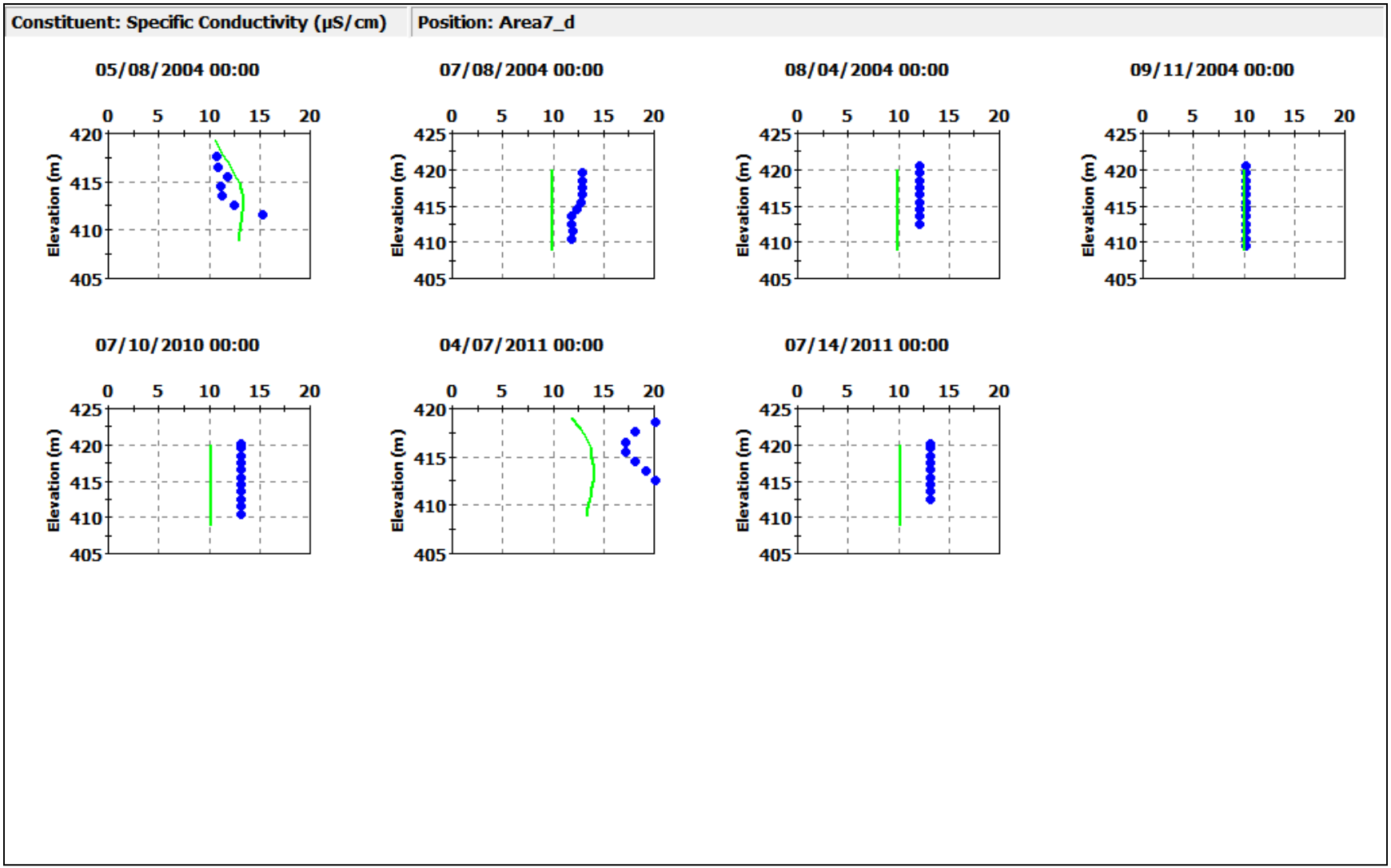
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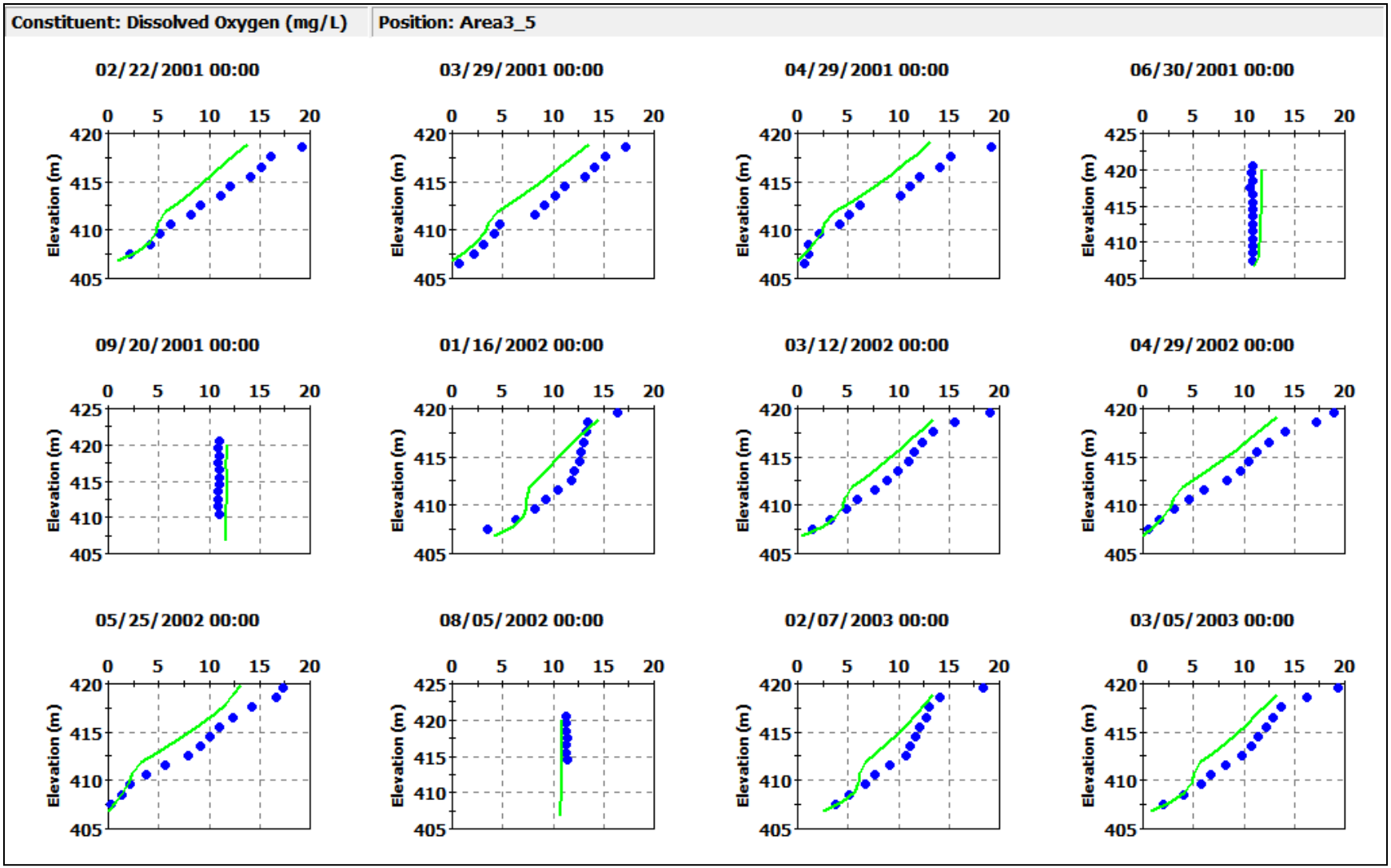
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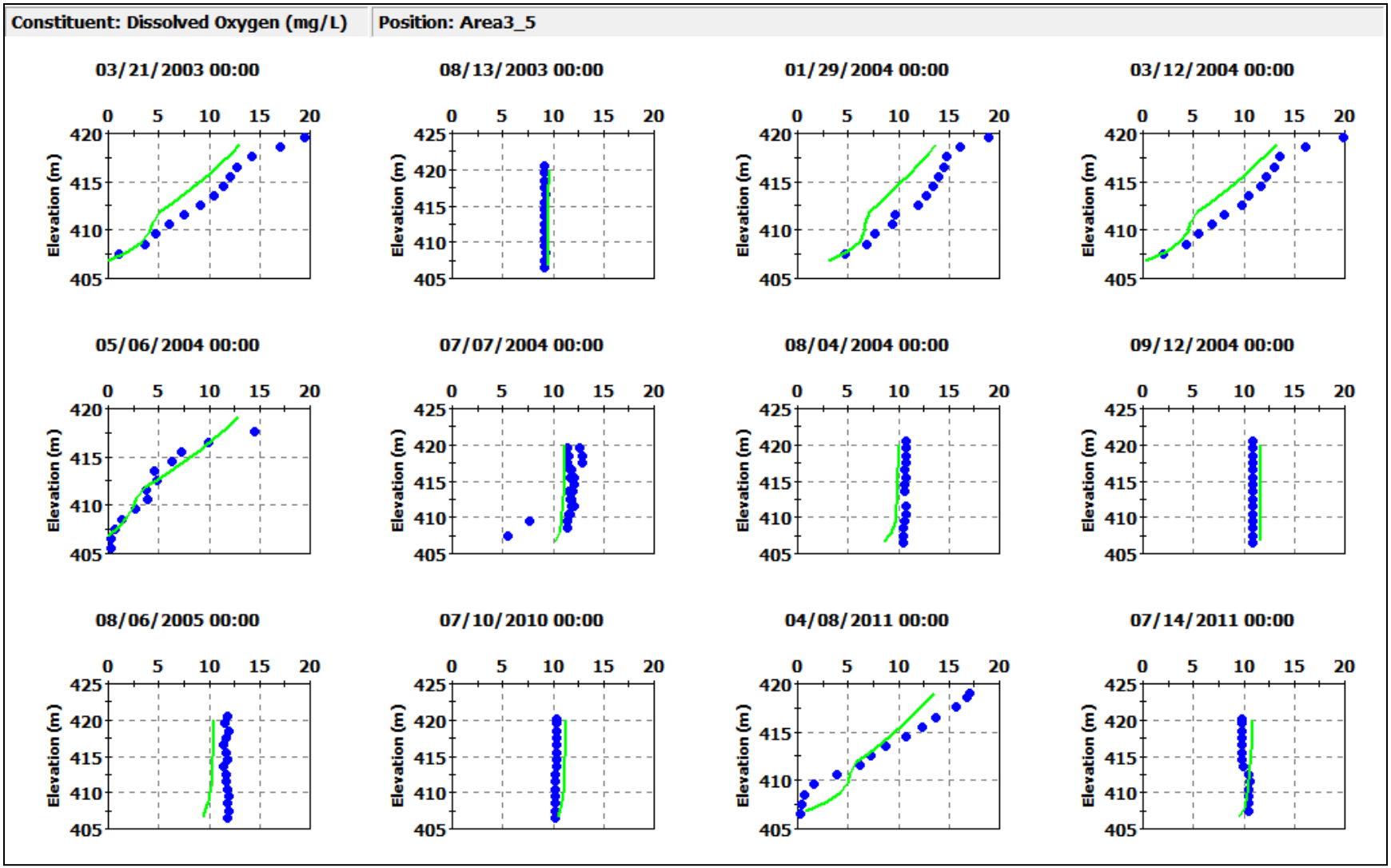
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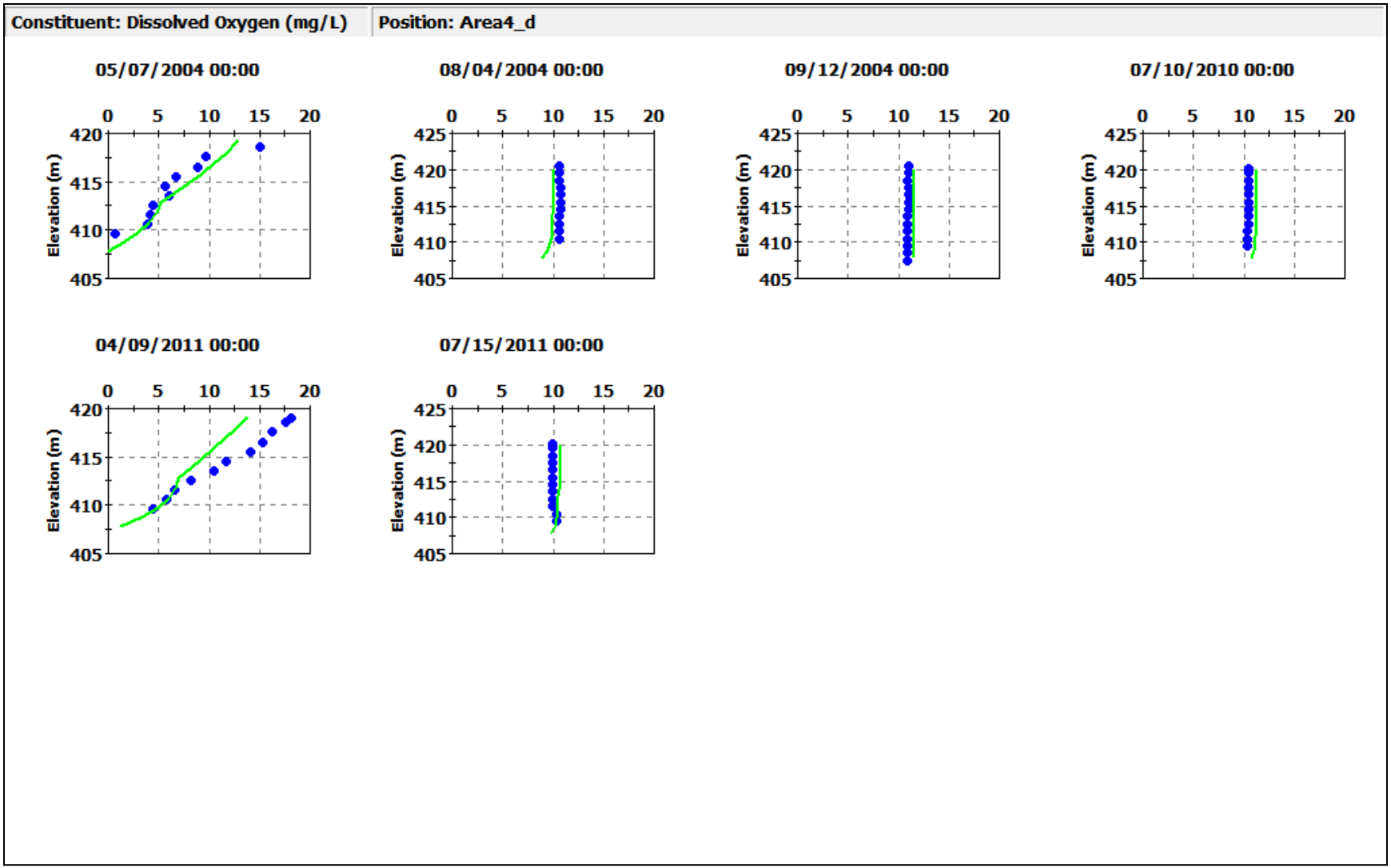
Note: Solid line represents model total dissolved solids predictions; dots represent measured specific conductivity data.
m = metre; µS = microsiemens; cm = centimetre.



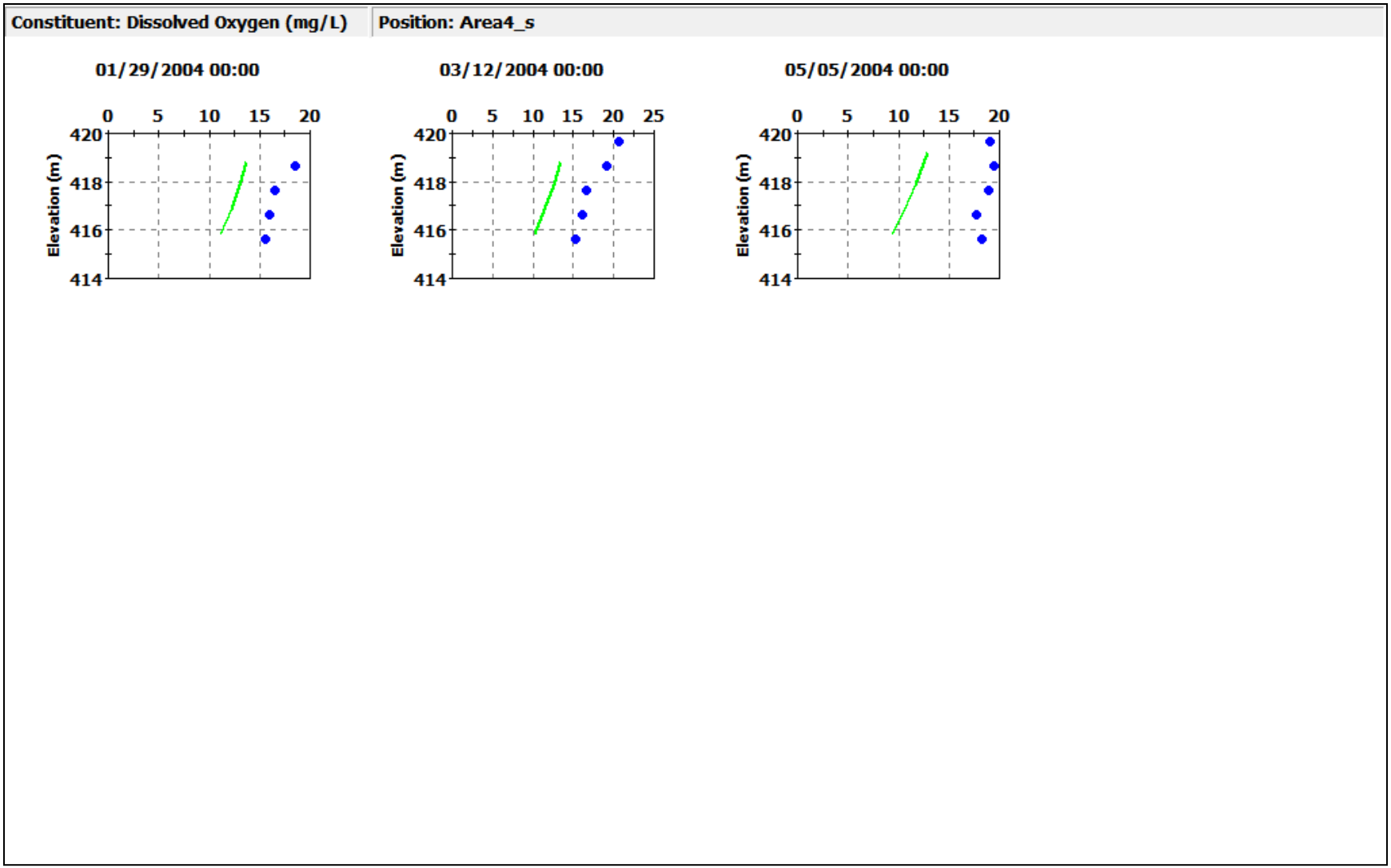
Note: Solid line represents model predictions; dots represent measured data.
m = metre; mg = milligrams; L = litre.



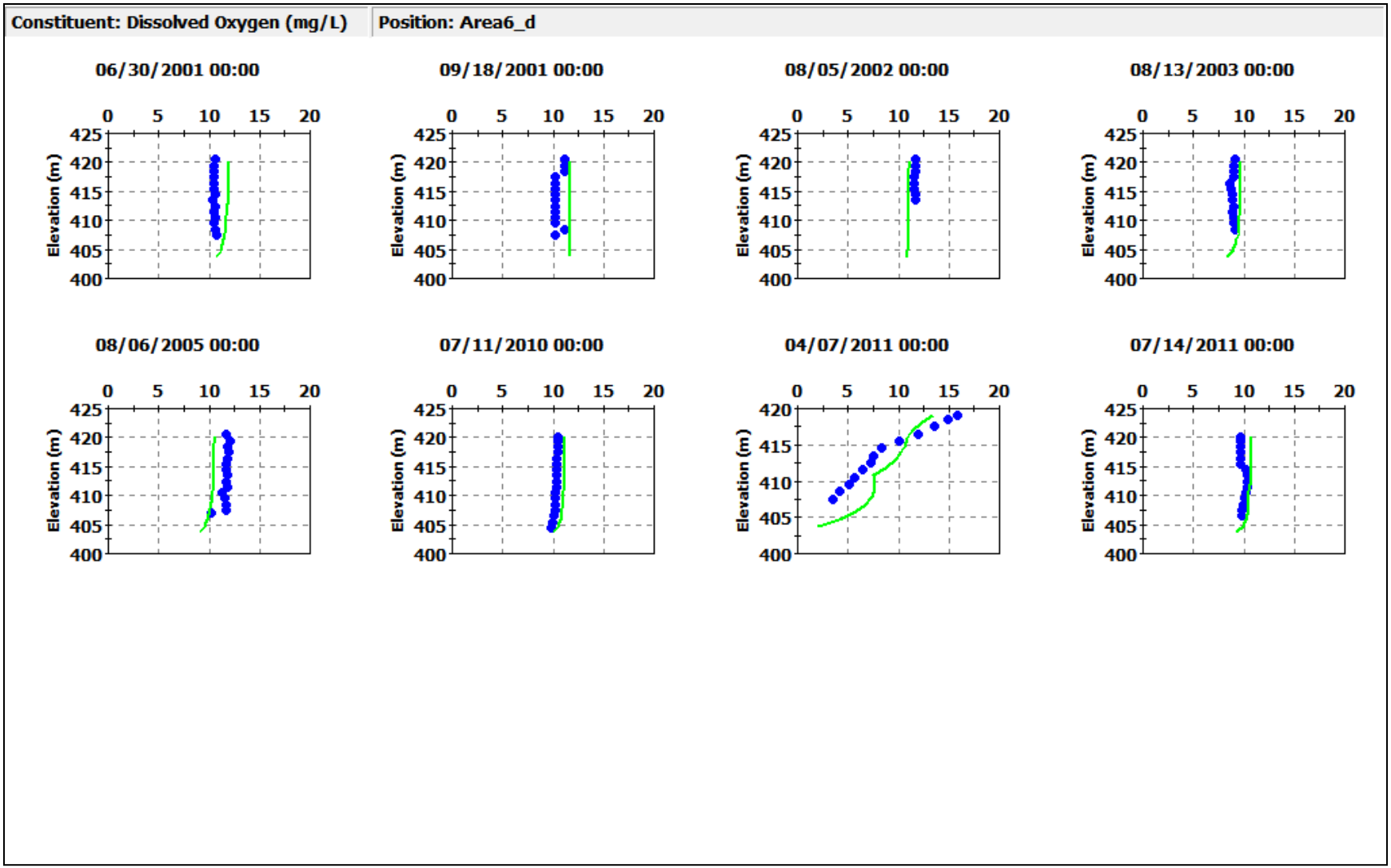
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m = metre; mg = milligrams; L = litre.



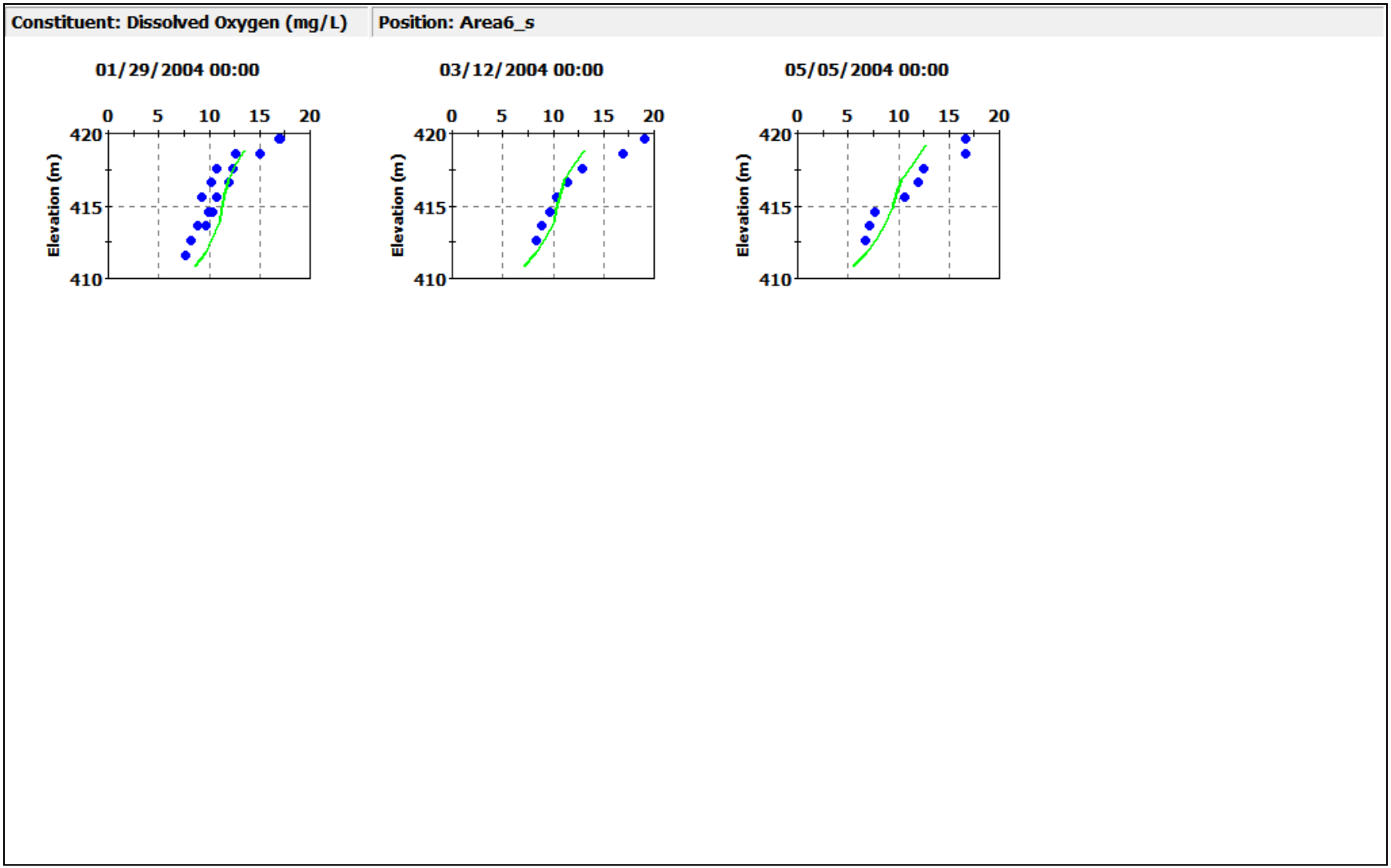
Note: Solid line represents model predictions; dots represent measured data.
m = metre; mg = milligrams; L = litre.



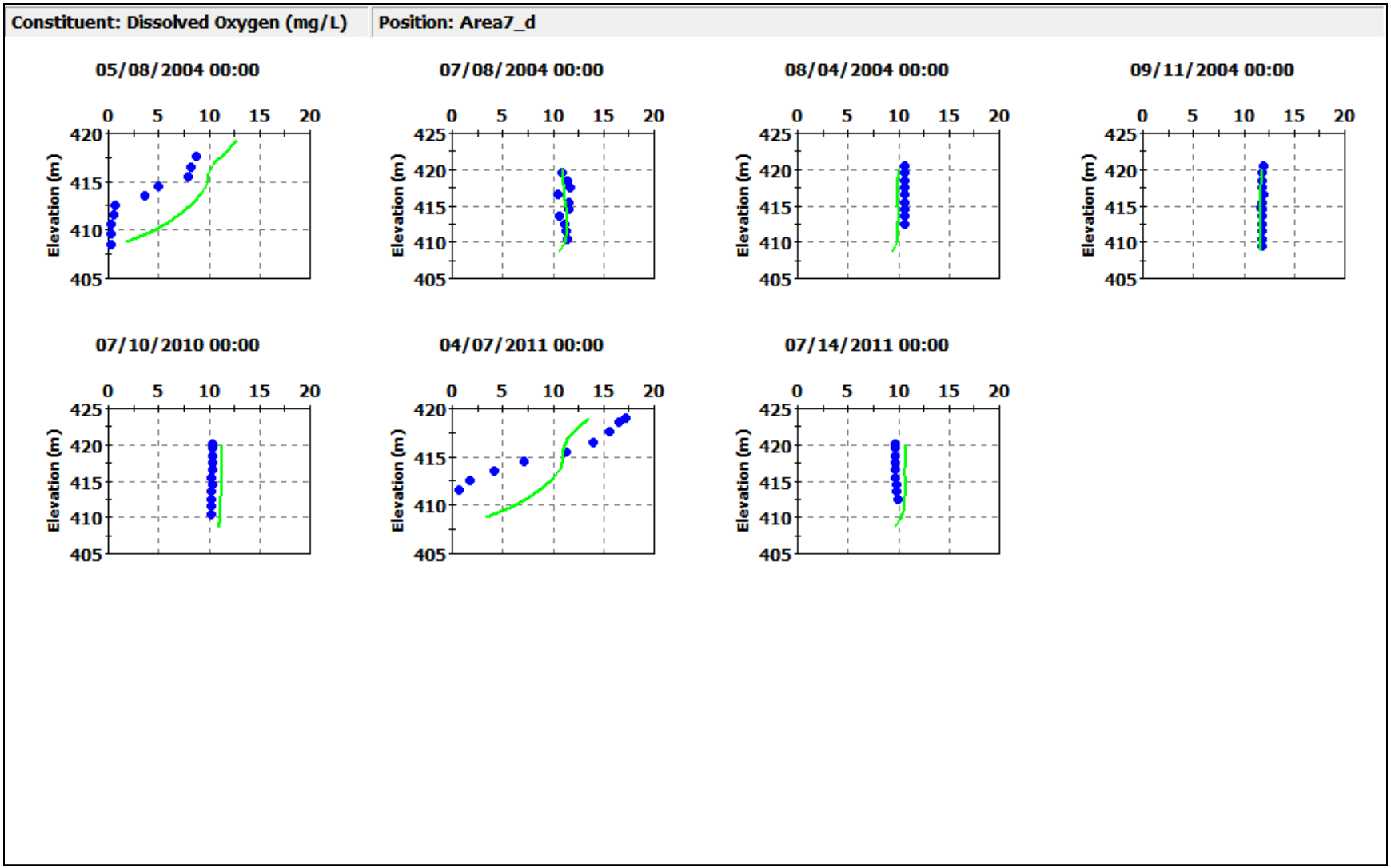
Note: Solid line represents model predictions; dots represent measured data.
m = metre; mg = milligrams; L = litre.



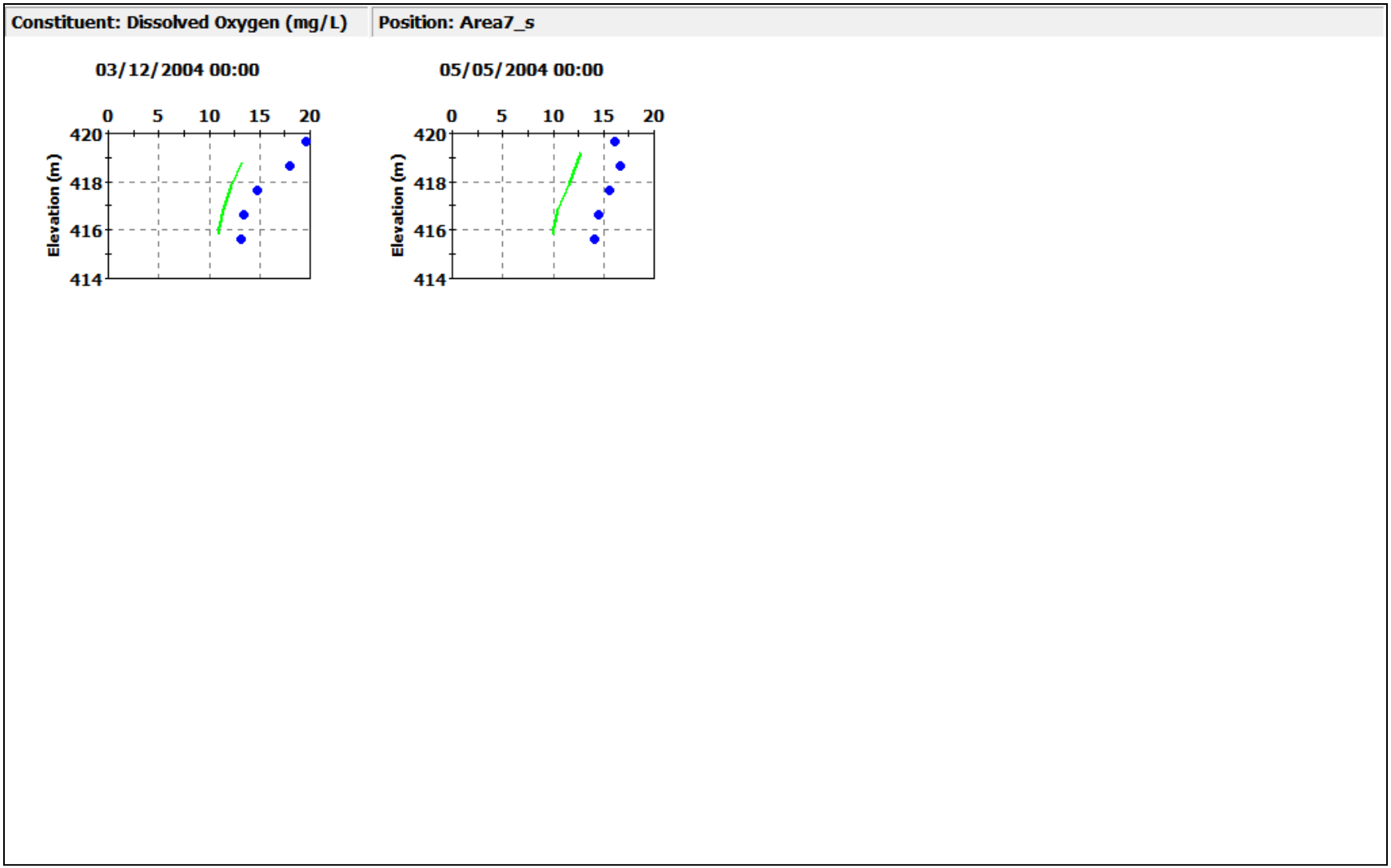
Note: Solid line represents model predictions; dots represent measured data.
m = metre; mg = milligrams; L = litre.



Note: Solid line represents model predictions; dots represent measured data.
m = metre; mg = milligrams; L = litre.



Note: Solid line represents model predictions; dots represent measured data.
m = metre; mg = milligrams; L = litre.



Note: Solid line represents model predictions; dots represent measured data.
m = metre; mg = milligrams; L = litre.

APPENDIX 8.VI

AQUATIC HEALTH
CHRONIC EFFECTS BENCHMARK AND ASSESSMENT TABLES

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8.VI.1 AQUATIC HEALTH, CHRONIC EFFECTS BENCHMARK AND ASSESSMENT TABLES

8.VI.1.1 COPPER CHRONIC EFFECTS BENCHMARK

8.VI.1.1.1 Methods

In the 2011 Environmental Impact Statement (EIS) update, the Canadian Council of the Ministers of the Environment (CCME) water quality guideline (WQG) for copper was adopted as the chronic effects benchmark (CEB; Appendix 8.IV Section 8.IV.3.7 [De Beers 2011]). In this supplement to the EIS, the Biotic Ligand Model (BLM; USEPA 2009) was used to derive scenario-specific CEBs for the various waterbodies and predicted scenarios assessed in the EIS (hereafter referred to as BLM-derived CEBs).

The BLM predicts copper toxicity by simulating the accumulation of copper at the "biotic ligand", which represents the site of toxic action in biota (HydroQual 2007a). Based on water chemistry, the concentration of copper in water that will cause toxicity can vary. The BLM uses an equilibrium approach that includes the dominant parameters that affect the free ion concentration, which has been shown to be responsible for metal toxicity (HydroQual 2007a). The BLM generates acute toxicity benchmarks that are converted by the model to chronic benchmarks by applying an acute to chronic ratio (ACR) determined by the model (USEPA 2009).

The BLM Windows User Interface, Version 2.2.3 (HydroQual 2007b) was used to derive site/scenario specific CEBs for copper. The water quality parameters (i.e., exposure and toxicity modifying factors [ETMFs]) necessary to run the BLM are:

- physical parameters (water temperature and pH);
- dissolved organic carbon (and proportion of humic acid);
- major cations (calcium, magnesium, sodium, and potassium);
- major anions (sulphate and chloride);
- alkalinity; and
- sulphide.

Hardness is calculated from calcium and magnesium concentrations. Sulphide concentrations are listed as an input parameter, but currently do not affect the BLM as research is needed to better characterize its effects on metal-sulphide interactions. Metal-sulphide interactions can occur, and will likely be

incorporated into the BLM's equilibrium in the future (Grosell 2012; HydroQual 2007a).

Inputs and Assumptions

Site/scenario-specific BLM-derived CEBs were derived for 8 scenarios described below:

- Kennady Lake measured average baseline - average parameter concentrations in water samples collected from Kennady Lake between 1995 and 2011.
- Downstream Watersheds measured average baseline - average parameter concentrations in water samples collected from lakes in the L, M, and N basins, and Lake 410 between 1995 and 2011.
- Kennady Lake predicted maximum concentrations after refilling - maximum concentrations in Kennady Lake predicted by modelling after Kennady Lake is refilled with water from Lake N11.
- Kennady Lake predicted maximum long-term steady state concentrations - maximum concentrations in Kennady Lake predicted by modelling into post-closure.
- Lake N11 predicted maximum concentrations during Kennady Lake dewatering - maximum concentrations in Lake N11 predicted by modelling during the period of construction and operations, when water from Kennady Lake and the water management pond is being pumped to Lake N11.
- Lake N11 predicted maximum concentrations during Kennady lake closure flooding - maximum concentrations in Lake N11 predicted by modelling during closure, while water is drawn from Lake N11 to refill Kennady Lake.
- Area 8 predicted maximum concentrations during post-closure - maximum concentrations in Area 8 predicted by modelling after Area 7 of Kennady Lake is reconnected to Area 8, during post-closure.
- Lake 410 predicted maximum concentrations - maximum concentrations in Lake 410 predicted by modelling during construction, operations, closure, and post-closure.

Measured average baseline and predicted maximum concentrations were used as inputs for the BLM (Table 8.VI-1). Measured baseline data were collected from Kennady Lake and lakes in the downstream watersheds (L, M, and M watersheds, and Lake 410) between 1995 and 2011. Predicted concentrations were derived from a flow and mass-balance water quality model, developed in GoldSim™, for a range of water quality parameters in various waterbodies for specific scenarios (Sections 8.2.5 and 9.2.5 of the 2012 EIS Supplement). Other assumptions were:

- Parameters that were not predicted (i.e., water temperature, total alkalinity, dissolved organic carbon [DOC]) in the 2012 EIS Supplement (Sections 8.2.5 and 9.2.5) were set to the median baseline concentrations (Sections 8.2.5 and 9.2.5).
- Concentrations below analytical detection limits were set to their respective analytical detection limit.
- The pH values of Kennady Lake and of the lakes downstream were not modelled, but are expected to be within the CCME guideline range (6.5 to 9.0). As such, the lowest pH (6.5) in this range was selected to be conservative for the scenarios with predicted concentrations.
- The humic acid proportion of dissolved organic carbon was assumed to be 10%, based on the BLM User Guide's suggestion (HydroQual 2007a).
- A conversion factor of 1.04 (1/0.96) was used to convert predicted copper concentrations from dissolved to total concentrations (USEPA 2007).

8.VI.1.1.2 Results

Based on the inputs and assumptions presented above, the BLM yielded Criterion Continuous Concentrations (CCCs) for dissolved and total copper for each scenario (Table 8.VI-2). These CCCs were adopted as scenario-specific BLM-derived CEBs. The dissolved and total copper BLM-derived CEBs ranged from 1.63 to 2.3 µg/L. These BLM-derived CEBs are similar to the CCME WQG for copper (2 µg/L). The range in BLM-derived CEBs was mainly due to the range in pH among the scenarios. For example, the scenario with the highest BLM-derived CEB for total copper (2.3 µg/L) used an input pH of 6.5, while the scenario with the lowest BLM-derived CEB for total copper (1.69 µg/L) used the lowest pH (6.39) of all scenarios. The model is also sensitive to changes in DOC (Table 8.VI-3); however, the DOC concentrations among the scenarios only ranged from 4.0 to 4.04 mg/L. Due to the expected increases in productivity in the receiving environment when the mine begins discharging, DOC is expected to increase. As this increase in DOC was not taken into account, the results of the BLM are conservative.

Table 8.VI.1-1 Water Quality Input Parameters for the Copper Biotic Ligand Model

Waterbody	Scenario	Temperature [°C][(a)]	pH[(b)]	DOC [mg/L][(b)]	Ca [mg/L]	Mg [mg/L]	Na [mg/L]	K [mg/L]	SO_4 [mg/L]	Cl [mg/L]	Alkalinity [mg/L $CaCO_3$][(b)]
Kennady Lake	measured average baseline	15	6.39	4.0	1.2	0.52	0.71	0.48	0.83	0.55	6.51
Downstream Watersheds	measured average baseline	15	6.47	4.04	1.1	0.43	0.78	0.39	0.88	0.49	5.64
Kennady Lake	predicted maximum concentrations after refilling	15	6.5	4.0	27	4.6	15	2.8	20	64	6.51
Kennady Lake	predicted maximum long-term steady state water quality	15	6.5	4.0	5	1.6	2.4	1.9	10	3	6.51
Lake N11	predicted maximum concentrations during Kennady Lake dewatering	15	6.5	4.04	9.6	1.8	5.4	1.03	5.7	22	5.64
Lake N11	predicted maximum concentrations during Kennady Lake closure flooding	15	6.5	4.04	1.1	0.43	0.8	0.39	0.9	1	5.64
Area 8	predicted maximum concentrations post-closure	15	6.5	4.0	17	3.1	9.9	2.0	13.2	39	6.51
Lake 410	predicted maximum concentrations during construction, operations, closure, and post-closure	15	6.5	4.04	4.1	0.94	2.4	0.63	2.7	7.9	5.64

Notes: Water quality data for baseline scenarios and for parameters not predicted during simulated scenarios in the 2012 EIS Supplement (Sections 8.2.5 and 9.2.5) are the average concentrations in either Kennady Lake (Kennady Lake and Area 8 scenarios) or the Downstream Watersheds (Lake N11 and Lake 410) (see Sections 8.2.5 and 9.2.5 of the 2012 EIS Supplement). Concentrations below the analytical detection limit were set to the method detection limit. Sulphide is not reported as it is not taken into account by the Biotic Ligand Model. The predicted pH values of Kennady lake and the lakes downstream of Kennady Lake are expected to be within the CCME WQG range (6.5 to 9.0). The proportion of humic acid was assumed to be 10%, based on the Biotic Ligand Model, Windows Interface, Version 2.2.3, User's Guide and Reference Manual (HydroQual 2007a).

[(a)] Water temperature was assumed to be 15°C.

[(b)] The average baseline value from Kennady Lake or the downstream watersheds and Lake 410 was used, as this parameter was not simulated.

°C = degrees Celsius; DOC = dissolved organic carbon; mg/L = milligrams per litre; HA = humic acid; % = percent; Ca = calcium; Mg = magnesium; Na = sodium; K = potassium; SO_4 = sulphate; Cl = chlorine; mg/L $CaCO_3$ = milligrams per litre calcium carbonate.

Table 8.VI.1-2 Predictions of the Copper Biotic Ligand Model for each Scenario

Waterbody	Scenario	Final Acute Value [µg/L]	Criterion Maximum Concentration [µg/L][(a)]	Criterion Continuous Concentration for Dissolved Copper [µg/L][(a)]	Criterion Continuous Concentration for Total Copper [µg/L][(b)]
Kennady Lake	measured average baseline	5.24	2.62	1.63	1.69
Downstream Watersheds	measured average baseline	6.65	3.33	2.07	2.15
Kennady Lake	predicted maximum concentrations after refilling	6.89	3.44	2.14	2.22
Kennady Lake	predicted maximum long-term steady state water quality	5.77	2.89	1.79	1.86
Lake N11	predicted maximum concentrations during Kennady Lake dewatering	5.99	2.99	1.86	1.93
Lake N11	predicted maximum concentrations during Kennady Lake closure flooding	7.14	3.57	2.22	2.30
Area 8	predicted maximum concentrations post-closure	6.35	3.17	1.97	2.05
Lake 410	predicted maximum concentrations during construction, operations, closure, and post-closure	5.99	2.99	1.86	1.93

Note: The BLM-derived CEB is equal to the criterion continuous concentration (CCC).

[(a)] The criterion maximum concentration and CCC are based on dissolved copper concentration. A conversion factor of 1.04 (1/0.96) was used to convert from a dissolved to a total basis (USEPA 2007).

[(b)] The CCC based on dissolved copper converted to total copper concentration.

µg/L = micrograms per litre.

Limitations

As with all models, the BLM has limitations based on its assumptions and data inputs. Model limitations are:

- Not all parameters were measured or predicted such as DOC including humic acid, pH and sulphide. To run the model, baseline concentrations were used, which may not be representative of concentrations during operations and closure.
- Seasonal variation of water quality is not taken into account by the BLM, as modelled water quality was not predicted for each season. For example, under-ice versus open water conditions can vary, but are not predicted separately for future scenarios.
- There is uncertainty associated with water quality predictions used as inputs.

Model Sensitivity

The BLM is most sensitive to changes in pH and dissolved organic carbon including humic acid. These parameters will be monitored and included in future runs of the BLM as new data become available.

Trials using the BLM were run to determine sensitivity to changes of the individual inputs. Maximum concentrations in Kennady Lake after refilling were assumed (Table 8.VI-3), then each individual parameter was increased 25%, while holding the remaining parameters constant. As pH is based on a log scale, it was tested at pH 6.3, 6.8, and 7.0 (i.e., measured median Kennady Lake open-water baseline values) to simulate realistic pH changes. The resulting BLM-derived CEB was reported as a percentage of the original (Table 8.VI-3).

An increase in pH from 6.5 to pH 6.8 and 7.0 resulted in BLM-derived CEBs for copper that were 70% and 132% higher, while decreasing pH to 6.3 reduced the BLM-derived CEB 34% to 1.41 µg/L. Increasing DOC by 25% caused the BLM-derived CEB to increase approximately 25%; as the percent humic acid increased by 25% the CEB increased by 15.6%.

Table 8.VI.1-3 Sensitivity of the Biotic Ligand Model to 25% Increases in Individual Parameters with Other Parameters Unchanged

Parameter	Initial Concentration[a]	Increased 25%	Initial BLM-derived CEB [µg/L][a]	BLM-derived CEB After 25% Increase in Parameters [µg/L]	% Change
Temperature (°C)	15	18.75	2.14	2.14	0.2
pH[b]	6.5	6.3[b]	2.14	1.41	-34
pH[b]	6.5	6.8[b]	2.14	3.64	70
pH[b]	6.5	7.0[b]	2.14	4.97	132
Dissolved Organic Carbon [mg/L]	4	5	2.14	2.68	25.5
Humic Acid [%]	10	12.5	2.14	2.47	15.6
Calcium [mg/L]	27	33.75	2.14	2.20	2.9
Magnesium [mg/L]	4.6	5.75	2.14	2.17	1.3
Sodium [mg/L]	15	18.75	2.14	2.20	2.9
Potassium [mg/L]	2.8	3.5	2.14	2.14	0.1
Sulphate [mg/L]	20	25	2.14	2.13	-0.5
Chloride [mg/L]	64	80	2.14	2.12	-0.9
Alkalinity [mg/L]	6.51	8.14	2.14	2.14	0.1

[a] The initial CEB and initial parameter concentrations presented are from the Kennady Lake maximum after filling scenario (Table 8.2-12 of Section 8.2.5; 2012 EIS Supplement).

[b] pH was tested at 6.3, 6.8, and 7.0 to simulate a range of pH changes.

% = percent; µg/L = micrograms per litre; mg/L = milligrams per litre.

Sources of Uncertainty

The BLM-derived CEBs and predicted water quality results are based on models, which have uncertainty associated with them. First, using baseline conditions where parameters were not predicted could lead to lower or higher copper BLM-derived CEBs. For example, DOC concentrations are expected to increase due to increased productivity in Kennady Lake (Section 8.2.5; 2012 EIS Supplement). Increased DOC concentrations would mitigate copper toxicity (Grosell 2012) and result in a higher BLM-derived CEB for copper. Uncertainty associated with the water quality predictions is discussed in Appendix 8.II (see also Section 8.15.3 of the 2011 EIS Update). Predicted water quality is based on the following inputs: surface flows; groundwater flows and seepage; background water quality; and, geochemical characterization. All of these inputs have inherent variability and uncertainty. Thus, water quality predictions do not provide absolute certainty, but do provide useful information for assessment and future monitoring (Appendix 8.II).

Uncertainty associated with the BLM and water quality predictions could alter the BLM-derived CEBs. As such, the BLM-derived CEBs using the predicted parameter concentrations are best estimates that need to be assessed.

Monitoring of water quality will be carried out to assess model inputs, particularly those parameters that were not predicted, and predictions will be adjusted accordingly. The BLM model will be used to update BLM-derived CEBs when monitoring data are available. Adaptive management strategies will be adopted, if necessary (Section 8.15.3; De Beers 2011).

8.VI.1.2 FLUORIDE CHRONIC EFFECTS BENCHMARK

8.VI.1.2.1 Approach

Fluoride was not a Substance of Potential Concern (SOPC) in the aquatic health assessment of the 2011 EIS Update (DeBeers 2011). However, it was retained as a SOPC for one of the scenarios assessed in the 2012 EIS Supplement because of revised water quality predictions for this parameter.

Appendix 8.IV of the 2011 EIS update outlined the methods for derivation of CEBs [De Beers 2011]). Where sufficient data were available, species sensitivity distributions (SSDs) were generated. For parameters where fewer data were available, the lowest recorded chronic toxicity test result was used to define the CEB.

Insufficient chronic toxicity data of acceptable quality were available for fluoride to use the SSD approach. However, the British Columbia Ministry of Environment (BCMOE) recently updated its ambient WQG for fluoride (BCMOE 2011). Given that hardness has been shown to reduce the toxicity of fluoride to aquatic life (BCMOE 2011; Camargo 2003), the updated WQG is variable based on hardness. For the purposes of this EIS, the BCMOE WQG for soft water (based on a hardness of 10 mg/L $CaCO_3$) was adopted as the CEB for fluoride.

8.VI.1.2.2 Findings

In natural waters, fluoride usually remains in solution as fluoride ion (F^-) under acidic conditions and low hardness. Fluoride toxicity is ameliorated by increases in water temperature, hardness, pH, and chloride (BCMOE 2011; Camargo 2003). Temperature can affect toxicity because metabolic and uptake rates increase with temperature (CCME 2002). Chloride may compete with fluoride for binding sites, thus increasing chloride concentrations can decrease fluoride toxicity (Camargo 2003).

Calcium and magnesium can bind with inorganic fluoride to reduce bioavailability and hence reduce fluoride toxicity (CCME 2002). However, the low water solubility of calcium fluoride (16 mg/L) results in precipitation in high hardness

(i.e., high calcium) water (BCMOE 2011). For example, calcium fluoride precipitation was reported at 7.4 mg/L fluoride (nominal concentration), pH 7.0 to 8.0, water temperature 19.5 to 21.5°C, and hardness of 250 mg/L (Dave 1984). Data with high fluoride and hardness concentrations are likely not reliable because of the potential for precipitation; BCMOE (2011) only considered data for low fluoride concentrations (<5 mg/L) in very soft water to be reliable indicators of fluoride toxicity.

Algae growth can be enhanced at low fluoride concentrations or inhibited at higher concentrations. Camargo (2003) reported growth inhibition occurring at fluoride concentrations as low as 25 mg/L with 50% effect concentrations (EC50s) ranging from 123 to 380 mg/L. CCME (2002) noted that most plant species were not as sensitive as fish and invertebrates.

Chronic exposures with invertebrates yielded low effect concentrations ranging from 7.4 mg/L (42% inhibition of reproduction in 21-day exposure with *Daphnia magna*; Dave 1984) to 36 mg/L (44% inhibition of reproduction in 21-d exposure with *D. magna*; Fieser et al. 1986). No observed effect concentrations (NOECs) ranged from 3.7 to 26 mg/L (Dave 1984; Fieser et al. 1986). Dave (1984) used high hardness water (250 mg/L as $CaCO_3$) and did not confirm fluoride concentrations. Thus, actual fluoride concentrations in this study may have been lower than nominal because calcium fluoride could have precipitated resulting in lower exposure concentrations. Fieser et al. (1986) also used hard water (169.3 mg/L as $CaCO_3$), but provided results based on measured fluoride concentrations.

Based on acute exposure data, caddisfly larvae appear to be more sensitive to fluoride than other freshwater invertebrates such as *Daphnia* (Camargo 2003). Acute exposures with eight species of net-spinning caddisfly larvae in soft water (15.6 to 40.2 mg/L as $CaCO_3$) yielded concentrations acutely lethal to 50% of the organisms (LC50s) ranging from 11.5 mg/L (144-h exposure with *Hydropsyche bronta*) to 48.2 mg/L (96-h exposure with *Hydropsyche lobata*) (summarized by Camargo 2003). The 48-hr LC50s with *Daphnia magna* ranged from 98 to 304 mg/L.

Rainbow trout (*Oncorhynchus mykiss*) and brown trout (*Salmo trutta*) may be more sensitive to fluoride than other fish species, based on a comparison of acute toxicity values (Camargo 2003). The 96-hr LC50s for rainbow and brown trout ranged from 51 to 200 mg/L, compared to 315 to 460 mg/L for fathead minnows (*Pimephales promelas*) and threespine stickleback (*Gasterosteus aculeatus*). In longer-duration tests (20 to 21 days), LC50s with juvenile rainbow trout in soft water were as low as 2.3 to 8.5 mg/L (BCMOE 2011).

Jurisdictions have or have had fluoride benchmarks ranging from 0.2 to 1.5 mg/L (BCMOE 2011). The current USEPA (2006) freshwater ecological screening benchmark for fluoride is 2.1 mg/L (hardness = 100 mg/L as $CaCO_3$). The CCME interim freshwater WQG of 0.12 mg/L is based on the acute 144-hr LC50 of 11.5 mg/L for the caddisfly *Hydropsyche bronta* with a conservative safety factor of 0.01 (i.e., a factor or 100) used because the selected toxicity value was an acute lethal endpoint (CCME 2002).

The more recent BCMOE WQG for fluoride is a maximum of 0.4 mg/L at a hardness ≥ 10 mg/L $CaCO_3$. At higher hardness, the WQG is calculated using the following equation:

$$\text{Fluoride (mg/L)} = [-51.73 + 92.57 \log_{10}(\text{Hardness})] * 0.01$$

However, the relationship between hardness, temperature, and fluoride toxicity needs to be more thoroughly characterized before fluoride benchmarks can be reliably expressed as a function of hardness and temperature (CCME 2002; BCMOE 2011). Thus, for conservatism, the value of 0.4 mg/L for soft water (10 mg/L as $CaCO_3$) was selected as the CEB, even though predicted hardness may be higher for some scenarios.

The benchmark adopted as the CEB is based on more updated information than the CCME (2002) WQG. It is considered to be conservative, as predicted increases in hardness and chloride concentrations resulting from the project are expected to further ameliorate fluoride toxicity.

8.VI.2 SUPPLEMENTAL ASSESSMENT TABLES

Table 8.VI.2-1 Initial Screening Results for Kennady Lake under Initial Closure Discharge Water Quality Scenario

Parameter	Kennady Lake Background Concentrations (Long-term Average) [mg/L]	CCME Freshwater Aquatic Life Guideline [mg/L][a]	Predicted Maximum Concentration [mg/L]	Screening		Retained as Substance of Potential Concern?
				Higher than Predicted Background + 10%?	Higher than CCME Guideline?	
Conventional Parameters						
Total Dissolved Solids	13	-	145	yes	-	**yes**
Total Suspended Solids	<2[b]	5[c]	1.0	no	no	no
Major Ions						
Chloride	0.55	120	64	yes	no	no
Fluoride	0.03	0.12	0.13	yes	yes	**yes**
Nutrients						
Ammonia as Nitrogen	0.032	18 [d]	1.9	yes	no	no
Nitrate as Nitrogen	<0.007[b]	2.935	2.0	yes	no	no
Total Metals						
Aluminum	0.0098	0.1[e]	0.092	yes	no	no
Antimony	0.0001	-	0.0008	yes	-	**yes**
Arsenic	0.00014	0.005	0.0024	yes	no	no
Barium	0.0027	-	0.03	yes	-	**yes**
Beryllium	0.000041	-	0.00014	yes	-	**yes**
Boron	0.0031	1.5	0.11	yes	no	no
Cadmium	0.00002	0.000029[f]	0.000045	yes	yes	**yes**
Chromium	0.0002	0.001[g]	0.00103	yes	yes	**yes**
Cobalt	0.000135	-	0.00136	yes	-	**yes**
Copper	0.0012	0.00206[f]	0.0023	yes	yes	**yes**
Iron	0.065	0.3	0.19	yes	no	no
Lead	0.000049	0.00259[f]	0.00034	yes	no	no
Manganese	0.0122	-	0.043	yes	-	**yes**
Mercury	0.0000102	0.000026	0.00001	no	no	no
Molybdenum	0.000074	0.073	0.007	yes	no	no
Nickel	0.00032	0.085[f]	0.0048	yes	no	no
Selenium	0.00019	0.001	0.00017	no	no	no
Silver	0.00008	0.0001	0.000061	no	no	no
Strontium	0.0082	-	0.028	yes	-	**yes**
Thallium	0.000021	0.0008	0.00005	yes	no	no
Uranium	0.000026	0.015	0.0016	yes	no	no
Vanadium	0.00024	-	0.0027	yes	-	**yes**
Zinc	0.0028	0.03	0.008	yes	no	no

Source: Adapted from Table 8.9-5 in De Beers (2011).

[a] From CCME (1999/2012).

[b] Median detection limit.

[c] Guideline is dependent on background concentration: predicted concentration must not be more than 5 mg/L higher than the background concentration.

[d] Guideline is dependent on temperature and pH. The value is based on pH = 6.5, temperature = 15°C.

[e] Aluminum guideline is dependent on pH; guideline shown is for pH ≥6.5, which corresponds to expected conditions in Kennady Lake.

[f] Guideline is hardness dependent; value shown based on a maximum predicted hardness of 85 mg/L as calcium carbonate ($CaCO_3$).

[g] Guideline is for chromium (VI), because it is more conservative than the chromium (III) guideline of 0.0089 mg/L.

mg/L = milligrams per litre; % = percent; < = less than; - = no guideline available or predicted concentration was less than the observed maximum background.

Table 8.VI.2-2 Initial Screening Results for Kennady Lake under the Long-term Water Quality Scenario

Parameter	Kennady Lake Background Concentrations (Long-term Average) [mg/L]	CCME Freshwater Aquatic Life Guideline [mg/L][a]	Predicted Maximum Concentration [mg/L]	Screening		Retained as Substance of Potential Concern?
				Higher than Predicted Background + 10%?	Higher than CCME Guideline?	
Conventional Parameters						
Total Dissolved Solids	13	-	37	yes	-	**yes**
Total Suspended Solids	<2[b]	5[c]	1.0	no	no	no
Major Ions						
Chloride	0.55	120	3	yes	no	no
Fluoride	0.03	0.12	0.12	yes	no	no
Nutrients						
Ammonia as Nitrogen	0.032	18 [d]	0.03	no	no	no
Nitrate as Nitrogen	<0.007[b]	2.935	0.02	yes	no	no
Total Metals						
Aluminum	0.0098	0.1[e]	0.057	yes	no	no
Antimony	0.0001	-	0.0005	yes	-	**yes**
Arsenic	0.00014	0.005	0.0006	yes	no	no
Barium	0.0027	-	0.02	yes	-	**yes**
Beryllium	0.000041	-	0.00012	yes	-	**yes**
Boron	0.0031	1.5	0.09	yes	no	no
Cadmium	0.00002	0.000008[f]	0.000041	yes	yes	**yes**
Chromium	0.0002	0.001[g]	0.0005	yes	no	no
Cobalt	0.000135	-	0.00105	yes	-	**yes**
Copper	0.0012	0.0020[f]	0.0020	yes	yes	**yes**
Iron	0.065	0.3	0.1	yes	no	no
Lead	0.000049	0.001 [f]	0.00026	yes	no	no
Manganese	0.0122	-	0.033	yes	-	**yes**
Mercury	0.0000102	0.000026	0.00001	no	no	no
Molybdenum	0.000074	0.073	0.003	yes	no	no
Nickel	0.00032	0.027 [f]	0.0029	yes	no	no
Selenium	0.00019	0.001	0.00014	no	no	no
Silver	0.00008	0.0001	0.000056	no	no	no
Strontium	0.0082	-	0.02	yes	-	**yes**
Thallium	0.000021	0.0008	0.000029	yes	no	no
Uranium	0.000026	0.015	0.00121	yes	no	no
Vanadium	0.00024	-	0.0024	yes	-	**yes**
Zinc	0.0028	0.03	0.0067	yes	no	no

Source: Adapted from Table 8.9-6 in De Beers (2011).

[a] From CCME (1999/2012).

[b] Median detection limit.

[c] Guideline is dependent on background concentration: predicted concentration must not be more than 5 mg/L higher than the background concentration.

[d] Guideline is dependent on temperature and pH. The value is based on pH = 6.5, temperature = 15°C.

[e] Aluminum guideline is dependent on pH; guideline shown is for pH ≥ 6.5, which corresponds to expected conditions in Kennady Lake.

[f] Guideline is hardness dependent; value shown based on a maximum predicted hardness of 19 mg/L as calcium carbonate ($CaCO_3$).

[g] Guideline is for chromium (VI), because it is more conservative than the chromium (III) guideline of 0.0089 mg/L.

mg/L = milligrams per litre; % = percent; < = less than; - = no guideline available or predicted concentration was less than the observed maximum background.

Table 8.VI.2-3 Initial Screening Results for Area 8 Under Post-closure Scenario

Parameter	Kennady Lake Background Concentrations (Long-term Average) [mg/L]	CCME Freshwater Aquatic Life Guideline [mg/L][a]	Predicted Maximum Concentration [mg/L]	Screening		Retained as Substance of Potential Concern?
				Higher than Predicted Background + 10%?	Higher than CCME Guideline?	
Conventional Parameters						
Total Dissolved Solids	13	-	96	yes	-	**yes**
Total Suspended Solids	<2[b]	5[c]	1.0	no	no	no
Major Ions						
Chloride	0.55	120	39	yes	no	no
Fluoride	0.03	0.12	0.108	yes	no	no
Nutrients						
Ammonia as Nitrogen	0.032	18[d]	1.03	yes	no	no
Nitrate as Nitrogen	<0.007[b]	2.9	1.1	yes	no	no
Total Metals						
Aluminum	0.0098	0.1[e]	0.061	yes	no	no
Antimony	0.0001	-	0.00058	yes	-	**yes**
Arsenic	0.00014	0.005	0.0015	yes	no	no
Barium	0.0027	-	0.02	yes	-	**yes**
Beryllium	0.000041	-	0.000113	yes	-	**yes**
Boron	0.0031	1.5	0.079	yes	no	no
Cadmium	0.00002	0.000020[f]	0.00004	yes	yes	**yes**
Chromium	0.0002	0.001[g]	0.0007	yes	no	no
Cobalt	0.000135	-	0.00097	yes	-	**yes**
Copper	0.0012	0.0020[f]	0.0020	yes	yes	**yes**
Iron	0.065	0.3	0.14	yes	no	no
Lead	0.000049	0.0015[f]	0.00025	yes	no	no
Manganese	0.0122	-	0.034	yes	-	**yes**
Mercury	0.0000102	0.000026	0.000012	yes	no	no
Molybdenum	0.000074	0.073	0.0042	yes	no	no
Nickel	0.00032	0.062[f]	0.0032	yes	no	no
Selenium	0.00019	0.001	0.0002	yes	no	no
Silver	0.00008	0.0001	0.000095	yes	no	no
Strontium	0.0082	-	0.047	yes	-	**yes**
Thallium	0.000021	0.0008	0.000042	yes	no	no
Uranium	0.000026	0.015	0.0011	yes	no	no
Vanadium	0.00024	-	0.0021	yes	-	**yes**
Zinc	0.0028	0.03	0.0066	yes	no	no

Source: Adapted from Table 8.9-7 in De Beers (2011).

[a] From CCME (1999/2012).

[b] Median detection limit.

[c] Guideline is dependent on background concentration: predicted concentration must not be more than 5 mg/L higher than the background concentration.

[d] Guideline is dependent on temperature and pH. The value is based on pH = 6.5, temperature = 15°C.

[e] Aluminum guideline is dependent on pH; guideline shown is for pH ≥ 6.5, which corresponds to expected conditions in Kennady Lake.

[f] Guideline is hardness dependent; value shown based on a maximum predicted hardness of 56 mg/L as calcium carbonate ($CaCO_3$).

[g] Guideline is for chromium (VI), because it is more conservative than the chromium (III) guideline of 0.0089 mg/L.

mg/L = milligrams per litre; % = percent; < = less than; - = no guideline available or predicted concentration was less than the observed maximum background.

Table 8.VI.2-4 Predicted Metal Concentrations in Fish Tissues in Kennady Lake under Initial Closure Discharge Water Quality Scenario

Metal	Predicted Maximum Concentration [mg/L]	Bioaccumulation Factor	Estimated Fish Tissue Concentrations [mg/kg ww] [(a)]
Aluminum	0.092	278	**25.5**
Antimony	0.0008	2729	2.09
Arsenic	0.0024	417	1.011
Cadmium	0.000045	237	0.0106
Chromium	0.001	78	0.080
Copper	0.0023	839	1.9
Lead	0.00034	80	0.027
Mercury	0.00001	9450	0.097
Nickel	0.0048	232	**1.12**
Selenium	0.00017	3000	0.502
Silver	0.000061	2000	**0.12**
Vanadium	0.0027	95	0.258
Zinc	0.008	379	3.1

Source: Adapted from Table 8.9-10 in De Beers (2011).

[(a)] **Bolded** estimated fish tissue concentrations are greater than corresponding toxicological benchmark.

mg/L = milligrams per litre; mg/kg ww = milligrams per kilogram wet weight.

Table 8.VI.2-5 Predicted Metal Concentrations in Fish Tissues in Kennady Lake under Long-term Water Quality Scenario

Metal	Predicted Maximum Concentration [mg/L]	Bioaccumulation Factor	Estimated Fish Tissue Concentrations [mg/kg ww] [(a)]
Aluminum	0.057	278	15.9
Antimony	0.0005	2729	1.41
Arsenic	0.0006	417	0.271
Cadmium	0.000041	237	0.0097
Chromium	0.0005	78	0.042
Copper	0.0020	839	1.7
Lead	0.00026	80	0.021
Mercury	0.00001	9450	0.091
Nickel	0.0029	232	0.68
Selenium	0.00014	3000	0.421
Silver	0.000056	2000	**0.11**
Vanadium	0.0024	95	0.227
Zinc	0.0067	379	2.5

Source: Adapted from Table 8.9-11 in De Beers (2011).

[(a)] **Bolded** estimated fish tissue concentrations are greater than corresponding toxicological benchmark.

mg/L = milligrams per litre; mg/kg ww = milligrams per kilogram wet weight.

Table 8.VI.2-6 Predicted Metal Concentrations in Fish Tissues in Area 8 under Post-closure Water Quality Scenario

Metal	Predicted Concentration [mg/L]	Bioaccumulation Factor	Estimated Fish Tissue Concentrations [mg/kg ww] [(a)]
Aluminum	0.061	278	17.0
Antimony	0.00058	2729	1.58
Arsenic	0.0015	417	0.611
Cadmium	0.00004	237	0.0094
Chromium	0.0007	78	0.055
Copper	0.0020	839	1.7
Lead	0.00025	80	0.020
Mercury	0.000012	9450	0.116
Nickel	0.0032	232	0.73
Selenium	0.0002	3000	0.673
Silver	0.000095	2000	**0.19**
Vanadium	0.00213	95	0.203
Zinc	0.0066	379	2.5

Source: Adapted from Table 8.9-12 in De Beers (2011).

[(a)] **Bolded** estimated fish tissue concentrations are greater than corresponding toxicological benchmark.

mg/L = milligrams per litre; mg/kg ww = milligrams per kilogram wet weight; < = less than.

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8.VI.4 ACRONYMS

ACR	Acute to chronic ratio
BCMOE	British Columbia Ministry of Environment
BLM	Biotic ligand Model
Ca	Calcium
CCC	Criterion continuous concentrations
CCME	Canadian Council of the Ministers of the Environment
CEB	Chronic Effects Benchmark
Cl	Chlorine
DOC	Dissolved Organic Carbon
EIS	Environmental Impact Statement
ETMFs	Exposure and toxicity modifying factors
F-	Fluoride ion
HA	Humic acid
i.e.,	That is
K	Potassium
Mg	Magnesium
Na	Sodium
NOECs	No observed effect concentrations
SO_4	Sulphate
SOPC	Substance of Potential Concern
SSDs	Species Sensitivity Distributions
USEPA	United States Environmental Protection Agency
WQG	Water Quality Guideline

8.VI.5 UNITS

µg/L	Micrograms per litre
mg/L	Milligrams per Litre
°C	Degrees Celsius
%	Percent
mg/L $CaCO_2$	Milligrams per litre calcium carbonate
<	Less than
>	Greater than
≥	Greater than or equal to
mg/kg ww	Milligrams per kilogram wet weight

APPENDIX 9.I

HYDROLOGY ASSESSMENT UPDATE

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9.I EFFECTS TO WATER QUANTITY

This appendix presents updates to the hydrology assessment provided in Section 9.7 of the 2011 EIS Update, resulting from changes to the project footprint associated with the Fine PKC Facility (mitigated) and diversion of the A watershed to Area 8 via Lake J1b.

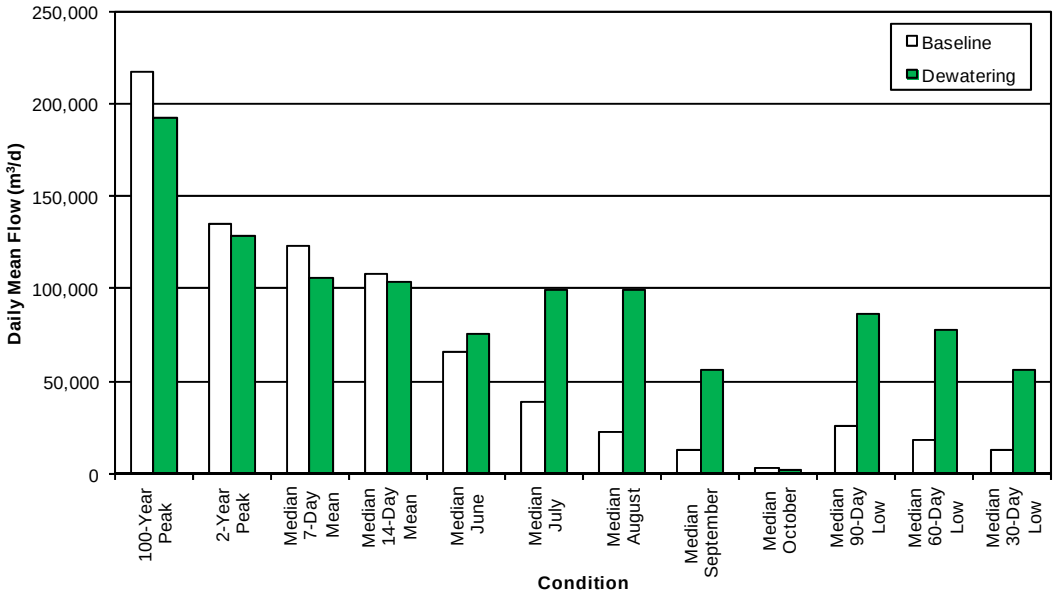
9.I.1 Construction and Operations

9.I.1.1 Effects of Dewatering Kennady Lake Areas 2 to 7 to Flows, Water levels, and Channel/Bank Stability in Downstream Waters

The diversion of the A watershed through the J watershed has slightly modified predicted flows and water levels during construction (i.e., dewatering) for the outlets and waterbodies downstream of Area 8 from those presented in the 2011 EIS Update (De Beers 2011). Predicted flows and water levels presented in the 2011 EIS Update for the outlets and waterbodies resulting from the dewatering of Kennady Lake through Lake N11 were also revisited from Lake N11 to Lake N1. Updated flow regimes and effects analysis are presented below for Area 8 to Lake M1, Lake N11 to Lake N1 and Lake 410 to Kirk Lake.

Area 8 to Lake M1 Outlet

Figure 9.I-1 Comparison of Effects on Area 8 Outlet Discharges – Dewatering



m^3/d = cubic metres per day.

Table 9.I-1 Monthly Mean Discharges at the Area 8 Outlet – Dewatering

Condition	Return Period (years)	Snapshot	Monthly Mean Discharge [m^3/d]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	121,000	86,500	59,600	68,600	13,500
		dewatering	102,000	103,000	104,000	106,000	9,710
	10	baseline	97,600	61,900	38,100	29,200	6,640
		dewatering	93,600	101,000	101,000	83,900	4,310
Median	2	baseline	65,900	39,300	22,800	13,200	3,070
		dewatering	76,000	99,500	98,900	56,300	1,830
Dry	10	baseline	36,900	23,100	13,900	6,880	1,430
		dewatering	45,400	98,100	97,800	28,200	1,000
	100	baseline	12,900	12,000	9,420	4,910	878
		dewatering	4,720	97,200	97,300	4,940	757

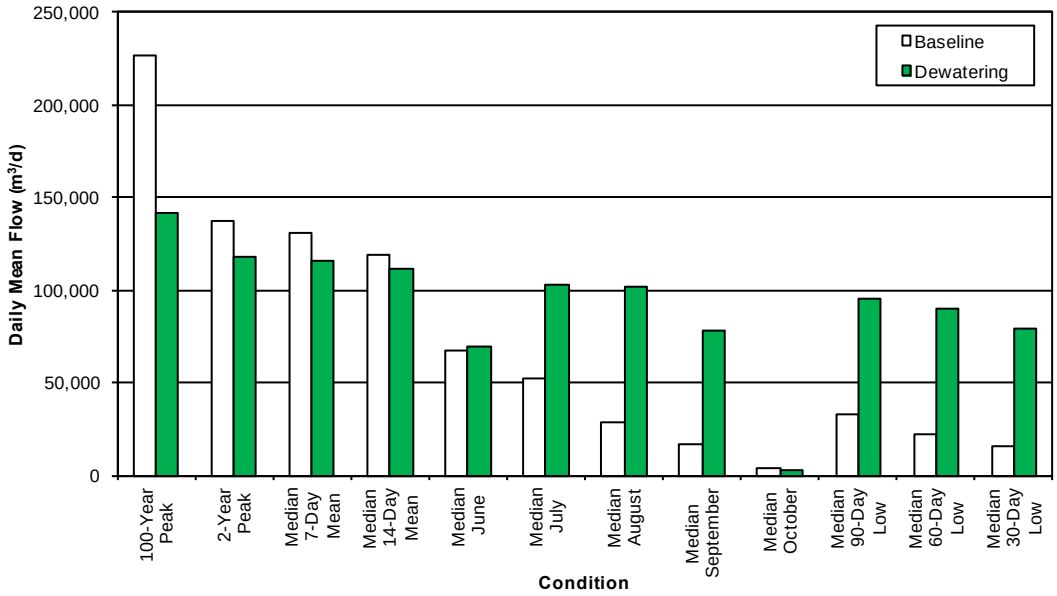
m^3/d = cubic metres per day.

Table 9.I-2 Derived Representative Discharges at the Area 8 Outlet – Dewatering

Condition	Return Period (years)	Snapshot	Peak Daily Q [m^3/s]	7-Day Mean Peak Q [m^3/d]	14-Day Mean Peak Q [m^3/d]	30-Day Low Flow Q [m^3/d]	60-Day Low Flow Q [m^3/d]	90-Day Low Flow Q [m^3/d]
Wet	100	baseline	2.51	192,000	167,000	48,900	52,500	59,000
		dewatering	2.23	118,000	111,000	103,000	103,000	103,000
	10	baseline	2.14	166,000	145,000	26,200	32,300	41,000
		dewatering	1.73	111,000	107,000	85,300	91,800	95,500
Median	2	baseline	1.56	123,000	108,000	12,800	18,300	26,000
		dewatering	1.49	106,000	104,000	55,900	77,800	86,100
Dry	10	baseline	0.80	65,100	60,000	6,560	10,900	16,100
		dewatering	1.41	103,000	101,000	28,400	63,400	76,200
	100	baseline	0.15	14,900	17,300	5,000	9,340	13,200
		dewatering	1.39	102,000	101,000	15,500	51,400	67,700

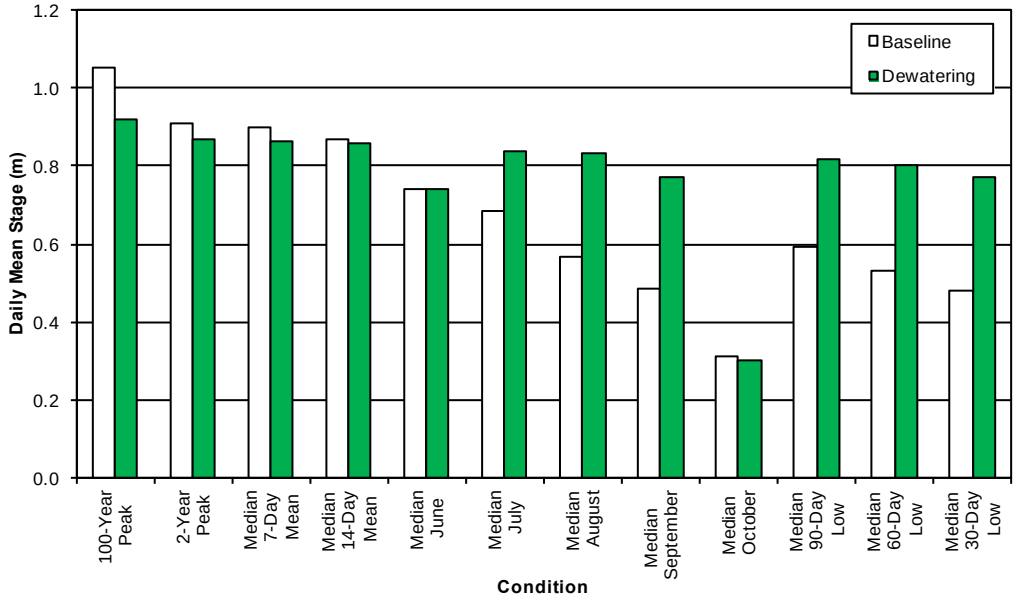
Q = discharge; m^3/s = cubic metres per second; m^3/d = cubic metres per day.

Figure 9.I-2 Comparison of Effects on Lake L1 Outlet Discharges – Dewatering



m^3/d = cubic metres per day.

Figure 9.I-3 Comparison of Effects on Lake L1 Stages – Dewatering



m = metres.

Table 9.I-3 Monthly Mean Discharges at the Lake L1 Outlet – Dewatering

Condition	Return Period (years)	Snapshot	Monthly Mean Discharge [m^3/d]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	130,000	111,000	67,700	85,000	20,600
		dewatering	103,000	116,000	112,000	110,000	33,100
	10	baseline	102,000	81,400	45,700	38,900	9,240
		dewatering	92,700	109,000	106,000	98,400	10,800
Median	2	baseline	67,800	52,300	28,100	16,400	3,630
		dewatering	69,200	103,000	102,000	78,400	3,180
Dry	10	baseline	35,700	29,300	17,100	8,310	1,620
		dewatering	41,000	99,700	99,600	49,600	1,310
	100	baseline	10,700	14,200	11,300	5,750	976
		dewatering	15,700	98,000	98,800	25,800	706

m^3/d = cubic metres per day.

Table 9.I-4 Derived Representative Discharges at the Lake L1 Outlet – Dewatering

Condition	Return Period (years)	Snapshot	Peak Daily Q [m^3/s]	7-Day Mean Peak Q [m^3/d]	14-Day Mean Peak Q [m^3/d]	30-Day Low Flow Q [m^3/d]	60-Day Low Flow Q [m^3/d]	90-Day Low Flow Q [(m^3/d]
Wet	100	baseline	2.62	214,000	189,000	57,000	63,400	76,800
		dewatering	1.64	133,000	127,000	108,000	108,000	110,000
	10	baseline	2.25	185,000	164,000	31,300	38,900	51,900
		dewatering	1.50	125,000	120,000	97,500	101,000	104,000
Median	2	baseline	1.59	131,000	119,000	16,100	22,400	32,500
		dewatering	1.37	116,000	112,000	78,700	90,100	95,400
Dry	10	baseline	0.86	71,700	66,800	7,980	13,000	19,900
		dewatering	1.27	107,000	106,000	48,600	75,100	85,100
	100	baseline	0.23	20,000	21,000	5,770	9,970	15,000
		dewatering	1.22	104,000	102,000	11,200	59,300	74,900

Q = discharge; m^3/s = cubic metres per second; m^3/d = cubic metres per day.

Table 9.I-5 Monthly Mean Stages at Lake L1 – Dewatering

Condition	Return Period (years)	Snapshot	Monthly Mean Stage [m]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	0.893	0.851	0.737	0.782	0.519
		dewatering	0.835	0.863	0.856	0.850	0.597
	10	baseline	0.832	0.777	0.655	0.624	0.410
		dewatering	0.809	0.849	0.842	0.823	0.429
Median	2	baseline	0.740	0.683	0.567	0.485	0.311
		dewatering	0.742	0.835	0.831	0.770	0.299
Dry	10	baseline	0.612	0.577	0.491	0.398	0.245
		dewatering	0.636	0.826	0.826	0.673	0.230
	100	baseline	0.416	0.468	0.436	0.356	0.211
		dewatering	0.479	0.822	0.824	0.554	0.192

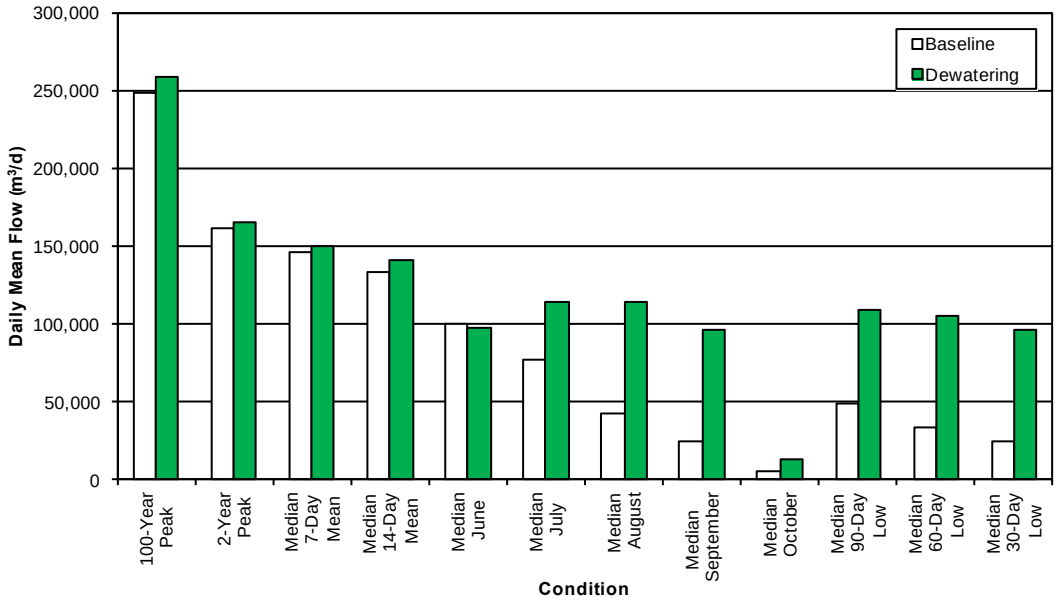
m =metre.

Table 9.I-6 Derived Representative Stages at Lake L1 – Dewatering

Condition	Return Period (years)	Snapshot	Peak Daily Stage [m]	7-Day Mean Peak Stage [m]	14-Day Mean Peak Stage [m]	30-Day Low Flow Stage [m]	60-Day Low Flow Stage [m]	90-Day Low Flow Stage [m]
Wet	100	baseline	1.052	1.035	0.997	0.701	0.723	0.765
		dewatering	0.917	0.900	0.887	0.845	0.847	0.850
	10	baseline	1.006	0.991	0.957	0.587	0.626	0.682
		dewatering	0.893	0.883	0.873	0.821	0.830	0.836
Median	2	baseline	0.909	0.896	0.870	0.483	0.532	0.594
		dewatering	0.869	0.863	0.856	0.770	0.802	0.816
Dry	10	baseline	0.757	0.750	0.734	0.392	0.453	0.514
		dewatering	0.850	0.845	0.840	0.668	0.760	0.788
	100	baseline	0.510	0.514	0.522	0.357	0.419	0.472
		dewatering	0.839	0.836	0.832	0.434	0.709	0.760

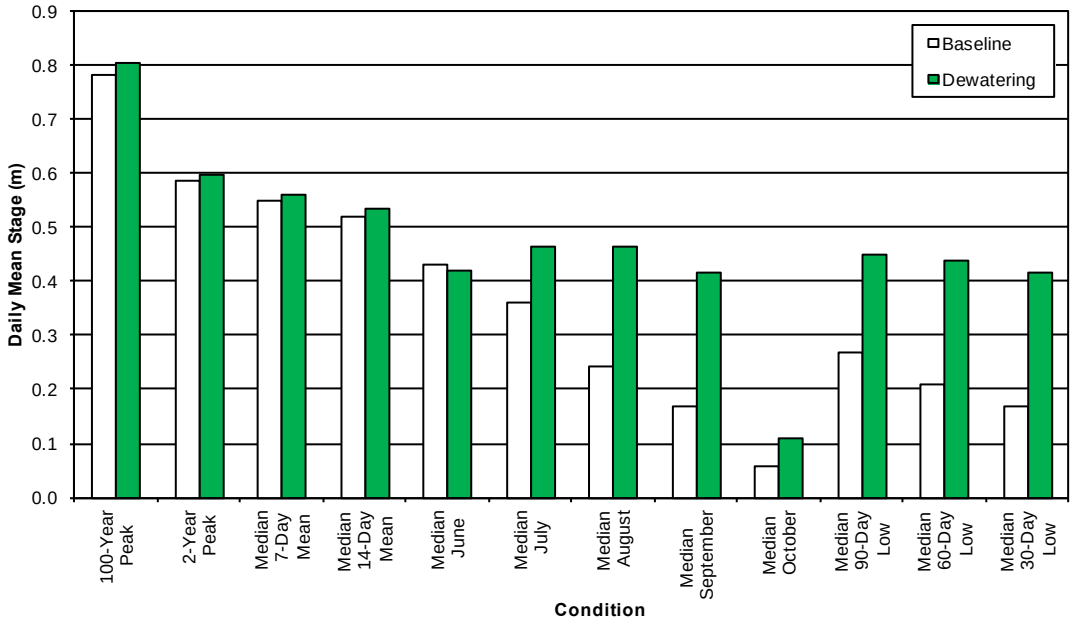
m = metre.

Figure 9.I-4 Comparison of Effects on Lake M1 Outlet Discharges – Dewatering



m^3/d = cubic metres per day.

Figure 9.I-5 Comparison of Effects on Lake M1 Stages – Dewatering



m = metres.

Table 9.I-7 Monthly Mean Discharges at the Lake M1 Outlet – Dewatering

Condition	Return Period (years)	Snapshot	Monthly Mean Discharge [m^3/d]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	178,000	152,000	102,000	116,000	29,300
		dewatering	152,000	161,000	150,000	144,000	57,400
	10	baseline	142,000	116,000	69,100	56,400	13,500
		dewatering	129,000	134,000	131,000	121,000	29,100
Median	2	baseline	100,000	77,600	43,200	25,100	5,140
		dewatering	97,900	114,000	114,000	96,500	12,900
Dry	10	baseline	61,000	43,900	27,300	12,900	1,880
		dewatering	68,700	104,000	104,000	77,200	5,260
	100	baseline	30,800	19,800	19,100	8,800	762
		dewatering	44,500	98,400	99,300	64,100	3,410

m^3/d = cubic metres per day.

Table 9.I-8 Derived Representative Discharges at the Lake M1 Outlet – Dewatering

Condition	Return Period (years)	Snapshot	Peak Daily Q [m^3/s]	7-Day Mean Peak Q [m^3/d]	14-Day Mean Peak Q [m^3/d]	30-Day Low Flow Q [m^3/d]	60-Day Low Flow Q [m^3/d]	90-Day Low Flow Q [m^3/d]
Wet	100	baseline	2.88	220,000	205,000	84,900	92,300	105,000
		dewatering	2.99	215,000	198,000	123,000	138,000	143,000
	10	baseline	2.45	189,000	176,000	48,200	58,500	75,700
		dewatering	2.40	181,000	167,000	112,000	120,000	124,000
Median	2	baseline	1.87	146,000	134,000	24,700	34,400	49,700
		dewatering	1.92	150,000	141,000	96,000	105,000	109,000
Dry	10	baseline	1.26	96,400	85,100	13,200	21,300	31,200
		dewatering	1.63	129,000	123,000	77,900	93,500	99,400
	100	baseline	0.73	50,300	38,600	8,380	15,200	20,200
		dewatering	1.46	117,000	113,000	62,700	86,100	93,600

Q = discharge; m^3/s = cubic metres per second; m^3/d = cubic metres per day.

Table 9.I-9 Monthly Mean Stages at Lake M1 – Dewatering

Condition	Return Period (years)	Snapshot	Monthly Mean Stage [m]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	0.628	0.562	0.430	0.462	0.188
		dewatering	0.562	0.586	0.559	0.543	0.294
	10	baseline	0.542	0.470	0.332	0.289	0.112
		dewatering	0.506	0.517	0.511	0.485	0.187
Median	2	baseline	0.430	0.360	0.243	0.170	0.059
		dewatering	0.420	0.465	0.466	0.416	0.109
Dry	10	baseline	0.308	0.247	0.180	0.109	0.030
		dewatering	0.332	0.437	0.439	0.359	0.060
	100	baseline	0.192	0.148	0.142	0.084	0.017
		dewatering	0.248	0.421	0.424	0.317	0.045

m = metre.

Table 9.I-10 Derived Representative Stages at Lake M1 – Dewatering

Condition	Return Period (years)	Snapshot	Peak Daily Stage [m]	7-Day Mean Peak Stage [m]	14-Day Mean Peak Stage [m]	30-Day Low Flow Stage [m]	60-Day Low Flow Stage [m]	90-Day Low Flow Stage [m]
Wet	100	baseline	0.783	0.720	0.687	0.382	0.404	0.439
		dewatering	0.803	0.710	0.673	0.490	0.527	0.541
	10	baseline	0.701	0.651	0.621	0.262	0.298	0.354
		dewatering	0.692	0.632	0.600	0.460	0.482	0.492
Median	2	baseline	0.587	0.548	0.518	0.168	0.209	0.267
		dewatering	0.598	0.559	0.535	0.415	0.439	0.451
Dry	10	baseline	0.451	0.416	0.383	0.110	0.152	0.196
		dewatering	0.535	0.504	0.488	0.361	0.407	0.424
	100	baseline	0.314	0.270	0.226	0.082	0.121	0.147
		dewatering	0.498	0.472	0.463	0.312	0.385	0.408

m = metre; m^3/d = cubic metres per day.

Summary of Effects on Flows, Water Levels and Channel/Bank Stability

Area 8 Outlet Flows: The water balance results for Area 8 show that during dewatering, post-freshet monthly mean flows will increase due to pumping to Area 8. However, because of closed-circuiting of Kennady Lake Areas 2 to 7, the 2-year flood discharge during dewatering will decrease by approximately 4 percent (%) below the baseline value, and the 100-year flood discharge will decrease by approximately 11%. Pumping will cause low flows to increase by 231% to 337% under median conditions.

Area 8 Water Levels: Project effects on Area 8 water levels were addressed in Section 8 of the this Supplement (see also Appendix 8.I.1.1).

Area 8 Outlet Channel/Bank Stability: No effects on Area 8 Outlet channel or bank stability are expected during dewatering, because flood magnitudes will not exceed baseline values.

Lake L1 Outlet Flows: The water balance results for Lake L1 show that during dewatering, post-freshet monthly mean flows will increase due to pumping to Area 8. However, because of closed-circuiting of Kennady Lake Areas 2 to 7, the 2-year flood discharge during dewatering will decrease by approximately 14% above the baseline value, and the 100-year flood discharge will decrease by approximately 37%. Pumping will cause low flows to increase by 194% to 389% under median conditions.

Lake L1 Water Levels: Lake L1 flood water levels are also expected to decrease during dewatering. The 2-year flood level is expected to decrease by approximately 0.040 m, the 100-year flood level by 0.135 m, while monthly mean stages increase by 0.002 metres (m) (June), 0.152 m (July), 0.264 m (August), 0.284 m (September), and decrease by 0.012 m (October), under median conditions.

Lake L1 and Outlet Channel/Bank Stability: No effects on Lake L1 and Outlet channel or bank stability are expected during dewatering, because flood magnitudes will not exceed baseline values.

Lake M1 Outlet Flows: The water balance results for Lake M1 show that during dewatering, post-freshet monthly mean flows will increase due to pumping to Area 8. Because of the relative timing of dewatering discharges arriving at Lake M1, the 2-year flood discharge during dewatering will increase by approximately 3% above the baseline value, and the 100-year flood discharge will increase by approximately 4%. Pumping will cause low flows to increase by 119% to 289% under median conditions.

Lake M1 Water Levels: Lake M1 flood water levels are expected to increase slightly during dewatering. The 2-year flood level is expected to increase by approximately 0.010 m, the 100-year flood level by 0.020 m, while monthly mean stages decrease by 0.010 m (June) and increase by 0.105 m (July), 0.223 m (August), 0.246 m (September) and 0.050 m (October), under median conditions.

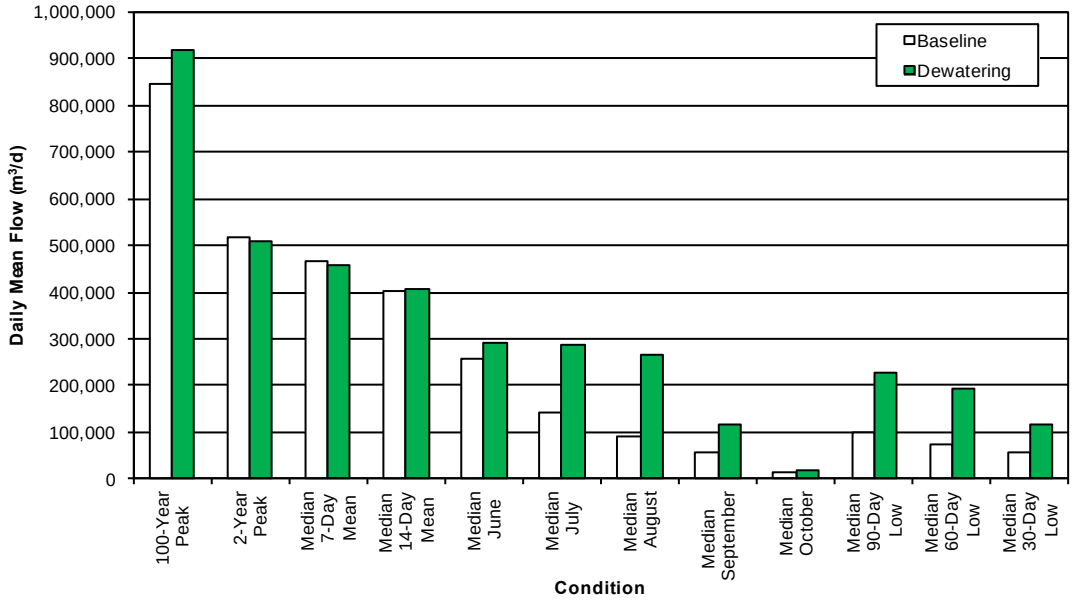
Lake M1 and Outlet Channel/Bank Stability: No effects on Lake M1 and Outlet channel or bank stability are expected during dewatering, because flood magnitudes will not exceed baseline values.

Lake N11 to Lake N1 Outlet

During dewatering, discharges to Lake N11 will be limited to ensure that 2-year flood conditions at Lakes N11 and their outlet channels are held similar to baseline. Discharges will be limited such that the sum of the total of natural and diverted discharge will not exceed the 2-year (median) maximum daily flow rate at the Lake N11 outlet (511,000 m^3/d). No direct discharge will occur if snowmelt or rainfall runoff cause water levels to significantly exceed the 2-year flood discharge in Lake N11. A volume of approximately 12.8 Mm^3 will be diverted, following the spring runoff peak. In accordance with the mine water balance, the flow diversion was modeled over an extended period of several months, meaning that modeled discharges at the Lake N1 outlet are typically on the order of 300,000 m^3/d or less for median conditions.

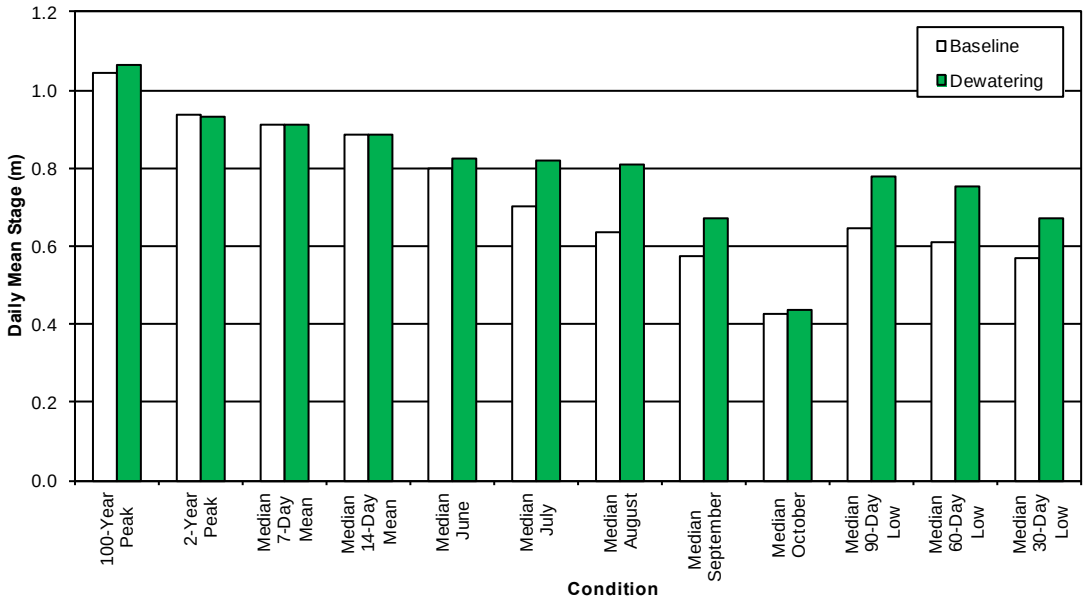
The water balance model for the Project examined all downstream waterbodies between Lake N11 and the Lake N1 outlet channel. Project effects on Lake N11 during dewatering are summarized in Figures 9.I-6 to 9.I-7 and Tables 9.I-11 to 9.I-14. Project effects on Lake N1 during dewatering are summarized in Figures 9.I-8 to 9.I-9 and Tables 9.I-15 to 9.I-18.

Figure 9.I-6 Comparison of Effects on Lake N11 Outlet Discharges – Dewatering



m^3/d = cubic metres per day.

Figure 9.I-7 Comparison of Effects on Lake N11 Stages – Dewatering



m = metres.

Table 9.I-11 Monthly Mean Discharges at the Lake N11 Outlet – Dewatering

Condition	Return Period (years)	Snapshot	Monthly Mean Discharge [m^3/d]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	443,000	293,000	221,000	258,000	50,700
		dewatering	484,000	391,000	334,000	381,000	56,800
	10	baseline	359,000	215,000	147,000	123,000	28,200
		dewatering	400,000	335,000	309,000	227,000	31,100
Median	2	baseline	257,000	141,000	91,400	56,800	14,700
		dewatering	292,000	289,000	267,000	118,000	17,100
Dry	10	baseline	155,000	83,600	58,800	33,300	8,740
		dewatering	196,000	262,000	223,000	54,300	10,600
	100	baseline	71,900	46,900	42,600	25,900	6,400
		dewatering	134,000	252,000	189,000	34,200	9,380

m^3/d = cubic metres per day.

Table 9.I-12 Derived Representative Discharges at the Lake N11 Outlet – Dewatering

Condition	Return Period (years)	Snapshot	Peak Daily Q [m^3/s]	7-Day Mean Peak Q [m^3/d]	14-Day Mean Peak Q [m^3/d]	30-Day Low Flow Q [m^3/d]	60-Day Low Flow Q [m^3/d]	90-Day Low Flow Q [m^3/d]
Wet	100	baseline	9.77	747,000	630,000	179,000	198,000	215,000
		dewatering	10.60	807,000	680,000	378,000	339,000	349,000
	10	baseline	8.22	630,000	538,000	102,000	125,000	152,000
		dewatering	8.25	632,000	542,000	225,000	263,000	287,000
Median	2	baseline	6.00	464,000	404,000	55,500	75,000	98,700
		dewatering	5.91	457,000	406,000	117,000	193,000	228,000
Dry	10	baseline	3.36	269,000	240,000	33,900	48,500	64,200
		dewatering	4.06	318,000	298,000	57,900	142,000	185,000
	100	baseline	0.85	85,300	81,700	25,200	36,500	45,200
		dewatering	2.85	225,000	227,000	30,600	110,000	159,000

Q = discharge; m^3/s = cubic metres per second; m^3/d = cubic metres per day.

Table 9.I-13 Monthly Mean Stages at Lake N11 – Dewatering

Condition	Return Period (years)	Snapshot	Monthly Mean Stage [m]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	0.903	0.824	0.774	0.801	0.558
		dewatering	0.921	0.879	0.848	0.874	0.572
	10	baseline	0.862	0.769	0.707	0.680	0.490
		dewatering	0.883	0.849	0.834	0.778	0.501
Median	2	baseline	0.800	0.700	0.636	0.572	0.424
		dewatering	0.824	0.822	0.807	0.674	0.438
Dry	10	baseline	0.715	0.624	0.577	0.508	0.378
		dewatering	0.754	0.804	0.776	0.567	0.394
	100	baseline	0.603	0.548	0.537	0.481	0.352
		dewatering	0.693	0.797	0.748	0.511	0.384

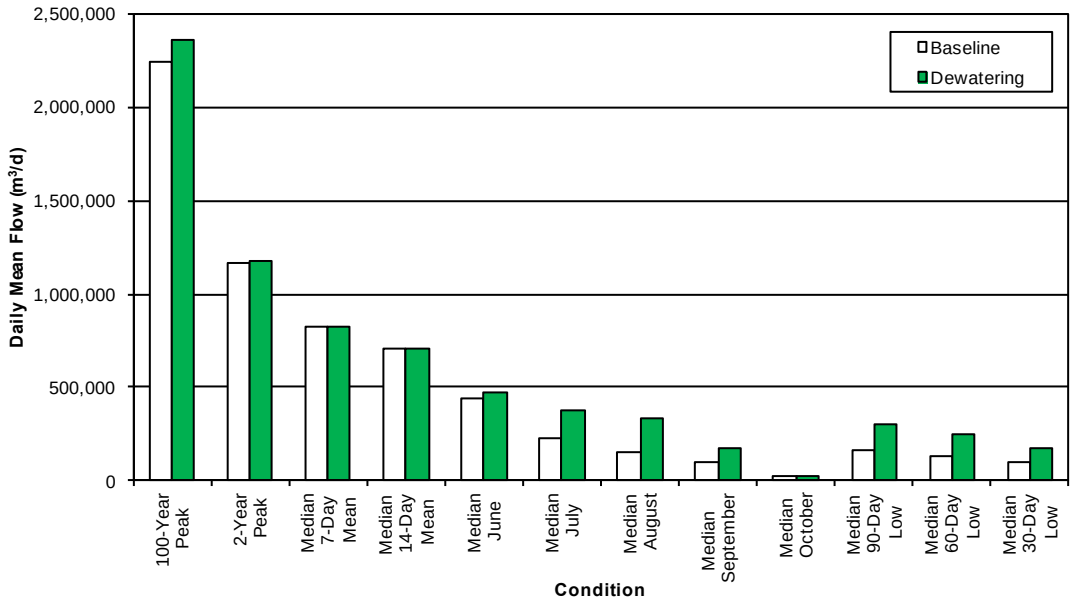
m = metre.

Table 9.I-14 Derived Representative Stages at Lake N11 – Dewatering

Condition	Return Period (years)	Snapshot	Peak Daily Stage [m]	7-Day Mean Peak Stage [m]	14-Day Mean Peak Stage [m]	30-Day Low Flow Stage [m]	60-Day Low Flow Stage [m]	90-Day Low Flow Stage [m]
Wet	100	baseline	1.042	1.015	0.977	0.738	0.755	0.769
		dewatering	1.062	1.032	0.993	0.872	0.851	0.857
	10	baseline	1.003	0.977	0.943	0.652	0.682	0.712
		dewatering	1.004	0.978	0.945	0.777	0.805	0.820
Median	2	baseline	0.935	0.913	0.885	0.569	0.609	0.647
		dewatering	0.932	0.910	0.886	0.672	0.751	0.780
Dry	10	baseline	0.823	0.808	0.789	0.510	0.553	0.588
		dewatering	0.858	0.839	0.827	0.575	0.701	0.744
	100	baseline	0.606	0.626	0.620	0.478	0.519	0.544
		dewatering	0.793	0.777	0.779	0.499	0.663	0.719

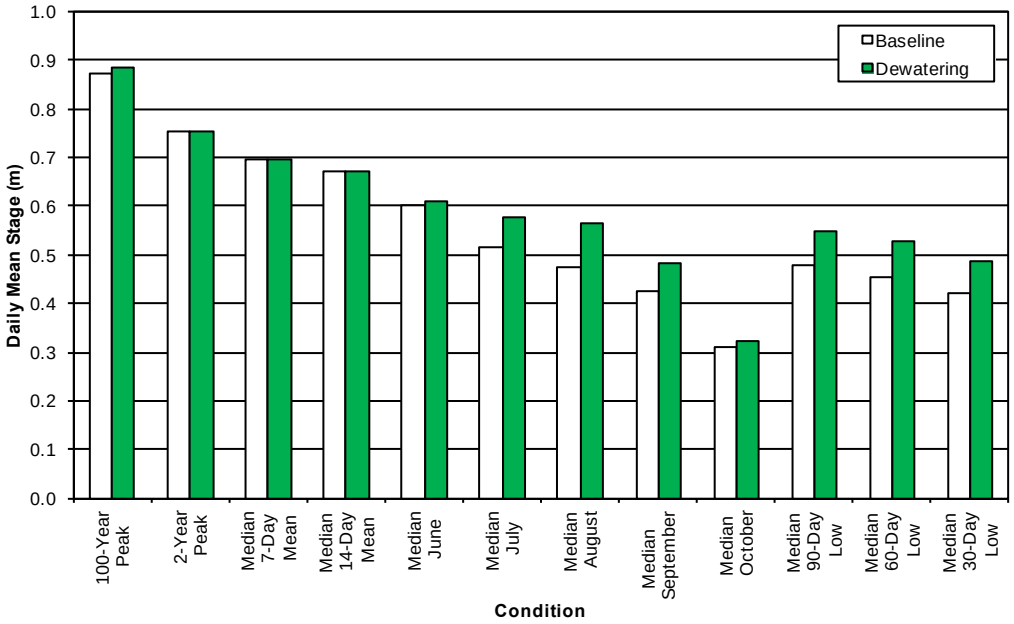
m = metre.

Figure 9.I-8 Comparison of Effects on Lake N1 Outlet Discharges – Dewatering



m^3/d = cubic metres per day.

Figure 9.I-9 Comparison of Effects on Lake N1 Stages – Dewatering



m = metres.

Table 9.I-15 Monthly Mean Discharges at the Lake N1 Outlet – Dewatering

Condition	Return Period (years)	Snapshot	Monthly Mean Discharge [m^3/d]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	737,000	470,000	370,000	398,000	84,100
		dewatering	776,000	584,000	508,000	520,000	92,200
	10	baseline	609,000	348,000	248,000	204,000	47,600
		dewatering	646,000	470,000	416,000	312,000	52,800
Median	2	baseline	444,000	229,000	156,000	99,000	25,100
		dewatering	472,000	374,000	332,000	173,000	29,400
Dry	10	baseline	270,000	138,000	102,000	56,600	14,600
		dewatering	317,000	312,000	276,000	94,900	17,600
	100	baseline	121,000	79,300	75,400	41,600	10,300
		dewatering	190,000	273,000	243,000	57,300	12,800

m^3/d = cubic metres per day.

Table 9.I-16 Derived Representative Discharges at the Lake N1 Outlet – Dewatering

Condition	Return Period (years)	Snapshot	Peak Daily Q [m^3/s]	7-Day Mean Peak Q [m^3/d]	14-Day Mean Peak Q [m^3/d]	30-Day Low Flow Q [m^3/d]	60-Day Low Flow Q [m^3/d]	90-Day Low Flow Q [m^3/d]
Wet	100	baseline	25.90	1,250,000	1,050,000	285,000	333,000	353,000
		dewatering	27.30	1,290,000	1,070,000	453,000	477,000	495,000
	10	baseline	19.90	1,080,000	910,000	171,000	212,000	251,000
		dewatering	20.10	1,080,000	917,000	299,000	355,000	390,000
Median	2	baseline	13.50	827,000	704,000	95,600	128,000	166,000
		dewatering	13.60	828,000	707,000	175,000	254,000	299,000
Dry	10	baseline	8.22	527,000	441,000	57,200	83,800	109,000
		dewatering	8.91	564,000	476,000	95,900	189,000	236,000
	100	baseline	4.51	242,000	174,000	40,500	63,800	77,100
		dewatering	6.05	341,000	271,000	53,600	153,000	199,000

Q = discharge; m^3/s = cubic metres per second; m^3/d = cubic metres per day.

Table 9.I-17 Monthly Mean Stages at Lake N1 – Dewatering

Condition	Return Period (years)	Snapshot	Monthly Mean Stage [m]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	0.677	0.610	0.578	0.587	0.411
		dewatering	0.685	0.641	0.621	0.624	0.419
	10	baseline	0.648	0.569	0.527	0.504	0.360
		dewatering	0.656	0.610	0.593	0.555	0.369
Median	2	baseline	0.602	0.517	0.473	0.426	0.311
		dewatering	0.611	0.579	0.563	0.485	0.322
Dry	10	baseline	0.537	0.460	0.429	0.375	0.274
		dewatering	0.557	0.555	0.540	0.422	0.287
	100	baseline	0.447	0.405	0.400	0.349	0.253
		dewatering	0.496	0.538	0.524	0.376	0.266

m = metre.

Table 9.I-18 Derived Representative Stages at Lake N1 – Dewatering

Condition	Return Period (years)	Snapshot	Peak Daily Stage [m]	7-Day Mean Peak Stage [m]	14-Day Mean Peak Stage [m]	30-Day Low Flow Stage [m]	60-Day Low Flow Stage [m]	90-Day Low Flow Stage [m]
Wet	100	baseline	0.874	0.765	0.733	0.544	0.564	0.571
		dewatering	0.884	0.769	0.738	0.605	0.612	0.617
	10	baseline	0.822	0.739	0.710	0.484	0.508	0.528
		dewatering	0.825	0.740	0.712	0.550	0.572	0.585
Median	2	baseline	0.753	0.695	0.670	0.423	0.452	0.480
		dewatering	0.754	0.695	0.670	0.486	0.530	0.550
Dry	10	baseline	0.671	0.626	0.601	0.376	0.410	0.436
		dewatering	0.683	0.636	0.612	0.423	0.495	0.521
	100	baseline	0.584	0.523	0.486	0.347	0.385	0.403
		dewatering	0.625	0.567	0.538	0.370	0.471	0.501

m = metre.

Summary of Effects on Flows, Water Levels and Channel/Bank Stability

Lake N11 Outlet Flows: The water balance results for Lake N11 show that during dewatering, monthly mean flows will increase due to pumping to Lake N11. The 2-year flood discharge during dewatering will be approximately equal to the baseline value, and the 100-year flood discharge will increase by approximately 8%. Low flows will also increase by 111% to 157% under median conditions.

Lake N11 Water Levels: Lake N11 water levels are also expected to increase during dewatering. The 2-year flood level is expected to be approximately equal to the baseline value. The 100-year flood level is expected to increase by 0.020 m, and monthly mean stages by 0.023 m (June), 0.121 m (July), 0.171 m (August), 0.101 m (September) and 0.015 m (October), under median conditions.

Lake N11 and Outlet Channel/Bank Stability: No effects on Lake N11 and Outlet channel or bank stability are expected during dewatering, because increases in flood magnitude are small relative to the existing flood regime. Additional information on the Lake N11 Outlet follows this summary.

Lake N1 Outlet Flows: The water balance results for Lake N1 show that during dewatering, monthly mean flows will increase due to pumping to Lake N11. The 2-year flood discharge during dewatering will increase by approximately 1% above the baseline value, and the 100-year flood discharge will increase by

approximately 5%. Low flows will also increase by 80% to 98% under median conditions.

Lake N1 Water Levels: Lake N1 water levels are also expected to increase during dewatering. The 2-year flood level is expected to increase by approximately 0.001 m, the 100-year flood level by 0.011 m, and monthly mean stages by 0.008 m (June), 0.062 m (July), 0.090 m (August), 0.058 m (September) and 0.012 m (October), under median conditions.

Lake N1 and Outlet Channel/Bank Stability: No effects on Lake N1 and Outlet channel or bank stability are expected during dewatering, because increases in flood magnitude are small relative to the existing flood regime.

Additional Comment on the Lake N11 Outlet Channel: The project description (Section 3) indicates that dewatering discharges to Lake N11 will be limited such that the total of natural and diverted discharge will not exceed the 2-year (median) maximum daily flow rate at the Lake N11 outlet (511,000 m^3/d). Because the outlet of Lake N11 will be subject to direct discharge from Kennady Lake during construction, a detailed analysis of hydraulic characteristics and erosion potential at the Lake N11 outlet was performed. The current dewatering plan involves dewatering a reduced quantity of water at a lower rate.

Surveys of the Lake N11 outlet channel indicate that it is naturally armoured with boulders and bedrock (refer to the aerial photo mosaic of the Lake N11 outlet channel [Figure 9.7-12] in the 2011 EIS Update] and any effects of the higher flows to scour of finer sediment fractions from interstitial areas between boulder and cobble substrates would be temporary and limited. A summary of the flow area, velocity and water surface elevation of each cross-section of the Lake N11 outlet channel during dewatering, is provided in Table 9.I-19 for 2, 10 and 100-year flood conditions.

A conservative estimate of rock size required to resist local, depth-averaged flow velocities, as presented by TAC (2001), indicates that nominal rock diameters of 0.26 m, 0.54 m, 0.94 m and 1.48 m would be required for stability at flow velocities of 3 metres per second (m/s), 4 m/s, 5 m/s and 6 m/s, respectively. The largest mean channel velocities anticipated for the Lake N11 outflow channel are 1.9 m/s (2-year flood) at cross-sections 6 and 8, and 2.3 m/s (100-year flood) at cross-section 6. Applying a conservative factor of 1.5 yields local, depth-averaged flow velocities of approximately 3 m/s (2-year flood) and 3.5 m/s (100-year flood). This indicates that boulders of diameter 0.26 m (2-year flood) and 0.40 m (100-year flood) would be stable at this section.

An evaluation of erosion potential at each section of the Lake N11 outlet is provided in Table 9.I-20. Based on this analysis, no erosion due to dewatering is expected in the outlet channel from Lake N11 outlet (i.e., stream N11).

Table 9.I-19 Derived Changes to Discharge, Velocity, Flow Area and Water Surface Elevation at the Lake N11 Outlet during Dewatering

Section	Quantity	2-year Flood Discharge		10-year Flood Discharge		100-year Flood Discharge	
		Baseline	Dewatering	Baseline	Dewatering	Baseline	Dewatering
	Discharge [m^3/s]	6.00	5.91	8.22	8.25	9.77	10.6
XS1	flow area [m^2]	17.87	17.72	21.27	21.31	23.29	24.27
	velocity [m/s]	0.34	0.34	0.39	0.39	0.43	0.44
	max depth [m]	1.02	1.01	1.13	1.13	1.20	1.23
XS2	flow area [m^2]	9.52	9.45	11.30	11.32	12.42	12.97
	velocity [m/s]	0.65	0.64	0.76	0.76	0.82	0.85
	max depth [m]	1.11	1.11	1.22	1.22	1.28	1.31
XS3	flow area [m^2]	3.68	3.64	4.65	4.66	5.25	5.59
	velocity [m/s]	1.67	1.66	1.82	1.82	1.91	1.95
	max depth [m]	0.44	0.44	0.51	0.51	0.55	0.57
XS4	flow area [m^2]	15.52	15.37	18.98	19.03	21.26	22.44
	velocity [m/s]	0.41	0.40	0.46	0.46	0.49	0.51
	max depth [m]	0.92	0.92	1.06	1.06	1.14	1.18
XS5	flow area [m^2]	10.60	10.50	13.03	13.06	14.59	15.39
	velocity [m/s]	0.61	0.61	0.69	0.69	0.74	0.76
	max depth [m]	1.13	1.12	1.25	1.26	1.34	1.38
XS6	flow area [m^2]	3.14	3.09	3.88	3.89	4.35	4.60
	velocity [m/s]	1.91	1.91	2.12	2.12	2.24	2.30
	max depth [m]	0.94	0.94	1.03	1.03	1.08	1.11
XS7	flow area [m^2]	6.68	6.67	8.44	8.46	9.31	9.72
	velocity [m/s]	0.95	0.93	1.03	1.04	1.12	1.16
	max depth [m]	0.93	0.93	1.05	1.05	1.10	1.12
XS8	flow area [m^2]	3.26	3.08	4.52	4.53	5.39	5.72
	velocity [m/s]	1.84	1.92	1.82	1.82	1.81	1.85
	max depth [m]	0.71	0.69	0.82	0.82	0.88	0.90
XS9	flow area [m^2]	8.46	8.41	9.70	9.72	10.54	10.97
	velocity [m/s]	0.71	0.70	0.85	0.85	0.93	0.97
	max depth [m]	0.87	0.87	0.94	0.95	0.99	1.01
XS10	flow area [m^2]	4.73	4.68	5.85	5.87	6.41	6.79
	velocity [m/s]	1.27	1.26	1.40	1.41	1.53	1.56
	max depth [m]	0.46	0.46	0.50	0.50	0.52	0.53

Table 9.I-19 Derived Changes to Discharge, Velocity, Flow Area and Water Surface Elevation at the Lake N11 Outlet during Dewatering (continued)

Section	Quantity	2-year Flood Discharge		10-year Flood Discharge		100-year Flood Discharge	
		Baseline	Dewatering	Baseline	Dewatering	Baseline	Dewatering
	Discharge [m^3/s]	**6.00**	**5.91**	**8.22**	**8.25**	**9.77**	**10.6**
XS11	flow area [m^2]	7.40	7.32	9.38	9.41	10.62	11.25
	velocity [m/s]	0.81	0.81	0.88	0.88	0.92	0.94
	max depth [m]	0.79	0.79	0.89	0.89	0.96	0.99
XS12	flow area [m^2]	7.15	7.09	8.42	8.43	9.21	9.61
	velocity [m/s]	0.84	0.83	0.98	0.98	1.07	1.11
	max depth [m]	0.91	0.91	1.00	1.01	1.06	1.09
XS13	flow area [m^2]	3.94	3.90	4.94	4.95	5.65	6.05
	velocity [m/s]	1.53	1.53	1.69	1.69	1.76	1.79
	max depth [m]	0.6	0.6	0.67	0.67	0.72	0.75
XS14	flow area [m^2]	6.11	6.05	7.32	7.34	8.14	8.62
	velocity [m/s]	0.98	0.98	1.13	1.13	1.21	1.24
	max depth [m]	0.8	0.8	0.87	0.87	0.92	0.95
XS15	flow area [m^2]	3.89	3.85	4.84	4.86	5.48	5.79
	velocity [m/s]	1.54	1.54	1.70	1.70	1.78	1.83
	max depth [m]	0.50	0.50	0.55	0.55	0.59	0.61
XS16	flow area [m^2]	12.47	11.28	12.96	11.28	13.31	11.28
	velocity [m/s]	0.48	0.52	0.63	0.73	0.73	0.94
	max depth [m]	0.87	0.81	0.89	0.81	0.91	0.81

m/s = metres per second; m^3/s = cubic metres per second; m^2 = square metres; m = metres.

Table 9.I-20 Evaluation of Erosion Potential in the Lake N11 Outlet Channel during Dewatering

Section	Quantity	2-year Discharge		10-year Discharge		100-year Discharge	
		Natural	Dewatering	Natural	Dewatering	Natural	Dewatering
	Discharge [m^3/s]	**6.00**	**5.91**	**8.22**	**8.25**	**9.77**	**10.6**
XS1	velocity [m/s]	0.34	0.34	0.39	0.39	0.43	0.44
	materials	boulders with vegetation in low velocity areas of sediment deposition					
	evaluation	transition zone from Lake N11 with low velocities, low erosion potential					
XS2	velocity [m/s]	0.65	0.64	0.76	0.76	0.82	0.85
	materials	boulders embedded in LDB high bank, large boulders at RDB					
	evaluation	low velocities, low erosion potential					
XS3	velocity [m/s]	1.67	1.66	1.82	1.82	1.91	1.95
	materials	boulders embedded in LDB bank, large boulders at RDB					
	evaluation	lake outlet sill; boulder armour adequate					
XS4	velocity [m/s]	0.41	0.4	0.46	0.46	0.49	0.51
	materials	boulders embedded in LDB bank, large boulders at RDB					
	evaluation	low velocities because channel increases in width, low erosion potential					
XS5	velocity [m/s]	0.61	0.61	0.69	0.69	0.74	0.76
	materials	large boulders at LDB and RDB					
	evaluation	low velocities, low erosion potential					
XS6	velocity [m/s]	1.91	1.91	2.12	2.12	2.24	2.3
	materials	natural rock boulders, D_{50} approximately 600 mm					
	evaluation	constriction causes highest velocities, but still well below stability threshold					
XS7	velocity [m/s]	0.95	0.93	1.03	1.04	1.12	1.16
	materials	large boulders at LDB and RDB					
	evaluation	low velocities, low erosion potential					
XS8	velocity [m/s]	1.84	1.92	1.82	1.82	1.81	1.85
	materials	bedrock control in bed and banks					
	evaluation	this section is resistant to erosion, and insensitive to increase in velocity and discharge					
XS9	velocity [m/s]	0.71	0.7	0.85	0.85	0.93	0.97
	materials	bedrock at LDB, large boulders at RDB					
	evaluation	immediately below bedrock control. Low erosion potential					
XS10	velocity [m/s]	1.27	1.26	1.4	1.41	1.53	1.56
	materials	bedrock in LDB, large boulders at RDB					
	evaluation	this section is insensitive to increase in velocity and discharge					

Table 9.I-20 Evaluation of Erosion Potential in the Lake N11 Outlet Channel during Dewatering (continued)

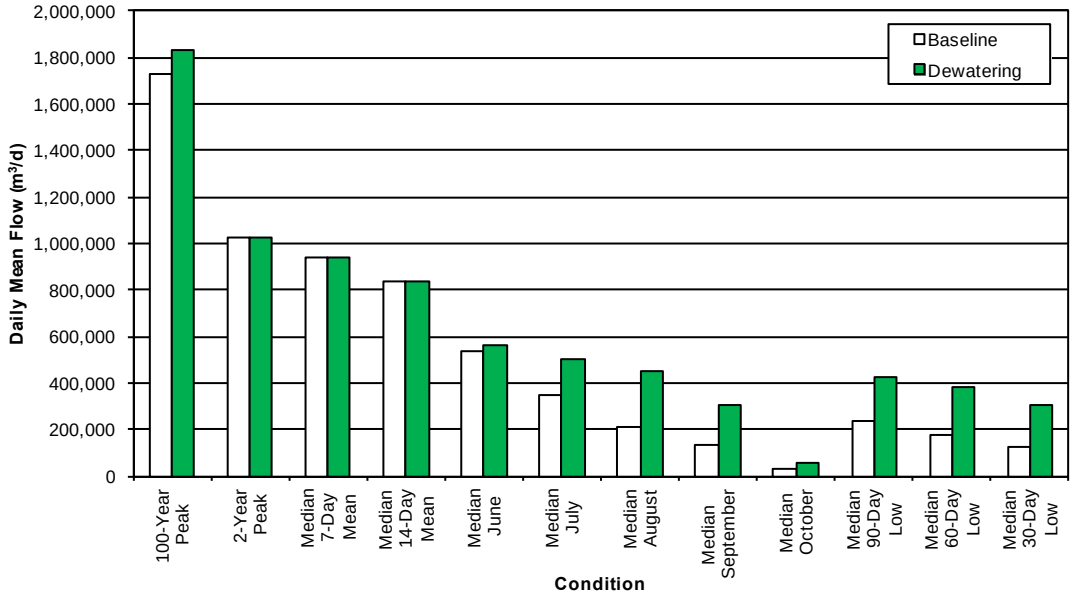
Section	Quantity	2-year Discharge		10-year Discharge		100-year Discharge	
		Natural	Dewatering	Natural	Dewatering	Natural	Dewatering
	Discharge [m^3/s]	**6.00**	**5.91**	**8.22**	**8.25**	**9.77**	**10.6**
XS11	velocity [m/s]	0.81	0.81	0.88	0.88	0.92	0.94
	materials	bedrock in LDB, large boulders at RDB					
	evaluation	this section is insensitive to increase in velocity and discharge					
XS12	velocity [m/s]	0.84	0.83	0.98	0.98	1.07	1.11
	materials	bedrock in LDB, large boulders at RDB					
	evaluation	this section is insensitive to increase in velocity and discharge					
XS13	velocity [m/s]	1.53	1.53	1.69	1.69	1.76	1.79
	materials	bedrock at LDB, large boulders at RDB					
	evaluation	constriction causes relatively high velocities, but still well below stability threshold					
XS14	velocity [m/s]	0.98	0.98	1.13	1.13	1.21	1.24
	materials	boulders embedded in bank on LDB, large boulders at RDB					
	evaluation	this section is insensitive to increase in velocity and discharge					
XS15	velocity [m/s]	1.54	1.54	1.7	1.7	1.78	1.83
	materials	large boulders at LDB and RDB					
	evaluation	this section is insensitive to increase in velocity and discharge					
XS16	velocity [m/s]	0.48	0.52	0.63	0.73	0.73	0.94
	materials	large boulders at LDB and RDB					
	evaluation	transition zone to Lake N1 with low velocities, low erosion potential					

m^3/s =cubic metres per second; m/s = metres per second; RDB – right descending bank; LDB – left descending bank.

Lake 410 to Kirk Lake Outlet

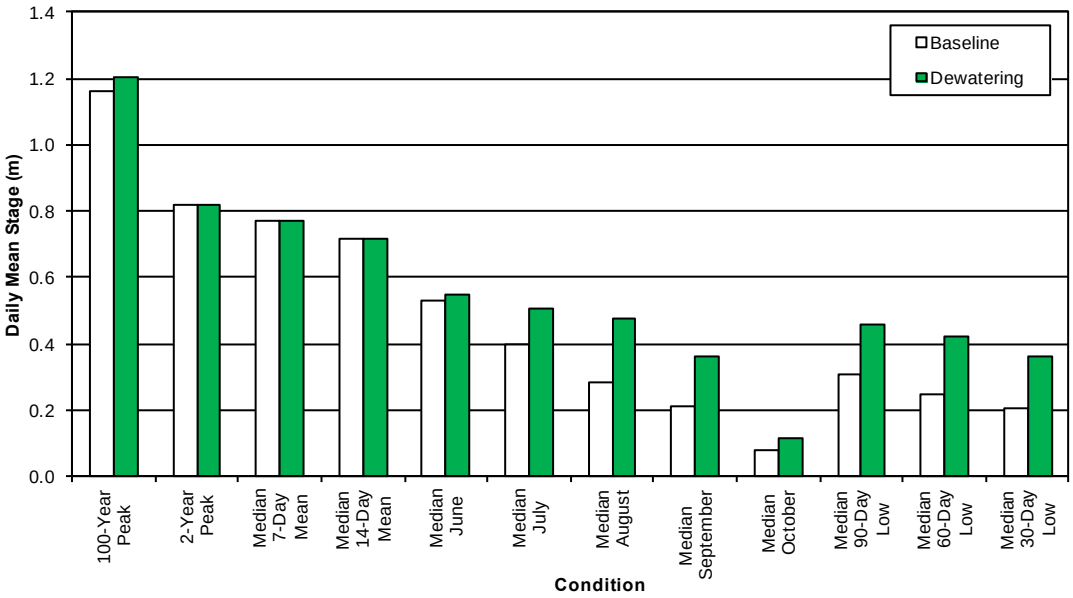
Lake N1 and Lake M1 flow into Lake 410, which then drains through watershed P through to Kirk Lake. The water balance model for the Project examined all downstream waterbodies between Lake 410 and Kirk Lake. Project effects on Lake 410 during dewatering are summarized in Figures 9.I-10 to 9.I-11 and Tables 9.I-21 to 9.I-24. Project effects on Kirk Lake during dewatering are summarized in Figures 9.I-12 to 9.I-13 and Tables 9.I-25 to 9.I-28.

Figure 9.I-10 Comparison of Effects on Lake 410 Outlet Discharges – Dewatering



m^3/d = cubic metres per day.

Figure 9.I-11 Comparison of Effects on Lake 410 Stages – Dewatering



m = metres.

Table 9.I-21 Monthly Mean Discharges at the Lake 410 Outlet – Dewatering

Condition	Return Period (years)	Snapshot	Monthly Mean Discharge [m^3/d]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	934,000	678,000	475,000	587,000	135,000
		dewatering	932,000	792,000	663,000	702,000	165,000
	10	baseline	759,000	514,000	329,000	278,000	70,700
		dewatering	771,000	633,000	552,000	469,000	99,800
Median	2	baseline	537,000	344,000	210,000	135,000	32,700
		dewatering	559,000	503,000	452,000	301,000	56,200
Dry	10	baseline	329,000	203,000	132,000	73,900	16,000
		dewatering	370,000	420,000	389,000	201,000	32,200
	100	baseline	190,000	106,000	90,100	49,800	9,660
		dewatering	219,000	365,000	355,000	150,000	21,000

m^3/d = cubic metres per day.

Table 9.I-22 Derived Representative Discharges at the Lake 410 Outlet – Dewatering

Condition	Return Period (years)	Snapshot	Peak Daily Q [m^3/s]	7-Day Mean Peak Q [m^3/d]	14-Day Mean Peak Q [m^3/d]	30-Day Low Flow Q [m^3/d]	60-Day Low Flow Q [m^3/d]	90-Day Low Flow Q [m^3/d]
Wet	100	baseline	20.0	1,420,000	1,240,000	404,000	443,000	491,000
		dewatering	21.2	1,480,000	1,290,000	588,000	632,000	660,000
	10	baseline	16.5	1,230,000	1,080,000	237,000	287,000	355,000
		dewatering	16.6	1,240,000	1,090,000	441,000	494,000	536,000
Median	2	baseline	11.9	942,000	837,000	128,000	173,000	234,000
		dewatering	11.9	941,000	838,000	304,000	378,000	426,000
Dry	10	baseline	7.11	580,000	523,000	74,200	108,000	150,000
		dewatering	8.07	652,000	590,000	204,000	301,000	350,000
	100	baseline	3.03	219,000	200,000	50,900	77,500	100,000
		dewatering	5.45	419,000	388,000	142,000	258,000	305,000

Q = discharge; m^3/s = cubic metres per second; m^3/d = cubic metres per day.

Table 9.I-23 Monthly Mean Stages at Lake 410 – Dewatering

Condition	Return Period (years)	Snapshot	Monthly Mean Stage [m]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	0.769	0.621	0.489	0.564	0.212
		dewatering	0.767	0.689	0.612	0.635	0.242
	10	baseline	0.670	0.516	0.384	0.342	0.138
		dewatering	0.676	0.593	0.542	0.486	0.173
Median	2	baseline	0.531	0.395	0.284	0.212	0.082
		dewatering	0.546	0.509	0.474	0.361	0.118
Dry	10	baseline	0.383	0.278	0.209	0.142	0.051
		dewatering	0.415	0.451	0.429	0.276	0.081
	100	baseline	0.266	0.180	0.162	0.109	0.036
		dewatering	0.292	0.411	0.403	0.227	0.061

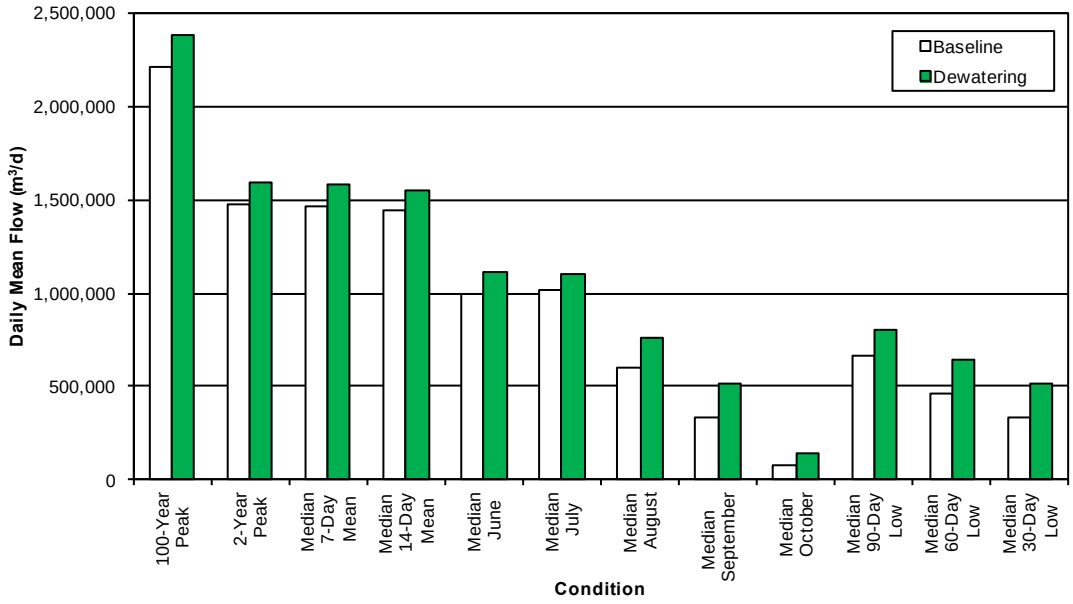
m =metre.

Table 9.I-24 Derived Representative Stages at Lake 410 – Dewatering

Condition	Return Period (years)	Snapshot	Peak Daily Stage [m]	7-Day Mean Peak Stage [m]	14-Day Mean Peak Stage [m]	30-Day Low Flow Stage [m]	60-Day Low Flow Stage [m]	90-Day Low Flow Stage [m]
Wet	100	baseline	1.160	1.018	0.928	0.439	0.468	0.501
		dewatering	1.203	1.045	0.953	0.565	0.593	0.610
	10	baseline	1.018	0.924	0.847	0.308	0.350	0.403
		dewatering	1.023	0.926	0.850	0.466	0.503	0.531
Median	2	baseline	0.820	0.773	0.715	0.205	0.249	0.305
		dewatering	0.820	0.773	0.715	0.363	0.420	0.455
Dry	10	baseline	0.581	0.559	0.522	0.142	0.183	0.227
		dewatering	0.632	0.605	0.566	0.278	0.361	0.399
	100	baseline	0.329	0.292	0.275	0.110	0.146	0.174
		dewatering	0.487	0.450	0.428	0.219	0.326	0.364

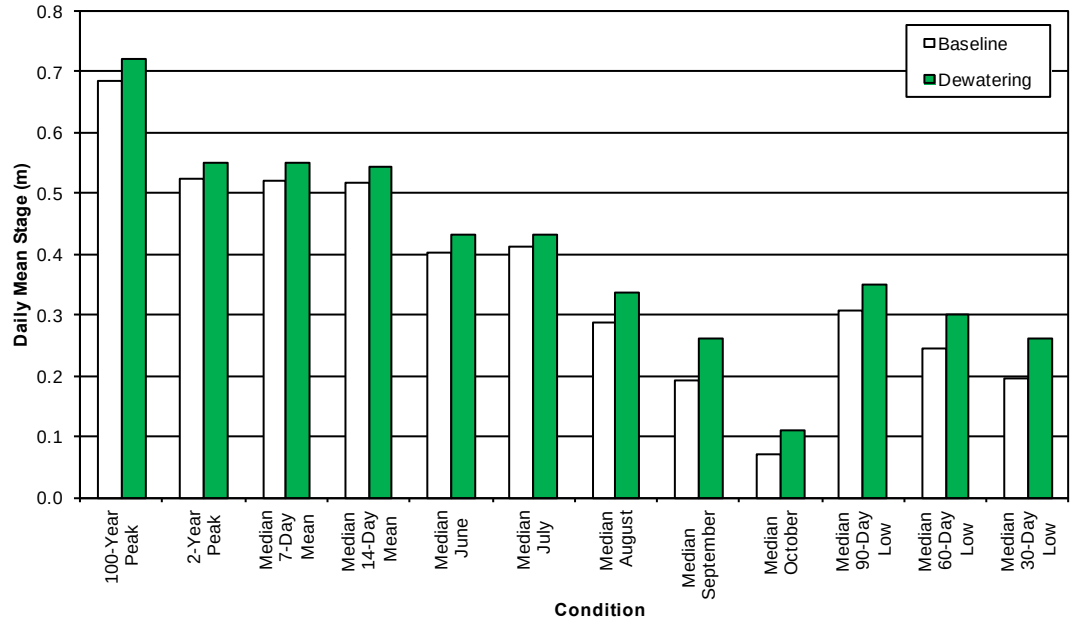
m =metre.

Figure 9.I-12 Comparison of Effects on Kirk Lake Outlet Discharges – Dewatering



m^3/d = cubic metres per day.

Figure 9.I-13 Comparison of Effects on Kirk Lake Stages – Dewatering



m = metres.

Table 9.I-25 Monthly Mean Discharges at the Kirk Lake Outlet – Dewatering

Condition	Return Period (years)	Snapshot	Monthly Mean Discharge [m^3/d]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	1,850,000	1,730,000	1,250,000	1,370,000	420,000
		dewatering	1,950,000	1,860,000	1,380,000	1,590,000	489,000
	10	baseline	1,450,000	1,420,000	916,000	676,000	188,000
		dewatering	1,560,000	1,530,000	1,070,000	895,000	268,000
Median	2	baseline	995,000	1,020,000	596,000	332,000	75,700
		dewatering	1,110,000	1,100,000	762,000	515,000	143,000
Dry	10	baseline	562,000	607,000	349,000	161,000	24,500
		dewatering	674,000	717,000	536,000	346,000	82,200
	100	baseline	226,000	255,000	191,000	85,200	4,760
		dewatering	340,000	402,000	391,000	276,000	58,600

m^3/d = cubic metres per day.

Table 9.I-26 Derived Representative Discharges at the Kirk Lake Outlet – Dewatering

Condition	Return Period (years)	Snapshot	Peak Daily Q [m^3/s]	7-Day Mean Peak Q [m^3/d]	14-Day Mean Peak Q [m^3/d]	30-Day Low Flow Q [m^3/d]	60-Day Low Flow Q [m^3/d]	90-Day Low Flow Q [m^3/d]
Wet	100	baseline	25.5	2,160,000	2,100,000	1,050,000	1,140,000	1,290,000
		dewatering	27.5	2,330,000	2,270,000	1,240,000	1,300,000	1,440,000
	10	baseline	22.1	1,890,000	1,850,000	636,000	774,000	981,000
		dewatering	23.7	2,020,000	1,980,000	826,000	947,000	1,120,000
Median	2	baseline	17.1	1,460,000	1,440,000	333,000	467,000	660,000
		dewatering	18.4	1,580,000	1,550,000	517,000	645,000	808,000
Dry	10	baseline	10.6	902,000	884,000	163,000	262,000	395,000
		dewatering	12.2	1,050,000	1,030,000	339,000	443,000	558,000
	100	baseline	3.98	321,000	290,000	82,100	148,000	213,000
		dewatering	6.50	534,000	509,000	251,000	329,000	393,000

Q = discharge; m^3/s = cubic metres per second; m^3/d = cubic metres per day.

Table 9.I-27 Monthly Mean Stages at Kirk Lake – Dewatering

Condition	Return Period (years)	Snapshot	Monthly Mean Stage [m]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	0.610	0.585	0.469	0.499	0.227
		dewatering	0.633	0.613	0.501	0.552	0.251
	10	baseline	0.520	0.512	0.382	0.312	0.133
		dewatering	0.545	0.538	0.423	0.376	0.168
Median	2	baseline	0.404	0.411	0.287	0.194	0.072
		dewatering	0.433	0.433	0.338	0.260	0.111
Dry	10	baseline	0.276	0.290	0.201	0.120	0.034
		dewatering	0.311	0.325	0.267	0.200	0.077
	100	baseline	0.150	0.163	0.134	0.078	0.011
		dewatering	0.197	0.221	0.217	0.172	0.061

m = metre.

Table 9.I-28 Derived Representative Stages at Kirk Lake – Dewatering

Condition	Return Period (years)	Snapshot	Peak Daily Stage [m]	7-Day Mean Peak Stage [m]	14-Day Mean Peak Stage [m]	30-Day Low Flow Stage [m]	60-Day Low Flow Stage [m]	90-Day Low Flow Stage [m]
Wet	100	baseline	0.685	0.678	0.665	0.419	0.441	0.480
		dewatering	0.722	0.713	0.699	0.468	0.483	0.517
	10	baseline	0.624	0.619	0.610	0.300	0.342	0.400
		dewatering	0.654	0.648	0.639	0.357	0.391	0.438
Median	2	baseline	0.525	0.522	0.516	0.195	0.244	0.307
		dewatering	0.552	0.549	0.543	0.261	0.302	0.352
Dry	10	baseline	0.382	0.378	0.373	0.121	0.166	0.218
		dewatering	0.421	0.417	0.413	0.197	0.235	0.275
	100	baseline	0.199	0.190	0.178	0.077	0.113	0.145
		dewatering	0.276	0.267	0.258	0.161	0.193	0.217

m = metre.

Summary of Effects on Flows, Water Levels and Channel/Bank Stability

Lake 410 Outlet Flows: The water balance results for Lake 410 show that during dewatering, monthly mean flows will increase due to pumping to Lake N11 and Kennady Lake Area 8. The 2-year flood discharge during dewatering will remain approximately equal to the baseline value, and the 100-year flood

discharge will increase by approximately 6%. Low flows will also increase by 82% to 138% under median conditions.

Lake 410 Water Levels: Lake 410 water levels are also expected to increase during dewatering. The 2-year flood level is expected to remain approximately equal to the baseline value, the 100-year flood level is expected to increase by 0.043 m, and monthly mean stages by 0.014 m (June), 0.114 m (July), 0.190 m (August), 0.149 m (September) and 0.036 m (October), under median conditions.

Lake 410 and Outlet Channel/Bank Stability: No effects on Lake 410 and Outlet channel or bank stability are expected during dewatering, because increases in flood magnitude are small relative to the existing flood regime.

Kirk Lake Outlet Flows: The water balance results for Kirk Lake show that during dewatering, monthly mean flows will increase due to pumping to Lake N11 and Kennady Lake Area 8. The 2-year flood discharge during dewatering will increase by approximately 8% above the baseline value, and the 100-year flood discharge will also increase by approximately 8%. This apparent inconsistency with flow increases with Lake 410 is because the Kirk Lake natural flood peak typically occurs in July, later than upstream lakes which tend to peak in June. Therefore, while dewatering discharges to Lake N11 occur after the Lake N11 outlet flood peak and only cause slight increases in the flood peaks at the Lake N1 and Lake 410 outlets, the sustained post-peak flows cause an incremental increase in flood discharge at the later-peaking Kirk Lake outlet. Low flows will also increase by 22% to 55% under median conditions.

Kirk Lake Water Levels: Kirk Lake water levels are also expected to increase during dewatering. The 2-year flood level is expected to increase by approximately 0.027 m, the 100-year flood level by 0.037 m, and monthly mean stages by 0.030 m (June), 0.021 m (July), 0.051 m (August), 0.066 m (September) and 0.038 m (October), under median conditions.

Kirk Lake and Outlet Channel/Bank Stability: No effects on Kirk Lake and Outlet channel or bank stability are expected during dewatering, because increases in flood magnitude are small relative to the existing flood regime.

9.I.1.2 Effect of Diversion in Watersheds B, D, and E to Flows, Water Levels and Channel/Bank Stability in Streams and Lakes in the N lakes Watershed

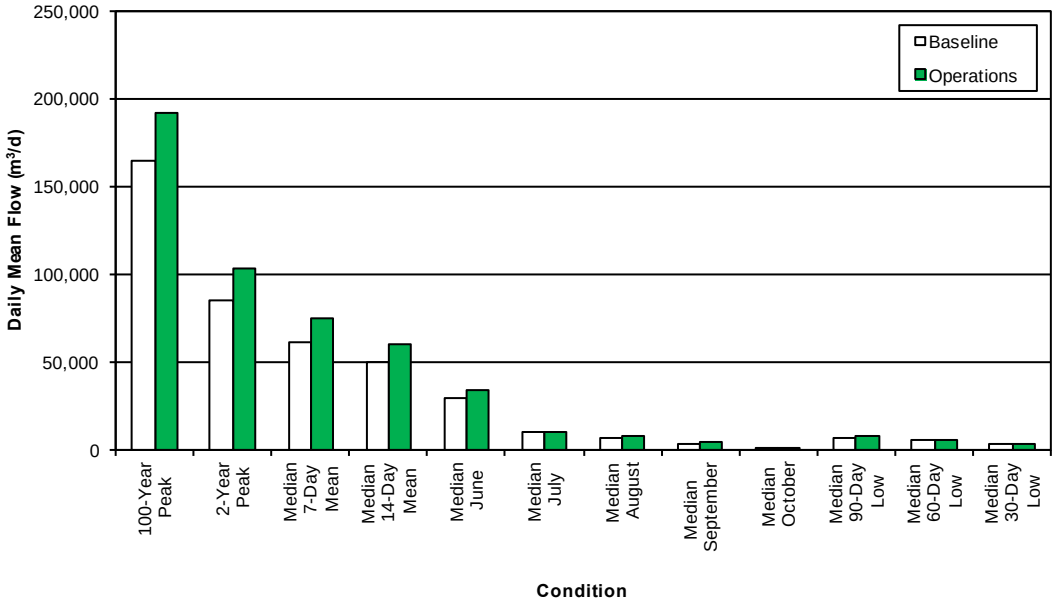
As a result of the reduced size of the Fine PKC Facility (mitigated) that is limited to Area 1, Lake A3 in the A watershed is no longer diverted to Lake N9. During operations, flows from Watershed A will now be diverted through the J watershed to Area 8. As a result of this change, updates to the pumping schedule from Kennady Lake to Lake N11 have slightly modified predicted flows and water levels during operations for the outlets and waterbodies downstream in the N watershed from those presented in the 2011 EIS Update. Updated flow regimes and effects analysis are presented below for Lake N8 to Lake N1, Lake N14 to Lake N11 and Lake N11 to Lake N1. Flow regimes of Lakes N14 to Lake N11 were not affected by updates in water management but were revisited from the 2011 EIS, resulting in minor changes.

Lake N8 to Lake N1 Inflow (B Watershed Diversion)

The water balance model for the Project examined this receiving watershed by modeling the flow diverted from the B watershed into Lake N6. Lake N8 was not modeled due to its small size and low storage/flow attenuation capacity, but was lumped, along with Lake N6b, as part of the entire Lake N6 watershed. Below Lake N6, Lake N5, Lake N3 (including Lake N4, which was lumped with Lake N3 for the same reasons Lakes N8 and N6b were lumped with Lake N6) and Lake N2 were modeled.

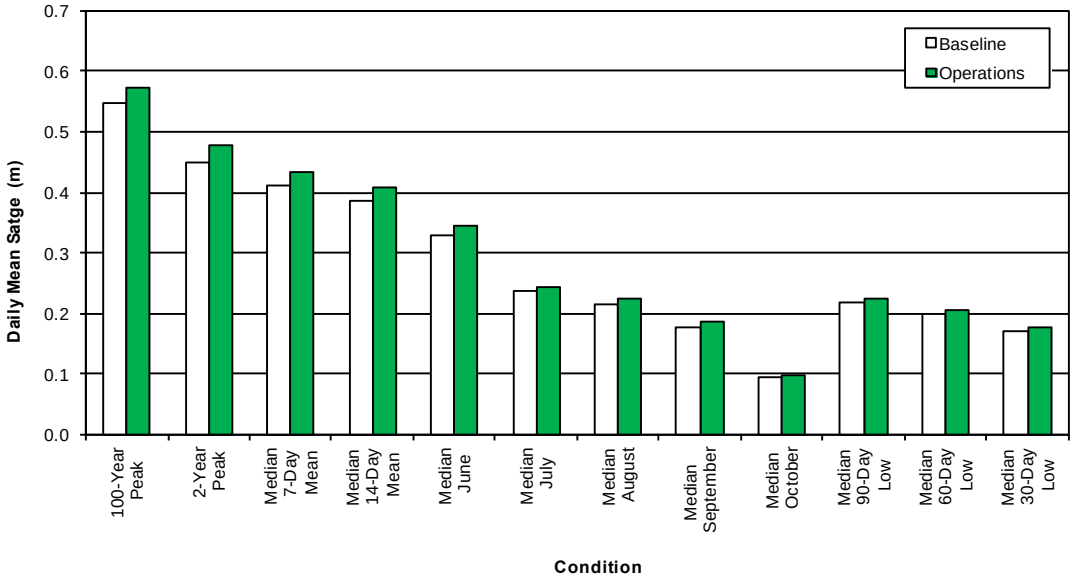
Project effects on Lake N6 are presented in Figures 9.I-14 to 9.I-15 and Tables 9.I-29 to 9.I-32, and Project effects on Lake N2, upstream of its confluence with Lake N1, are presented in Figures 9.I-16 to 9.I-17 and Tables 9.I-33 to 9.I-36.

Figure 9.I-14 Comparison of Effects on Lake N6 Outlet Discharges – Operations



m^3/d = cubic metres per day.

Figure 9.I-15 Comparison of Effects on Lake N6 Stages – Operations



m = metres.

Table 9.I-29 Monthly Mean Discharges at the Lake N6 Outlet – Operations

Condition	Return Period (years)	Snapshot	Monthly Mean Discharge [m^3/d]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	44,300	25,100	22,200	22,200	3,600
		operations	51,100	28,000	25,400	25,100	4,010
	10	baseline	38,800	16,700	13,100	9,900	1,430
		operations	45,100	18,500	15,000	11,300	1,570
Median	2	baseline	29,400	9,740	6,980	3,650	431
		operations	34,200	10,600	8,000	4,160	469
Dry	10	baseline	15,800	5,140	3,860	1,330	102
		operations	17,600	5,460	4,380	1,480	110
	100	baseline	329	2590	2500	576	5
		operations	0	2,660	2,770	589	6

m^3/d = cubic metres per day.

Table 9.I-30 Derived Representative Discharges at the Lake N6 Outlet – Operations

Condition	Return Period (years)	Snapshot	Peak Daily Q [m^3/s]	7-Day Mean Peak Q [m^3/d]	14-Day Mean Peak Q [m^3/d]	30-Day Low Flow Q [m^3/d]	60-Day Low Flow Q [m^3/d]	90-Day Low Flow Q [m^3/d]
Wet	100	baseline	1.91	91,800	70,600	13,400	19,300	18,200
		operations	2.22	112,000	84,600	14,700	21,900	20,600
	10	baseline	1.44	79,600	63,000	7,180	10,400	11,900
		operations	1.72	96,500	75,500	7,930	11,800	13,400
Median	2	baseline	0.98	61,800	50,000	3,220	5,240	7,140
		operations	1.19	75,000	60,000	3,580	5,970	7,970
Dry	10	baseline	0.60	40,400	31,500	1,330	3,040	4,290
		operations	0.75	49,800	38,000	1,460	3,480	4,810
	100	baseline	0.35	19,700	10,500	547	2,220	2,840
		operations	0.44	26,200	13,300	573	2,550	3,250

Q = discharge; m^3/s = cubic metres per second; m^3/d = cubic metres per day.

Table 9.I-31 Monthly Mean Stages at Lake N6 – Operations

Condition	Return Period (years)	Snapshot	Monthly Mean Stage [m]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	0.373	0.315	0.304	0.304	0.178
		operations	0.388	0.325	0.316	0.315	0.183
	10	baseline	0.358	0.279	0.260	0.239	0.135
		operations	0.374	0.288	0.271	0.249	0.139
Median	2	baseline	0.330	0.238	0.216	0.178	0.095
		operations	0.345	0.244	0.225	0.185	0.097
Dry	10	baseline	0.275	0.197	0.181	0.132	0.062
		operations	0.284	0.201	0.188	0.137	0.064
	100	baseline	0.088	0.161	0.160	0.103	0.025
		operations	-	0.163	0.165	0.104	0.027

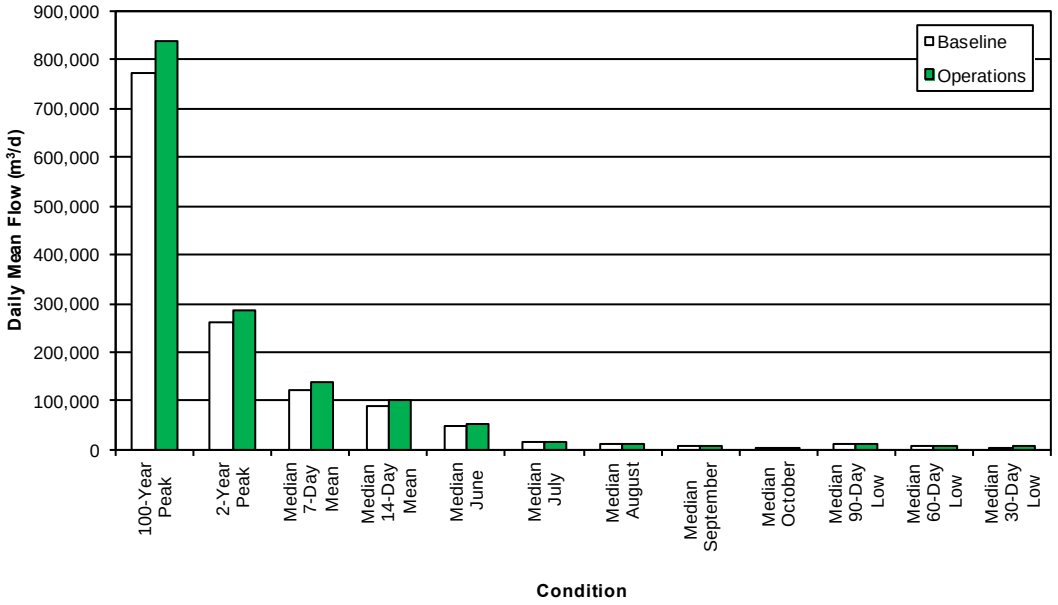
m = metre.

Table 9.I-32 Derived Representative Stages at Lake N6 – Operations

Condition	Return Period (years)	Snapshot	Peak Daily Stage [m]	7-Day Mean Peak Stage [m]	14-Day Mean Peak Stage [m]	30-Day Low Flow Stage [m]	60-Day Low Flow Stage [m]	90-Day Low Flow Stage [m]
Wet	100	baseline	0.549	0.462	0.427	0.262	0.292	0.287
		operations	0.574	0.489	0.451	0.269	0.303	0.297
	10	baseline	0.505	0.443	0.413	0.218	0.243	0.253
		operations	0.532	0.469	0.436	0.224	0.252	0.262
Median	2	baseline	0.450	0.411	0.386	0.172	0.198	0.217
		operations	0.478	0.435	0.407	0.177	0.206	0.225
Dry	10	baseline	0.391	0.363	0.337	0.132	0.169	0.187
		operations	0.416	0.386	0.356	0.136	0.176	0.194
	100	baseline	0.334	0.293	0.244	0.102	0.154	0.166
		operations	0.355	0.319	0.261	0.103	0.161	0.172

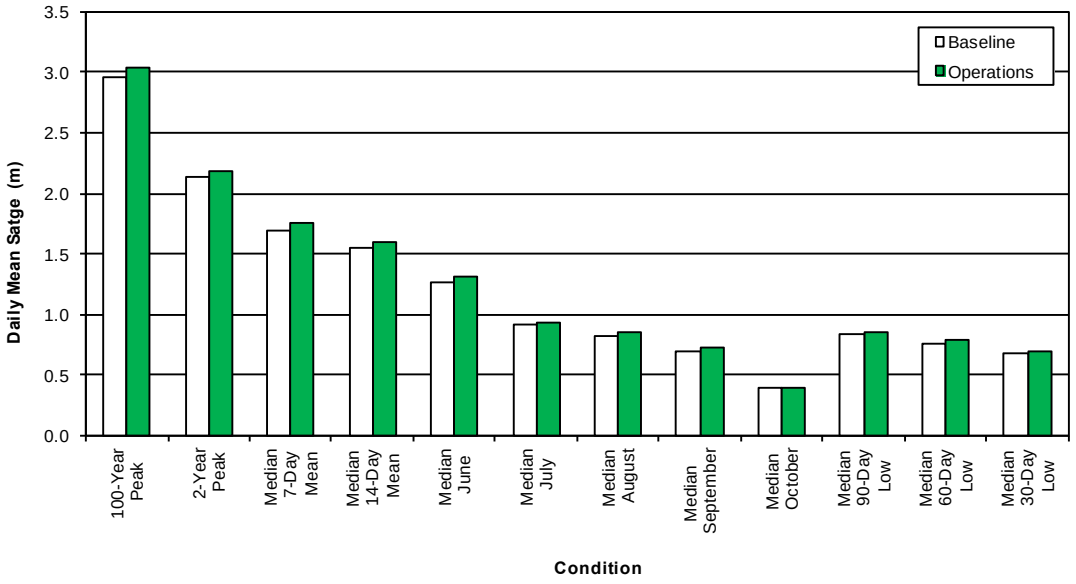
m = metre.

Figure 9.I-16 Comparison of Effects on Lake N2 Outlet Discharges – Operations



m^3/d = cubic metres per day.

Figure 9.I-17 Comparison of Effects on Lake N2 Stages – Operations



m = metres.

Table 9.I-33 Monthly Mean Discharges at the Lake N2 Outlet – Operations

Condition	Return Period (years)	Snapshot	Monthly Mean Discharge [m^3/d]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	74,000	40,000	33,500	36,300	6,640
		operations	81,100	42,700	36,400	39,700	7,110
	10	baseline	63,800	27,200	20,700	17,000	2,840
		operations	70,300	28,800	22,500	18,600	3,090
Median	2	baseline	47,900	16,200	11,600	6,710	964
		operations	53,000	17,000	12,600	7,370	1,060
Dry	10	baseline	27,100	8,800	6,590	2,710	282
		operations	29,700	9,140	7,060	2,980	310
	100	baseline	5,550	4,580	4,230	1,330	63
		operations	4,740	4,700	4,440	1,480	64.6

m^3/d = cubic metres per day.

Table 9.I-34 Derived Representative Discharges at the Lake N2 Outlet – Operations

Condition	Return Period (years)	Snapshot	Peak Daily Q [m^3/s]	7-Day Mean Peak Q [m^3/d]	14-Day Mean Peak Q [m^3/d]	30-Day Low Flow Q [m^3/d]	60-Day Low Flow Q [m^3/d]	90-Day Low Flow Q [m^3/d]
Wet	100	baseline	8.96	159,000	123,000	22,300	30,700	29,400
		operations	9.69	178,000	136,000	23,900	33,200	31,800
	10	baseline	5.62	146,000	112,000	12,400	17,100	19,700
		operations	6.08	164,000	124,000	13,300	18,500	21,100
Median	2	baseline	3.03	121,000	91,700	5,890	8,960	12,000
		operations	3.29	137,000	102,000	6,330	9,710	12,900
Dry	10	baseline	1.49	81,300	60,200	2,680	5,350	7,360
		operations	1.62	92,000	67,400	2,920	5,810	7,890
	100	baseline	0.70	30,400	21,800	1,310	3,950	4,960
		operations	0.77	34,900	25,000	1,470	4,290	5,340

Q = discharge; m^3/s = cubic metres per second; m^3/d = cubic metres per day.

Table 9.I-35 Monthly Mean Stages at Lake N2 – Operations

Condition	Return Period (years)	Snapshot	Monthly Mean Stage [m]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	1.454	1.206	1.143	1.171	0.700
		operations	1.494	1.230	1.172	1.204	0.715
	10	baseline	1.390	1.073	0.988	0.931	0.541
		operations	1.431	1.092	1.014	0.956	0.555
Median	2	baseline	1.274	0.917	0.829	0.702	0.390
		operations	1.314	0.931	0.850	0.723	0.402
Dry	10	baseline	1.072	0.762	0.698	0.534	0.269
		operations	1.102	0.771	0.713	0.549	0.277
	100	baseline	0.663	0.625	0.611	0.430	0.171
		operations	0.632	0.630	0.620	0.444	0.172

m = metre.

Table 9.I-36 Derived Representative Stages at Lake N2 – Operations

Condition	Return Period (years)	Snapshot	Peak Daily Stage [m]	7-Day Mean Peak Stage [m]	14-Day Mean Peak Stage [m]	30-Day Low Flow Stage [m]	60-Day Low Flow Stage [m]	90-Day Low Flow Stage [m]
Wet	100	baseline	2.962	1.832	1.694	1.011	1.113	1.099
		operations	3.033	1.898	1.750	1.032	1.141	1.126
	10	baseline	2.571	1.786	1.647	0.845	0.932	0.973
		operations	2.634	1.851	1.701	0.863	0.955	0.994
Median	2	baseline	2.133	1.689	1.551	0.675	0.767	0.838
		operations	2.186	1.752	1.603	0.690	0.786	0.855
Dry	10	baseline	1.718	1.496	1.365	0.532	0.656	0.722
		operations	1.764	1.553	1.413	0.546	0.672	0.738
	100	baseline	1.367	1.110	1.004	0.428	0.598	0.641
		operations	1.408	1.158	1.047	0.443	0.613	0.655

m = metre.

Summary of Effects on Flows, Water Levels and Channel/Bank Stability

Conveyance from Lake B1 to Lake N8 was discussed in Section 8.7 of the 2011 EIS Update. This temporary diversion will comprise an engineered channel or pipeline, to prevent erosion by flowing water. Because Lake N8 is small, it provides little storage or flow attenuation, and diverted flows in the Lake N8 outlet channel to Lake N6 will greatly exceed baseline values, particularly during spring

freshet. Alternatives for flow conveyance from Lake N8 to Lake N6 include improving the existing outlet channel to ensure that it is resistant to erosion, or constructing a parallel engineered channel or pipeline to handle excess discharge. Any of these will allow flows and water levels to be managed to prevent adverse effects on Lake N8 and Outlet channel and bank stability.

Lake N6 Outlet Flows: The water balance results for Lake N6 show that during Operations, monthly mean flows will increase in proportion to the additional flow from the diverted B watersheds. The 2-year flood discharge during Operations will increase by approximately 21% above the baseline value, and the 100-year flood discharge will increase by approximately 16%. Low flows will also increase by 11% to 14% under median conditions.

Lake N6 Water Levels: Lake N6 water levels are also expected to increase during Operations. The 2-year flood level is expected to increase by approximately 0.028 m, the 100-year flood level by 0.025 m, and monthly mean stages by 0.015 m (June), 0.006 m (July), 0.009 m (August), 0.007 m (September) and 0.002 m (October), under median conditions.

Lake N6 and Outlet Channel/Bank Stability: No effects on Lake N6 and Outlet channel or bank stability are expected during Operations, because increases in flood magnitude are small relative to the existing flood regime.

Lake N2 Outlet Flows: The water balance results for Lake N2 show that during Operations, monthly mean flows will increase in proportion to the additional flow from the diverted A and B watersheds. The 2-year flood discharge during Operations will increase by approximately 10% above the baseline value, and the 100-year flood discharge will increase by approximately 9%. Low flows will also increase by 7% to 8% under median conditions.

Lake N2 Water Levels: Lake N2 water levels are also expected to increase during Operations. The 2-year flood level is expected to increase by approximately 0.054 m, the 100-year flood level by 0.071 m, and monthly mean stages by 0.040 m (June), 0.014 m (July), 0.021 m (August), 0.021 m (September) and 0.012 m (October), under median conditions.

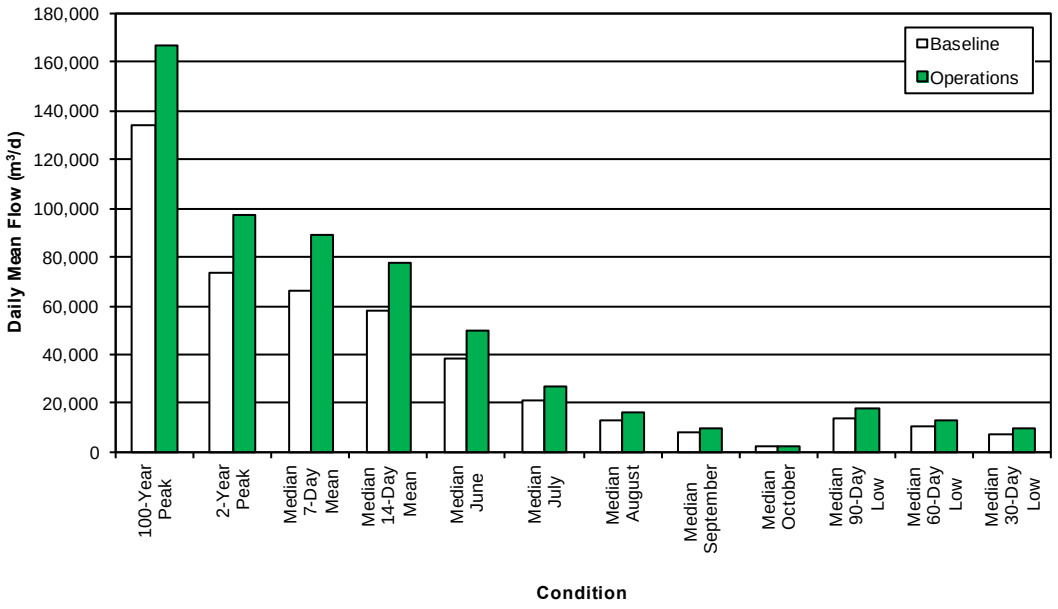
Lake N2 and Outlet Channel/Bank Stability: No effects on Lake N2 and outlet channel or bank stability are expected during Operations, because increases in flood magnitude are small relative to the existing flood regime.

Lake N14 to Lake N11 Inflow (Watershed D and E Diversions)

The water balance model for the Project examined this receiving watershed by modeling the flow diverted from the D and E watersheds into Lake N17, with Lake N14 being lumped into the N17 watershed due to its small size and low storage/flow attenuation capacity. Lake N16, located below Lake N17, was also modeled. Lake N15 was not modelled, due to its small size and low storage.

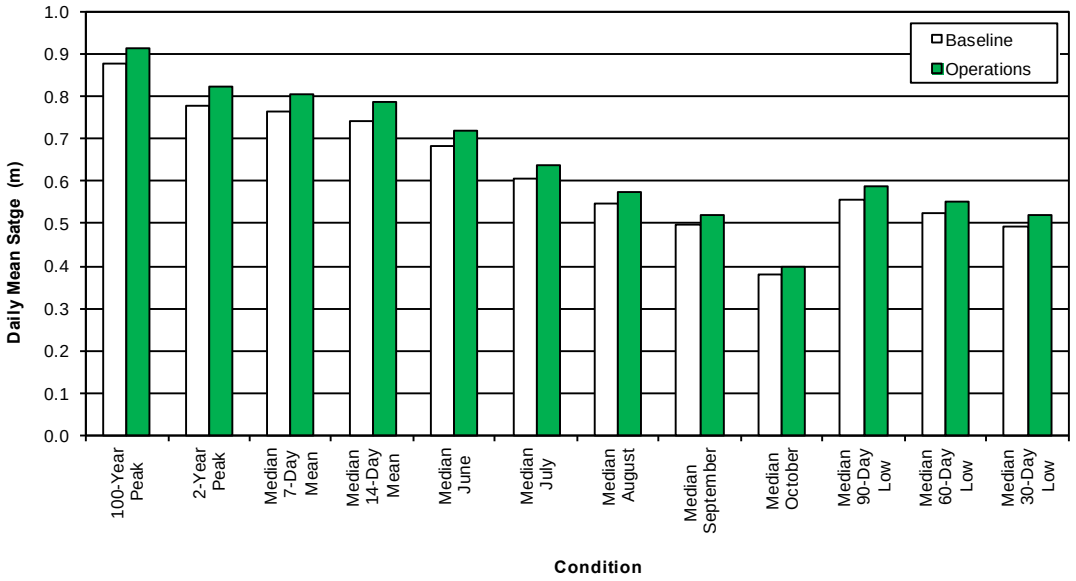
Project effects on Lake N17 are presented in Figures 9.I-18 to 9.I-19 and Tables 9.I-37 to 9.I-40, and Project effects on Lake N16 are presented in Figures 9.I-20 to 9.I-21 and Tables 9.I-41 to 9.I-44.

Figure 9.I-18 Comparison of Effects on Lake N17 Outlet Discharges – Operations



m^3/d = cubic metres per day.

Figure 9.I-19 Comparison of Effects on Lake N17 Stages – Operations



m = metres.

Table 9.I-37 Monthly Mean Discharges at the Lake N17 Outlet – Operations

Condition	Return Period (years)	Snapshot	Monthly Mean Discharge [m^3/d]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	66,800	44,200	31,800	36,800	7,720
		operations	87,000	61,000	43,000	50,100	9,800
	10	baseline	54,000	32,400	20,900	17,300	4,100
		operations	71,700	42,800	27,100	21,400	5,070
Median	2	baseline	38,000	21,100	12,800	7,830	2,040
		operations	49,600	27,000	16,300	9,940	2,570
Dry	10	baseline	21,800	12,400	8,050	4,500	1,160
		operations	28,500	16,100	10,100	5,560	1,410
	100	baseline	8350	6980	5720	3460	835
		operations	10,600	8,830	7,040	4,230	1020

m^3/d = cubic metres per day.

Table 9.I-38 Derived Representative Discharges at the Lake N17 Outlet – Operations

Condition	Return Period (years)	Snapshot	Peak Daily Q [m^3/s]	7-Day Mean Peak Q [m^3/d]	14-Day Mean Peak Q [m^3/d]	30-Day Low Flow Q [m^3/d]	60-Day Low Flow Q [m^3/d]	90-Day Low Flow Q [m^3/d]
Wet	100	baseline	1.55	115,000	95,800	26,300	30,300	35,000
		operations	1.93	139,000	124,000	34,900	39,600	45,800
	10	baseline	1.28	96,700	82,100	14,300	17,800	22,400
		operations	1.67	125,000	106,000	18,900	23,100	29,100
Median	2	baseline	0.85	66,500	58,300	7,690	10,300	13,900
		operations	1.13	88,800	77,800	9,620	13,200	18,000
Dry	10	baseline	0.42	34,700	32,300	4,340	6,590	9,200
		operations	0.56	45,600	42,600	5,630	8,160	11,600
	100	baseline	0.09	8,900	10,300	3,530	5,780	7,880
		operations	0.03	3,410	7,270	4,130	5,820	7,870

Q = discharge; m^3/s = cubic metres per second; m^3/d = cubic metres per day.

Table 9.I-39 Monthly Mean Stages at Lake N17 – Operations

Condition	Return Period (years)	Snapshot	Monthly Mean Stage [m]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	0.762	0.702	0.657	0.677	0.495
		operations	0.804	0.749	0.698	0.720	0.519
	10	baseline	0.731	0.660	0.604	0.582	0.436
		operations	0.773	0.697	0.637	0.607	0.455
Median	2	baseline	0.681	0.606	0.548	0.497	0.379
		operations	0.718	0.636	0.575	0.521	0.397
Dry	10	baseline	0.609	0.544	0.499	0.445	0.339
		operations	0.643	0.574	0.523	0.464	0.353
	100	baseline	0.503	0.485	0.466	0.422	0.317
		operations	0.527	0.509	0.486	0.439	0.330

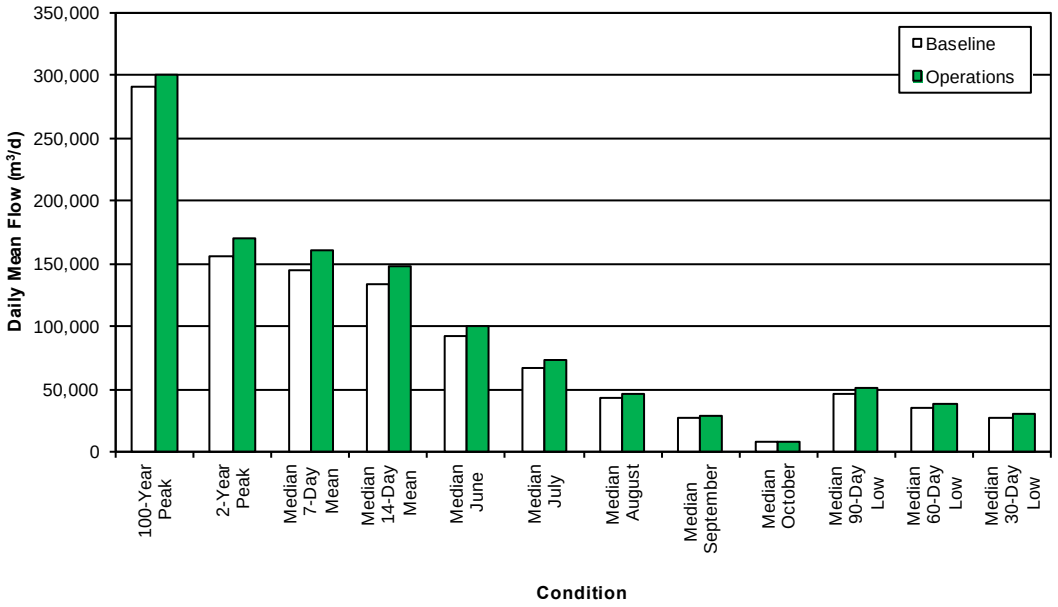
m = metre.

Table 9.I-40 Derived Representative Stages at Lake N17 – Operations

Condition	Return Period (years)	Snapshot	Peak Daily Stage [m]	7-Day Mean Peak Stage [m]	14-Day Mean Peak Stage [m]	30-Day Low Flow Stage [m]	60-Day Low Flow Stage [m]	90-Day Low Flow Stage [m]
Wet	100	baseline	0.876	0.850	0.819	0.633	0.651	0.670
		operations	0.915	0.883	0.863	0.670	0.687	0.707
	10	baseline	0.843	0.821	0.795	0.560	0.585	0.613
		operations	0.890	0.864	0.836	0.592	0.616	0.646
Median	2	baseline	0.778	0.762	0.742	0.495	0.525	0.557
		operations	0.822	0.807	0.786	0.518	0.551	0.586
Dry	10	baseline	0.675	0.669	0.659	0.441	0.480	0.513
		operations	0.714	0.707	0.697	0.465	0.501	0.537
	100	baseline	0.491	0.510	0.525	0.423	0.467	0.497
		operations	0.387	0.421	0.489	0.437	0.468	0.497

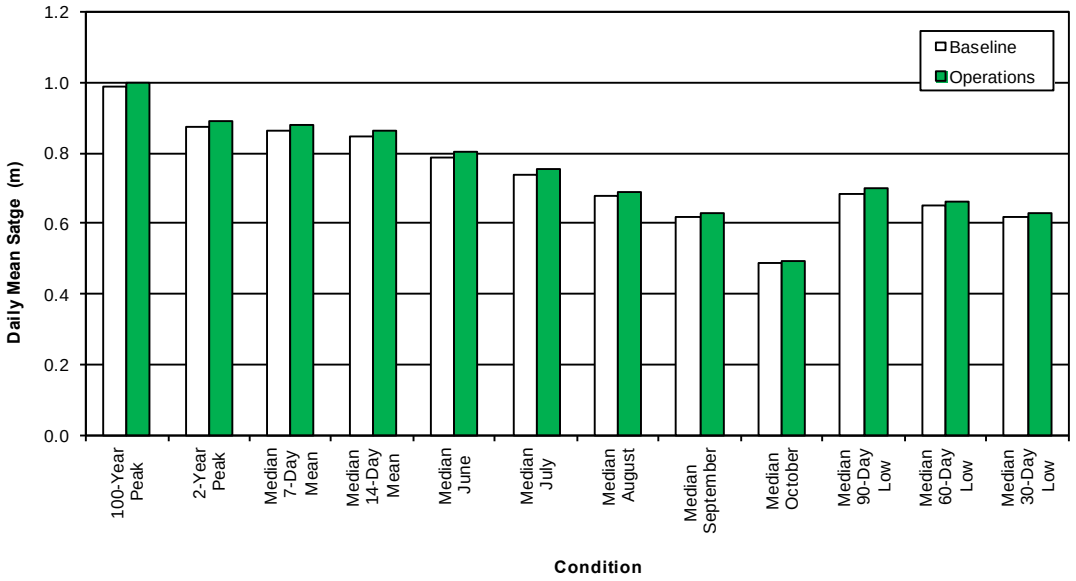
m = metre.

Figure 9.I-20 Comparison of Effects on Lake N16 Outlet Discharges – Operations



m^3/d = cubic metres per day.

Figure 9.I-21 Comparison of Effects on Lake N16 Stages – Operations



m = metres.

Table 9.I-41 Monthly Mean Discharges at the Lake N16 Outlet – Operations

Condition	Return Period (years)	Snapshot	Monthly Mean Discharge [m^3/d]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	171,000	127,000	92,300	93,600	23,800
		operations	191,000	146,000	106,000	118,000	27,600
	10	baseline	134,000	97,800	64,700	51,400	14,100
		operations	150,000	110,000	71,800	55,500	15,300
Median	2	baseline	91,900	66,900	42,400	27,300	7,910
		operations	100,000	73,500	46,200	29,300	8,640
Dry	10	baseline	53,200	40,900	28,200	17,000	4,960
		operations	58,100	45,300	30,900	18,600	5,440
	100	baseline	23,900	22,600	20,500	13,200	3,740
		operations	25,900	24,800	22,500	14,400	4,100

m^3/d = cubic metres per day.

Table 9.I-42 Derived Representative Discharges at the Lake N16 Outlet – Operations

Condition	Return Period (years)	Snapshot	Peak Daily Q [m^3/s]	7-Day Mean Peak Q [m^3/d]	14-Day Mean Peak Q [m^3/d]	30-Day Low Flow Q [m^3/d]	60-Day Low Flow Q [m^3/d]	90-Day Low Flow Q [m^3/d]
Wet	100	baseline	3.37	257,000	228,000	79,300	89,800	100,000
		operations	3.48	264,000	249,000	84,100	99,300	111,000
	10	baseline	2.71	212,000	190,000	45,800	55,800	69,400
		operations	2.93	230,000	206,000	51,000	61,500	76,900
Median	2	baseline	1.80	145,000	133,000	26,700	34,500	45,500
		operations	1.97	161,000	148,000	29,400	37,900	50,400
Dry	10	baseline	0.94	78,200	74,600	16,700	23,300	30,500
		operations	1.04	85,800	82,500	18,800	25,400	33,500
	100	baseline	0.31	26,400	29,000	14,300	20,700	25,500
		operations	0.27	18,400	23,900	14,300	18,900	23,200

Q = discharge; m^3/s = cubic metres per second; m^3/d = cubic metres per day.

Table 9.I-43 Monthly Mean Stages at Lake N16 – Operations

Condition	Return Period (years)	Snapshot	Monthly Mean Stage [m]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	0.891	0.840	0.789	0.791	0.604
		operations	0.911	0.863	0.811	0.828	0.622
	10	baseline	0.849	0.798	0.736	0.703	0.545
		operations	0.868	0.817	0.751	0.714	0.554
Median	2	baseline	0.788	0.740	0.677	0.621	0.486
		operations	0.802	0.754	0.688	0.629	0.495
Dry	10	baseline	0.708	0.672	0.624	0.565	0.443
		operations	0.720	0.686	0.636	0.575	0.451
	100	baseline	0.604	0.598	0.586	0.538	0.419
		operations	0.614	0.609	0.597	0.547	0.427

m = metre.

Table 9.I-44 Derived Representative Stages at Lake N16 – Operations

Condition	Return Period (years)	Snapshot	Peak Daily Stage [m]	7-Day Mean Peak Stage [m]	14-Day Mean Peak Stage [m]	30-Day Low Flow Stage [m]	60-Day Low Flow Stage [m]	90-Day Low Flow Stage [m]
Wet	100	baseline	0.989	0.965	0.943	0.766	0.785	0.801
		operations	0.996	0.970	0.960	0.775	0.800	0.818
	10	baseline	0.948	0.929	0.910	0.687	0.714	0.746
		operations	0.962	0.944	0.924	0.702	0.728	0.761
Median	2	baseline	0.874	0.862	0.848	0.618	0.650	0.686
		operations	0.890	0.880	0.865	0.630	0.662	0.700
Dry	10	baseline	0.769	0.764	0.757	0.563	0.601	0.634
		operations	0.784	0.778	0.772	0.576	0.612	0.646
	100	baseline	0.619	0.616	0.628	0.546	0.588	0.612
		operations	0.599	0.574	0.604	0.546	0.577	0.601

m = metre.

Summary of Effects on Flows, Water Levels and Channel/Bank Stability

Conveyance from Lake D2/D3 and Lake E1 to Lake N14 was discussed in Section 8.7 of the 2011 EIS Update. These temporary diversion flows will be conveyed by engineered channel or pipeline to manage flows and water levels and prevent any adverse effects on diversion channel and bank stability.

Because the existing Lake N14 watershed is small relative to the upstream diverted area, diverted flows will greatly exceed baseline values, particularly during spring freshet. Alternatives for flow conveyance from Lake N14 to Lake N17 include improving the existing outlet channel to ensure that it is resistant to erosion, or constructing a parallel engineered channel or pipeline to handle excess discharge. Any of these will allow flows and water levels to be managed to prevent adverse effects on Lake N14 and Outlet channel and bank stability.

Note that these values presented here represent changes that will occur after Lake D2/D3 fills to its spill elevation, which will take approximately three years under median conditions. Changes due to only the Lake E1 diversion, which would occur in the first year of Operations (i.e., it will take approximately one year for Lake E1 to fill to its spill elevation), would be lower.

Lake N17 Outlet Flows: The water balance results for Lake N17 show that during Operations, monthly mean flows will increase in proportion to the additional flow from the diverted D and E watersheds. The 2-year flood discharge during Operations will increase by approximately 33% above the

baseline value, and the 100-year flood discharge will increase by approximately 25%. Low flows will also increase by 25% to 30% under median conditions.

Lake N17 Water Levels: Lake N17 water levels are also expected to increase during Operations. The 2-year flood level is expected to increase by approximately 0.044 m, the 100-year flood level by 0.039 m, and monthly mean stages by 0.037 m (June), 0.030 m (July), 0.027 m (August), 0.024 m (September) and 0.018 m (October), under median conditions.

Lake N17 and Outlet Channel/Bank Stability: No effects on Lake N17 and Outlet channel or bank stability are expected during Operations, because increases in flood magnitude are small relative to the existing flood regime. Water level increases of 44 mm are unlikely to affect lake shorelines, but increased flood magnitudes are large enough to warrant more intensive monitoring on this lake outlet channel. It is expected that bouldery substrates, along with frozen bank conditions during spring freshet, will prevent any adverse effects to the outlet channel.

Lake N16 Outlet Flows: The water balance results for Lake N16 show that during Operations, monthly mean flows will increase in proportion to the additional flow from the diverted D and E watersheds. The 2-year flood discharge during Operations will increase by approximately 9% above the baseline value, and the 100-year flood discharge will increase by approximately 3%. Low flows will also increase by 9% to 11% under median conditions.

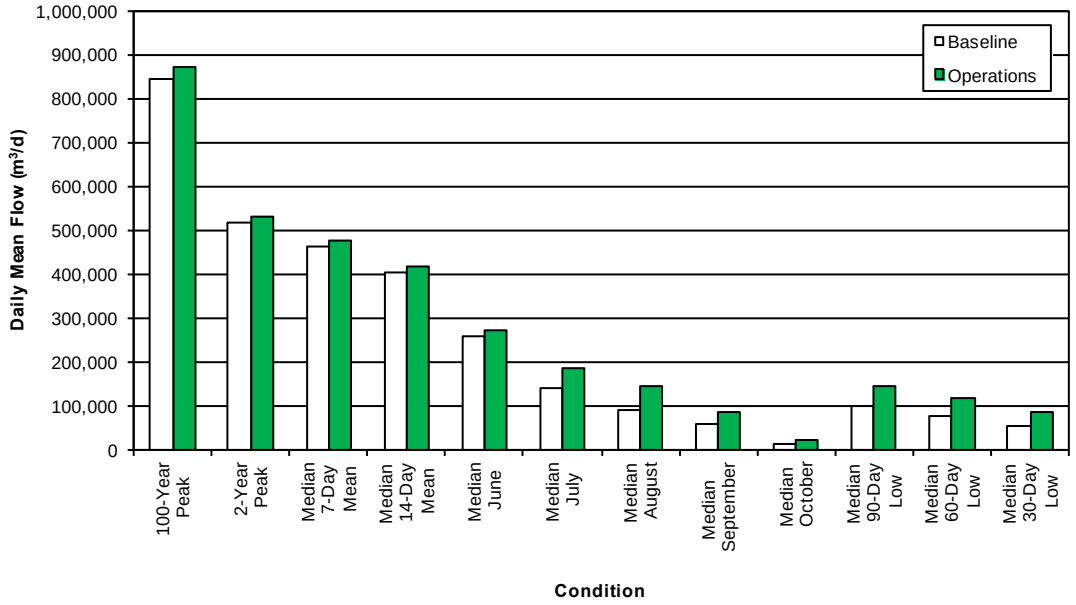
Lake N16 Water Levels: Lake N16 water levels are also expected to increase during Operations. The 2-year flood level is expected to increase by approximately 0.016 m, the 100-year flood level by 0.007 m, and monthly mean stages by 0.014 m (June), 0.014 m (July), 0.011 m (August), 0.008 m (September) and 0.009 m (October), under median conditions.

Lake N16 and Outlet Channel/Bank Stability: No effects on Lake N16 and Outlet channel or bank stability are expected during Operations, because increases in flood magnitude are small relative to the existing flood regime.

Lake N11 to Lake N1 (Combined Diversion)

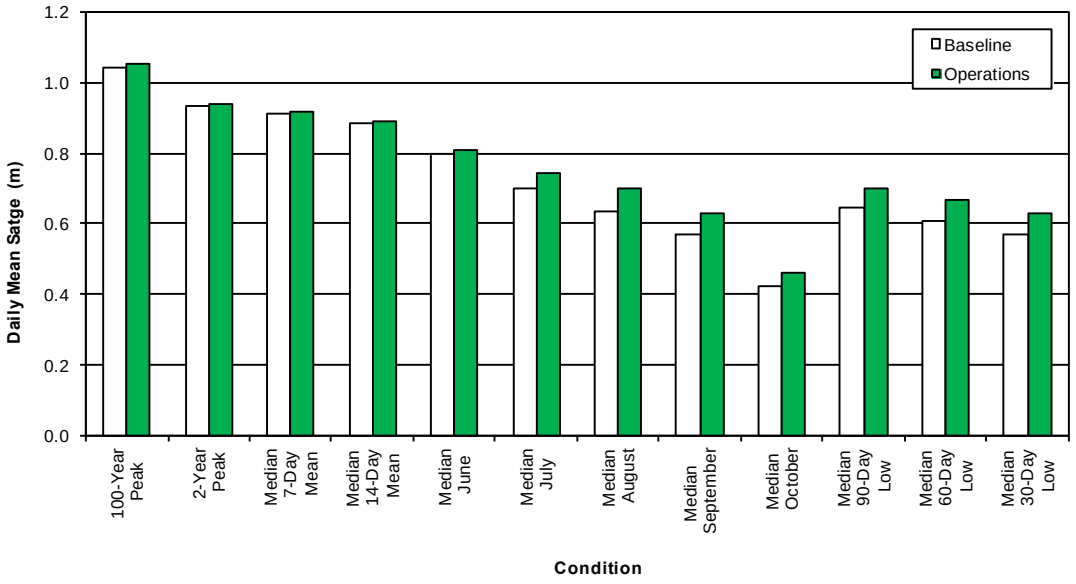
The water balance model for the Project examined flows and water levels at Lake N11 and Lake N1. Project effects on Lake N11 are presented in Figures 9.I-22 to 9.I-23 and Tables 9.I-45 to 9.I-48, and Project effects on Lake N1 are presented in Figures 9.I-24 to 9.I-25 and Tables 9.I-49 to 9.I-52.

Figure 9.I-22 Comparison of Effects on Lake N11 Outlet Discharges – Operations



m^3/d = cubic metres per day.

Figure 9.I-23 Comparison of Effects on Lake N11 Stages – Operations



m = metres.

Table 9.I-45 Monthly Mean Discharges at the Lake N11 Outlet – Operations

Condition	Return Period (years)	Snapshot	Monthly Mean Discharge [m^3/d]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	443,000	293,000	221,000	258,000	50,700
		operations	465,000	349,000	286,000	288,000	56,200
	10	baseline	359,000	215,000	147,000	123,000	28,200
		operations	378,000	268,000	203,000	154,000	34,200
Median	2	baseline	257,000	141,000	91,400	56,800	14,700
		operations	271,000	188,000	143,000	86,900	21,000
Dry	10	baseline	155,000	83,600	58,800	33,300	8,740
		operations	163,000	125,000	109,000	62,000	15,100
	100	baseline	71,900	46,900	42,600	25,900	6,400
		operations	75,300	83,700	93,100	53,800	12,800

m^3/d = cubic metres per day.

Table 9.I-46 Derived Representative Discharges at the Lake N11 Outlet – Operations

Condition	Return Period (years)	Snapshot	Peak Daily Q [m^3/s]	7-Day Mean Peak Q [m^3/d]	14-Day Mean Peak Q [m^3/d]	30-Day Low Flow Q [m^3/d]	60-Day Low Flow Q [m^3/d]	90-Day Low Flow Q [m^3/d]
Wet	100	baseline	9.77	747,000	630,000	179,000	198,000	215,000
		operations	10.1	776,000	659,000	234,000	255,000	266,000
	10	baseline	8.22	630,000	538,000	102,000	125,000	152,000
		operations	8.42	647,000	556,000	141,000	171,000	199,000
Median	2	baseline	6.00	464,000	404,000	55,500	75,000	98,700
		operations	6.15	476,000	416,000	86,600	116,000	143,000
Dry	10	baseline	3.36	269,000	240,000	33,900	48,500	64,200
		operations	3.63	289,000	260,000	62,400	88,300	106,000
	100	baseline	0.85	85,300	81,700	25,200	36,500	45,200
		operations	1.36	125,000	119,000	53,100	76,500	85,200

Q = discharge; m^3/s = cubic metres per second; m^3/d = cubic metres per day.

Table 9.I-47 Monthly Mean Stages at Lake N11 – Operations

Condition	Return Period (years)	Snapshot	Monthly Mean Stage [m]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	0.903	0.824	0.774	0.801	0.558
		operations	0.913	0.857	0.820	0.821	0.571
	10	baseline	0.862	0.769	0.707	0.680	0.490
		operations	0.872	0.808	0.760	0.715	0.511
Median	2	baseline	0.800	0.700	0.636	0.572	0.424
		operations	0.810	0.746	0.702	0.629	0.459
Dry	10	baseline	0.715	0.624	0.577	0.508	0.378
		operations	0.724	0.682	0.662	0.583	0.426
	100	baseline	0.603	0.548	0.537	0.481	0.352
		operations	0.609	0.624	0.639	0.566	0.411

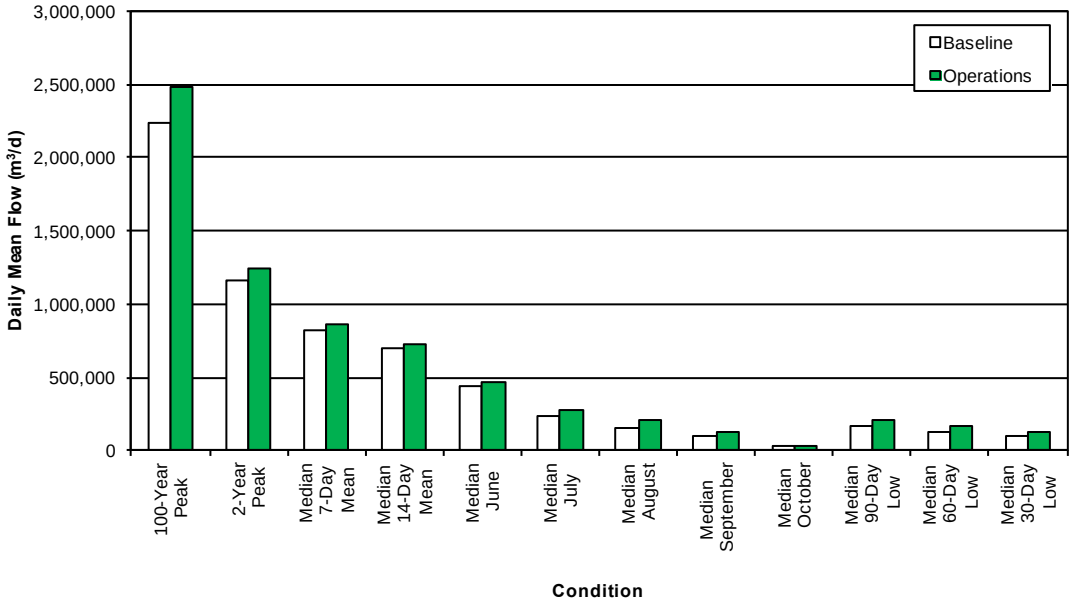
m = metre.

Table 9.I-48 Derived Representative Stages at Lake N11 – Operations

Condition	Return Period (years)	Snapshot	Peak Daily Stage [m]	7-Day Mean Peak Stage [m]	14-Day Mean Peak Stage [m]	30-Day Low Flow Stage [m]	60-Day Low Flow Stage [m]	90-Day Low Flow Stage [m]
Wet	100	baseline	1.043	1.015	0.977	0.739	0.755	0.769
		operations	1.050	1.023	0.987	0.784	0.799	0.806
	10	baseline	1.003	0.977	0.943	0.652	0.682	0.712
		operations	1.009	0.983	0.950	0.701	0.731	0.756
Median	2	baseline	0.935	0.913	0.885	0.569	0.609	0.647
		operations	0.941	0.918	0.891	0.629	0.670	0.702
Dry	10	baseline	0.822	0.809	0.788	0.510	0.553	0.588
		operations	0.836	0.822	0.802	0.584	0.631	0.657
	100	baseline	0.606	0.626	0.620	0.478	0.519	0.544
		operations	0.672	0.682	0.674	0.564	0.611	0.626

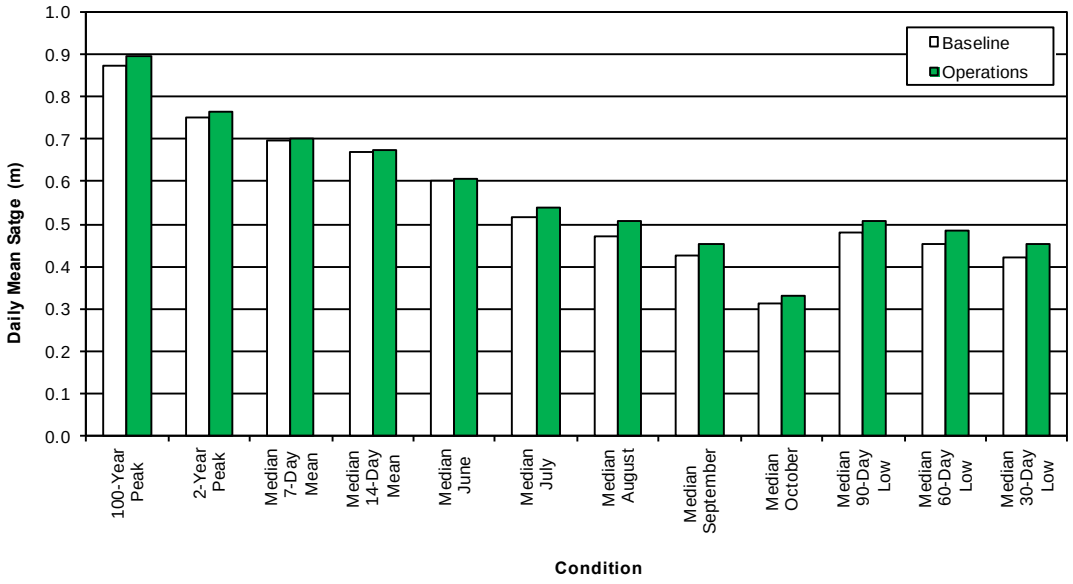
m = metre.

Figure 9.I-24 Comparison of Effects on Lake N1 Outlet Discharges – Operations



m^3/d = cubic metres per day.

Figure 9.I-25 Comparison of Effects on Lake N1 Stages – Operations



m = metres.

Table 9.I-49 Monthly Mean Discharges at the Lake N1 Outlet – Operations

Condition	Return Period (years)	Snapshot	Monthly Mean Discharge [m^3/d]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	737,000	470,000	370,000	398,000	84,100
		operations	764,000	528,000	444,000	438,000	91,700
	10	baseline	609,000	348,000	248,000	204,000	47,600
		operations	632,000	401,000	307,000	240,000	55,300
Median	2	baseline	444,000	229,000	156,000	99,000	25,100
		operations	462,000	275,000	207,000	131,000	32,700
Dry	10	baseline	270,000	138,000	102,000	56,600	14,600
		operations	282,000	175,000	152,000	85,900	22,100
	100	baseline	121,000	79,300	75,400	41,600	10,300
		operations	128,000	110,000	125,000	69,800	17,900

m^3/d = cubic metres per day.

Table 9.I-50 Derived Representative Discharges at the Lake N1 Outlet – Operations

Condition	Return Period (years)	Snapshot	Peak Daily Q [m^3/s]	7-Day Mean Peak Q [m^3/d]	14-Day Mean Peak Q [m^3/d]	30-Day Low Flow Q [m^3/d]	60-Day Low Flow Q [m^3/d]	90-Day Low Flow Q [m^3/d]
Wet	100	baseline	25.9	1,250,000	1,050,000	285,000	333,000	353,000
		operations	28.7	1,310,000	1,090,000	336,000	396,000	406,000
	10	baseline	19.9	1,080,000	910,000	171,000	212,000	251,000
		operations	21.5	1,120,000	941,000	212,000	260,000	299,000
Median	2	baseline	13.5	827,000	704,000	95,600	128,000	166,000
		operations	14.4	857,000	728,000	129,000	170,000	209,000
Dry	10	baseline	8.22	527,000	441,000	57,200	83,800	109,000
		operations	8.73	559,000	467,000	86,800	124,000	150,000
	100	baseline	4.51	242,000	174,000	40,500	63,800	77,100
		operations	5.02	290,000	213,000	68,200	104,000	116,000

Q = discharge; m^3/s = cubic metres per second; m^3/d = cubic metres per day.

Table 9.I-51 Monthly Mean Stages at Lake N1 – Operations

Condition	Return Period (years)	Snapshot	Monthly Mean Stage [m]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	0.677	0.610	0.578	0.587	0.411
		operations	0.682	0.627	0.602	0.600	0.419
	10	baseline	0.648	0.569	0.527	0.504	0.360
		operations	0.653	0.588	0.553	0.523	0.373
Median	2	baseline	0.602	0.517	0.473	0.426	0.311
		operations	0.608	0.539	0.505	0.455	0.330
Dry	10	baseline	0.537	0.460	0.429	0.375	0.274
		operations	0.542	0.486	0.470	0.413	0.302
	100	baseline	0.447	0.405	0.400	0.349	0.253
		operations	0.452	0.437	0.450	0.393	0.287

m = metre.

Table 9.I-52 Derived Representative Stages at Lake N1 – Operations

Condition	Return Period (years)	Snapshot	Peak Daily Stage [m]	7-Day Mean Peak Stage [m]	14-Day Mean Peak Stage [m]	30-Day Low Flow Stage [m]	60-Day Low Flow Stage [m]	90-Day Low Flow Stage [m]
Wet	100	baseline	0.874	0.765	0.733	0.544	0.564	0.571
		operations	0.895	0.773	0.740	0.565	0.587	0.590
	10	baseline	0.822	0.739	0.710	0.484	0.508	0.528
		operations	0.837	0.745	0.716	0.508	0.532	0.550
Median	2	baseline	0.753	0.695	0.670	0.423	0.452	0.480
		operations	0.763	0.701	0.675	0.453	0.483	0.507
Dry	10	baseline	0.671	0.626	0.601	0.376	0.410	0.436
		operations	0.680	0.635	0.609	0.414	0.449	0.469
	100	baseline	0.584	0.523	0.486	0.347	0.385	0.403
		operations	0.599	0.546	0.508	0.391	0.432	0.442

m = metre.

Summary of Effects on Flows, Water Levels and Channel/Bank Stability

Lake N11 Outlet Flows: The water balance results for Lake N11 show that during Operations, monthly mean flows will increase due to the upstream diversion of the D and E watersheds. The peak daily discharges will increase by 3% (2-year flood) and 3% (100-year flood). Low flows will increase by up to 56% because of the increased upstream storage and drainage area.

Lake N11 Water Levels: Lake N11 water levels are also expected to increase during Operations. The 2-year flood level is expected to increase by approximately 0.006 m, the 100-year flood level by 0.007 m, and monthly mean stages by 0.010 m (June), 0.046 m (July), 0.066 m (August), 0.057 m (September) and 0.035 m (October), under median conditions.

Lake N11 and Outlet Channel/Bank Stability: No effects on Lake N11 and Outlet channel or bank stability are expected during Operations, because increases in flood magnitude are small relative to the existing flood regime, and the channel is naturally well armoured.

Lake N1 Outlet Flows: The water balance results for Lake N1 show that during Operations, monthly mean flows will increase due to the upstream diversion of the B, D and E watersheds. The peak daily discharges will increase by 7% (2-year flood) and 11% (100-year flood). Low flows will increase by up to 35% because of the increased upstream storage and drainage area.

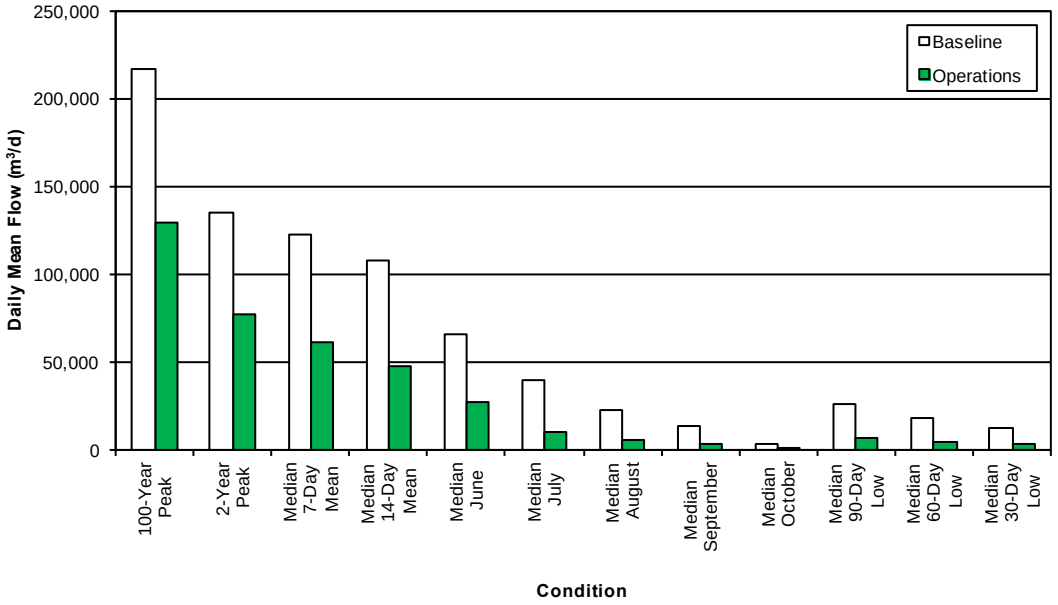
Lake N1 Water Levels: Lake N1 water levels are also expected to increase during Operations. The 2-year flood level is expected to increase by approximately 0.010 m, the 100-year flood level by 0.021 m, and monthly mean stages by 0.005 m (June), 0.022 m (July), 0.032 m (August), 0.028 m (September) and 0.020 m (October), under median conditions.

Lake N1 and Outlet Channel/Bank Stability: No effects on Lake N1 and Outlet channel or bank stability are expected during Operations, because increases in flood magnitude are small relative to the existing flood regime, and the channel is naturally well armoured.

9.I.1.3 Effects of Project Infrastructure in Kennady Lake Watershed to Flows, Water Levels, and Channel/Bank Stability in Streams and Lakes in Downstream Waters

The diversion of the A watershed through the J watershed has slightly modified predicted flows and water levels during operations for the outlets and waterbodies downstream of Area 8 and Lake 410 from those presented in the 2011 EIS Update. Updated flow regimes and effects analysis are presented below for Area 8 to Lake M1 and Lake 410 to Kirk Lake.

Figure 9.I-26 Comparison of Effects on Area 8 Outlet Discharges – Operations



m^3/d = cubic metres per day.

Table 9.I-53 Monthly Mean Discharges at the Area 8 Outlet – Operations

Condition	Return Period (years)	Snapshot	Monthly Mean Discharge [m^3/d]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	121,000	86,500	59,600	68,600	13,500
		operations	44,000	26,500	18,600	21,900	3,040
	10	baseline	97,600	61,900	38,100	29,200	6,640
		operations	37,600	16,900	11,400	8,770	1,420
Median	2	baseline	65,900	39,300	22,800	13,200	3,070
		operations	26,800	9,790	6,190	3,360	546
Dry	10	baseline	36,900	23,100	13,900	6,880	1,430
		operations	15,300	5,400	3,310	1,350	147
	100	baseline	12,900	12,000	9,420	4,910	878
		operations	4,440	2,850	2,210	811	40.3

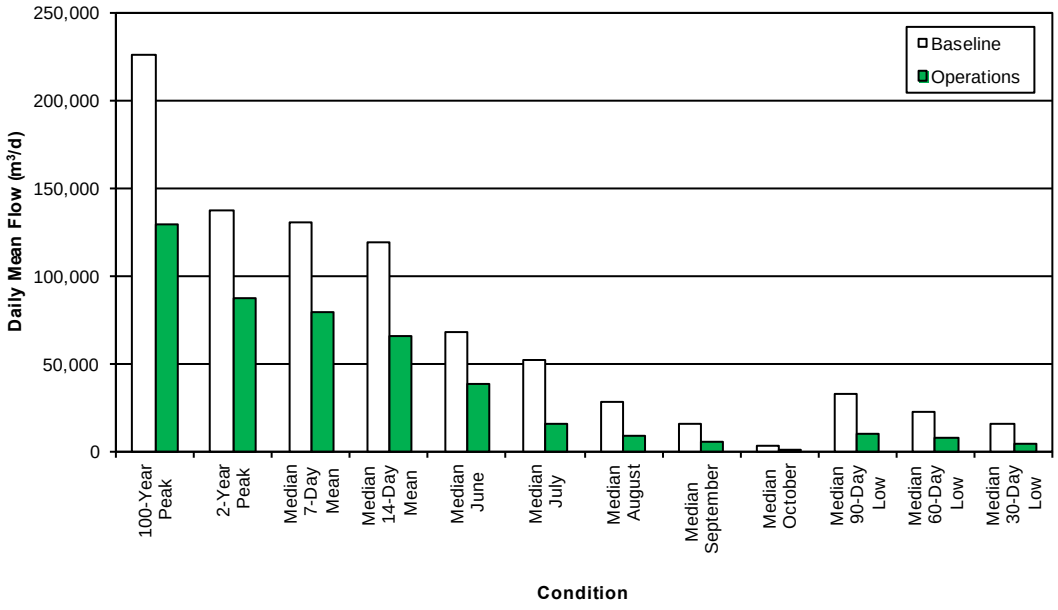
m^3/d = cubic metres per day.

Table 9.I-54 Derived Representative Discharges at the Area 8 Outlet – Operations

Condition	Return Period (years)	Snapshot	Peak Daily Q [m^3/s]	7-Day Mean Peak Q [m^3/d]	14-Day Mean Peak Q [m^3/d]	30-Day Low Flow Q [m^3/d]	60-Day Low Flow Q [m^3/d]	90-Day Low Flow Q [m^3/d]
Wet	100	baseline	2.51	192,000	167,000	48,900	52,500	59,000
		operations	1.50	93,400	69,800	13,600	17,400	19,100
	10	baseline	2.14	166,000	145,000	26,200	32,300	41,000
		operations	1.23	80,500	61,500	6,980	9,360	11,500
Median	2	baseline	1.56	123,000	108,000	12,800	18,300	26,000
		operations	0.89	61,000	47,700	3,040	4,710	6,630
Dry	10	baseline	0.80	65,100	60,000	6,560	10,900	16,100
		operations	0.53	36,300	28,500	1,340	2,610	3,910
	100	baseline	0.15	14,900	17,300	5,000	9,340	13,200
		operations	0.26	11,400	7,240	787	1,850	2,410

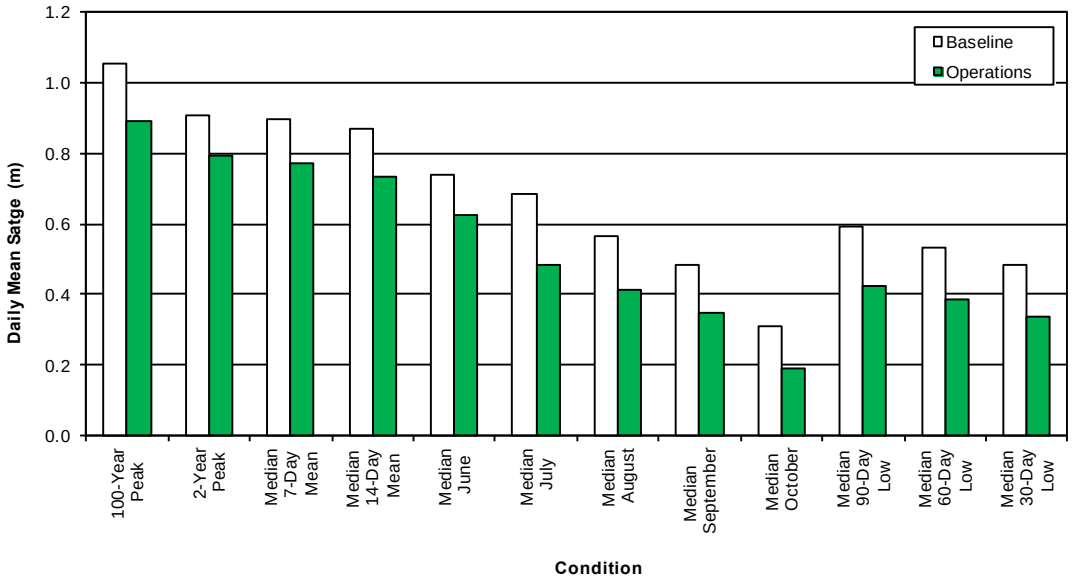
Q = discharge; m^3/s = cubic metres per second; m^3/d = cubic metres per day.

Figure 9.I-27 Comparison of Effects on Lake L1 Outlet Discharges – Operations



m^3/d = cubic metres per day.

Figure 9.I-28 Comparison of Effects on Lake L1 Stages – Operations



m = metres.

Table 9.I-55 Monthly Mean Discharges at the Lake L1 Outlet – Operations

Condition	Return Period (years)	Snapshot	Monthly Mean Discharge [m^3/d]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	130,000	111,000	67,700	85,000	20,600
		operations	63,900	43,500	26,100	36,400	4,840
	10	baseline	102,000	81,400	45,700	38,900	9,240
		operations	52,800	28,600	17,000	15,200	2,480
Median	2	baseline	67,800	52,300	28,100	16,400	3630
		operations	38,400	16,300	9,580	5,210	680
Dry	10	baseline	35,700	29,300	17,100	8,310	1620
		operations	23,100	8,390	5,000	1,800	105
	100	baseline	10,700	14,200	11,300	5,750	976
		operations	9,780	4,100	2,870	770	21.7

m^3/d = cubic metres per day.

Table 9.I-56 Derived Representative Discharges at the Lake L1 Outlet – Operations

Condition	Return Period (years)	Snapshot	Peak Daily Q [m^3/s]	7-Day Mean Peak Q [m^3/d]	14-Day Mean Peak Q [m^3/d]	30-Day Low Flow Q [m^3/d]	60-Day Low Flow Q [m^3/d]	90-Day Low Flow Q [m^3/d]
Wet	100	baseline	2.62	214,000	189,000	57,000	63,400	76,800
		operations	1.50	119,000	97,200	19,400	24,300	29,800
	10	baseline	2.25	185,000	164,000	31,300	38,900	51,900
		operations	1.32	104,000	85,600	10,800	14,100	18,300
Median	2	baseline	1.59	131,000	119,000	16,100	22,400	32,500
		operations	1.01	79,400	66,300	4,670	7,460	10,600
Dry	10	baseline	0.86	71,700	66,800	7,980	13,000	19,900
		operations	0.59	46,600	39,500	1,810	4,030	6,180
	100	baseline	0.23	20,000	21,000	5,770	9,970	15,000
		operations	0.32	11,700	9,830	723	2,810	3,740

Q = discharge; m^3/s = cubic metres per second; m^3/d = cubic metres per day.

Table 9.I-57 Monthly Mean Stages at Lake L1 – Operations

Condition	Return Period (years)	Snapshot	Monthly Mean Stage [m]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	0.893	0.851	0.737	0.782	0.519
		operations	0.725	0.647	0.557	0.614	0.339
	10	baseline	0.832	0.777	0.655	0.624	0.410
		operations	0.685	0.571	0.490	0.474	0.278
Median	2	baseline	0.740	0.683	0.567	0.485	0.311
		operations	0.624	0.484	0.414	0.346	0.190
Dry	10	baseline	0.612	0.577	0.491	0.398	0.245
		operations	0.536	0.398	0.342	0.253	0.109
	100	baseline	0.416	0.468	0.436	0.356	0.211
		operations	0.416	0.322	0.290	0.197	0.069

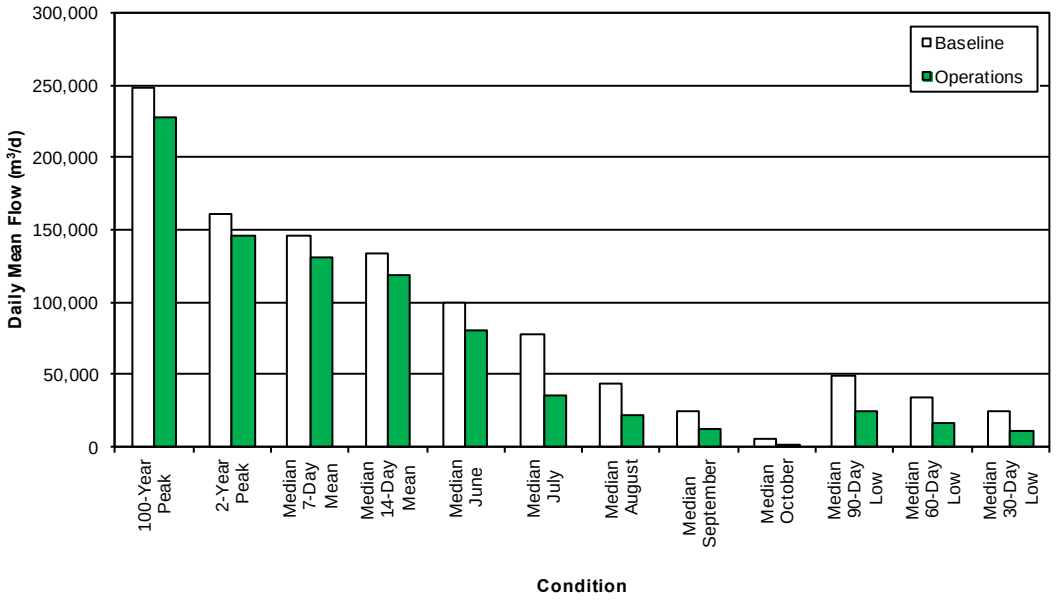
m = metre.

Table 9.I-58 Derived Representative Stages at Lake L1 – Operations

Condition	Return Period (years)	Snapshot	Peak Daily Stage [m]	7-Day Mean Peak Stage [m]	14-Day Mean Peak Stage [m]	30-Day Low Flow Stage [m]	60-Day Low Flow Stage [m]	90-Day Low Flow Stage [m]
Wet	100	baseline	1.052	1.035	0.997	0.701	0.723	0.765
		operations	0.893	0.871	0.820	0.510	0.545	0.579
	10	baseline	1.006	0.991	0.957	0.587	0.626	0.682
		operations	0.859	0.836	0.790	0.428	0.464	0.501
Median	2	baseline	0.909	0.896	0.870	0.483	0.532	0.594
		operations	0.795	0.773	0.733	0.335	0.385	0.426
Dry	10	baseline	0.757	0.750	0.734	0.392	0.453	0.514
		operations	0.678	0.660	0.629	0.253	0.321	0.364
	100	baseline	0.510	0.514	0.522	0.357	0.419	0.472
		operations	0.564	0.439	0.417	0.193	0.288	0.314

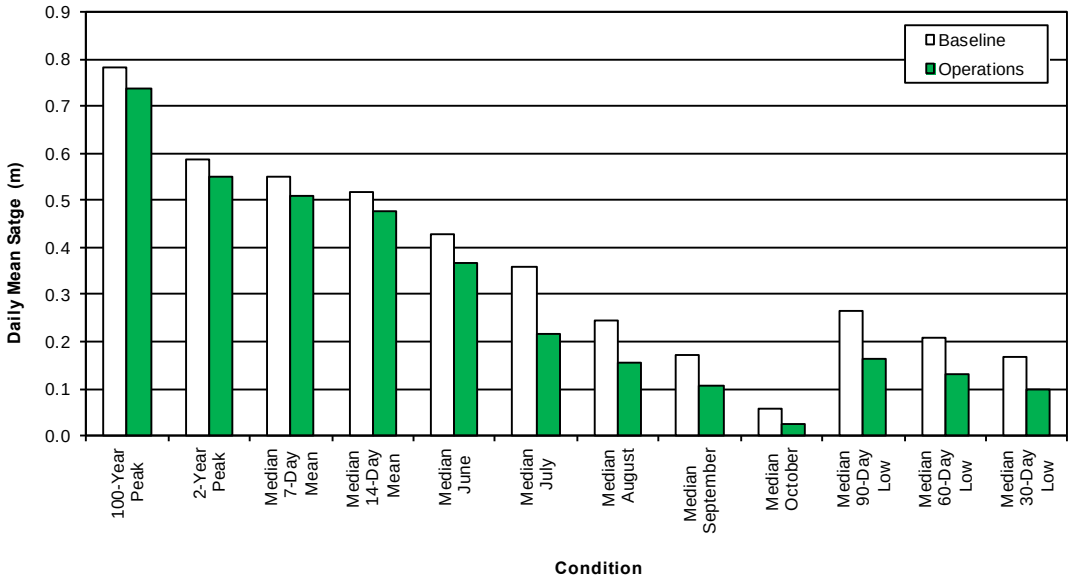
m = metre.

Figure 9.I-29 Comparison of Effects on Lake M1 Outlet Discharges – Operations



m^3/d = cubic metres per day.

Figure 9.I-30 Comparison of Effects on Lake M1 Stages – Operations



m = metres.

Table 9.I-59 Monthly Mean Discharges at the Lake M1 Outlet – Operations

Condition	Return Period (years)	Snapshot	Monthly Mean Discharge [m^3/d]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	178,000	152,000	102,000	116,000	29,300
		operations	133,000	94,700	57,700	72,700	11,800
	10	baseline	142,000	116,000	69,100	56,400	13,500
		operations	112,000	62,000	38,300	31,000	4,980
Median	2	baseline	100,000	77,600	43,200	25,100	5140
		operations	80,600	35,900	22,100	12,300	1,610
Dry	10	baseline	61,000	43,900	27,300	12,900	1880
		operations	50,100	19,200	12,100	4,510	30.7
	100	baseline	30,800	19,800	19,100	8,800	762
		operations	22,100	9,180	7,460	2,030	0.009

m^3/d = cubic metres per day.

Table 9.I-60 Derived Representative Discharges at the Lake M1 Outlet – Operations

Condition	Return Period (years)	Snapshot	Peak Daily Q [m^3/s]	7-Day Mean Peak Q [m^3/d]	14-Day Mean Peak Q [m^3/d]	30-Day Low Flow Q [m^3/d]	60-Day Low Flow Q [m^3/d]	90-Day Low Flow Q [m^3/d]
Wet	100	baseline	2.88	220,000	205,000	84,900	92,300	105,000
		operations	2.63	188,000	172,000	44,100	53,800	63,400
	10	baseline	2.45	189,000	176,000	48,200	58,500	75,700
		operations	2.23	166,000	151,000	24,700	31,600	40,100
Median	2	baseline	1.87	146,000	134,000	24,700	34,400	49,700
		operations	1.69	131,000	119,000	11,000	17,100	24,000
Dry	10	baseline	1.26	96,400	85,100	13,200	21,300	31,200
		operations	1.10	84,800	75,100	4,490	9,560	14,500
	100	baseline	0.73	50,300	38,600	8,380	15,200	20,200
		operations	0.70	35,200	28,900	1,940	6,870	9,110

Q = discharge; m^3/s = cubic metres per second; m^3/d = cubic metres per day.

Table 9.I-61 Monthly Mean Stages at Lake M1 – Operations

Condition	Return Period (years)	Snapshot	Monthly Mean Stage [m]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	0.626	0.563	0.432	0.47	0.188
		operations	0.516	0.411	0.295	0.345	0.102
	10	baseline	0.538	0.470	0.333	0.291	0.112
		operations	0.459	0.310	0.225	0.195	0.058
Median	2	baseline	0.426	0.360	0.243	0.170	0.059
		operations	0.369	0.215	0.156	0.105	0.027
Dry	10	baseline	0.306	0.246	0.179	0.109	0.030
		operations	0.269	0.142	0.104	0.054	0.002
	100	baseline	0.194	0.145	0.141	0.084	0.016
		operations	0.156	0.087	0.075	0.032	-

m = metre.

Table 9.I-62 Derived Representative Stages at Lake M1 – Operations

Condition	Return Period (years)	Snapshot	Peak Daily Stage [m]	7-Day Mean Peak Stage [m]	14-Day Mean Peak Stage [m]	30-Day Low Flow Stage [m]	60-Day Low Flow Stage [m]	90-Day Low Flow Stage [m]
Wet	100	baseline	0.782	0.721	0.687	0.382	0.404	0.440
		operations	0.735	0.649	0.611	0.247	0.282	0.314
	10	baseline	0.702	0.651	0.621	0.262	0.298	0.354
		operations	0.659	0.598	0.562	0.168	0.198	0.232
Median	2	baseline	0.587	0.548	0.518	0.168	0.209	0.267
		operations	0.549	0.511	0.478	0.098	0.131	0.164
Dry	10	baseline	0.451	0.416	0.383	0.110	0.152	0.196
		operations	0.412	0.382	0.352	0.054	0.089	0.117
	100	baseline	0.314	0.269	0.226	0.082	0.121	0.147
		operations	0.306	0.212	0.186	0.031	0.071	0.086

m = metre.

Summary of Effects on Flows, Water Levels and Channel/Bank Stability

Area 8 Outlet Flows: The water balance results for Area 8 show that during Operations, monthly mean flows will decrease due to the upstream closed-circuiting. The peak daily discharges will decrease by 43% (2-year flood) and 40% (100-year flood). Low flows will decrease by up to 76% (2-year flood) because of the reduction of upstream storage and flow area. A flow mitigation plan is being developed to mitigate any fish habitat losses due to reduced flows. The specifics of the mitigation plan have not been developed, but would focus on providing suitable spawning and rearing habitat for Arctic grayling (*Thymallus arcticus*).

Area 8 Outlet Channel/Bank Stability: No effects on Area 8 outlet channel or bank stability are expected, because flows and water levels will decrease during Operations.

Lake L1 Outlet Flows: The water balance results for Lake L1 show that during Operations, monthly mean flows will decrease due to the upstream closed-circuiting. The peak daily discharges will decrease by 36% (2-year flood) and 43% (100-year flood). Low flows will decrease by up to 71% because of the reduction of upstream storage and flow area. A flow mitigation plan is being developed to mitigate any fish habitat losses due to reduced flows. The specifics of the mitigation plan have not been developed, but would focus on providing suitable spawning and rearing habitat for Arctic grayling (*Thymallus arcticus*).

Lake L1 Water Levels: Lake L1 water levels are also expected to decrease during Operations. The 2-year flood level is expected to decrease by approximately 0.113 m, and monthly mean stages are expected to decrease by 0.117 m (June), 0.199 m (July), 0.153 m (August), 0.140 m (September) and 0.121 m (October), under median conditions.

Lake L1 and Outlet Channel/Bank Stability: No effects on Lake L1 and outlet channel or bank stability are expected, because flows and water levels will decrease during Operations.

Lake M1 Outlet Flows: The water balance results for Lake M1 show that during Operations, monthly mean flows will decrease due to the upstream closed-circuiting. The peak daily discharges will decrease by 10% (2-year flood) and 9% (100-year flood). Low flows will decrease by up to 55% because of the reduction of upstream storage and flow area. A flow mitigation plan is being developed to mitigate any fish habitat losses due to reduced flows. The specifics of the mitigation plan have not been developed, but would focus on providing suitable spawning and rearing habitat for Arctic grayling (*Thymallus arcticus*).

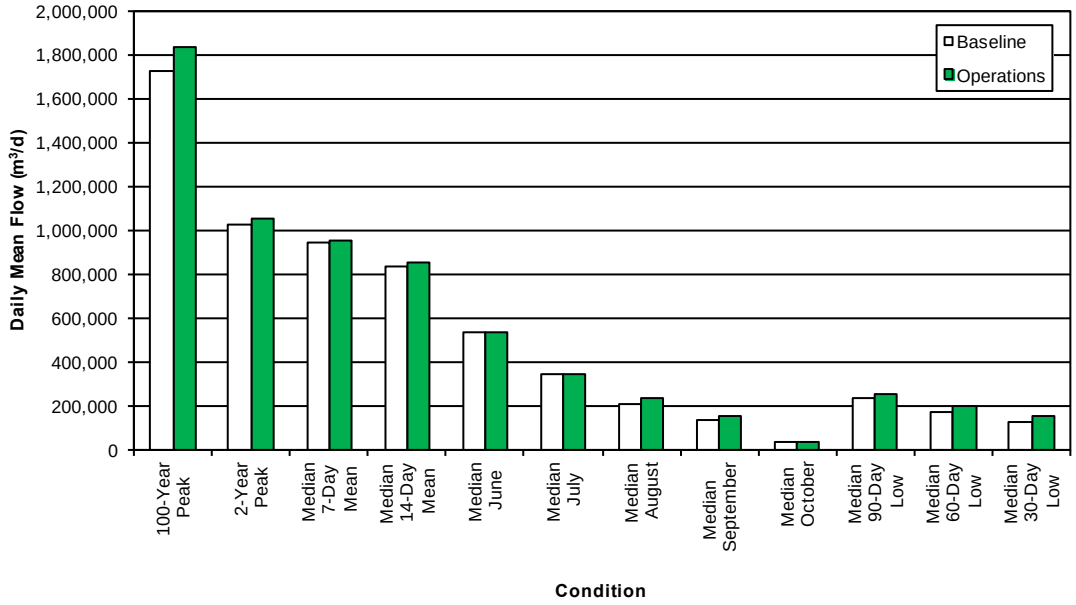
Lake M1 Water Levels: Lake M1 water levels are also expected to decrease during Operations. The 2-year flood level is expected to decrease by approximately 0.038 m, and monthly mean stages are expected to decrease by 0.057 m (June), 0.145 m (July), 0.087 m (August), 0.065 m (September) and 0.032 m (October), under median conditions.

Lake M1 and Outlet Channel/Bank Stability: No effects on Lake M1 and outlet channel or bank stability are expected, because flows and water levels will decrease during Operations.

Lake 410 to Kirk Lake Outlet

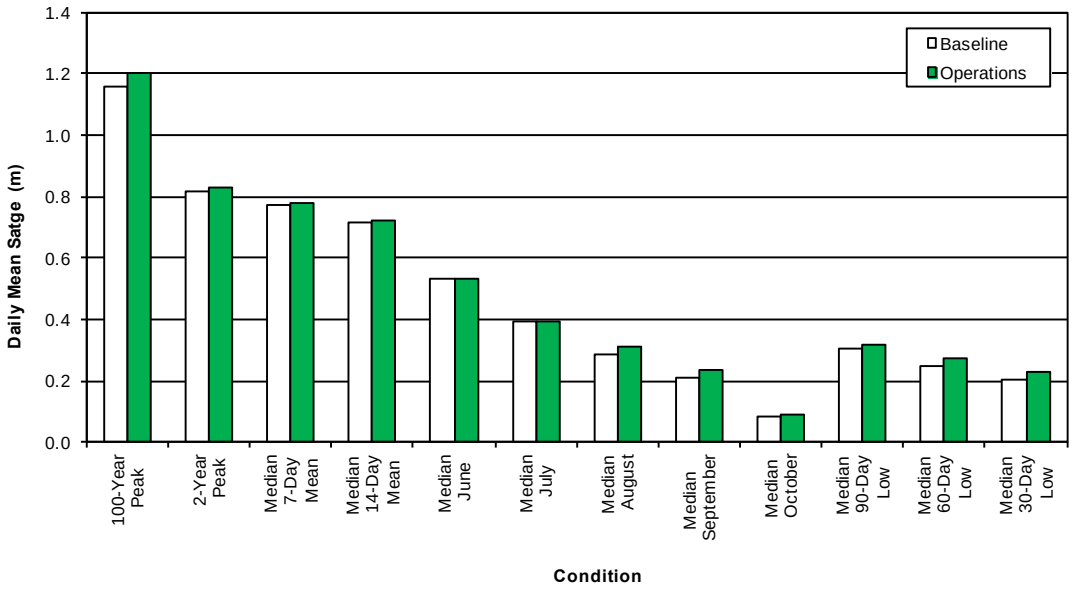
Lake M1 flows into Lake 410, which also receives inflow from Lake N1. Lake 410 then drains through watershed P to Kirk Lake. The water balance model for the Project examined all downstream waterbodies between Lake 410 and Kirk Lake. Project effects on Lake 410 during Operations are summarized in Figures 9.I-31 to 9.I-32 and Tables 9.I-63 to 9.I-66. Project effects on Kirk Lake during Operations are summarized in Figures 9.I-33 to 9.I-34 and Tables 9.I-67 to 9.I-70.

Figure 9.I-31 Comparison of Effects on Lake 410 Outlet Discharges – Operations



m^3/d = cubic metres per day.

Figure 9.I-32 Comparison of Effects on Lake 410 Stages – Operations



m = metres.

Table 9.I-63 Monthly Mean Discharges at the Lake 410 Outlet – Operations

Condition	Return Period (years)	Snapshot	Monthly Mean Discharge [m^3/d]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	934,000	678,000	475,000	587,000	135,000
		operations	915,000	676,000	501,000	553,000	130,000
	10	baseline	759,000	514,000	329,000	278,000	70,700
		operations	745,000	509,000	355,000	297,000	71,900
Median	2	baseline	537,000	344,000	210,000	135,000	32,700
		operations	540,000	341,000	238,000	155,000	37,600
Dry	10	baseline	329,000	203,000	132,000	73,900	16,000
		operations	340,000	206,000	165,000	96,400	22,500
	100	baseline	190,000	106,000	90,100	49,800	9,660
		operations	179,000	116,000	126,000	75,200	16,800

m^3/d = cubic metres per day.

Table 9.I-64 Derived Representative Discharges at the Lake 410 Outlet – Operations

Condition	Return Period (years)	Snapshot	Peak Daily Q [m^3/s]	7-Day Mean Peak Q [m^3/d]	14-Day Mean Peak Q [m^3/d]	30-Day Low Flow Q [m^3/d]	60-Day Low Flow Q [m^3/d]	90-Day Low Flow Q [m^3/d]
Wet	100	baseline	20.0	1,420,000	1,240,000	404,000	443,000	491,000
		operations	21.2	1,460,000	1,260,000	416,000	468,000	497,000
	10	baseline	16.5	1,230,000	1,080,000	237,000	287,000	355,000
		operations	17.1	1,250,000	1,100,000	256,000	308,000	365,000
Median	2	baseline	11.9	942,000	837,000	128,000	173,000	234,000
		operations	12.2	958,000	851,000	151,000	197,000	250,000
Dry	10	baseline	7.11	580,000	523,000	74,200	108,000	150,000
		operations	7.46	604,000	542,000	97,100	138,000	171,000
	100	baseline	3.03	219,000	200,000	50,900	77,500	100,000
		operations	3.72	266,000	235,000	73,900	111,000	126,000

Q = discharge; m^3/s = cubic metres per second; m^3/d = cubic metres per day

Table 9.I-65 Monthly Mean Stages at Lake 410 – Operations

Condition	Return Period (years)	Snapshot	Monthly Mean Stage [m]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	0.769	0.621	0.489	0.564	0.212
		operations	0.758	0.620	0.508	0.542	0.207
	10	baseline	0.670	0.516	0.384	0.342	0.138
		operations	0.661	0.513	0.403	0.358	0.139
Median	2	baseline	0.531	0.395	0.284	0.212	0.082
		operations	0.534	0.393	0.309	0.232	0.090
Dry	10	baseline	0.383	0.278	0.209	0.142	0.051
		operations	0.392	0.280	0.242	0.169	0.064
	100	baseline	0.266	0.180	0.162	0.109	0.036
		operations	0.256	0.191	0.202	0.143	0.053

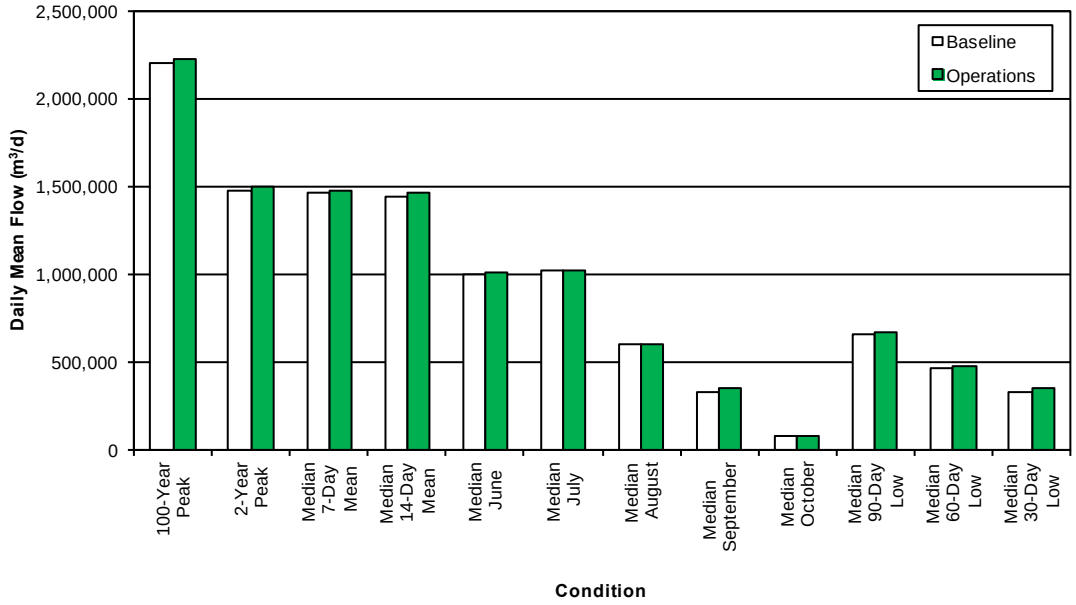
m = metre.

Table 9.I-66 Derived Representative Stages at Lake 410 – Operations

Condition	Return Period (years)	Snapshot	Peak Daily Stage [m]	7-Day Mean Peak Stage [m]	14-Day Mean Peak Stage [m]	30-Day Low Flow Stage [m]	60-Day Low Flow Stage [m]	90-Day Low Flow Stage [m]
Wet	100	baseline	1.160	1.018	0.928	0.439	0.468	0.501
		operations	1.204	1.035	0.940	0.448	0.485	0.505
	10	baseline	1.018	0.924	0.847	0.308	0.350	0.403
		operations	1.043	0.936	0.856	0.325	0.367	0.411
Median	2	baseline	0.820	0.773	0.715	0.205	0.249	0.305
		operations	0.833	0.782	0.722	0.228	0.272	0.319
Dry	10	baseline	0.581	0.559	0.522	0.142	0.183	0.227
		operations	0.600	0.575	0.535	0.170	0.214	0.248
	100	baseline	0.329	0.292	0.275	0.110	0.146	0.174
		operations	0.378	0.332	0.306	0.142	0.185	0.202

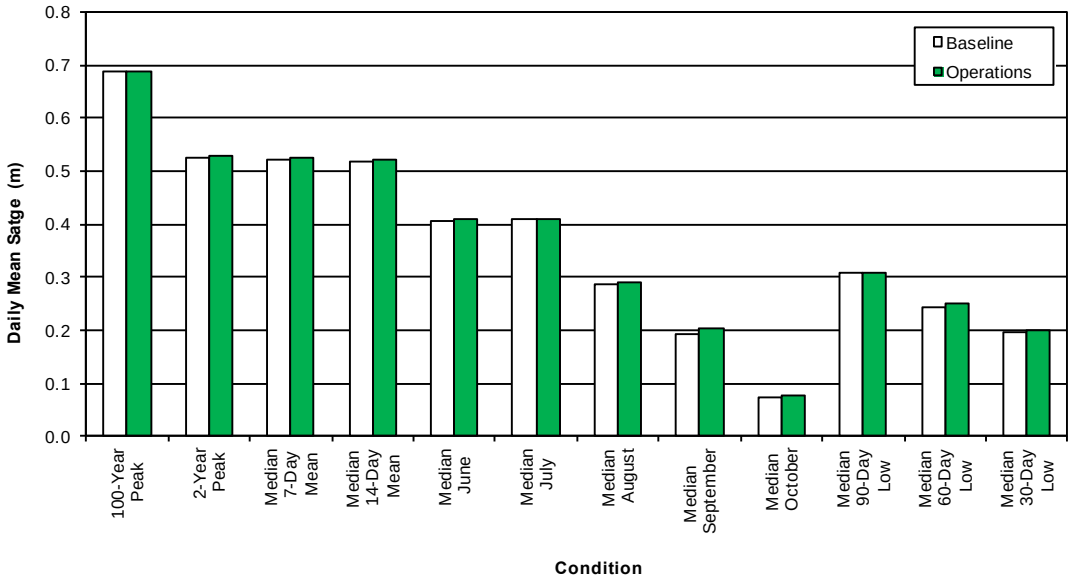
m = metre.

Figure 9.I-33 Comparison of Effects on Kirk Lake Outlet Discharges – Operations



m^3/d = cubic metres per day.

Figure 9.I-34 Comparison of Effects on Kirk Lake Stages – Operations



m = metres.

Table 9.I-67 Monthly Mean Discharges at the Kirk Lake Outlet – Operations

Condition	Return Period (years)	Snapshot	Monthly Mean Discharge [m^3/d]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	1,850,000	1,730,000	1,250,000	1,370,000	420,000
		operations	1,860,000	1,750,000	1,260,000	1,240,000	395,000
	10	baseline	1,450,000	1,420,000	916,000	676,000	188,000
		operations	1,470,000	1,430,000	924,000	705,000	200,000
Median	2	baseline	995,000	1,020,000	596,000	332,000	75,700
		operations	1,010,000	1,020,000	604,000	354,000	83,500
Dry	10	baseline	562,000	607,000	349,000	161,000	24,500
		operations	580,000	607,000	360,000	179,000	30,800
	100	baseline	226,000	255,000	191,000	85,200	4,760
		operations	242,000	260,000	204,000	104,000	10,100

m^3/d = cubic metres per day.

Table 9.I-68 Derived Representative Discharges at the Kirk Lake Outlet – Operations

Condition	Return Period (years)	Snapshot	Peak Daily Q [m^3/s]	7-Day Mean Peak Q [m^3/d]	14-Day Mean Peak Q [m^3/d]	30-Day Low Flow Q [m^3/d]	60-Day Low Flow Q [m^3/d]	90-Day Low Flow Q [m^3/d]
Wet	100	baseline	25.5	2,160,000	2,100,000	1,050,000	1,140,000	1,290,000
		operations	25.7	2,180,000	2,120,000	1,070,000	1,140,000	1,300,000
	10	baseline	22.1	1,890,000	1,850,000	636,000	774,000	981,000
		operations	22.4	1,910,000	1,870,000	652,000	786,000	989,000
Median	2	baseline	17.1	1,460,000	1,440,000	333,000	467,000	660,000
		operations	17.3	1,480,000	1,460,000	350,000	481,000	669,000
Dry	10	baseline	10.6	902,000	884,000	163,000	262,000	395,000
		operations	10.8	924,000	906,000	181,000	277,000	406,000
	100	baseline	3.98	321,000	290,000	82,100	148,000	213,000
		operations	4.25	345,000	315,000	100,000	162,000	227,000

Q = discharge; m^3/s = cubic metres per second; m^3/d = cubic metres per day.

Table 9.I-69 Monthly Mean Stages at Kirk Lake – Operations

Condition	Return Period (years)	Snapshot	Monthly Mean Stage [m]				
			Jun	Jul	Aug	Sep	Oct
Wet	100	baseline	0.610	0.584	0.470	0.500	0.227
		operations	0.612	0.587	0.472	0.467	0.218
	10	baseline	0.519	0.512	0.382	0.312	0.133
		operations	0.523	0.513	0.384	0.321	0.139
Median	2	baseline	0.404	0.410	0.287	0.194	0.072
		operations	0.409	0.411	0.290	0.203	0.077
Dry	10	baseline	0.276	0.290	0.201	0.120	0.034
		operations	0.282	0.290	0.205	0.129	0.040
	100	baseline	0.150	0.163	0.134	0.078	0.011
		operations	0.157	0.165	0.140	0.089	0.019

m = metre.

Table 9.I-70 Derived Representative Stages at Kirk Lake – Operations

Condition	Return Period (years)	Snapshot	Peak Daily Stage [m]	7-Day Mean Peak Stage [m]	14-Day Mean Peak Stage [m]	30-Day Low Flow Stage [m]	60-Day Low Flow Stage [m]	90-Day Low Flow Stage [m]
Wet	100	baseline	0.686	0.677	0.664	0.418	0.442	0.480
		operations	0.689	0.682	0.669	0.423	0.443	0.483
	10	baseline	0.623	0.619	0.610	0.300	0.342	0.400
		operations	0.629	0.624	0.615	0.305	0.345	0.402
Median	2	baseline	0.525	0.521	0.517	0.195	0.244	0.307
		operations	0.530	0.527	0.521	0.201	0.249	0.310
Dry	10	baseline	0.382	0.378	0.373	0.121	0.166	0.218
		operations	0.388	0.384	0.379	0.130	0.172	0.222
	100	baseline	0.199	0.190	0.177	0.077	0.113	0.144
		operations	0.208	0.199	0.187	0.087	0.121	0.151

m = metre.

Summary of Effects on Flows, Water Levels and Channel/Bank Stability

Lake 410 Outlet Flows: The water balance results for Lake 410 show that during Operations, monthly mean flows will increase slightly in the open water season, due to the upstream closed-circuiting and diversions. The peak daily discharges will increase by 3% (2-year flood) and 6% (100-year flood). Low flows will increase by up to 18% because of the diversions, under median conditions.

Lake 410 Water Levels: Lake 410 water levels are also expected to increase slightly during Operations. The 2-year flood level is expected to increase by approximately 0.013 m, and monthly mean stages are expected to increase by 0.002 m (June) and decrease by 0.003 m (July), and increase by 0.025 m (August), 0.020 m (September) and 0.008 m (October), under median conditions.

Lake 410 and Outlet Channel/Bank Stability: No effects on Lake 410 and Outlet channel or bank stability are expected during Operations, because flow and water level increases will be small.

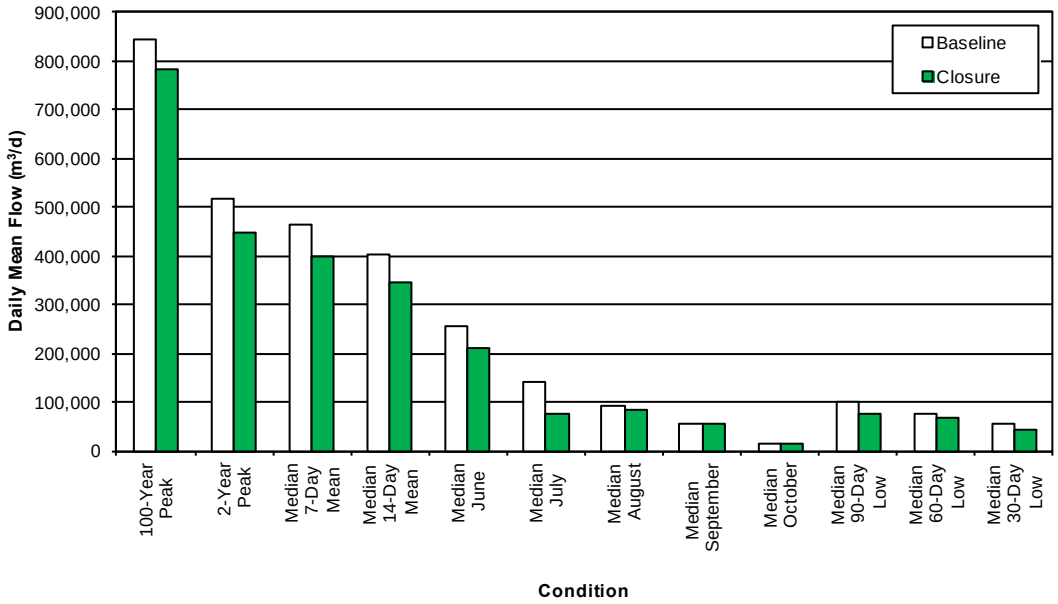
Kirk Lake: The water balance results for Kirk Lake show that during Operations, changes to floods and mean flows will be negligible, as will corresponding changes to water levels. No adverse effects on downstream channel/bank stability are anticipated.

9.I.2 Closure

9.I.2.1 Effect of Pumping Supplemental Flows from Lake N11 to Kennady Lake during Refilling to Flows, Water Levels, and Channel/Bank Stability in Streams and Lakes in the N Watershed

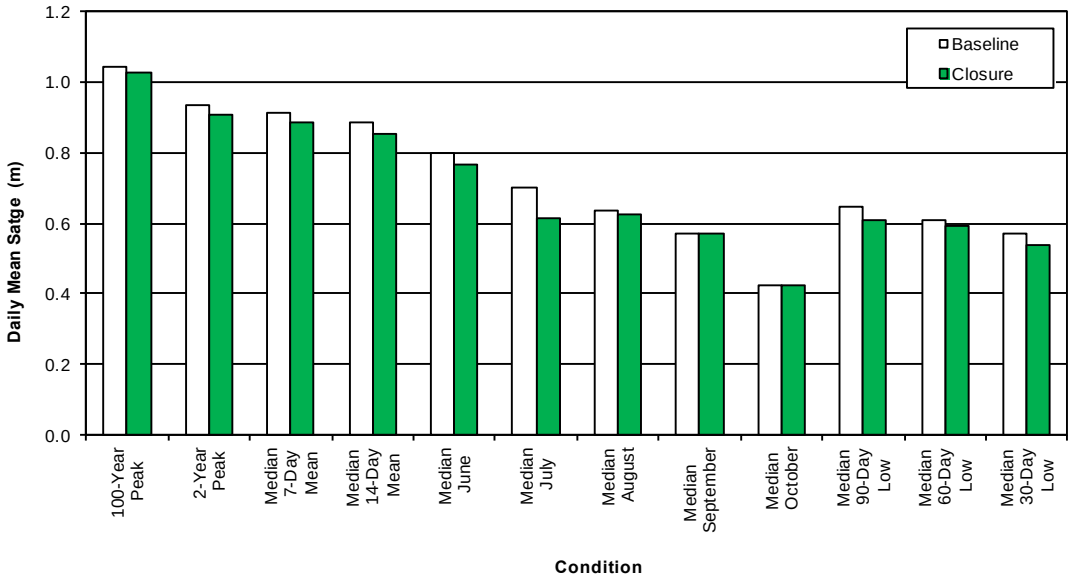
The updated water balance and hydrological modelling associated with the supplemental mitigation in the mine plan has slightly modified predicted flows and water levels during closure for the outlet and waterbody downstream of Lake N1 from those presented in the 2011 EIS Update. Results were also revisited for the outlet and waterbody of Lake N11. Updated flow regimes and effects analysis are presented below for Lake N11 to Lake N1, and Lake 410 to Kirk Lake.

Figure 9.I-35 Comparison of Effects on Lake N11 Outlet Discharges – Closure



m^3/d = cubic metres per day.

Figure 9.I-36 Comparison of Effects on Lake N11 Stages – Closure



m = metres

Table 9.I-71 Monthly Mean Discharges at the Lake N11 Outlet – Closure

Condition	Return Period (years)	Snapshot	Monthly Mean Discharge [m^3/d]				
			June	July	August	September	October
Wet	100	baseline	443,000	293,000	221,000	258,000	50,700
		closure	363,000	183,000	203,000	251,000	50,700
	10	baseline	359,000	215,000	147,000	123,000	28,200
		closure	294,000	131,000	138,000	121,000	28,200
Median	2	baseline	257,000	141,000	91,400	56,800	14,700
		closure	211,000	77,700	84,900	56,700	14,700
Dry	10	baseline	155,000	83,600	58,800	33,300	8,740
		closure	128,000	32,500	51,300	33,400	8,730
	100	baseline	71,900	46,900	42,600	25,900	6,400
		closure	62,000	1,000	33,300	25,900	6,400

m^3/d = cubic metres per day.

Table 9.I-72 Representative Discharges at the Basin N11 Outlet – Closure

Condition	Return Period (years)	Snapshot	Peak Daily Q [m^3/s]	7-Day Mean Peak Q [m^3/d]	14-Day Mean Peak Q [m^3/d]	30-Day Low Flow Q [m^3/d]	60-Day Low Flow Q [m^3/d]	90-Day Low Flow Q [m^3/d]
Wet	100	baseline	9.77	747,000	630,000	179,000	198,000	215,000
		closure	9.06	689,000	551,000	100,000	134,000	161,000
	10	baseline	8.22	630,000	538,000	102,000	125,000	152,000
		closure	7.28	556,000	460,000	70,900	99,500	114,000
Median	2	baseline	6.00	464,000	404,000	55,500	75,000	98,700
		closure	5.19	400,000	344,000	43,200	66,200	75,800
Dry	10	baseline	3.36	269,000	240,000	33,900	48,500	64,200
		closure	3.19	250,000	222,000	22,500	40,300	51,600
	100	baseline	0.85	85,300	81,700	25,200	36,500	45,200
		closure	1.63	132,000	117,000	9,510	23,500	38,600

Q = discharge; m^3/s = cubic metres per second; m^3/d = cubic metres per day.

Table 9.I-73 Monthly Mean Stages at the Lake N11 Outlet – Closure

Condition	Return Period (years)	Snapshot	Monthly Mean Stage [m]				
			June	July	August	September	October
Wet	100	baseline	0.903	0.824	0.774	0.801	0.558
		closure	0.864	0.742	0.760	0.796	0.558
	10	baseline	0.862	0.769	0.707	0.680	0.490
		closure	0.825	0.690	0.697	0.677	0.490
Median	2	baseline	0.800	0.700	0.636	0.572	0.424
		closure	0.766	0.614	0.626	0.572	0.424
Dry	10	baseline	0.715	0.624	0.577	0.508	0.378
		closure	0.686	0.506	0.560	0.509	0.377
	100	baseline	0.603	0.548	0.537	0.481	0.352
		closure	0.583	0.233	0.508	0.481	0.352

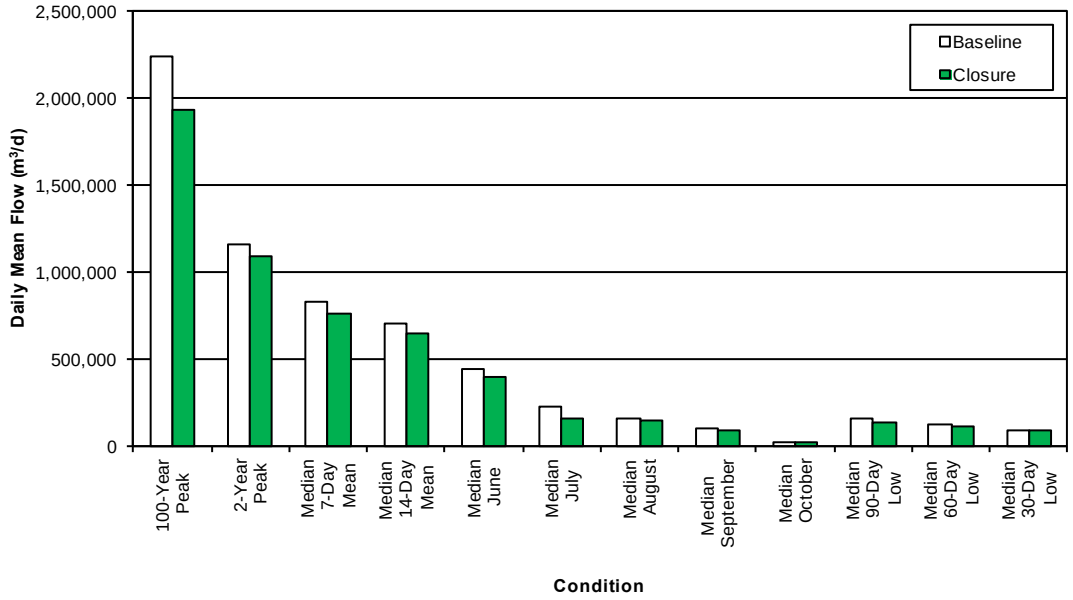
m = metre.

Table 9.I-74 Representative Stages at the Basin N11 Outlet – Closure

Condition	Return Period (years)	Snapshot	Peak Daily Stage [m]	7-Day Mean Peak Stage [m]	14-Day Mean Peak Stage [m]	30-Day Low Flow Stage [m]	60-Day Low Flow Stage [m]	90-Day Low Flow Stage [m]
Wet	100	baseline	1.043	1.015	0.977	0.739	0.755	0.769
		closure	1.025	0.996	0.948	0.649	0.692	0.722
	10	baseline	1.003	0.977	0.943	0.652	0.682	0.712
		closure	0.977	0.950	0.911	0.601	0.648	0.668
Median	2	baseline	0.935	0.913	0.885	0.569	0.609	0.647
		closure	0.906	0.883	0.854	0.539	0.592	0.610
Dry	10	baseline	0.822	0.809	0.788	0.510	0.553	0.588
		closure	0.813	0.795	0.774	0.466	0.530	0.560
	100	baseline	0.606	0.626	0.620	0.478	0.519	0.544
		closure	0.700	0.690	0.672	0.385	0.470	0.525

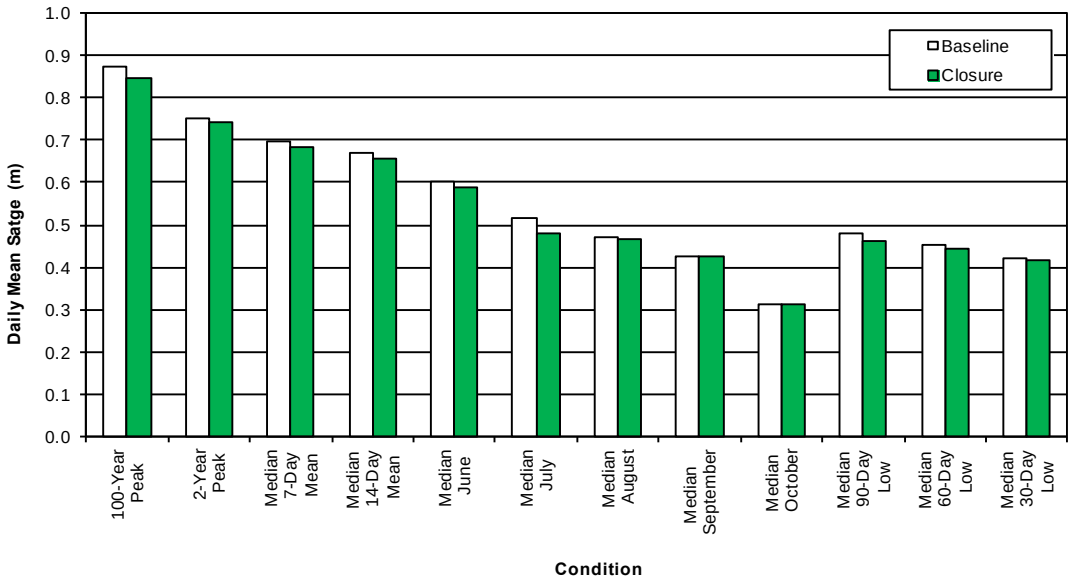
m = metre.

Figure 9.I-37 Comparison of Effects on Lake N1 Outlet Discharges – Closure



m^3/d = cubic metres per day.

Figure 9.I-38 Comparison of Effects on Lake N1 Stages – Closure



m = metres.

Table 9.I-75 Monthly Mean Discharges at the Lake N1 Outlet – Closure

Condition	Return Period (years)	Snapshot	Monthly Mean Discharge [m^3/d]				
			June	July	August	September	October
Wet	100	baseline	737,000	470,000	370,000	398,000	84,100
		closure	657,000	352,000	355,000	397,000	84,100
	10	baseline	609,000	348,000	248,000	204,000	47,600
		closure	543,000	250,000	236,000	204,000	47,600
Median	2	baseline	444,000	229,000	156,000	99,000	25,100
		closure	399,000	163,000	146,000	98,700	25,100
Dry	10	baseline	270,000	138,000	102,000	56,600	14,600
		closure	249,000	105,000	93,400	56,400	14,600
	100	baseline	121,000	79,300	75,400	41,600	10,300
		closure	124,000	72,200	67,200	41,500	10,300

m^3/d = cubic metres per day.

Table 9.I-76 Representative Discharges at the Lake N1 Outlet – Closure

Condition	Return Period (years)	Snapshot	Peak Daily Q [m^3/s]	7-Day Mean Peak Q [m^3/d]	14-Day Mean Peak Q [m^3/d]	30-Day Low Flow Q [m^3/d]	60-Day Low Flow Q [m^3/d]	90-Day Low Flow Q [m^3/d]
Wet	100	baseline	25.9	1,250,000	1,050,000	285,000	333,000	353,000
		closure	22.4	1,190,000	973,000	215,000	278,000	290,000
	10	baseline	19.9	1,080,000	910,000	171,000	212,000	251,000
		closure	17.8	1,010,000	838,000	142,000	186,000	209,000
Median	2	baseline	13.5	827,000	704,000	95,600	128,000	166,000
		closure	12.6	766,000	649,000	87,600	119,000	142,000
Dry	10	baseline	8.22	527,000	441,000	57,200	83,800	109,000
		closure	8.06	512,000	430,000	56,100	81,000	98,400
	100	baseline	4.51	242,000	174,000	40,500	63,800	77,100
		closure	4.70	295,000	226,000	40,600	62,500	74,900

Q = discharge; m^3/s = cubic metres per second; m^3/d = cubic metres per day.

Table 9.I-77 Monthly Mean Stages at the Lake N1 Outlet – Closure

Condition	Return Period (years)	Snapshot	Monthly Mean Stage [m]				
			June	July	August	September	October
Wet	100	baseline	0.677	0.610	0.577	0.587	0.411
		closure	0.659	0.571	0.572	0.587	0.411
	10	baseline	0.648	0.569	0.527	0.504	0.360
		closure	0.631	0.527	0.521	0.503	0.360
Median	2	baseline	0.602	0.517	0.473	0.426	0.311
		closure	0.587	0.478	0.466	0.426	0.311
Dry	10	baseline	0.537	0.460	0.429	0.375	0.274
		closure	0.527	0.432	0.421	0.375	0.274
	100	baseline	0.446	0.405	0.400	0.349	0.253
		closure	0.449	0.396	0.390	0.349	0.253

m = metre.

Table 9.I-78 Representative Stages at the Basin N1 Outlet – Closure

Condition	Return Period (years)	Snapshot	Peak Daily Stage [m]	7-Day Mean Peak Stage [m]	14-Day Mean Peak Stage [m]	30-Day Low Flow Stage [m]	60-Day Low Flow Stage [m]	90-Day Low Flow Stage [m]
Wet	100	baseline	0.874	0.764	0.734	0.544	0.564	0.571
		closure	0.845	0.756	0.721	0.510	0.540	0.546
	10	baseline	0.822	0.739	0.710	0.483	0.508	0.528
		closure	0.801	0.727	0.697	0.463	0.493	0.506
Median	2	baseline	0.752	0.695	0.670	0.423	0.452	0.480
		closure	0.741	0.683	0.657	0.415	0.445	0.463
Dry	10	baseline	0.671	0.626	0.601	0.376	0.410	0.436
		closure	0.668	0.622	0.598	0.374	0.407	0.426
	100	baseline	0.584	0.524	0.485	0.347	0.385	0.403
		closure	0.590	0.548	0.515	0.347	0.384	0.400

m = metre.

Summary of Effects on Flows, Water Levels and Channel/Bank Stability

Lake N11 Outlet Flows: The water balance results for Lake N11 show that during Closure, monthly mean flows will decrease in proportion to the flow diverted to refill Kennady Lake. The 2-year flood discharge during Closure will decrease by approximately 14% below the baseline value, and the 100-year flood discharge will decrease approximately 7% below the baseline value. Low flows will also decrease by 12% to 23%, under median conditions.

Lake N11 Water Levels: Lake N11 water levels are also expected to decrease during Closure. The 2-year flood level is expected to decrease by approximately

0.029 m, the 100-year flood level to decrease by approximately 0.018 m, and monthly mean stages to decrease by 0.034 m (June), 0.086 m (July), 0.010 m (August), under median conditions, and September and October to remain approximately the same as for baseline.

Lake N11 and Outlet Channel/Bank Stability: No effects on Lake N11 and outlet channel or bank stability are expected during Closure, because flood discharges and water levels will be equal to or reduced from baseline.

Lake N1 Outlet Flows: The water balance results for Lake N1 show that during Closure, monthly mean flows will decrease in proportion to the flow diverted to refill Kennady Lake. The 2-year flood discharge during Closure will decrease by approximately 7% below the baseline value, and the 100-year flood discharge will decrease by approximately 14%. Low flows will also decrease by 7% to 14%, under median conditions.

Lake N1 Water Levels: Lake N1 water levels are also expected to decrease during Closure. The 2-year flood level is expected to decrease by approximately 0.011 m, the 100-year flood level by 0.029 m, and monthly mean stages by 0.015 m (June), 0.039 m (July), 0.007 m (August), under median conditions, and September and October to remain approximately the same as for baseline.

Lake N1 and Outlet Channel/Bank Stability: No effects on Lake N1 and Outlet channel or bank stability are expected during closure, because flood discharges and water levels will be equal to or reduced from baseline.

Kennady Lake Area 8 Outlet to Lake M1 Outlet

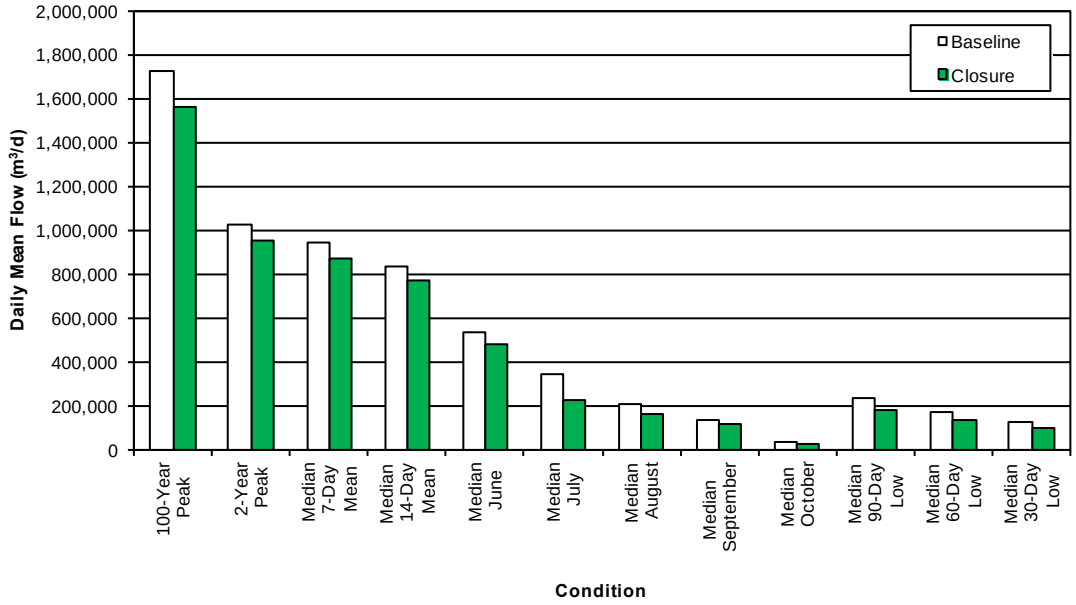
Effects of the Project on the reach from the Area 8 outlet to the Lake M1 outlet during Closure are identical to the effects during Operations, as presented in Section 9.7.3.3 of the July 2011 EIS Update.

Lake 410 to Kirk Lake Outlet

Effects on the reach from Lake 410 to the Kirk Lake outlet during Closure are due to the abstraction of flow from Lake N11 for Kennady Lake refilling and the removal of flow from 77% of the natural drainage area (Areas 2 to 7) during the refilling period of Kennady Lake.

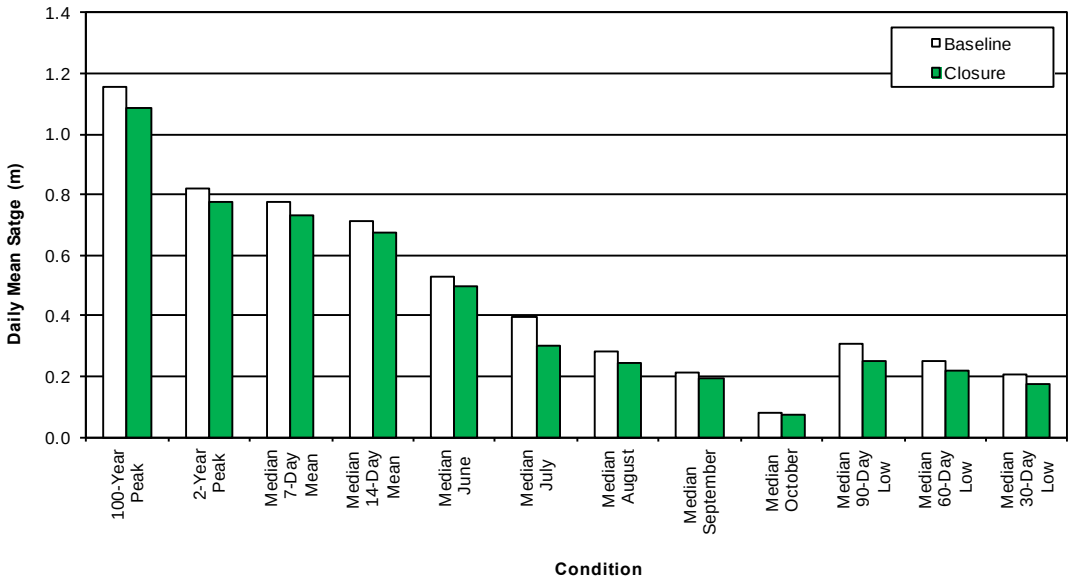
The water balance model for the Project examined all downstream waterbodies between Lake 410 and the Kirk Lake outlet channel. Project effects on Lake 410 and outlet during refilling are shown in Figures 9.I-39 and 9.I-40, and summarized in Tables 9.I-79 to 9.I-82. Project effects on Kirk Lake during refilling are shown in Figures 9.I-41 and 9.I-42, and summarized in Tables 9.I-83 to 9.I-86.

Figure 9.I-39 Comparison of Effects on Lake 410 Outlet Discharges – Closure



m^3/d = cubic metres per day.

Figure 9.I-40 Comparison of Effects on Lake 410 Stages – Closure



m = metres.

Table 9.I-79 Monthly Mean Discharges at the Lake 410 Outlet – Closure

Condition	Return Period (years)	Snapshot	Monthly Mean Discharge [m^3/d]				
			June	July	August	September	October
Wet	100	baseline	934,000	678,000	475,000	587,000	135,000
		closure	818,000	494,000	408,000	511,000	118,000
	10	baseline	759,000	514,000	329,000	278,000	70,700
		closure	666,000	354,000	272,000	254,000	61,300
Median	2	baseline	537,000	344,000	210,000	135,000	32,700
		closure	483,000	230,000	166,000	117,000	28,000
Dry	10	baseline	329,000	203,000	132,000	73,900	16,000
		closure	305,000	143,000	101,000	62,900	13,600
	100	baseline	190,000	106,000	90,100	49,800	9,660
		closure	162,000	91,800	68,000	44,300	8,080

m^3/d = cubic metres per day.

Table 9.I-80 Representative Discharges at the Lake 410 Outlet – Closure

Condition	Return Period (years)	Snapshot	Peak Daily Q [m^3/s]	7-Day Mean Peak Q [m^3/d]	14-Day Mean Peak Q [m^3/d]	30-Day Low Flow Q [m^3/d]	60-Day Low Flow Q [m^3/d]	90-Day Low Flow Q [m^3/d]
Wet	100	baseline	20.0	1,420,000	1,240,000	404,000	443,000	491,000
		closure	18.1	1,340,000	1,150,000	283,000	349,000	372,000
	10	baseline	16.5	1,230,000	1,080,000	237,000	287,000	355,000
		closure	15.0	1,140,000	992,000	179,000	228,000	267,000
Median	2	baseline	11.9	942,000	837,000	128,000	173,000	234,000
		closure	11.0	869,000	770,000	104,000	140,000	177,000
Dry	10	baseline	7.11	580,000	523,000	74,200	108,000	150,000
		closure	6.86	561,000	503,000	62,800	89,900	118,000
	100	baseline	3.03	219,000	200,000	50,900	77,500	100,000
		closure	3.39	278,000	247,000	43,200	66,000	85,100

Q =discharge; m^3/s = cubic metres per second; m^3/d = cubic metres per day.

Table 9.I-81 Monthly Mean Stages at the Lake 410 Outlet – Closure

Condition	Return Period (years)	Snapshot	Monthly Mean Stage [m]				
			June	July	August	September	October
Wet	100	baseline	0.769	0.621	0.49	0.564	0.212
		closure	0.704	0.502	0.442	0.514	0.194
	10	baseline	0.669	0.516	0.383	0.343	0.138
		closure	0.613	0.403	0.338	0.322	0.125
Median	2	baseline	0.531	0.395	0.284	0.212	0.082
		closure	0.495	0.302	0.243	0.192	0.074
Dry	10	baseline	0.383	0.278	0.209	0.142	0.051
		closure	0.364	0.220	0.175	0.127	0.046
	100	baseline	0.266	0.180	0.162	0.109	0.036
		closure	0.239	0.164	0.134	0.101	0.032

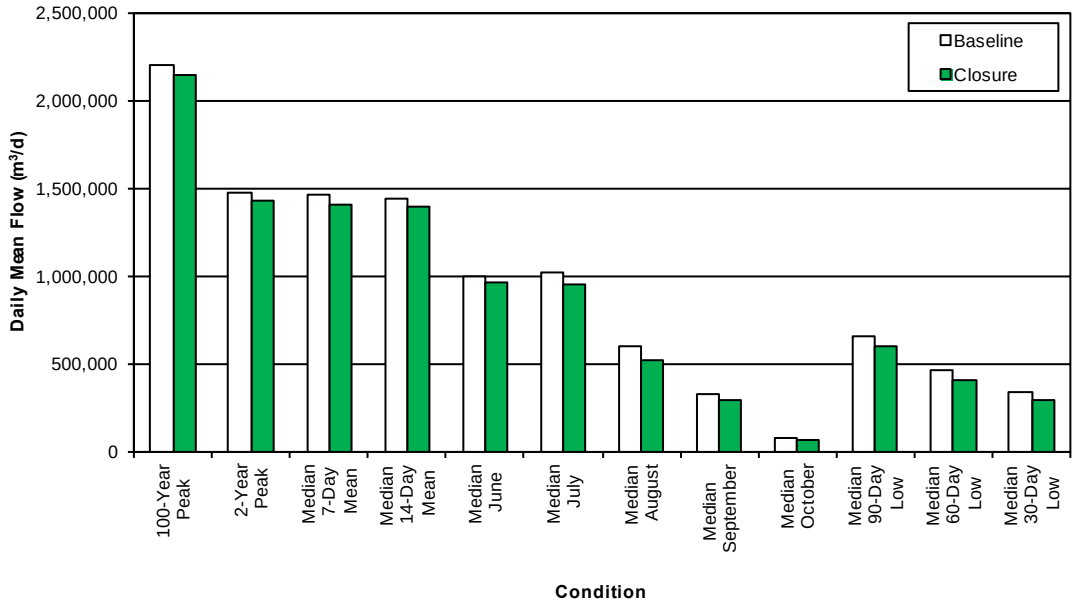
m = metre.

Table 9.I-82 Representative Stages at the Lake 410 Outlet – Closure

Condition	Return Period (years)	Snapshot	Peak Daily Stage [m]	7-Day Mean Peak Stage [m]	14-Day Mean Peak Stage [m]	30-Day Low Flow Stage [m]	60-Day Low Flow Stage [m]	90-Day Low Flow Stage [m]
Wet	100	baseline	1.158	1.016	0.928	0.440	0.467	0.501
		closure	1.084	0.976	0.880	0.347	0.399	0.416
	10	baseline	1.019	0.923	0.847	0.308	0.350	0.403
		closure	0.955	0.878	0.800	0.255	0.300	0.333
Median	2	baseline	0.819	0.773	0.714	0.204	0.250	0.305
		closure	0.777	0.732	0.676	0.178	0.216	0.254
Dry	10	baseline	0.581	0.559	0.522	0.142	0.182	0.227
		closure	0.568	0.547	0.509	0.127	0.161	0.194
	100	baseline	0.329	0.292	0.275	0.110	0.146	0.173
		closure	0.355	0.343	0.316	0.099	0.131	0.156

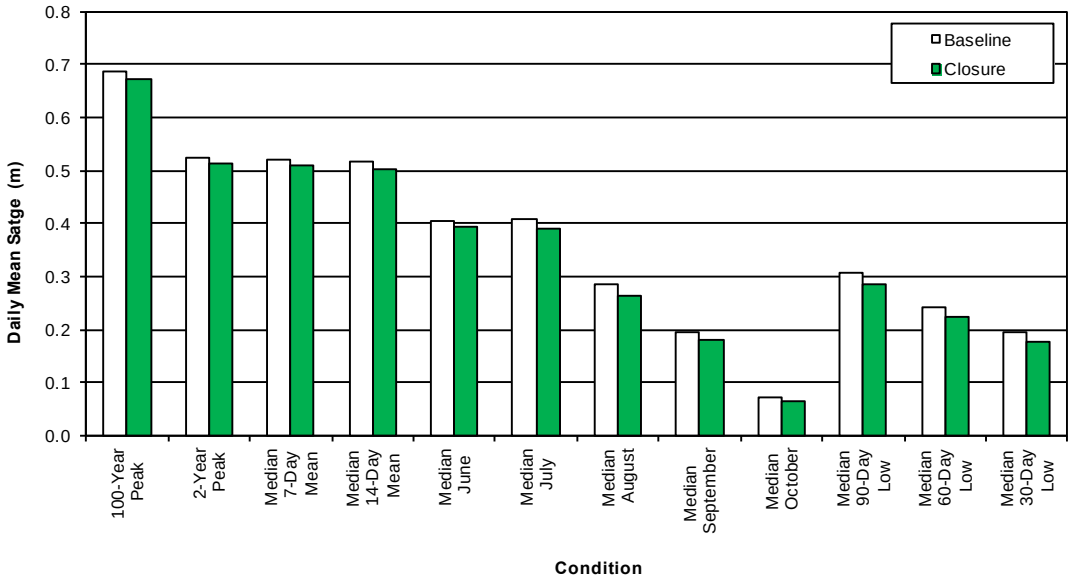
m = metre.

Figure 9.I-41 Comparison of Effects on Kirk Lake Outlet Discharges – Closure



m^3/d = cubic metres per day.

Figure 9.I-42 Comparison of Effects on Kirk Lake Stages – Closure



m = metres.

Table 9.I-83 Monthly Mean Discharges at the Kirk Lake Outlet – Closure

Condition	Return Period (years)	Snapshot	Monthly Mean Discharge [m^3/d]				
			June	July	August	September	October
Wet	100	baseline	1,850,000	1,730,000	1,250,000	1,370,000	420,000
		closure	1,800,000	1,580,000	1,090,000	1,130,000	377,000
	10	baseline	1,450,000	1,420,000	916,000	676,000	188,000
		closure	1,410,000	1,310,000	797,000	620,000	176,000
Median	2	baseline	995,000	1,020,000	596,000	332,000	75,700
		closure	966,000	948,000	523,000	297,000	64,600
Dry	10	baseline	562,000	607,000	349,000	161,000	24,500
		closure	542,000	573,000	315,000	140,000	19,100
	100	baseline	226,000	255,000	191,000	85,200	4,760
		closure	213,000	255,000	184,000	74,000	2,760

m^3/d = cubic metres per day.

Table 9.I-84 Representative Discharges at the Kirk Lake Outlet – Closure

Condition	Return Period (years)	Snapshot	Peak Daily Q [m^3/s]	7-Day Mean Peak Q [m^3/d]	14-Day Mean Peak Q [m^3/d]	30-Day Low Flow Q [m^3/d]	60-Day Low Flow Q [m^3/d]	90-Day Low Flow Q [m^3/d]
Wet	100	baseline	25.5	2,160,000	2,100,000	1,050,000	1,140,000	1,290,000
		closure	24.8	2,110,000	2,040,000	933,000	998,000	1,150,000
	10	baseline	22.1	1,890,000	1,850,000	636,000	774,000	981,000
		closure	21.4	1,830,000	1,790,000	562,000	680,000	878,000
Median	2	baseline	17.1	1,460,000	1,440,000	333,000	467,000	660,000
		closure	16.5	1,410,000	1,390,000	292,000	412,000	597,000
Dry	10	baseline	10.6	902,000	884,000	163,000	262,000	395,000
		closure	10.3	878,000	860,000	143,000	235,000	366,000
	100	baseline	3.98	321,000	290,000	82,100	148,000	213,000
		closure	4.16	337,000	306,000	71,300	136,000	209,000

Q = discharge; m^3/s = cubic metres per second; m^3/d = cubic metres per day.

Table 9.I-85 Monthly Mean Stages at the Kirk Lake Outlet – Closure

Condition	Return Period (years)	Snapshot	Monthly Mean Stage [m]				
			June	July	August	September	October
Wet	100	baseline	0.610	0.584	0.470	0.500	0.227
		closure	0.599	0.551	0.428	0.438	0.211
	10	baseline	0.519	0.512	0.382	0.312	0.133
		closure	0.510	0.484	0.348	0.295	0.127
Median	2	baseline	0.404	0.410	0.287	0.194	0.072
		closure	0.396	0.391	0.263	0.180	0.065
Dry	10	baseline	0.276	0.290	0.201	0.120	0.034
		closure	0.269	0.280	0.188	0.109	0.029
	100	baseline	0.150	0.163	0.134	0.078	0.011
		closure	0.145	0.163	0.131	0.071	0.008

m = metre.

Table 9.I-86 Representative Stages at the Kirk Lake Outlet – Closure

Condition	Return Period (years)	Snapshot	Peak Daily Stage [m]	7-Day Mean Peak Stage [m]	14-Day Mean Peak Stage [m]	30-Day Low Flow Stage [m]	60-Day Low Flow Stage [m]	90-Day Low Flow Stage [m]
Wet	100	baseline	0.686	0.677	0.664	0.418	0.442	0.480
		closure	0.673	0.666	0.652	0.387	0.405	0.445
	10	baseline	0.623	0.619	0.610	0.300	0.342	0.400
		closure	0.611	0.606	0.597	0.276	0.313	0.372
Median	2	baseline	0.525	0.521	0.517	0.195	0.244	0.307
		closure	0.513	0.510	0.504	0.178	0.224	0.287
Dry	10	baseline	0.382	0.378	0.373	0.121	0.166	0.218
		closure	0.375	0.371	0.366	0.111	0.154	0.207
	100	baseline	0.199	0.190	0.177	0.077	0.113	0.144
		closure	0.205	0.196	0.184	0.070	0.107	0.143

m = metre.

Summary of Effects on Flows, Water Levels and Channel/Bank Stability

Lake 410 Outlet Flows: The water balance results for Lake 410 show that during Closure, monthly mean flows will decrease due to withdrawals from Lake N11 for Kennady Lake refilling combined with the continued closed-circuiting of Kennady Lake upstream of Area 8. The 2-year flood discharge during Closure will decrease by approximately 8% from the baseline value, and the 100-year

flood discharge will decrease by approximately 10%. Low flows will also decrease by 19% to 24% under median conditions.

Lake 410 Water Levels: Lake 410 water levels are also expected to decrease during Closure. The 2-year flood level is expected to decrease by approximately 0.042 m, the 100-year flood level by 0.074 m, and monthly mean stages by 0.036 m (June), 0.093 m (July), 0.041 m (August), 0.020 m (September) and 0.008 m (October), under median conditions.

Lake 410 and Outlet Channel/Bank Stability: No effects on Lake 410 and Outlet channel or bank stability are expected during Closure, because flood discharges and water levels will be reduced from baseline.

Kirk Lake Outlet Flows: The water balance results for Kirk Lake show that during Closure, monthly mean flows will decrease due to withdrawals from Lake N11 for Kennady Lake refilling combined with the continued closed-circuiting of Kennady Lake upstream of Area 8. The 2-year flood discharge during Closure will decrease by approximately 4% from the baseline value, and the 100-year flood discharge will decrease by approximately 3%. Low flows will also decrease by 10% to 12% under median conditions.

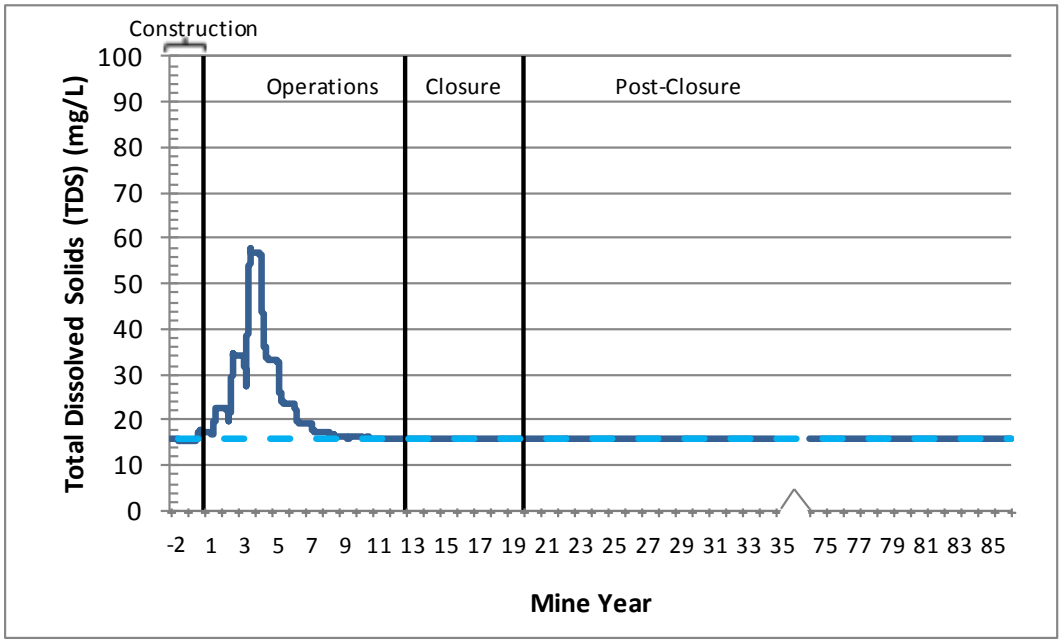
Kirk Lake Water Levels: Kirk Lake water levels are also expected to decrease during closure. The 2-year flood level is expected to decrease by approximately 0.012 m, the 100-year flood level by 0.013 m, and monthly mean stages by 0.008 m (June), 0.019 m (July), 0.024 m (August), 0.014 m (September) and 0.007 m (October), under median conditions.

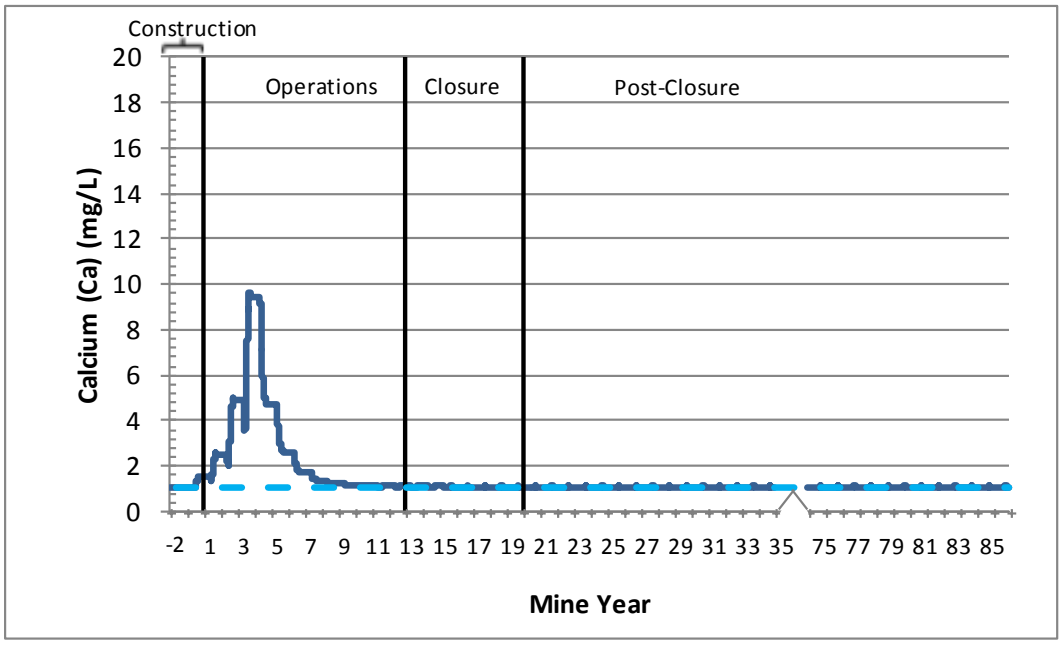
Kirk Lake and Outlet Channel/Bank Stability: No effects on Kirk Lake and Outlet channel or bank stability are expected during operation, because flood discharges and water levels will be reduced from baseline.

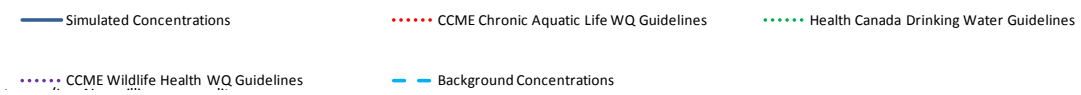
APPENDIX 9.II

WATER QUALITY TIME SERIES PLOTS FOR LAKE N11 AND LAKE 410

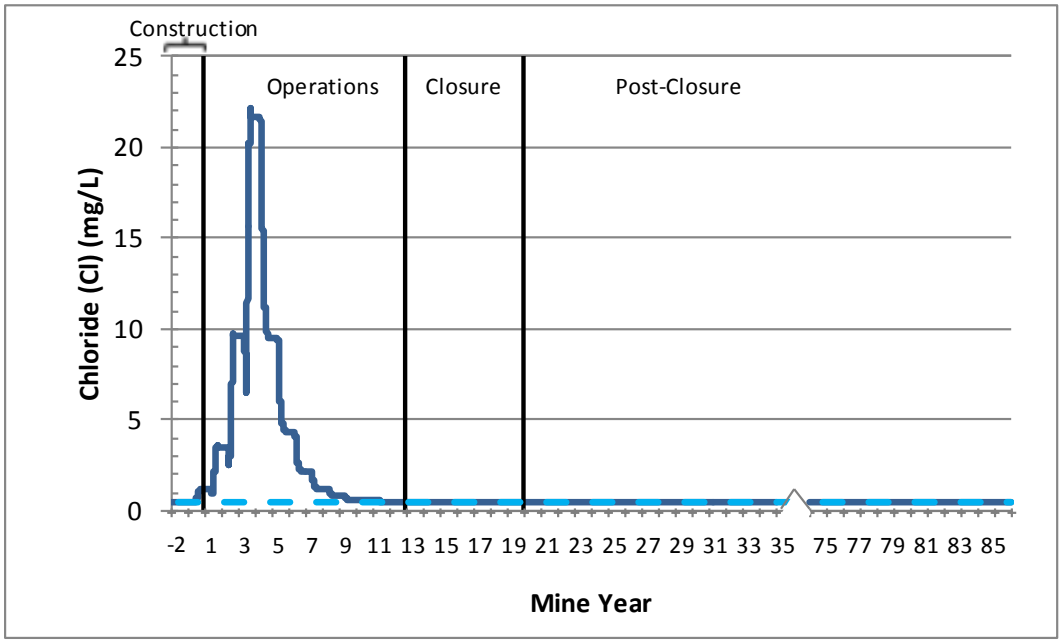
Nutrients and Anions - Lake N11

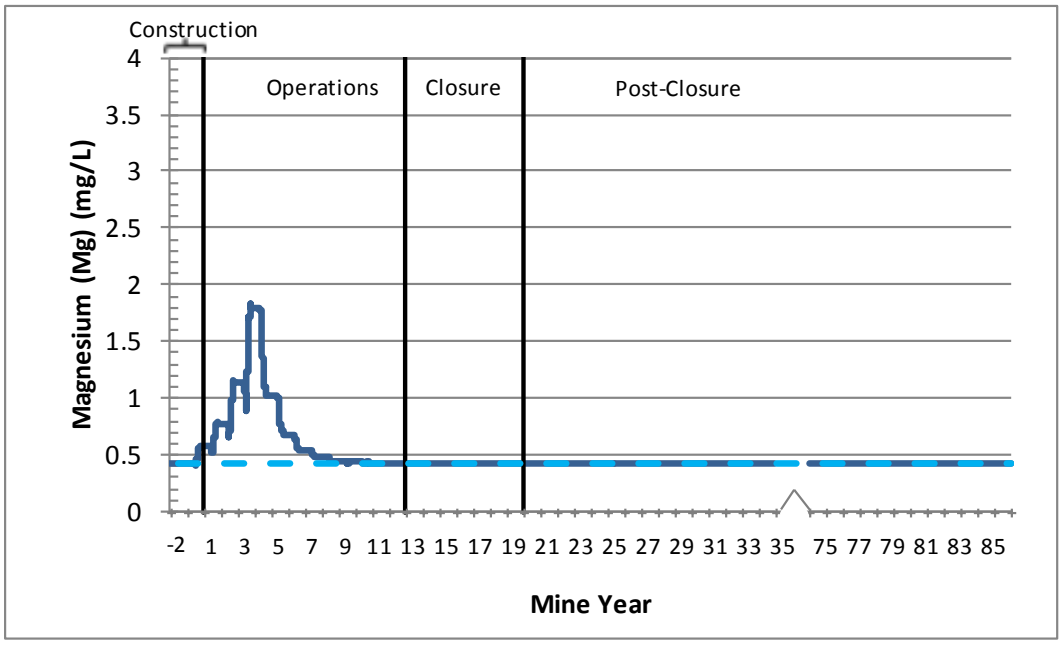


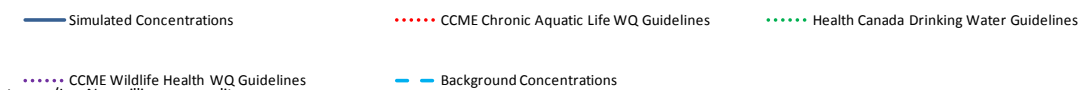




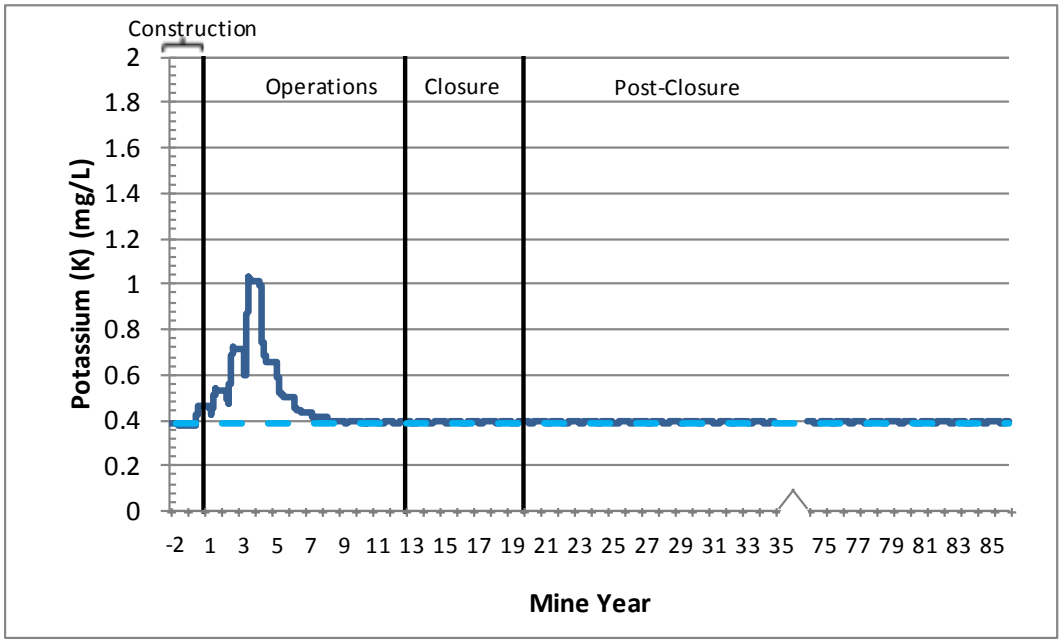
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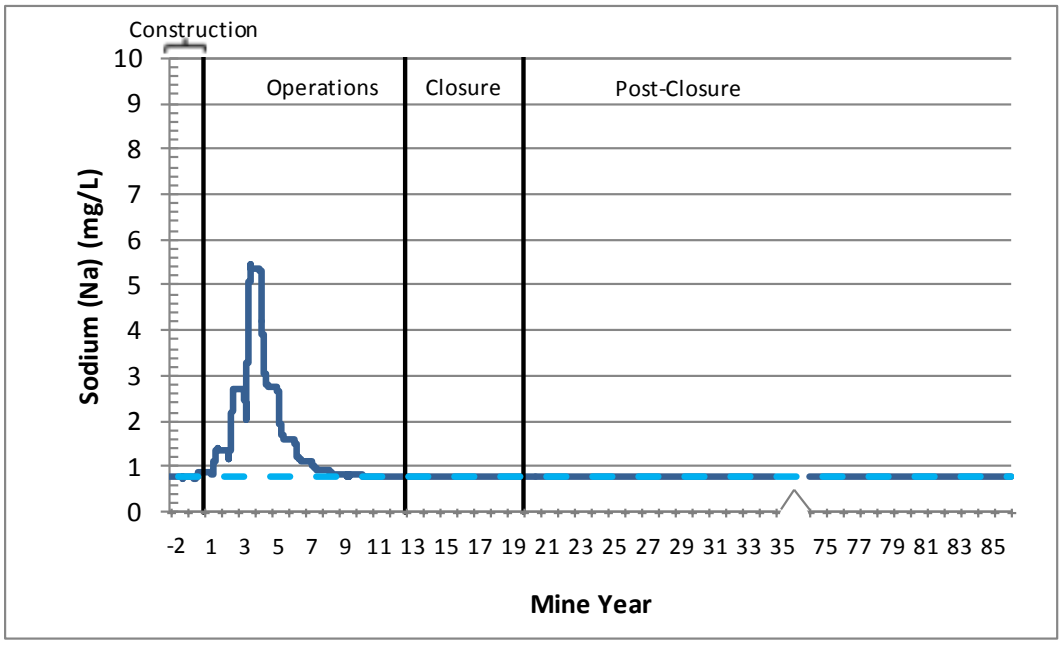


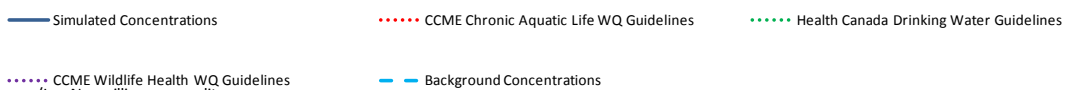




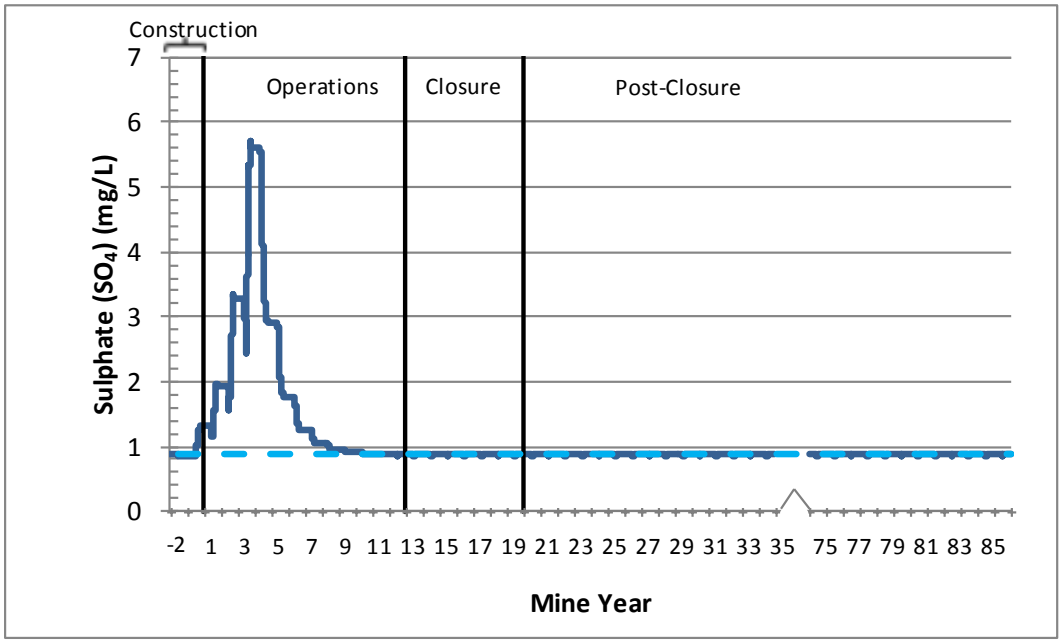
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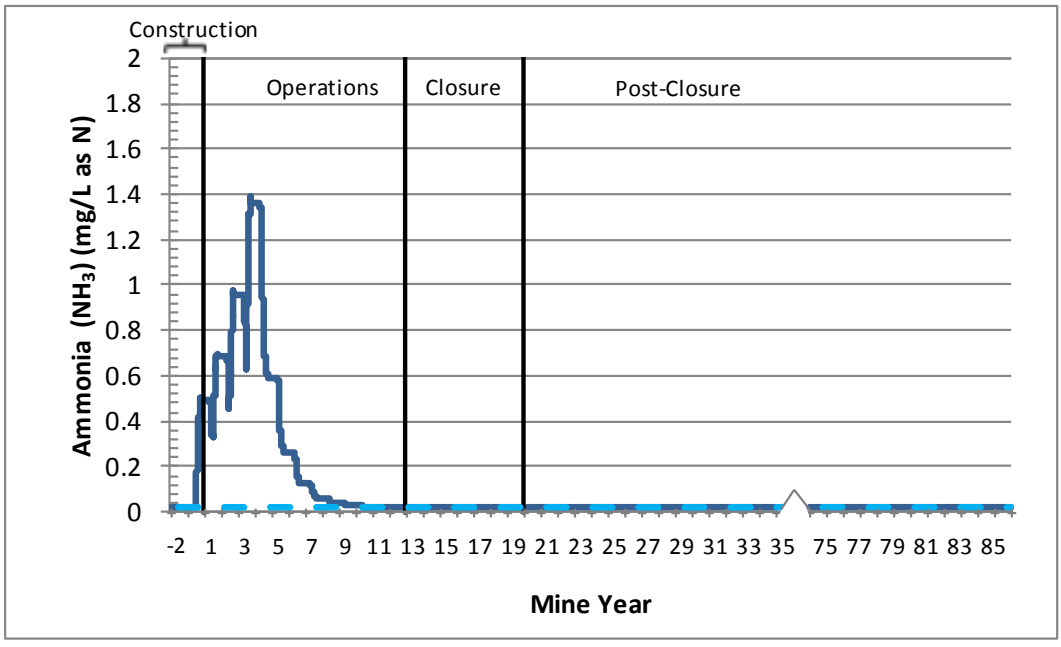






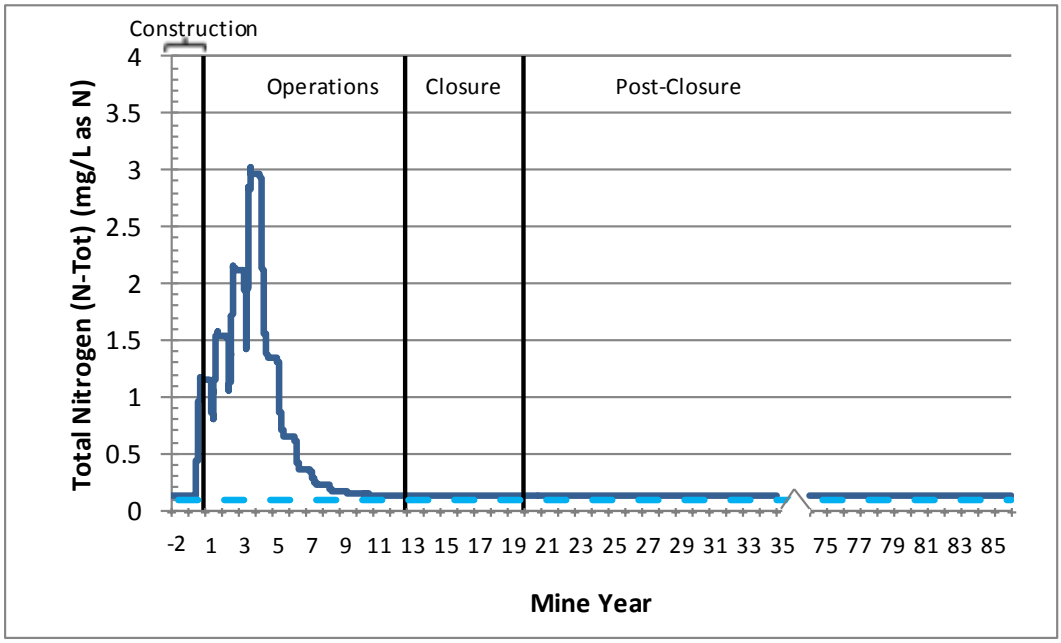
Nutrients and Anions - Lake N11 (continued)

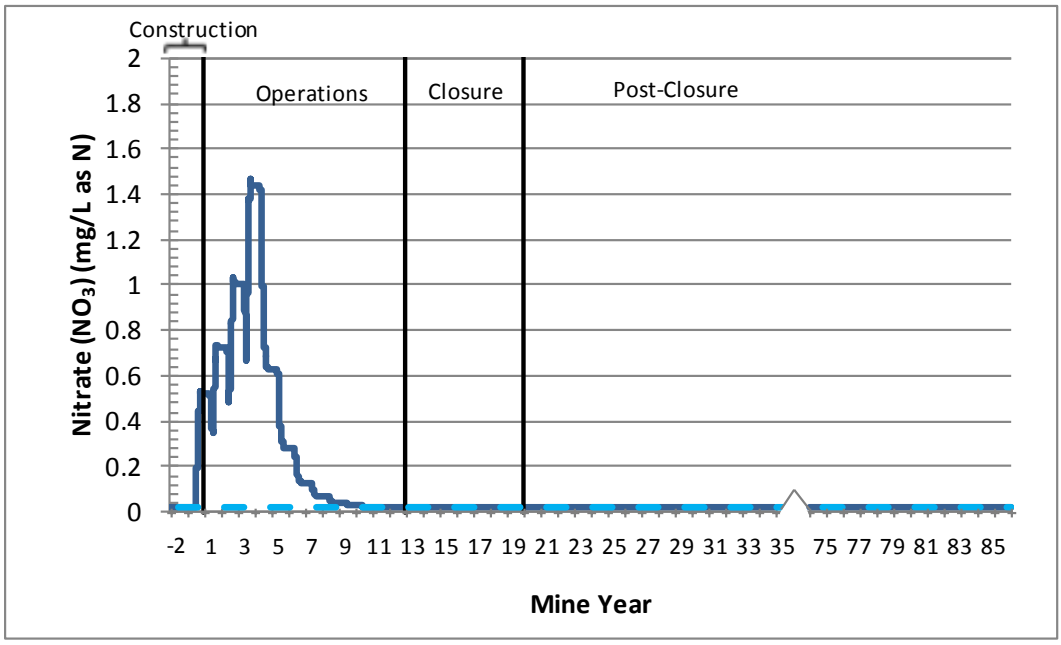




Simulated Concentrations
CCME Chronic Aquatic Life WQ Guidelines
Health Canada Drinking Water Guidelines
CCME Wildlife Health WQ Guidelines
Background Concentrations

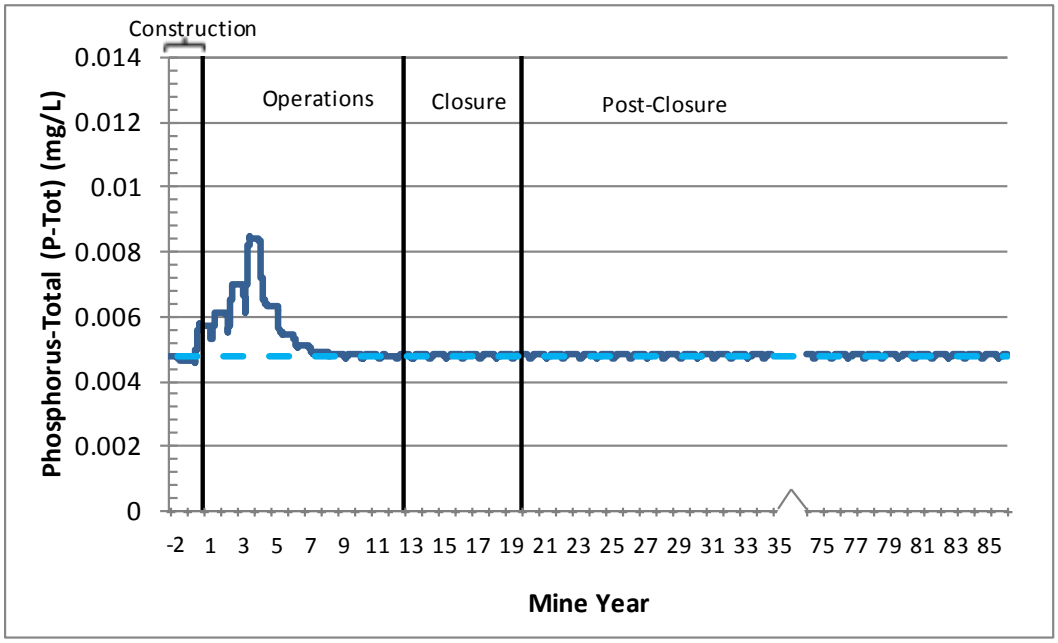
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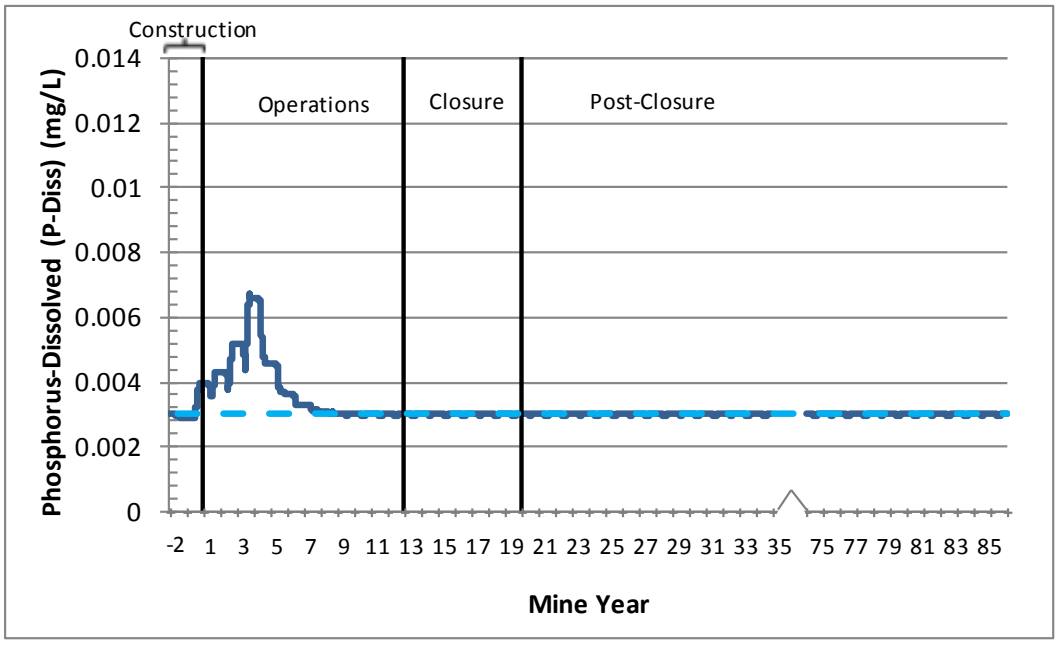


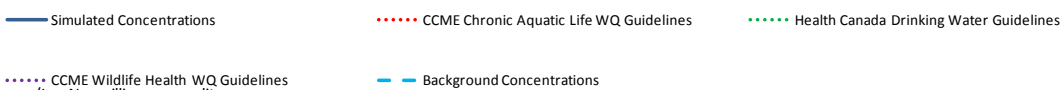


Simulated Concentrations
CCME Chronic Aquatic Life WQ Guidelines
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Background Concentrations

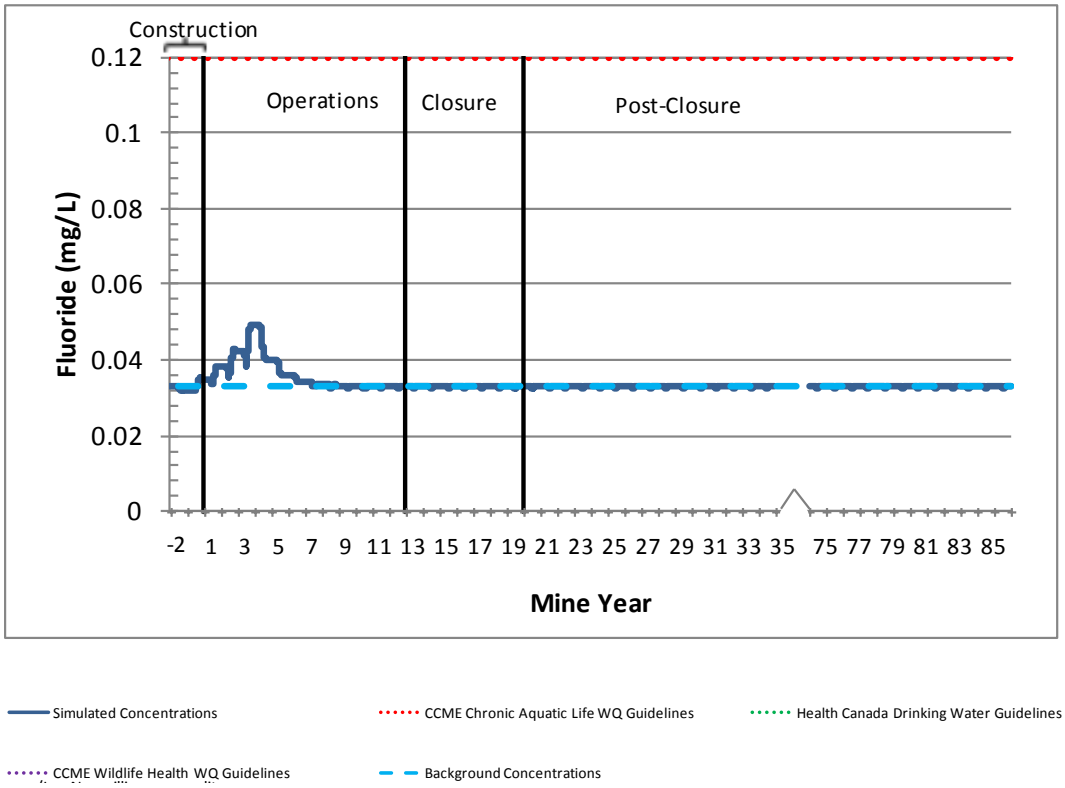
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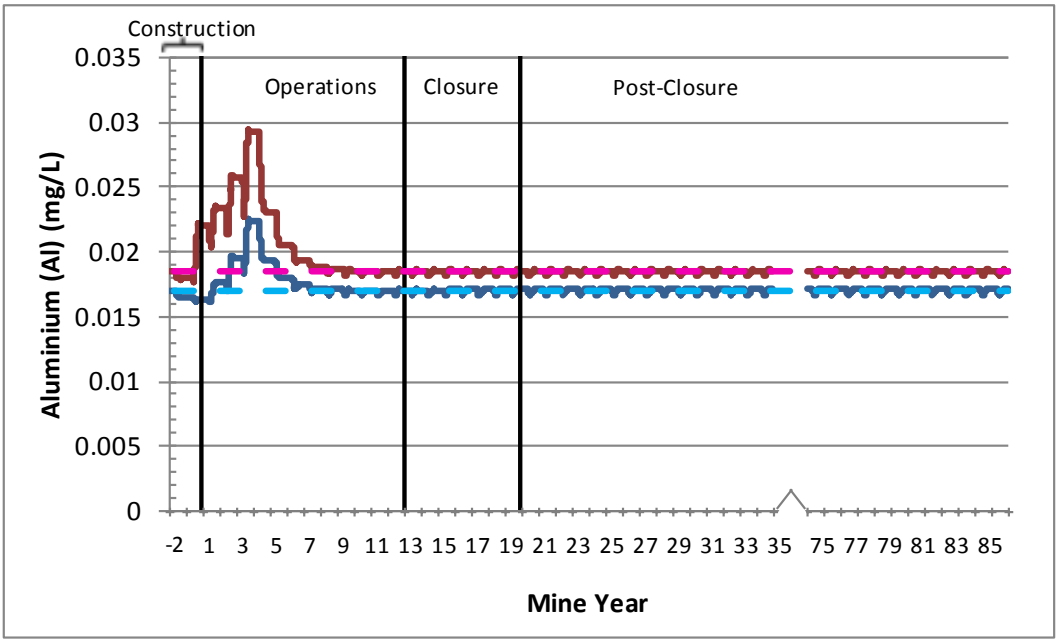


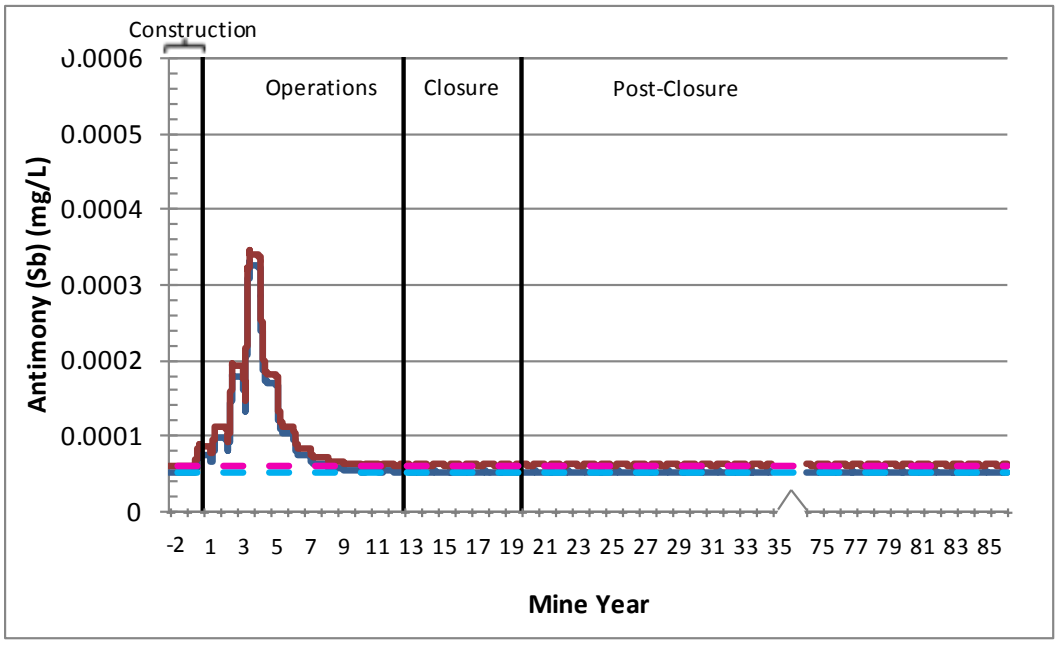


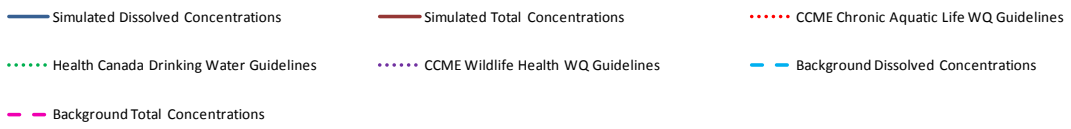
Nutrients and Anions - Lake N11 (continued)



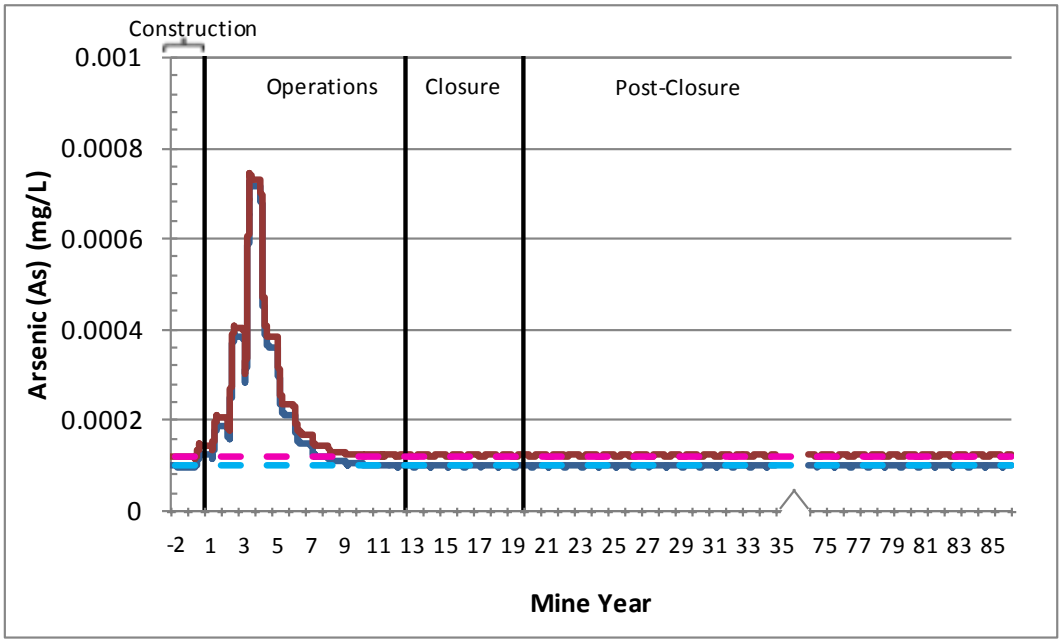
Dissolved and Total Metals - Lake N11

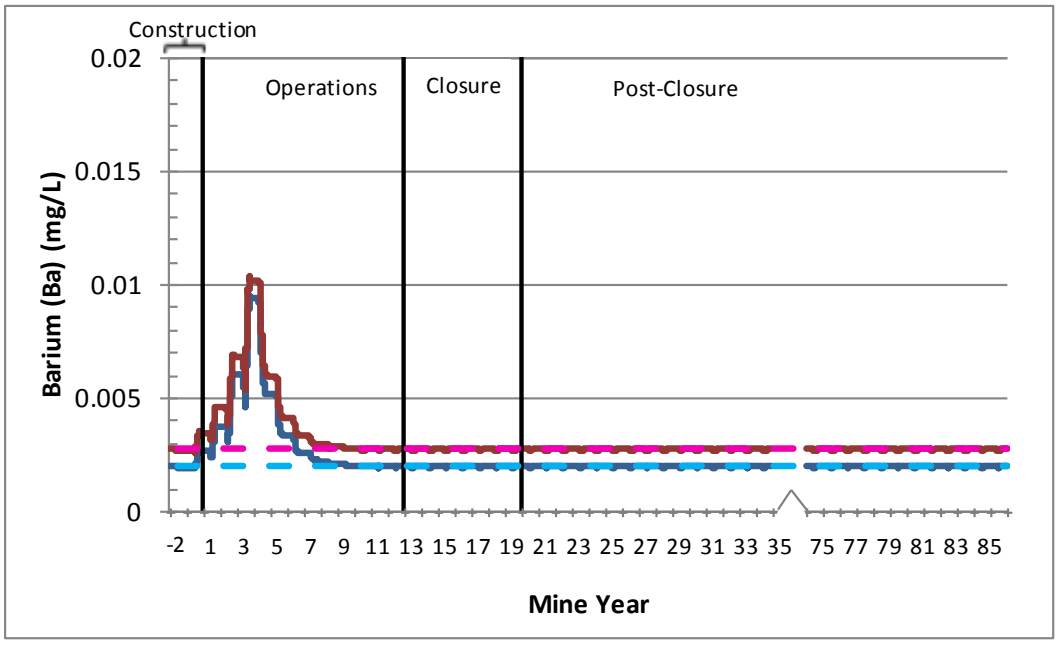


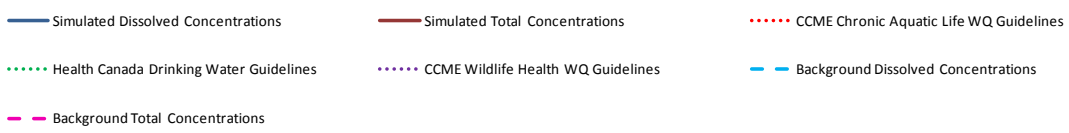




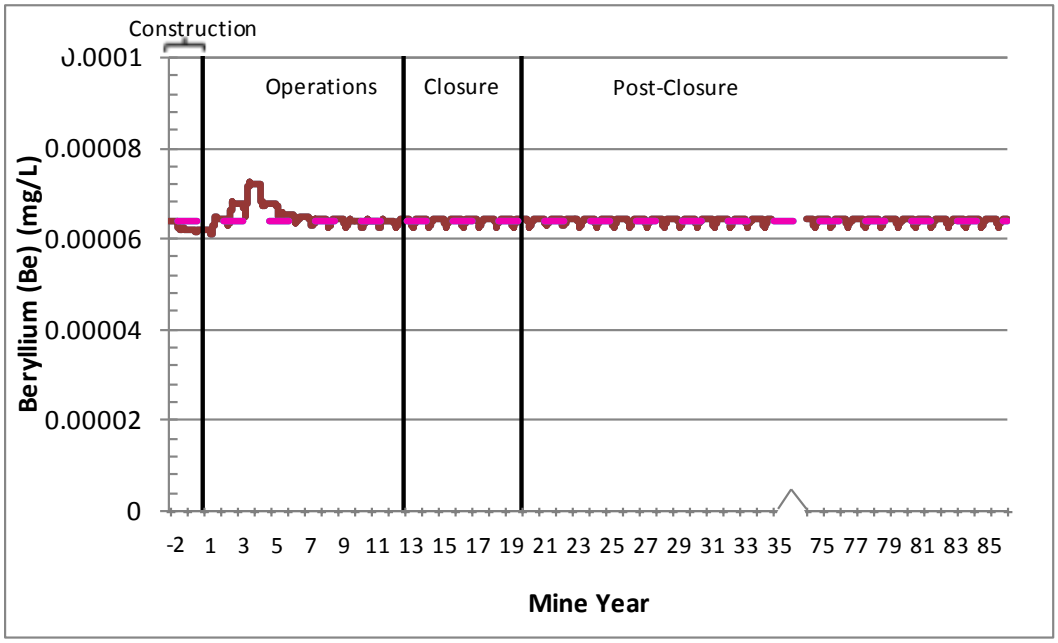
Dissolved and Total Metals - Lake N11 (continued)

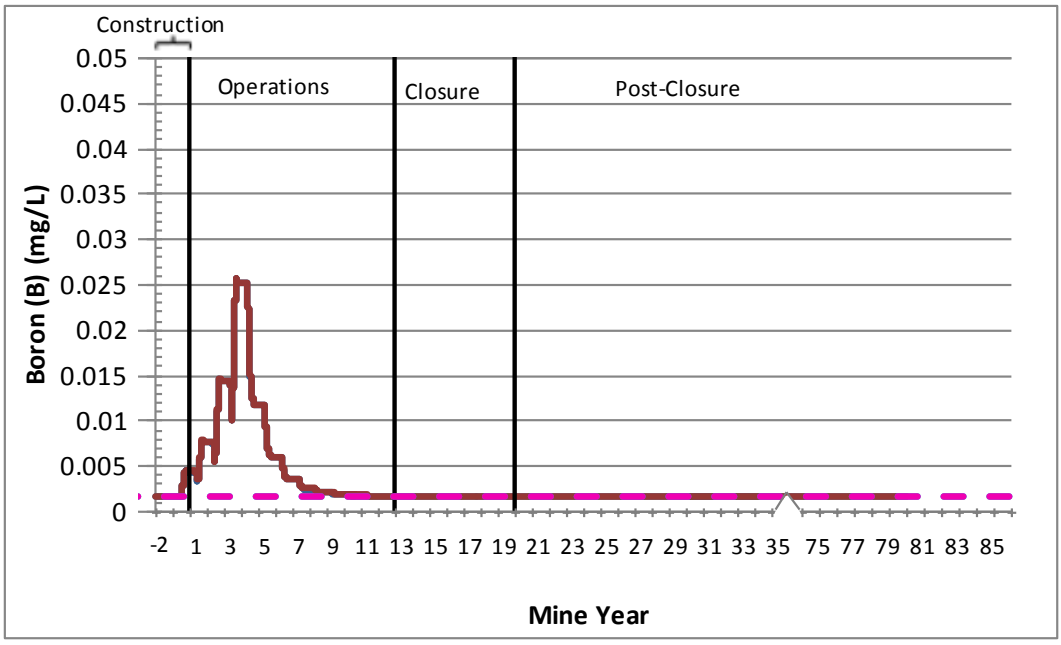


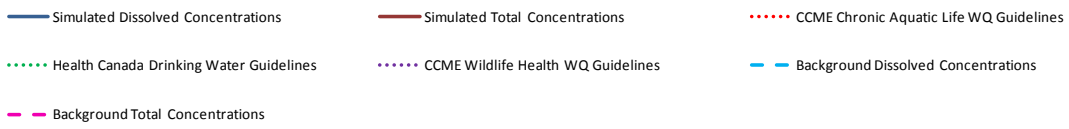




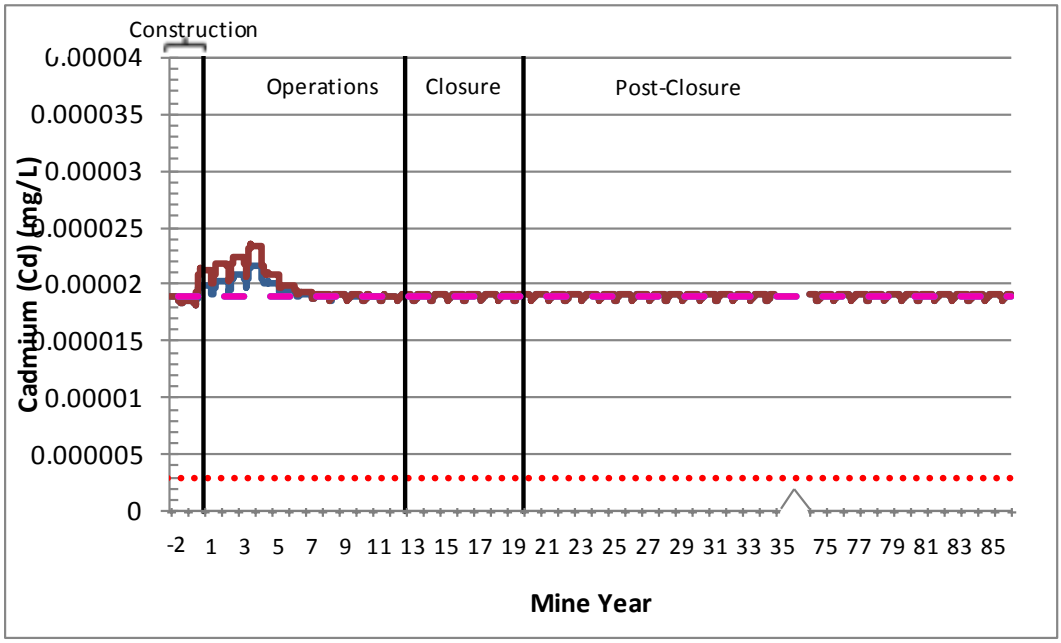
Dissolved and Total Metals - Lake N11 (continued)

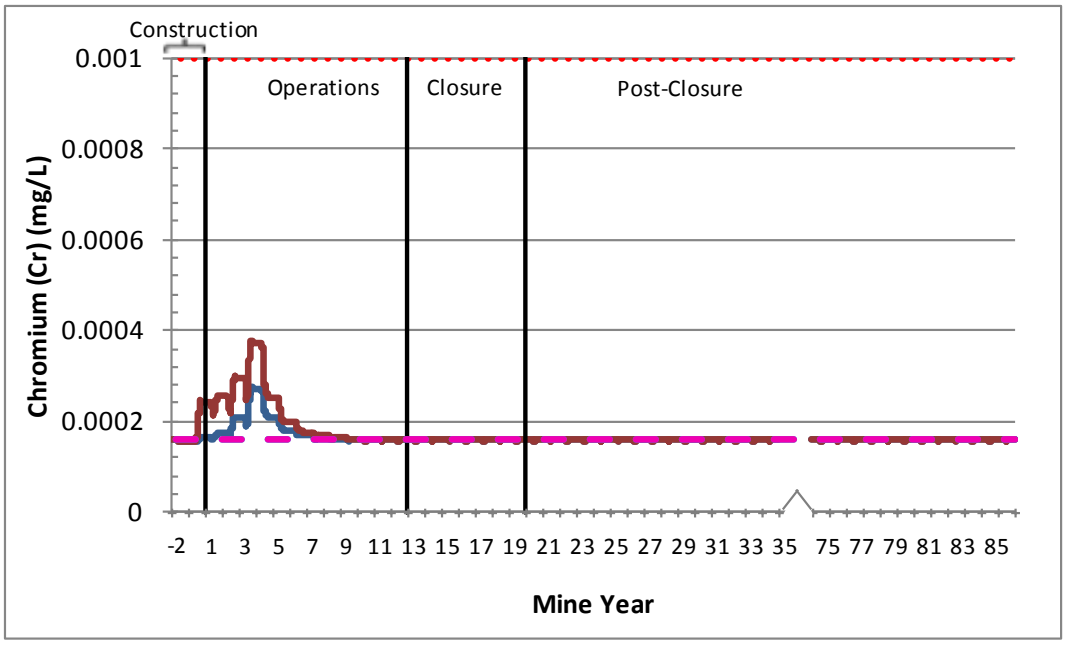


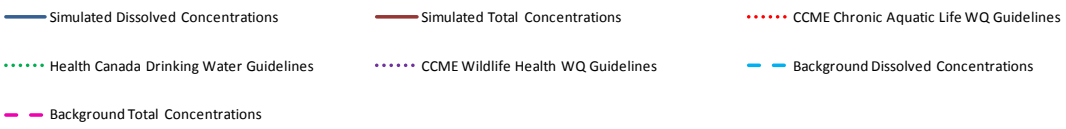




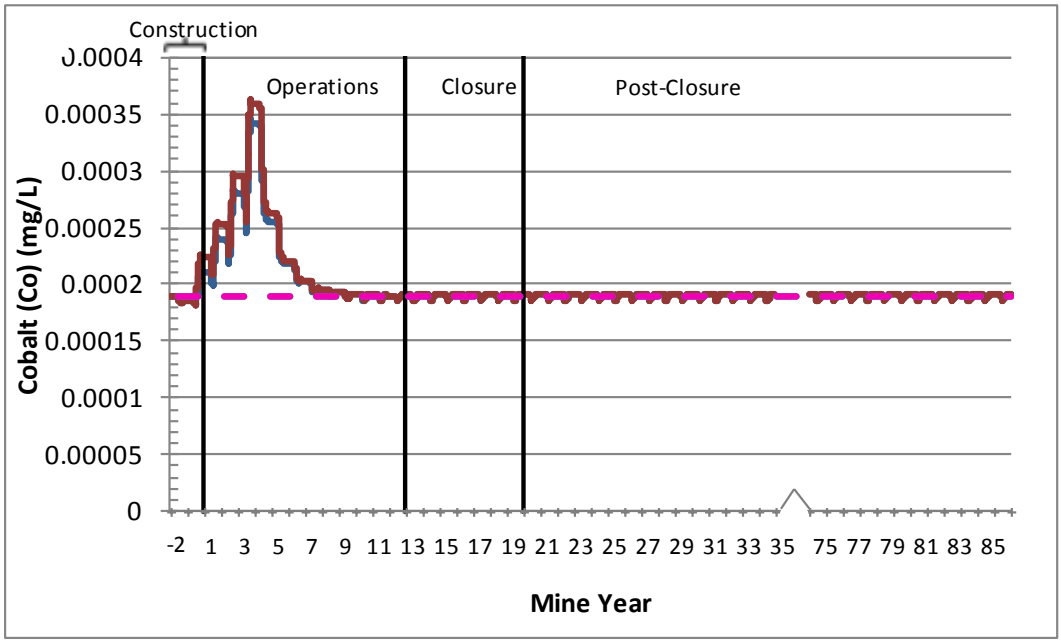
Dissolved and Total Metals - Lake N11 (continued)

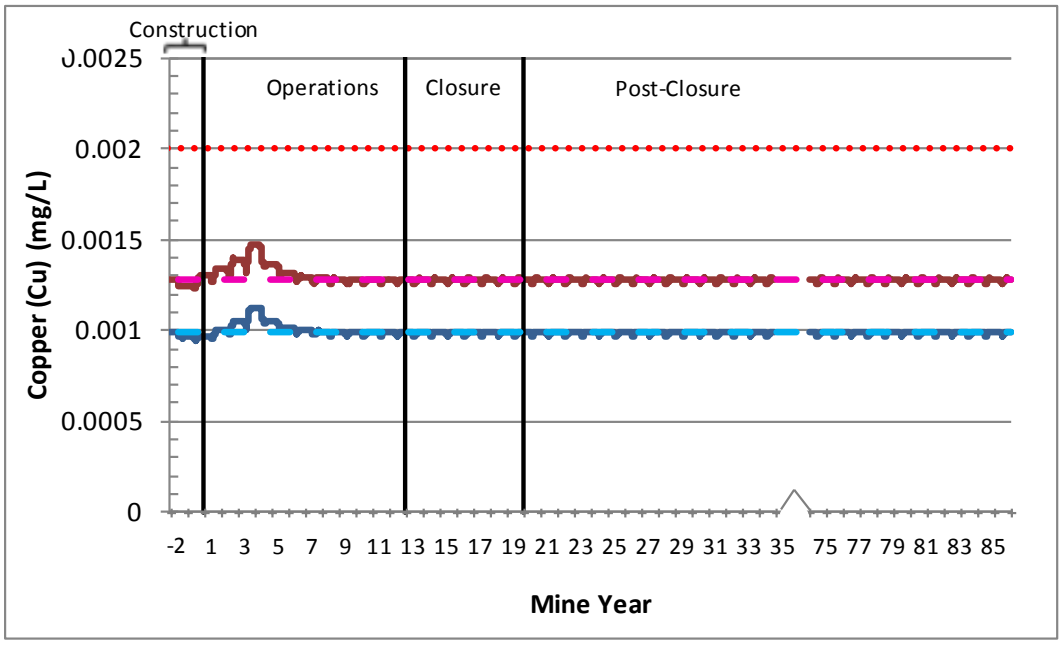


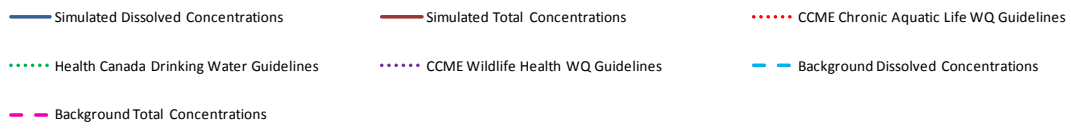




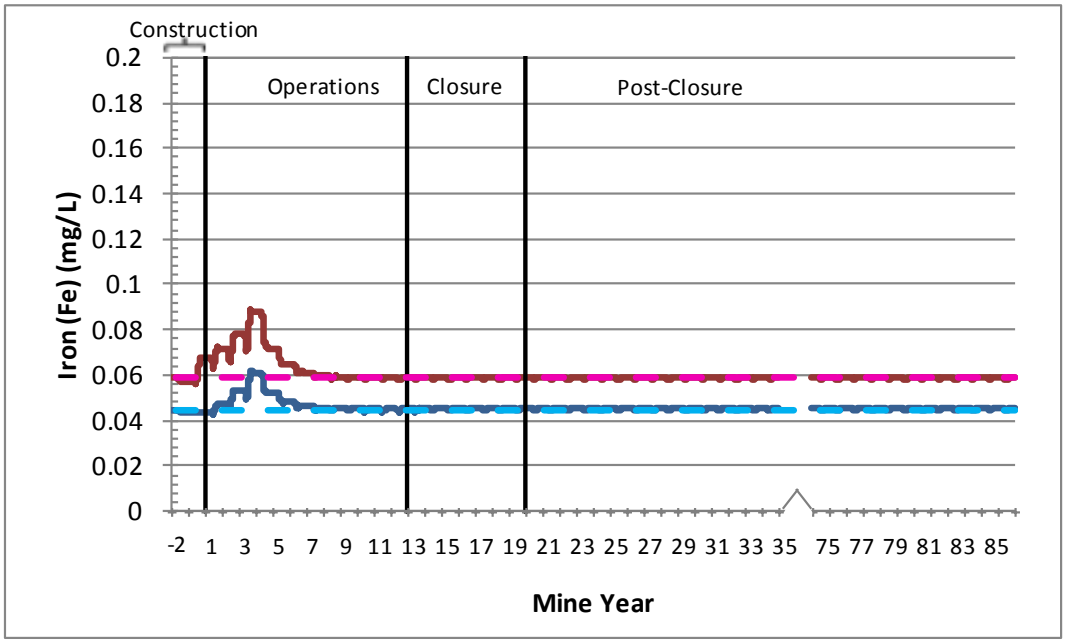
Dissolved and Total Metals - Lake N11 (continued)

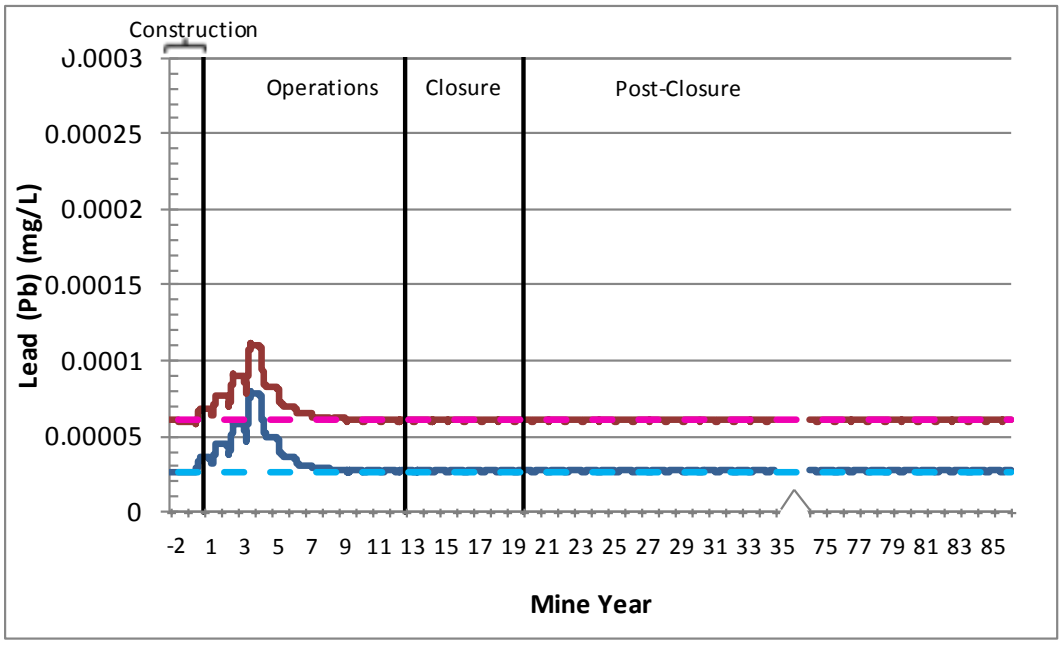


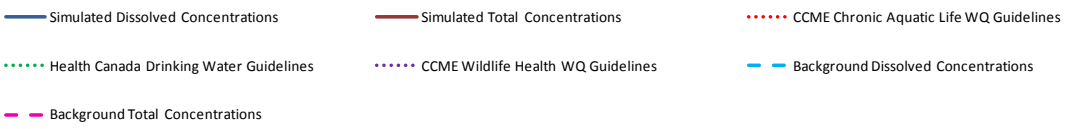




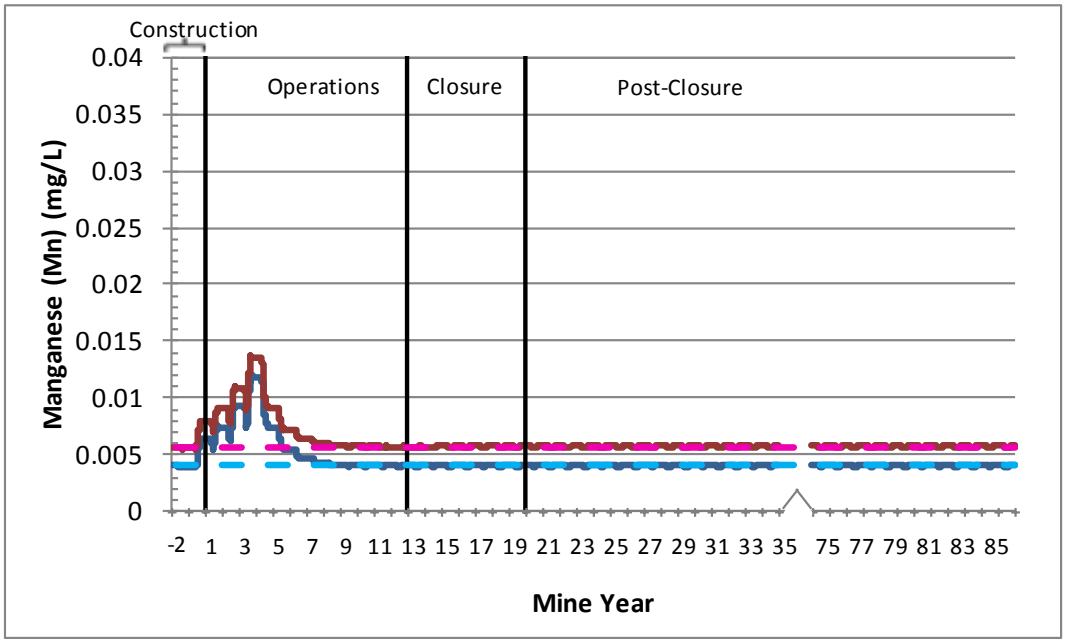
Dissolved and Total Metals - Lake N11 (continued)

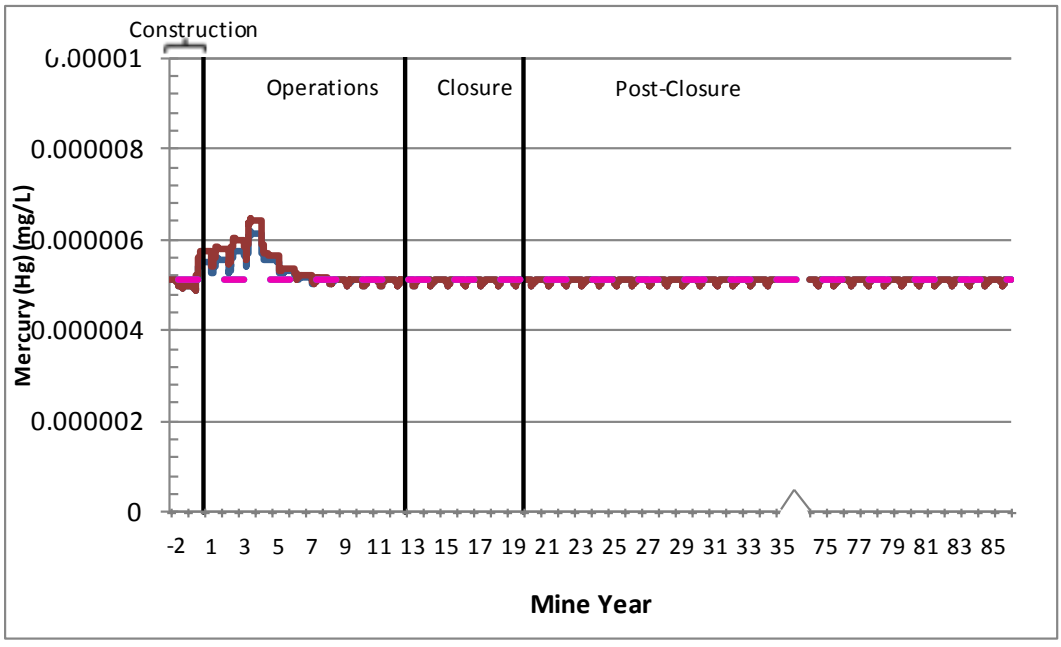






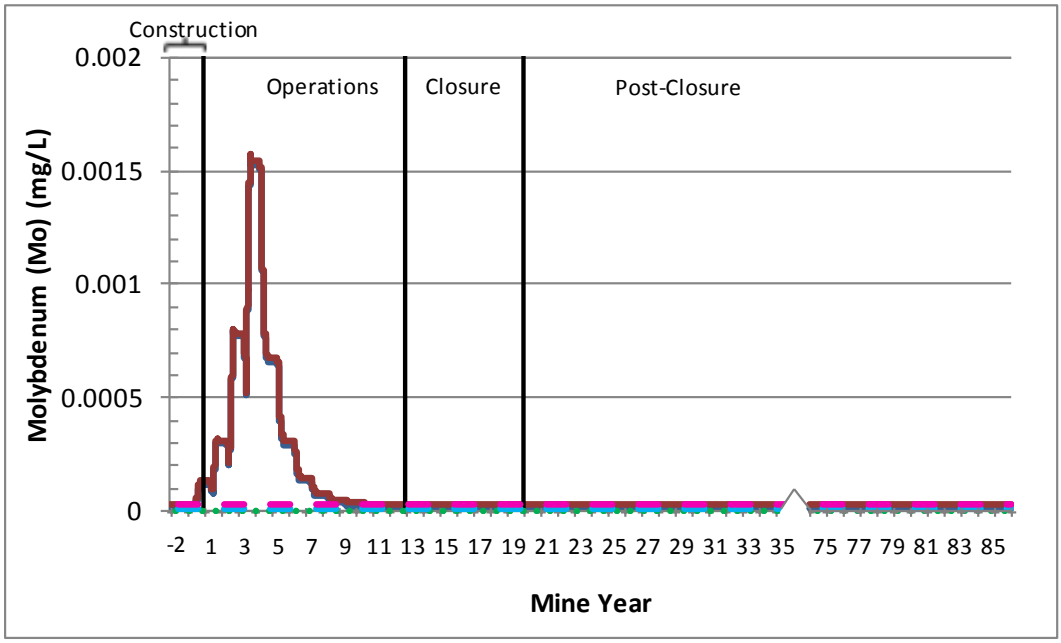
Dissolved and Total Metals - Lake N11 (continued)

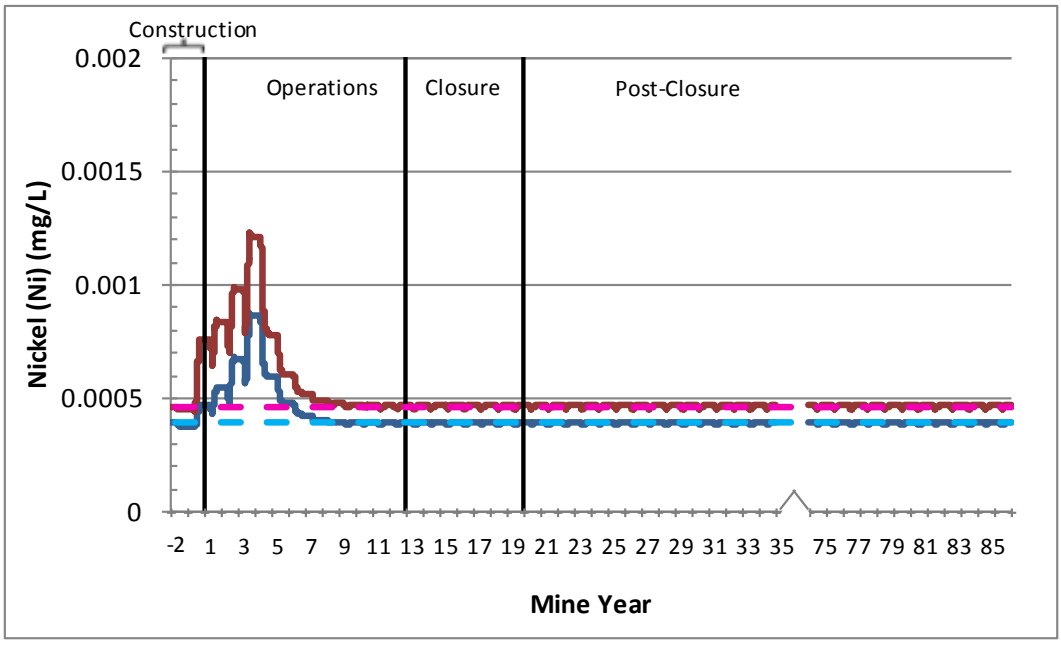


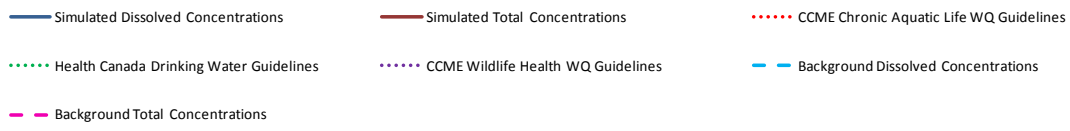


Simulated Dissolved Concentrations
Simulated Total Concentrations
CCME Chronic Aquatic Life WQ Guidelines
Health Canada Drinking Water Guidelines
CCME Wildlife Health WQ Guidelines
Background Dissolved Concentrations
Background Total Concentrations

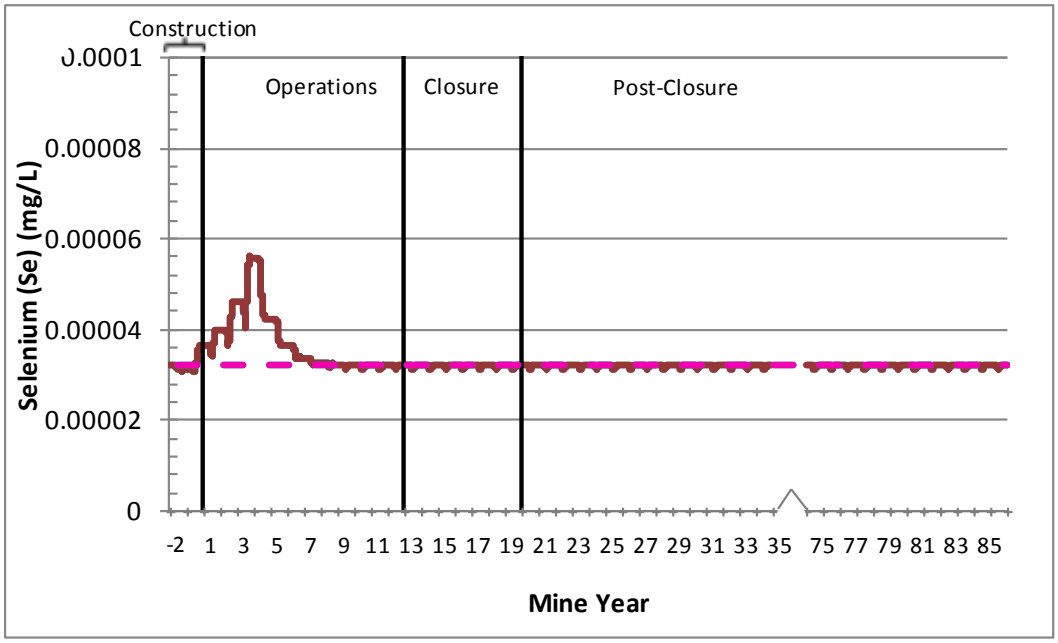
Dissolved and Total Metals - Lake N11 (continued)

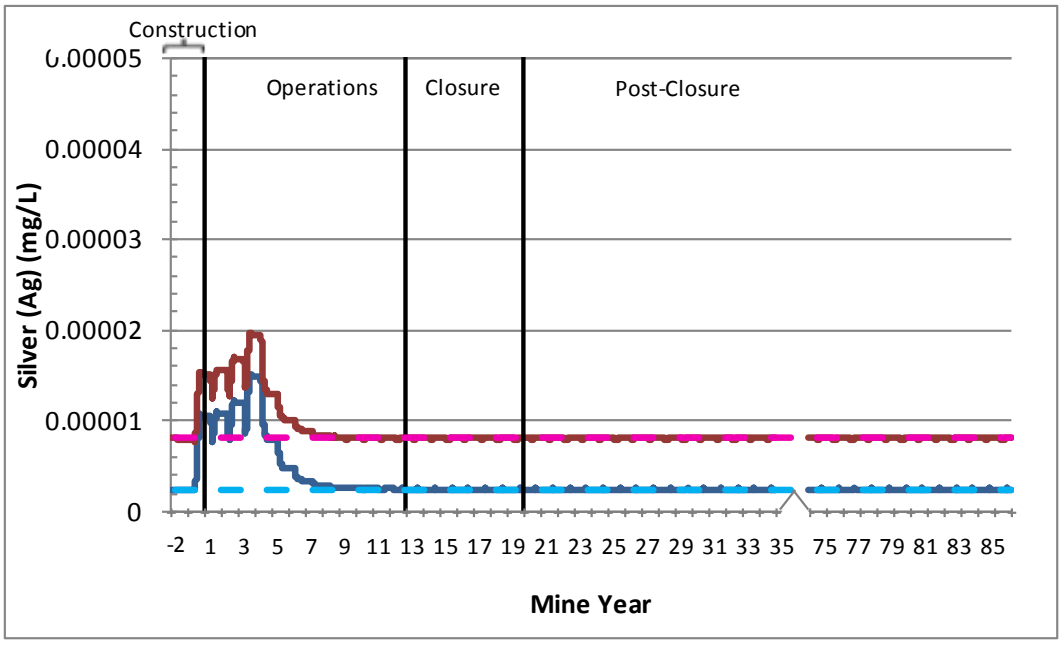


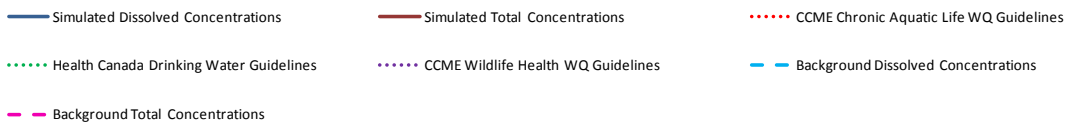




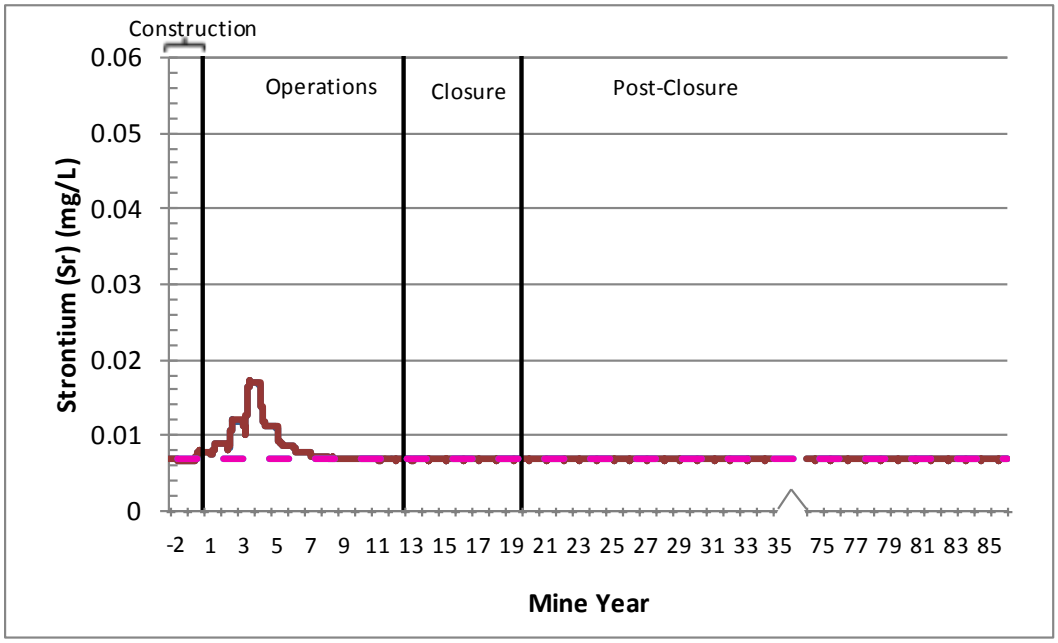
Dissolved and Total Metals - Lake N11 (continued)

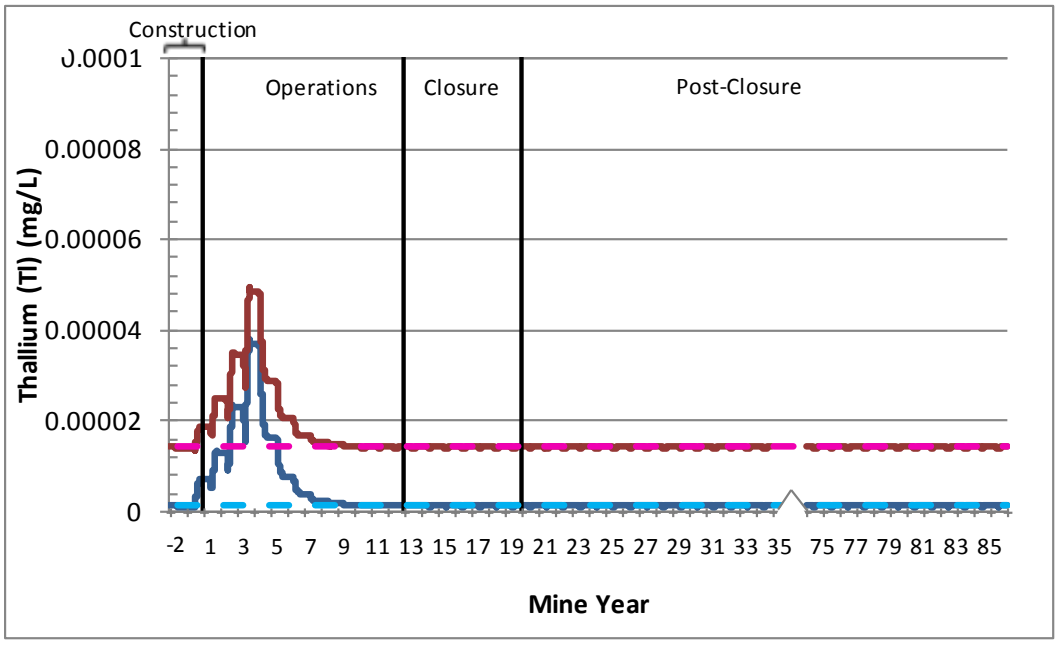


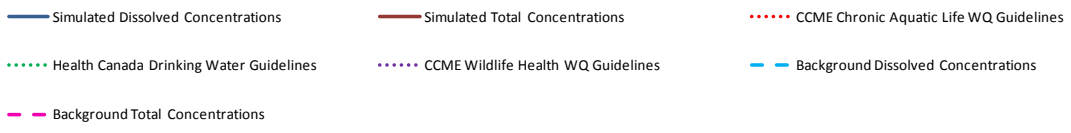




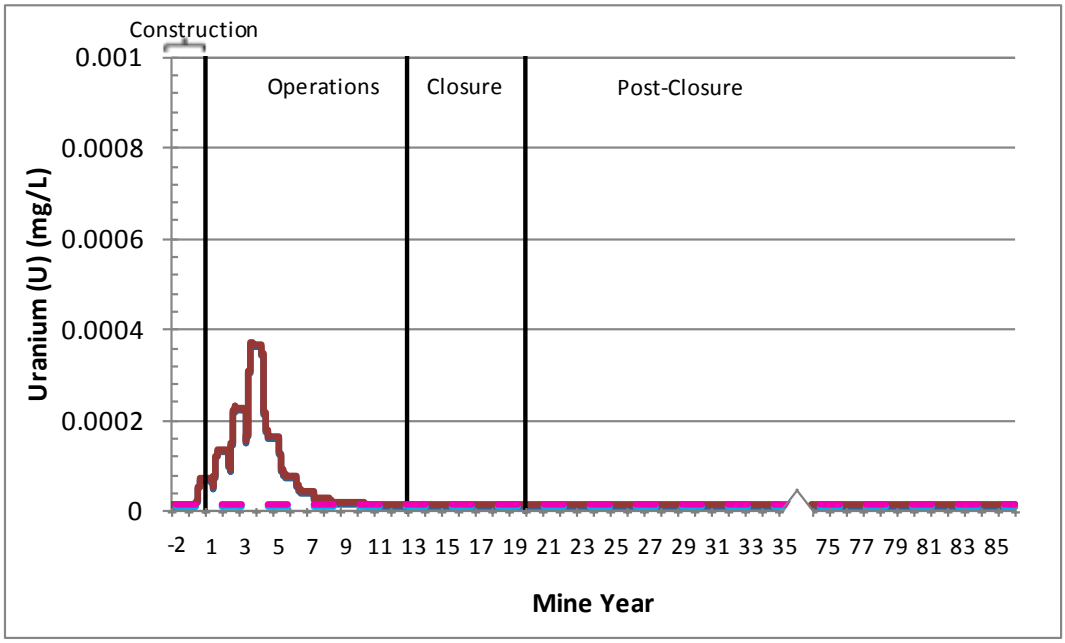
Dissolved and Total Metals - Lake N11 (continued)

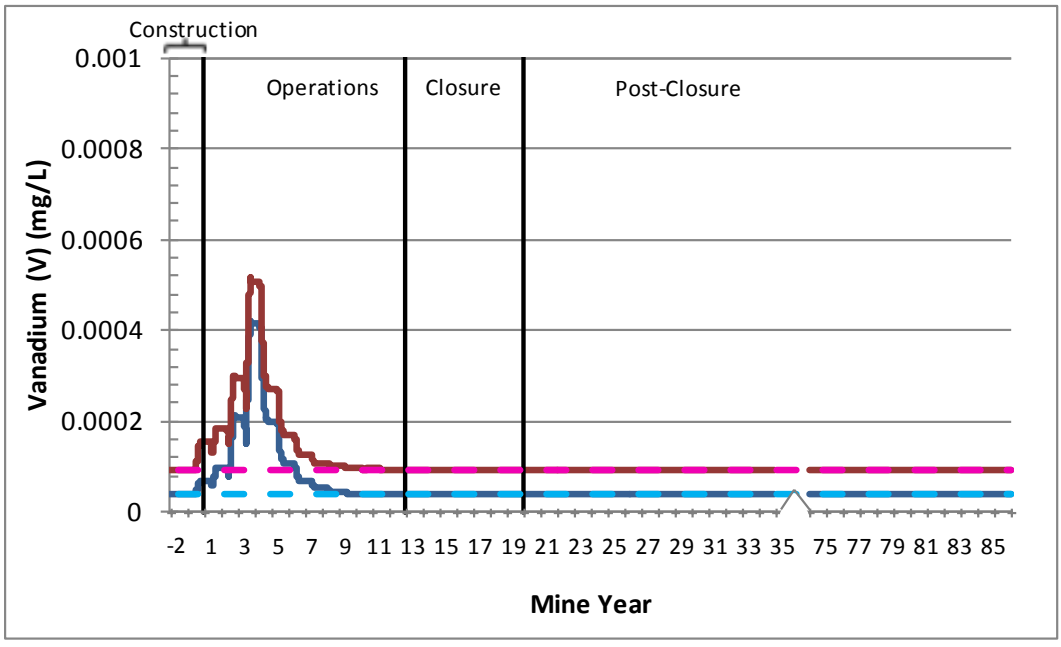


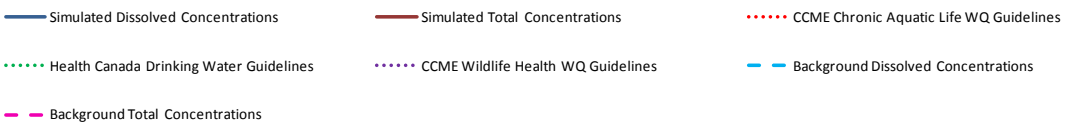




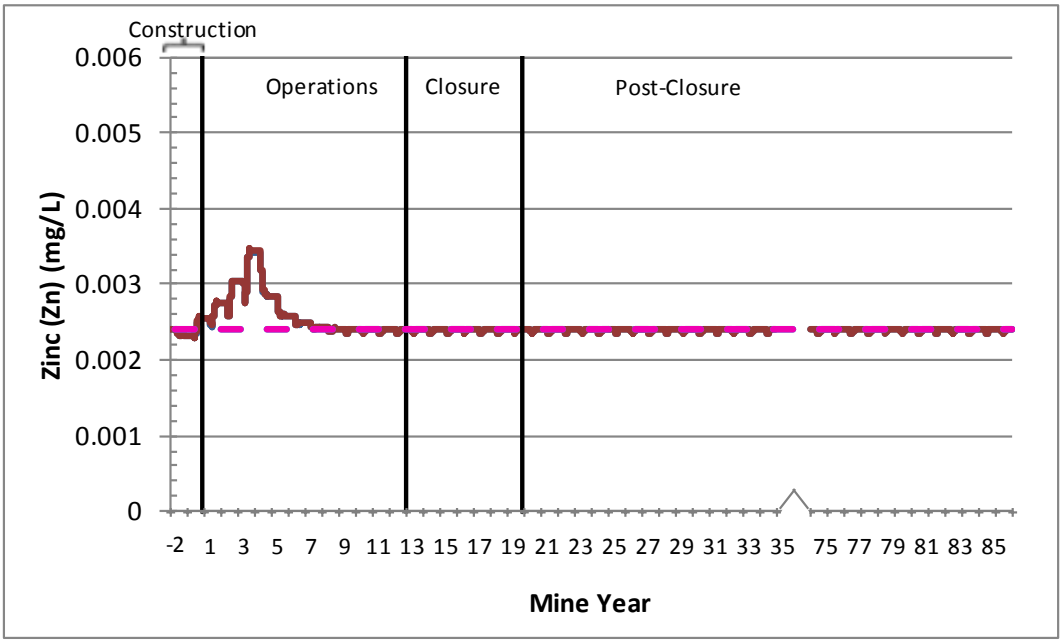
Dissolved and Total Metals - Lake N11 (continued)



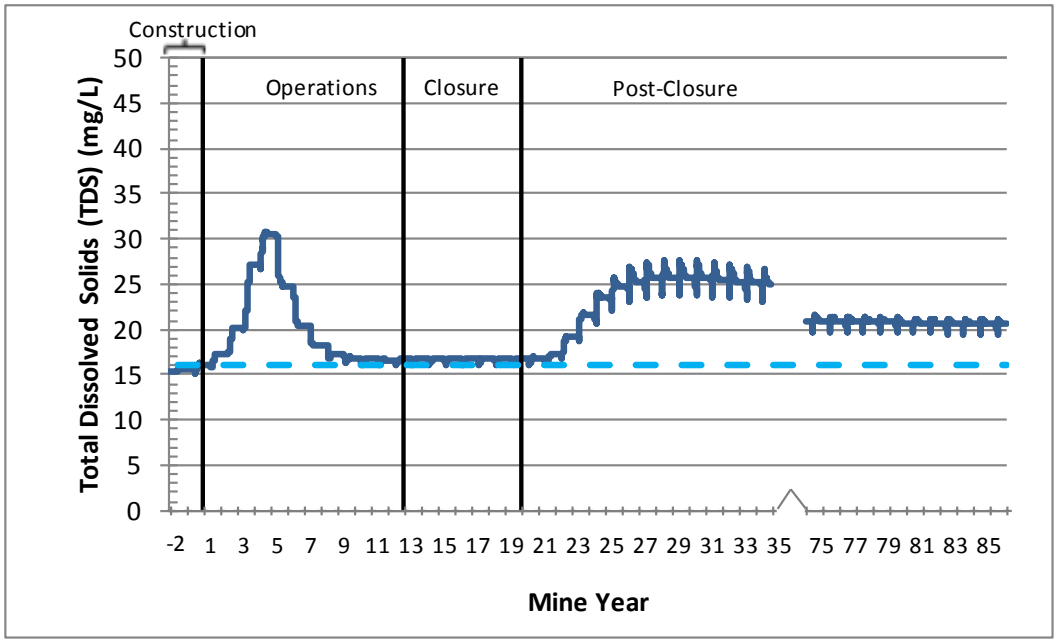


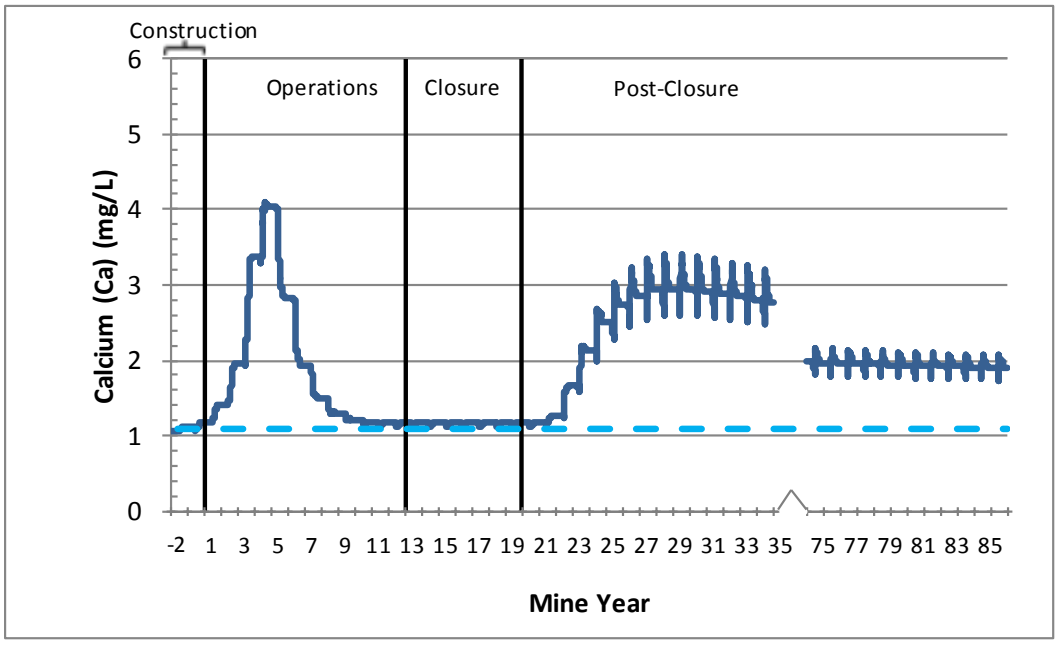


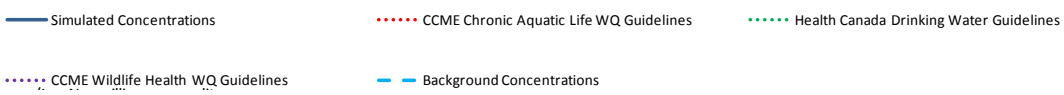
Dissolved and Total Metals - Lake N11 (continued)



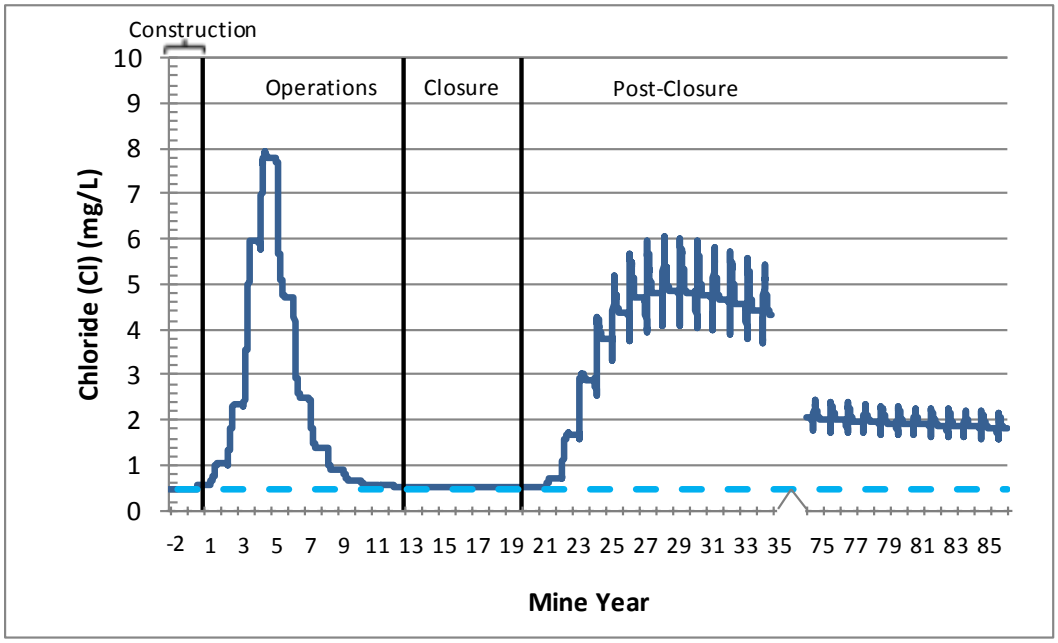
Nutrients and Anions - Lake 410

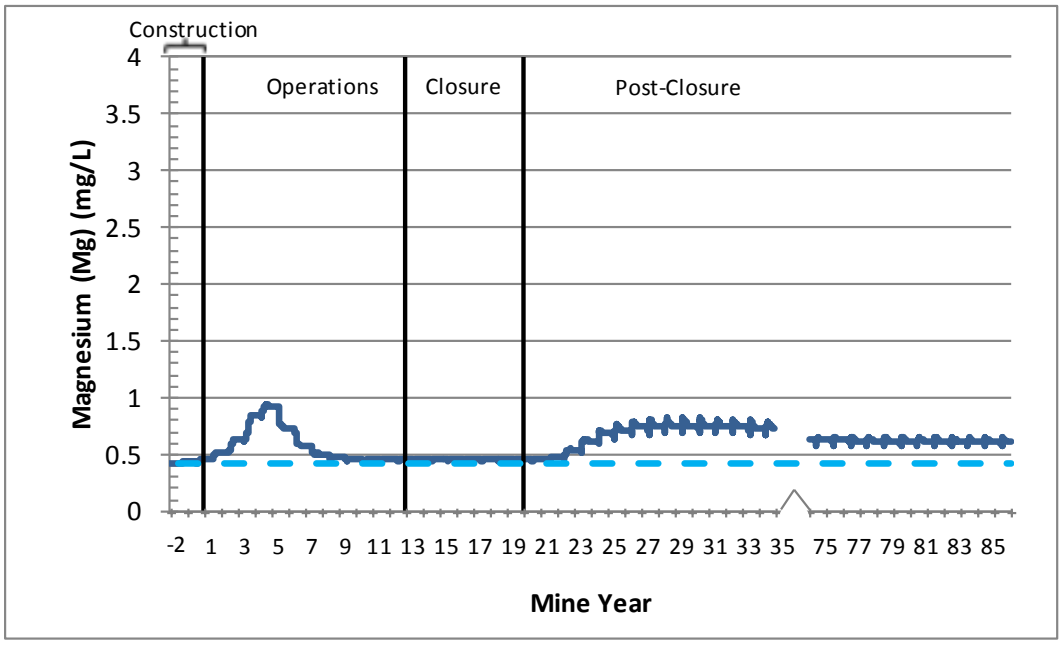






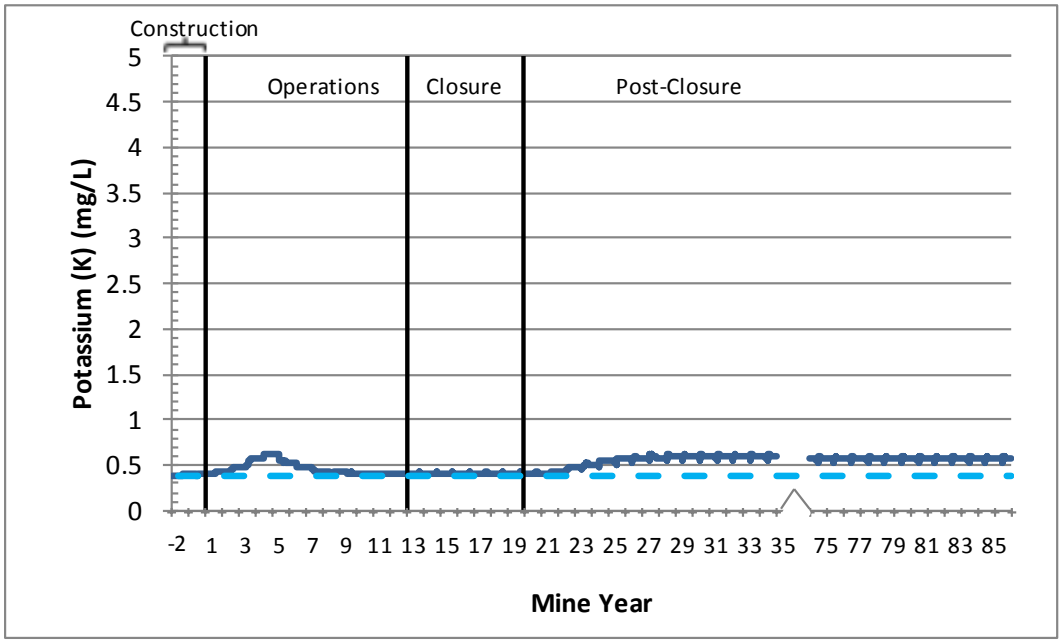
Nutrients and Anions - Lake 410 (continued)

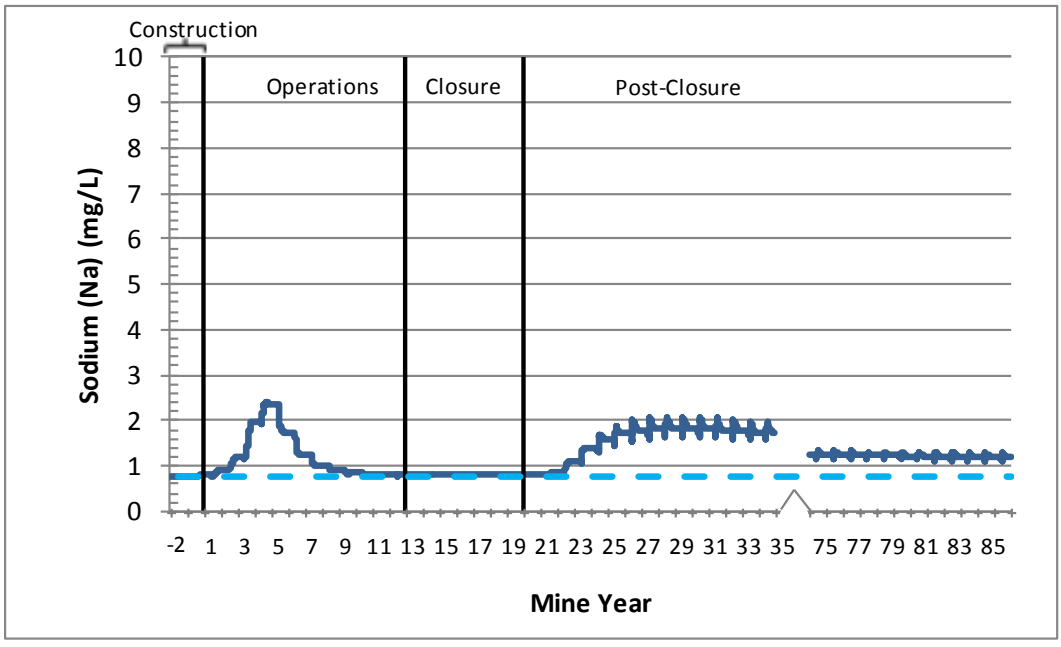


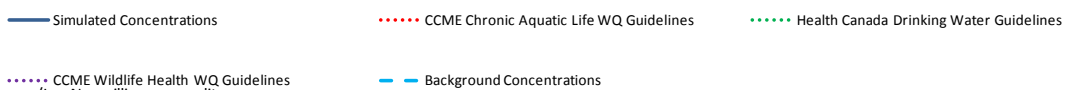


Simulated Concentrations
CCME Chronic Aquatic Life WQ Guidelines
Health Canada Drinking Water Guidelines
CCME Wildlife Health WQ Guidelines
Background Concentrations

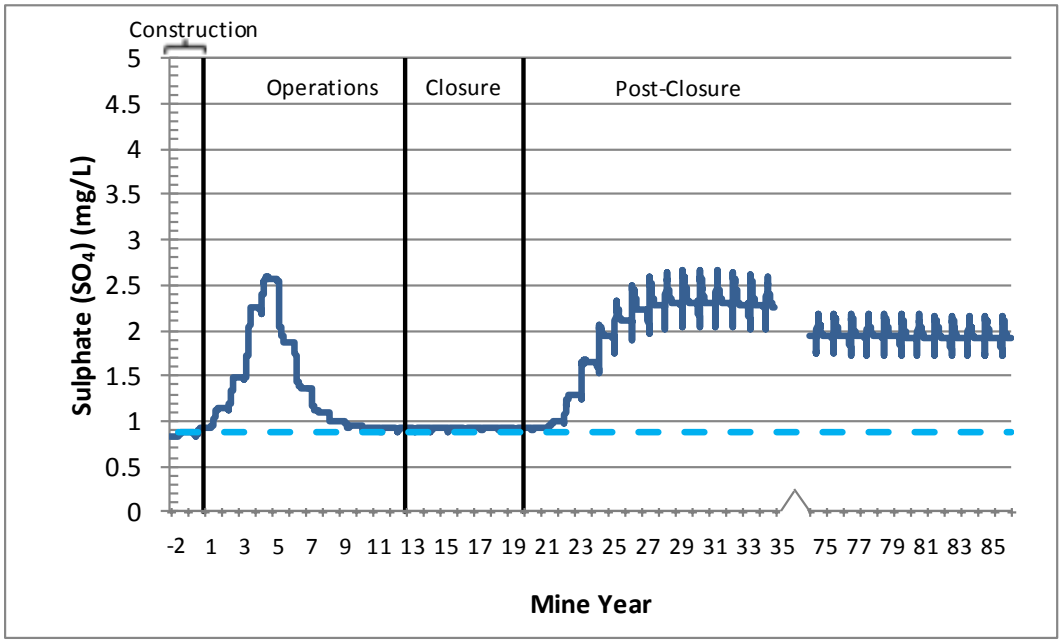
Nutrients and Anions - Lake 410 (continued)

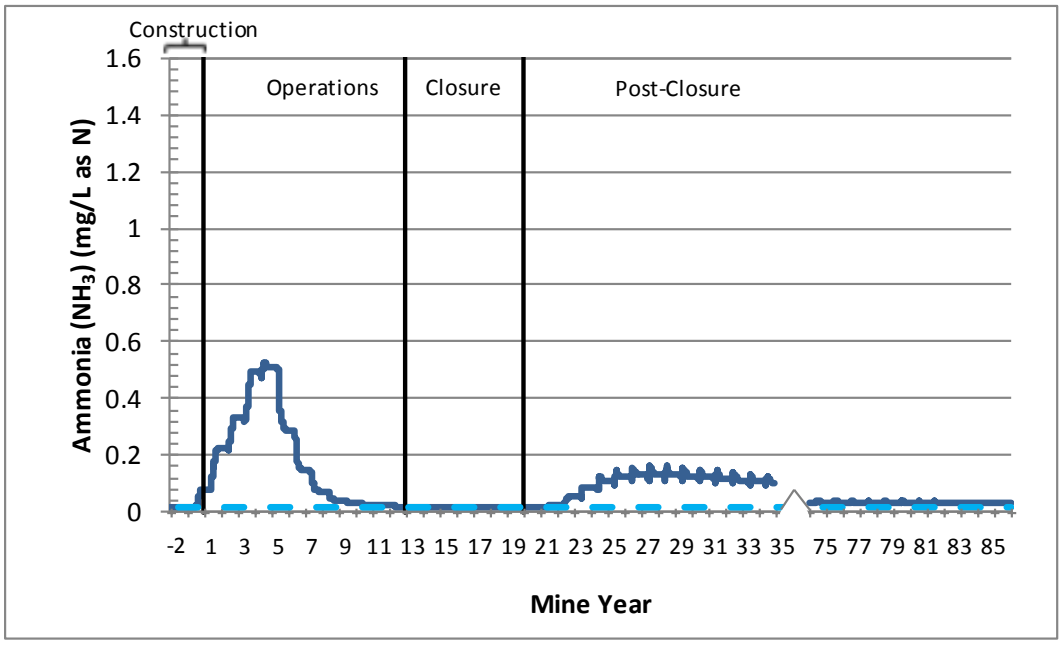


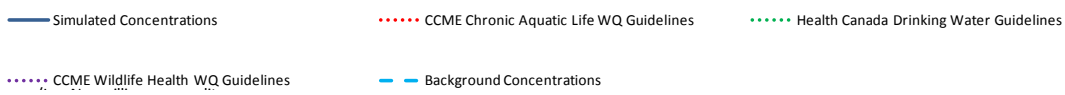




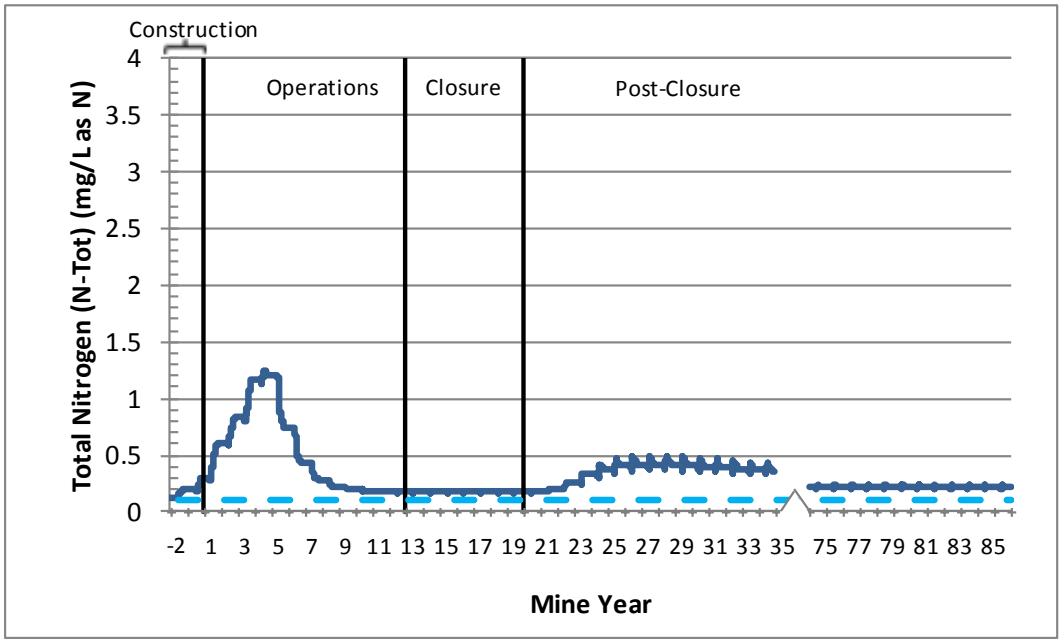
Nutrients and Anions - Lake 410 (continued)

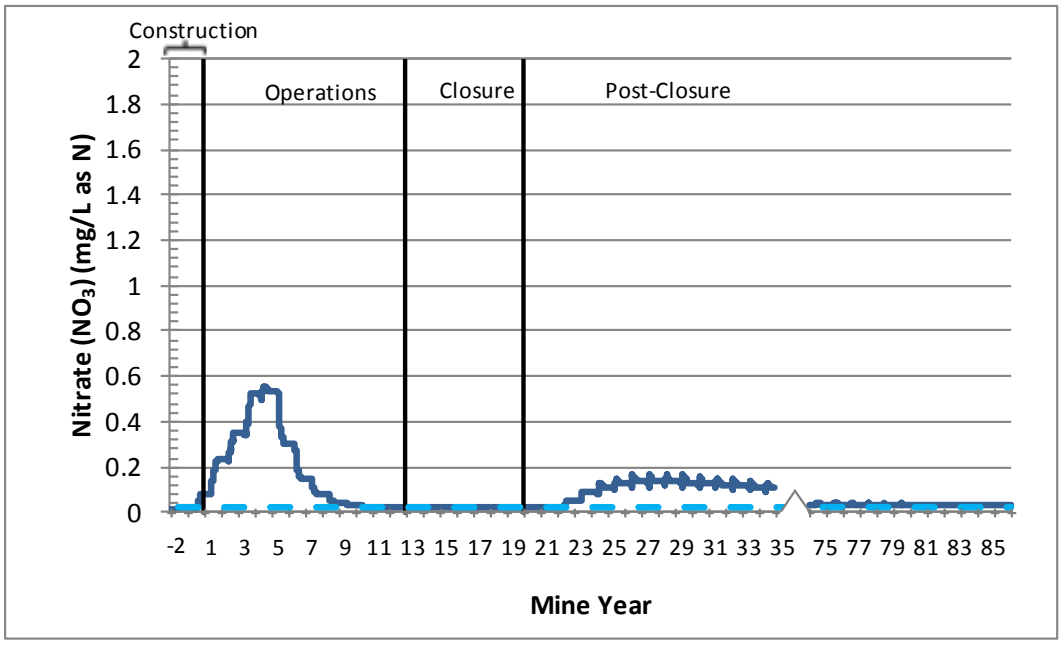






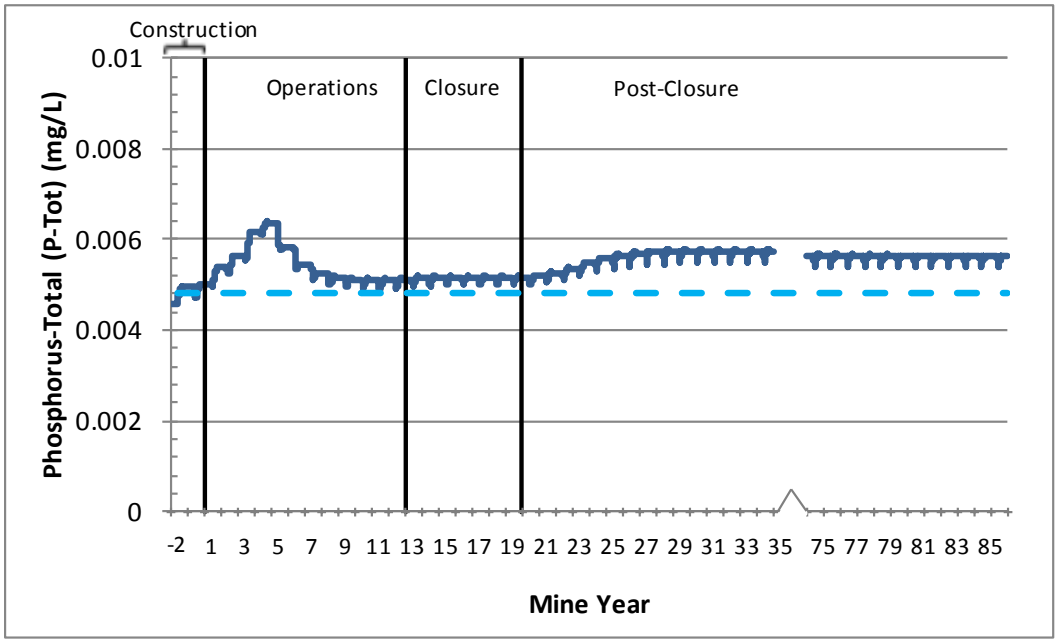
Nutrients and Anions - Lake 410 (continued)

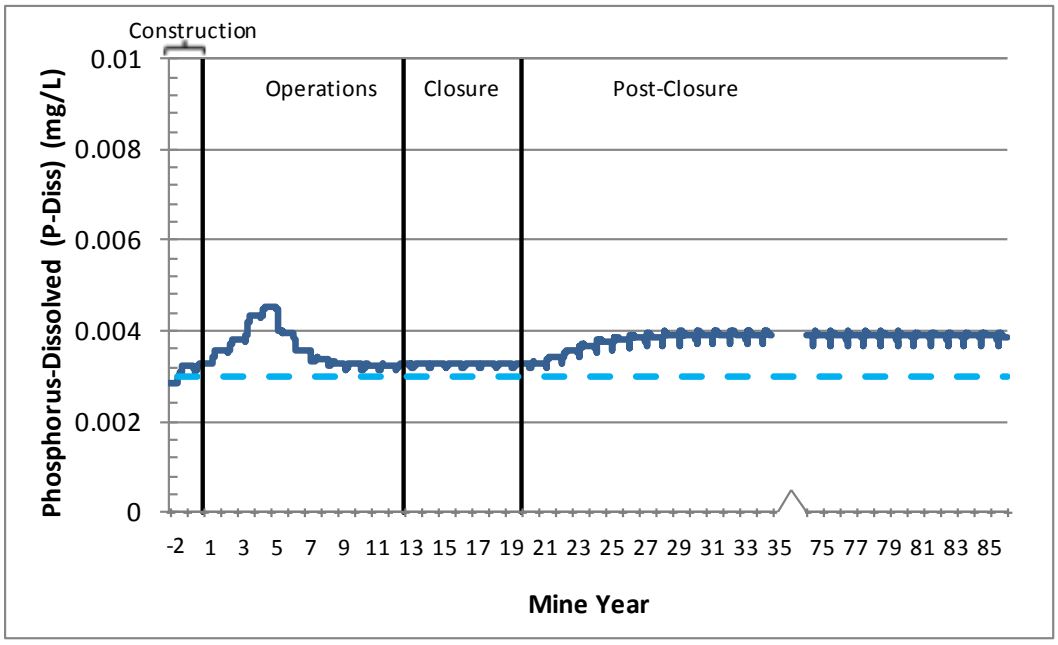


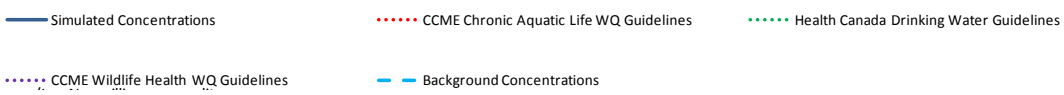


Simulated Concentrations
CCME Chronic Aquatic Life WQ Guidelines
Health Canada Drinking Water Guidelines
CCME Wildlife Health WQ Guidelines
Background Concentrations

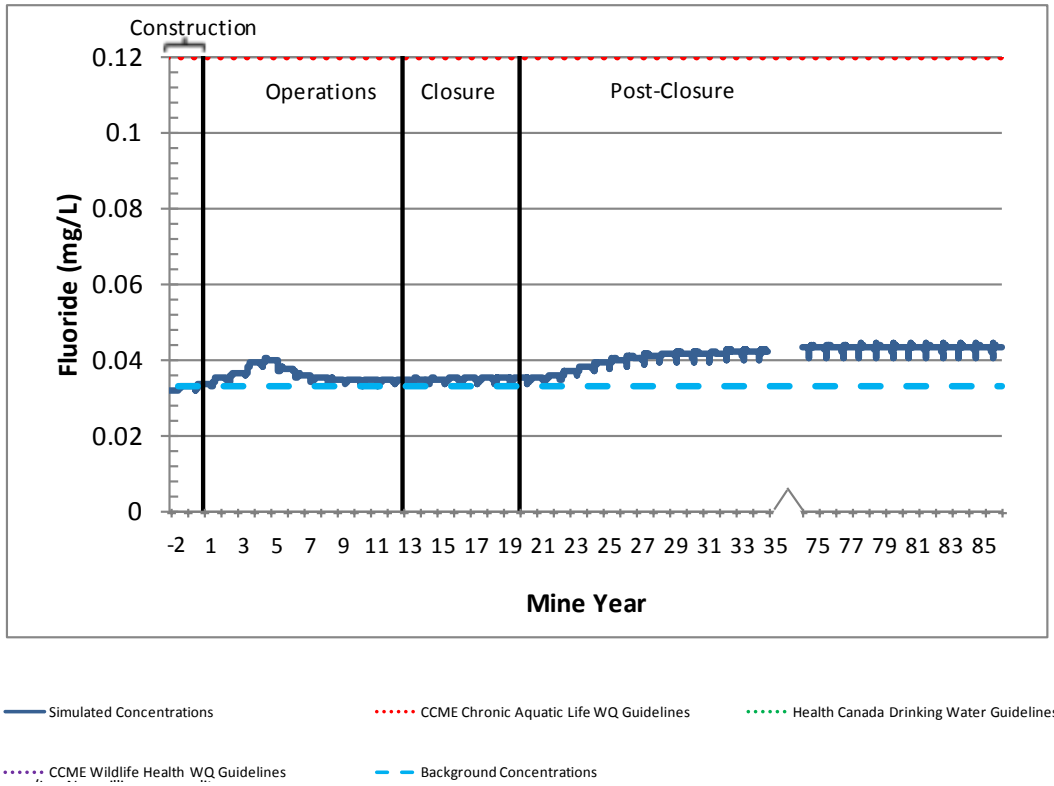
Nutrients and Anions - Lake 410 (continued)



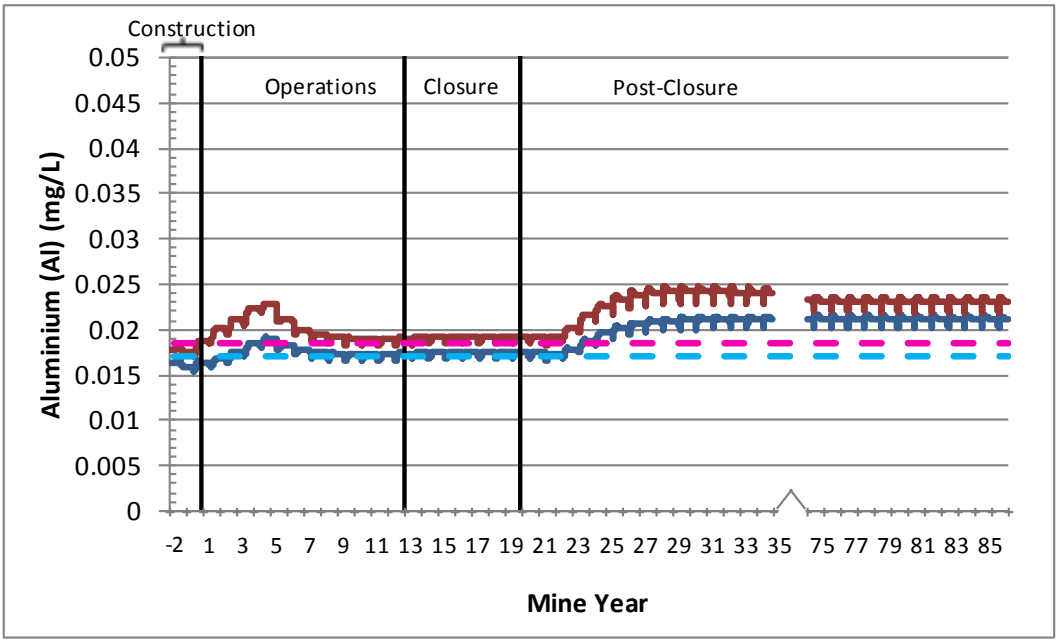


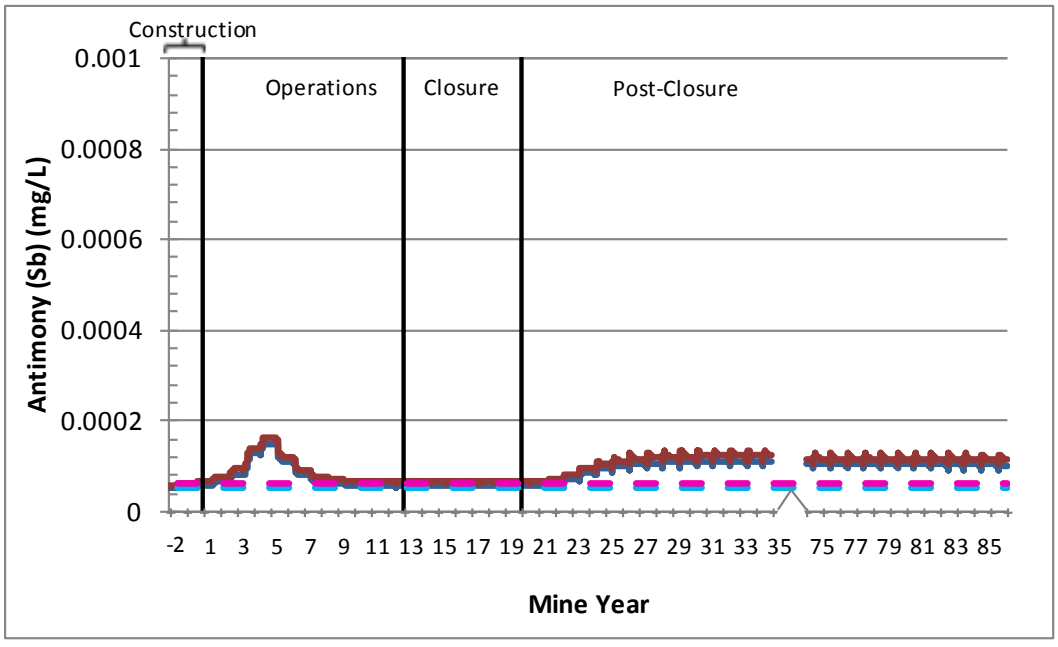


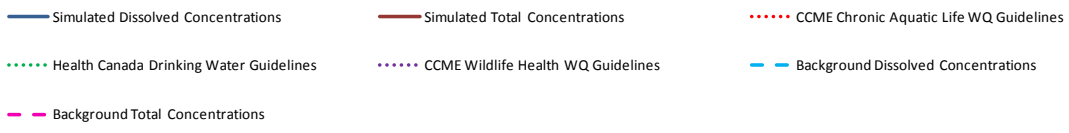
Nutrients and Anions - Lake 410 (continued)



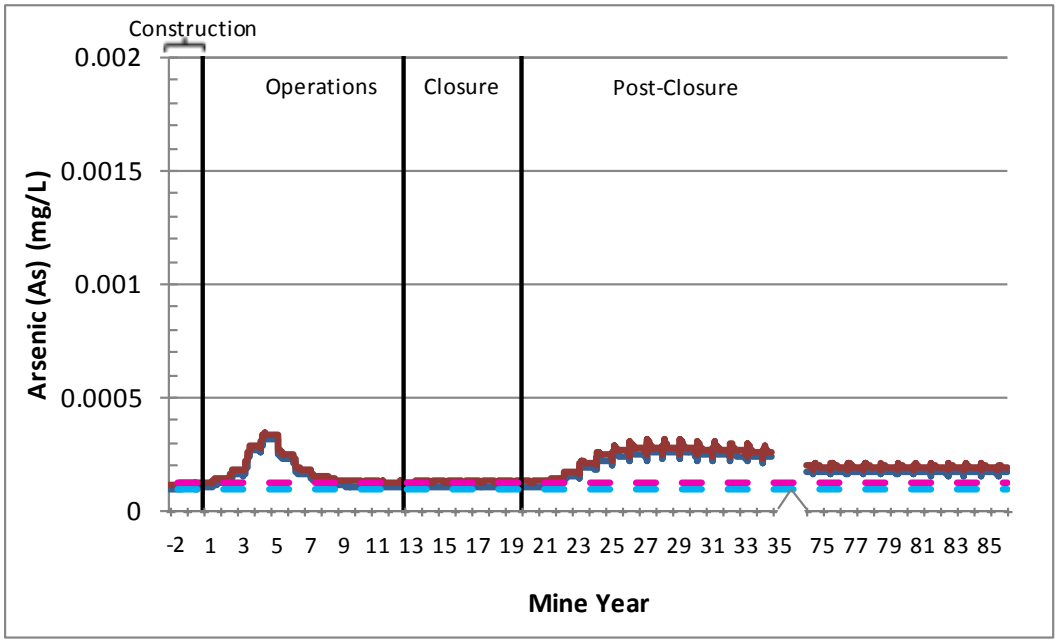
Dissolved and Total Metals (Lake 410)

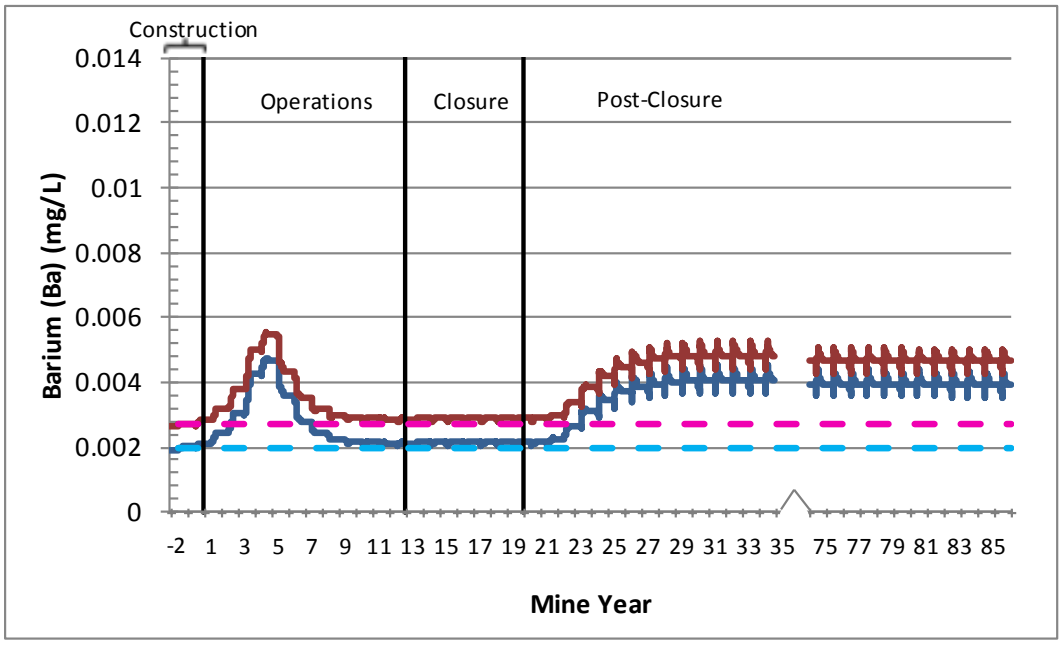


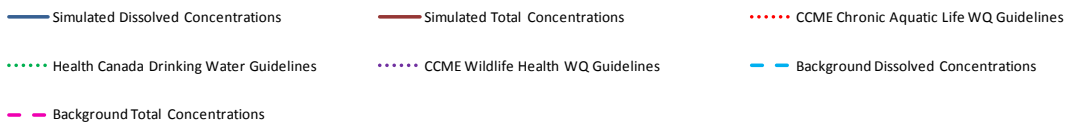




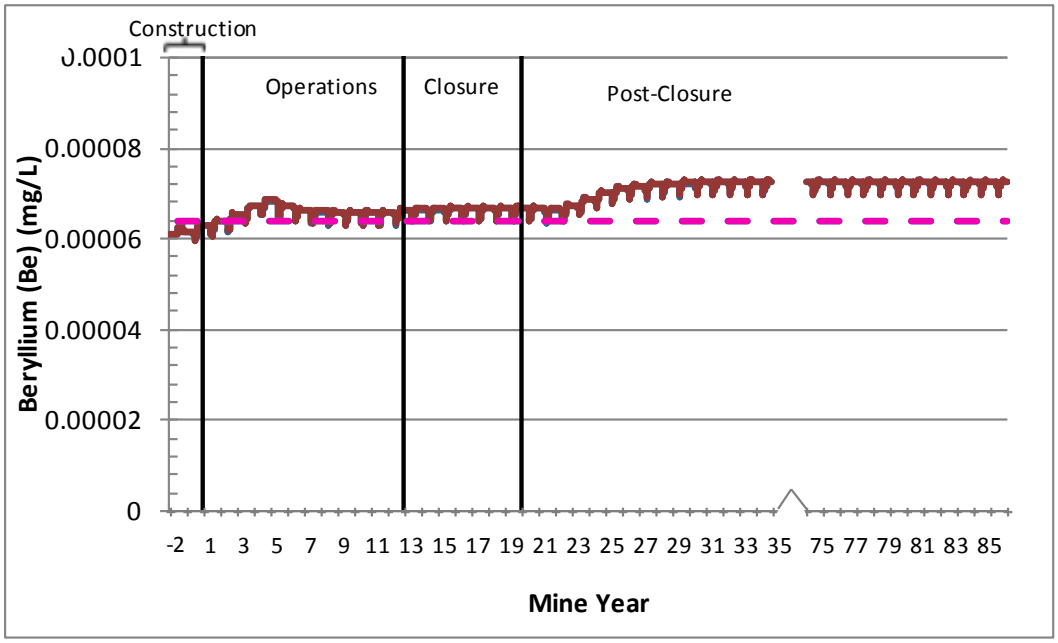
Dissolved and Total Metals - Lake 410 (continued)

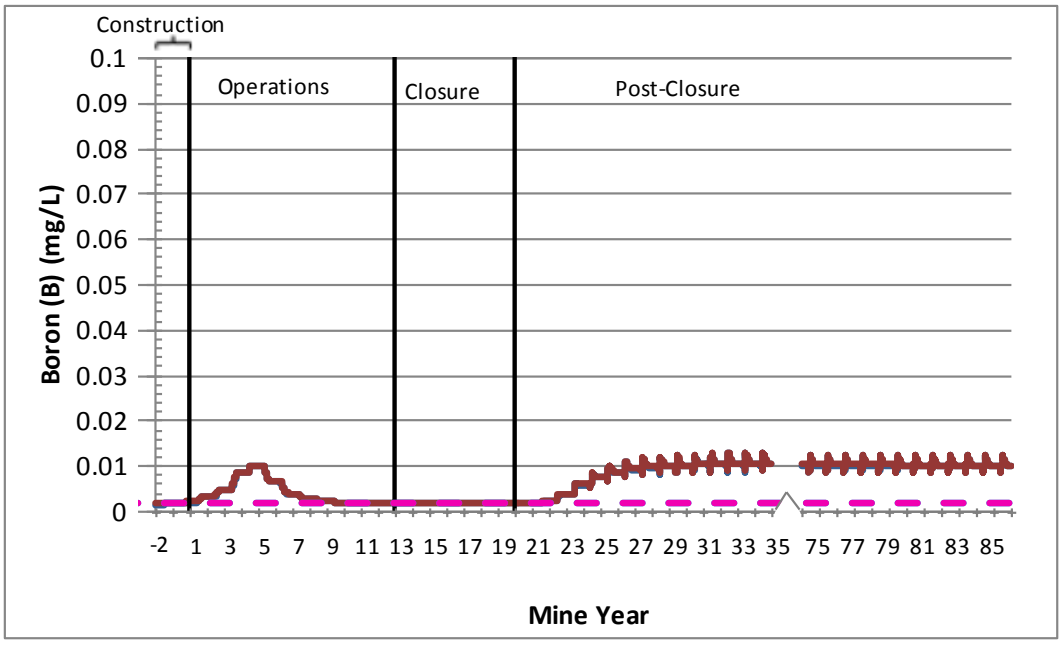


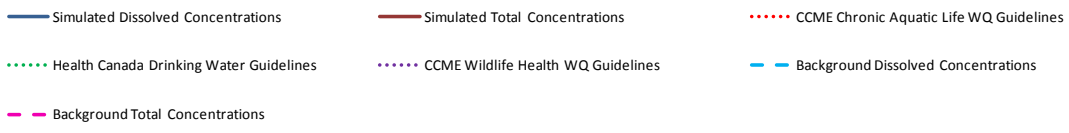




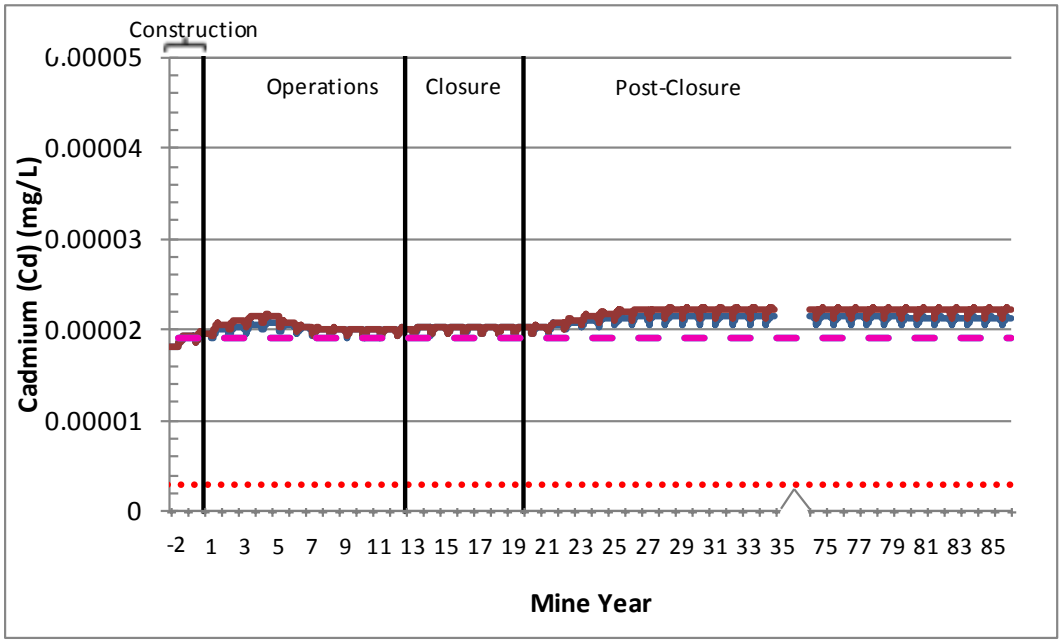
Dissolved and Total Metals - Lake 410 (continued)

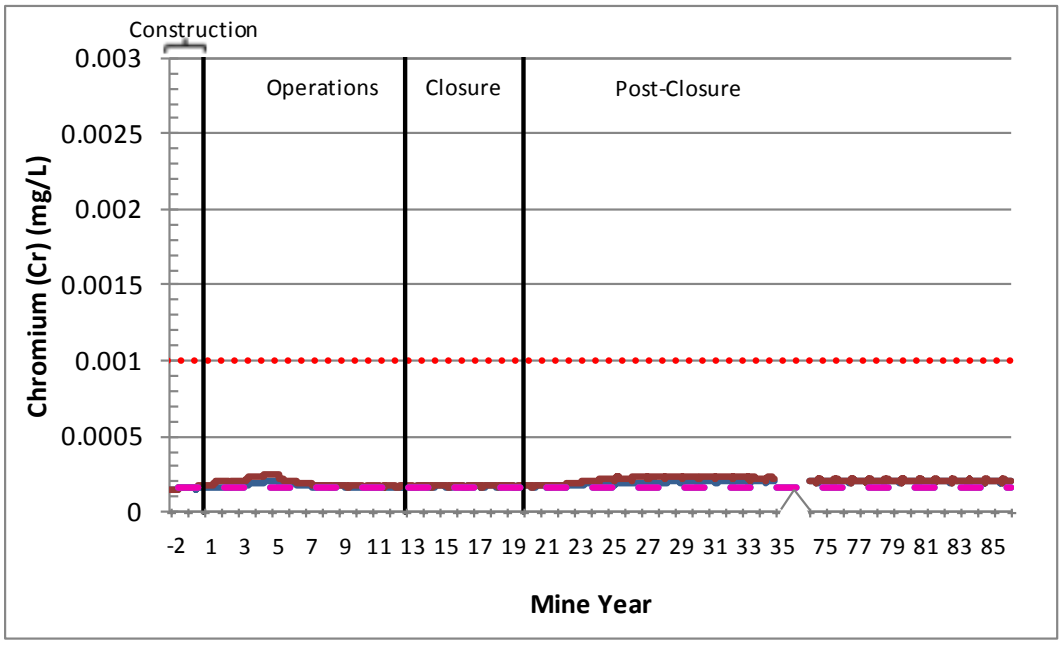






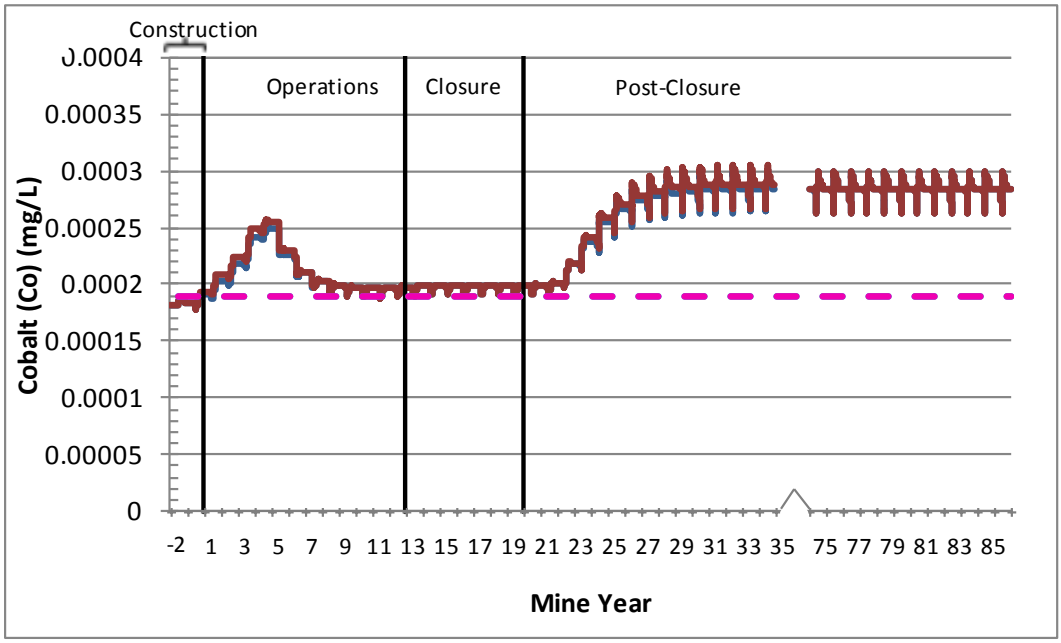
Dissolved and Total Metals - Lake 410 (continued)

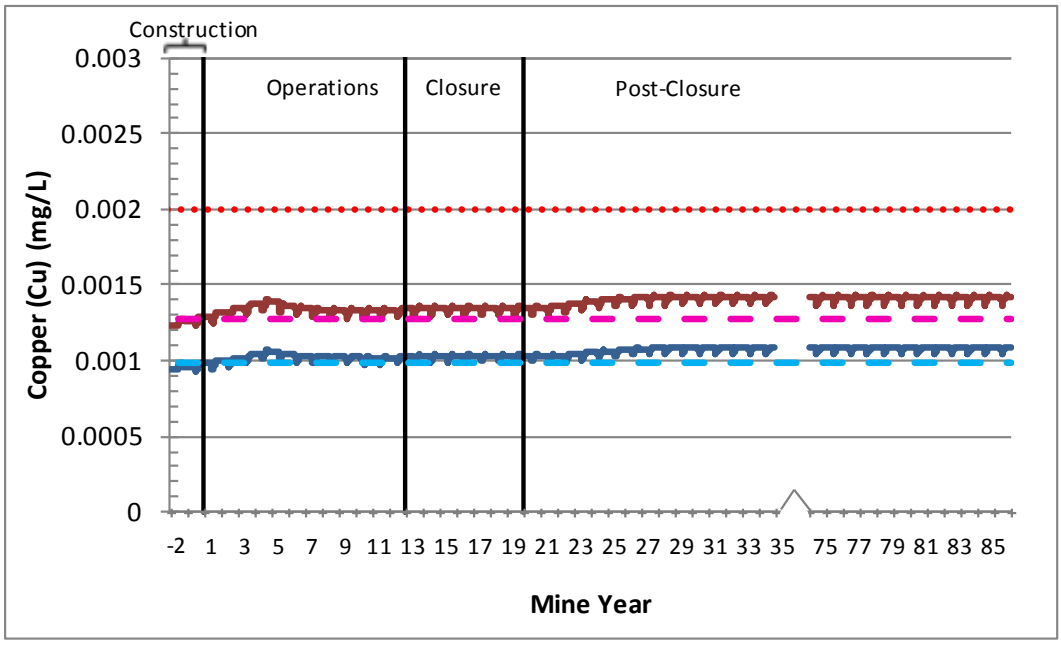


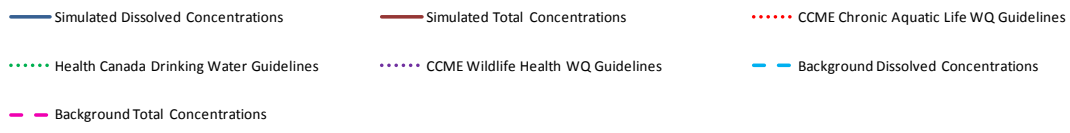


Simulated Dissolved Concentrations
Simulated Total Concentrations
CCME Chronic Aquatic Life WQ Guidelines
Health Canada Drinking Water Guidelines
CCME Wildlife Health WQ Guidelines
Background Dissolved Concentrations
Background Total Concentrations

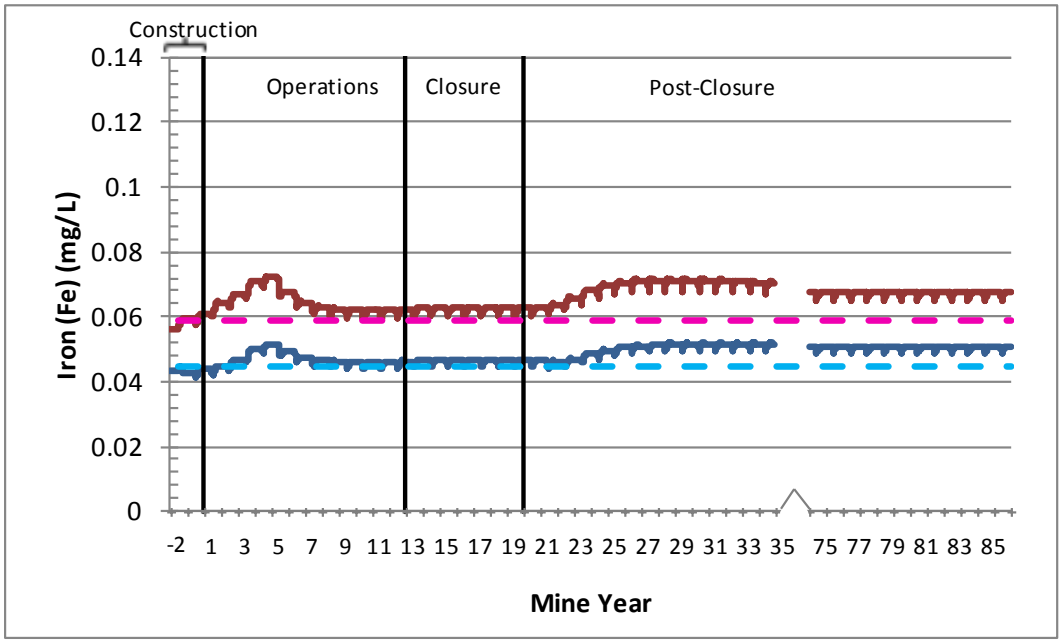
Dissolved and Total Metals - Lake 410 (continued)

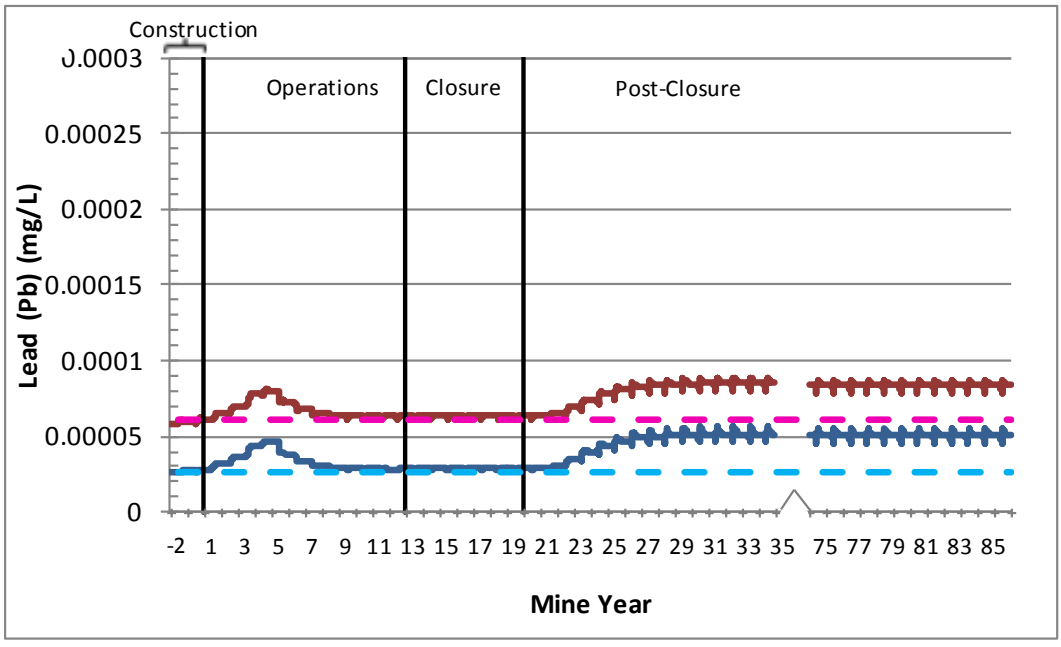


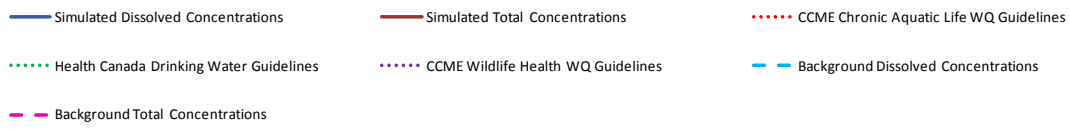




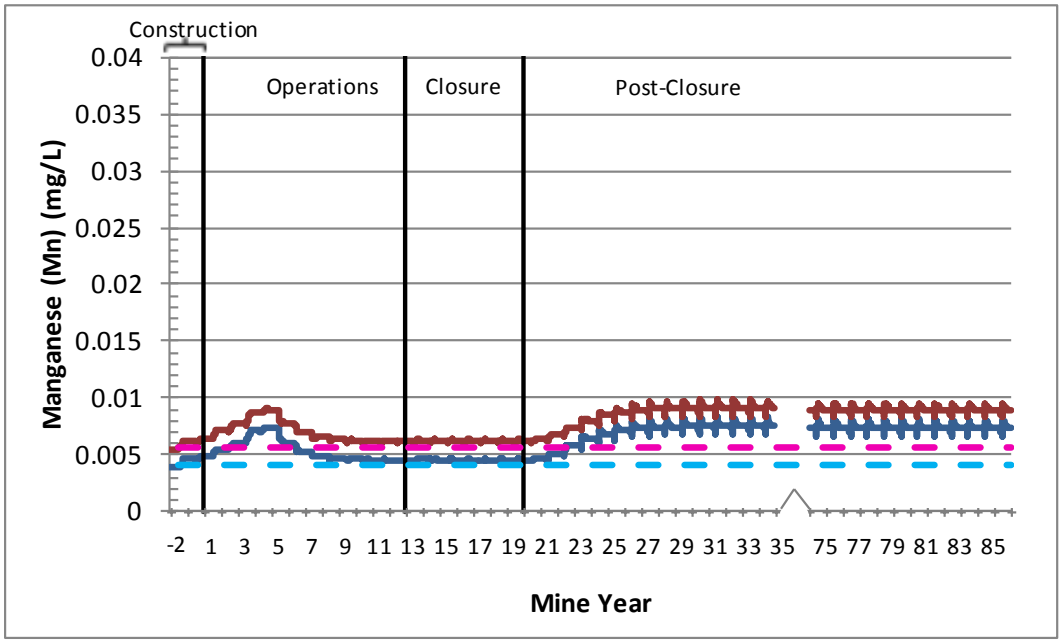
Dissolved and Total Metals - Lake 410 (continued)

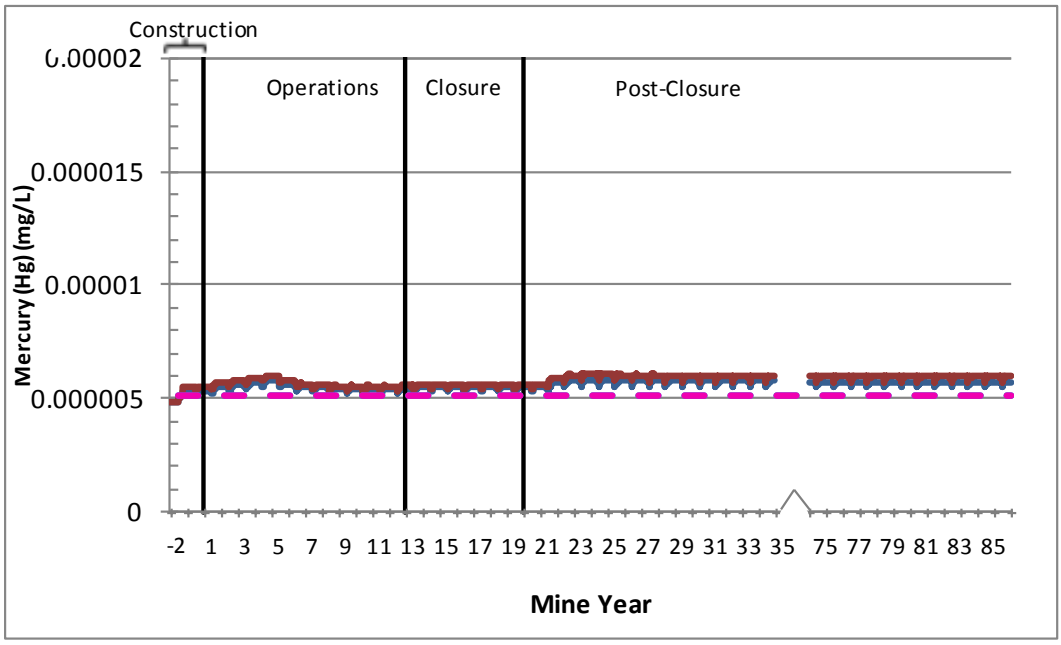


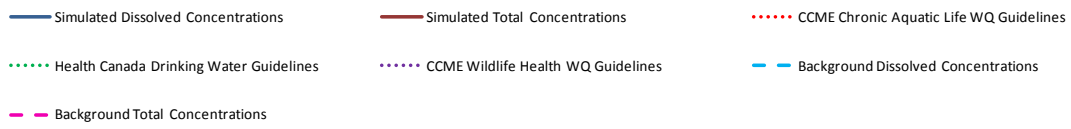




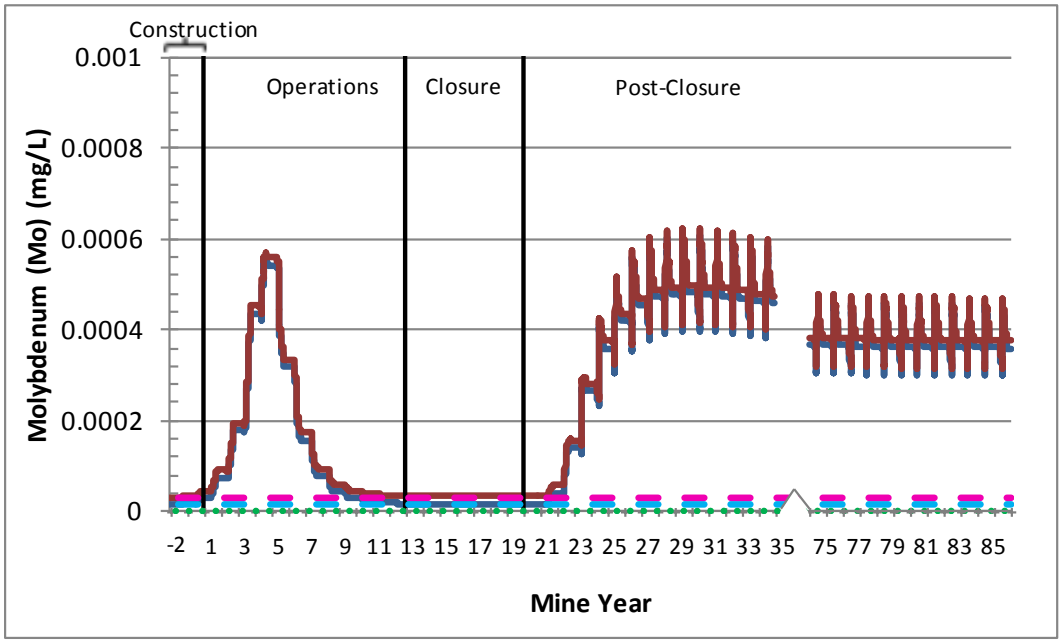
Dissolved and Total Metals - Lake 410 (continued)

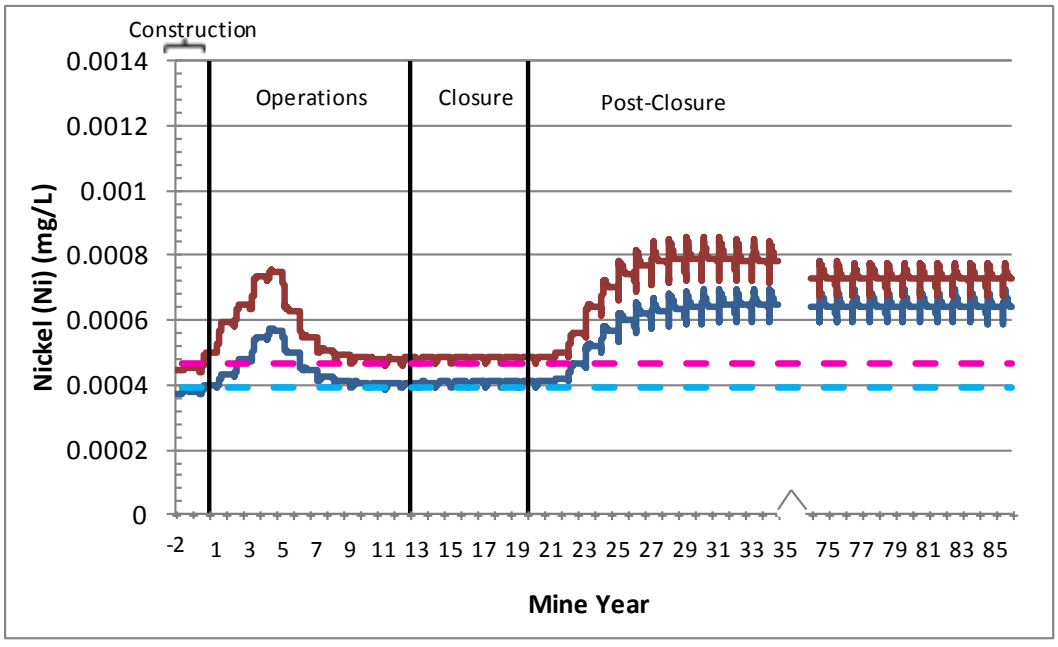


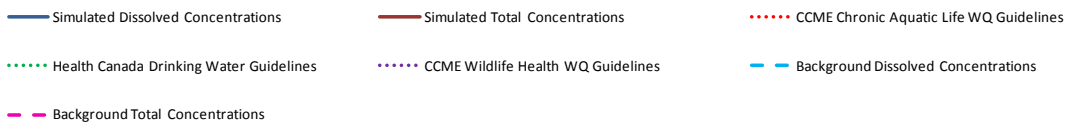




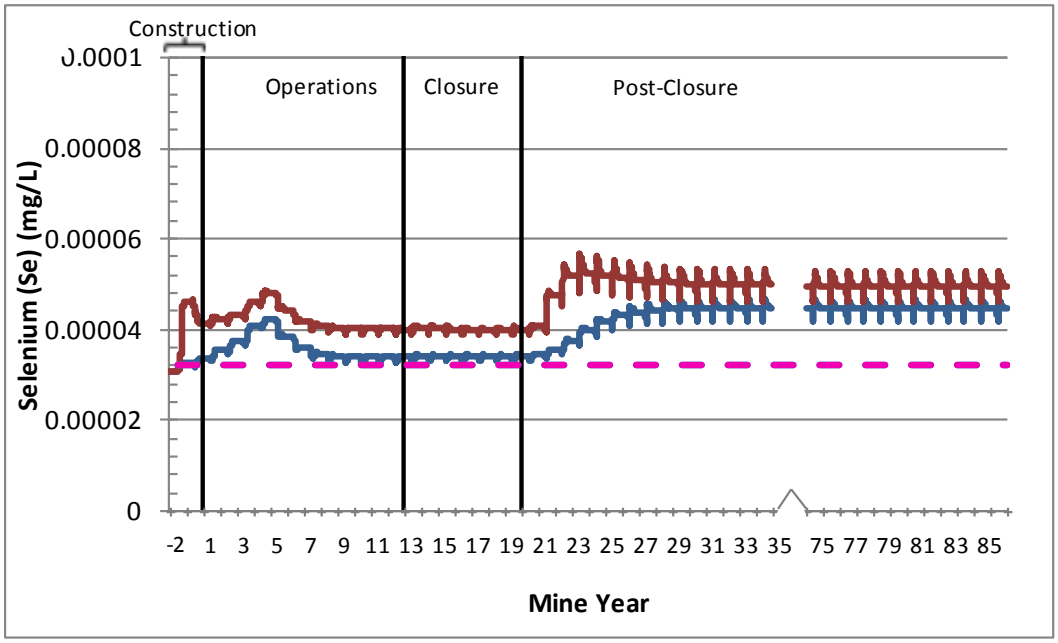
Dissolved and Total Metals - Lake 410 (continued)

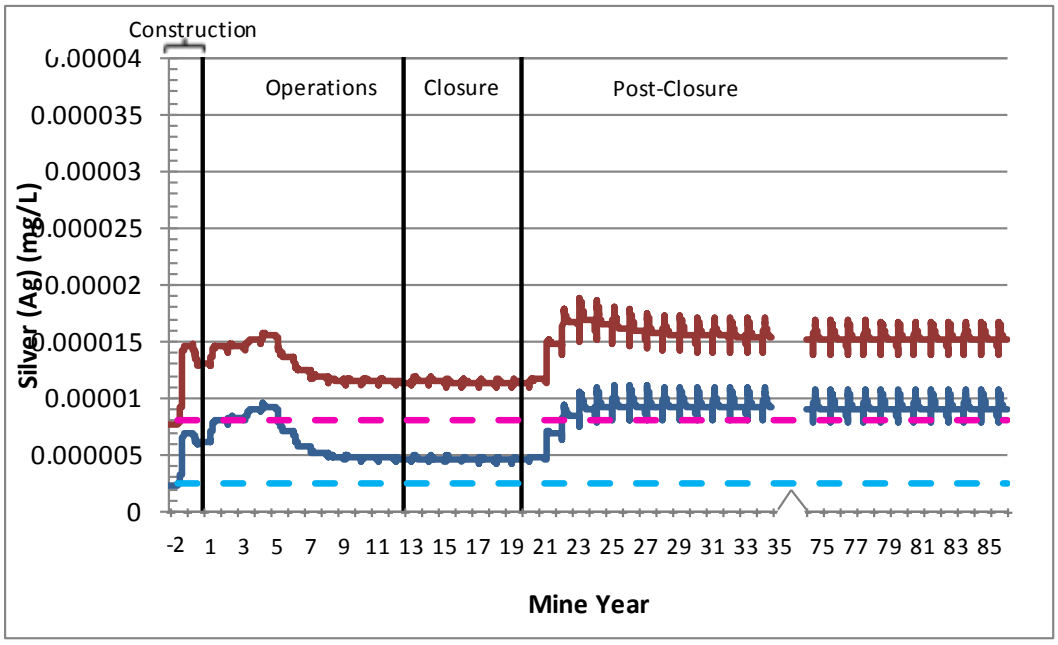


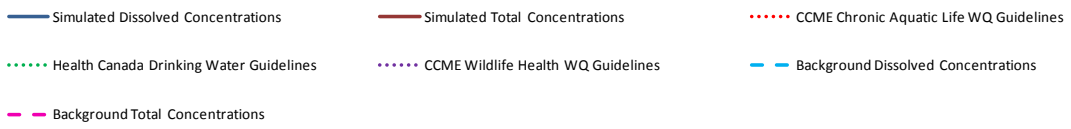




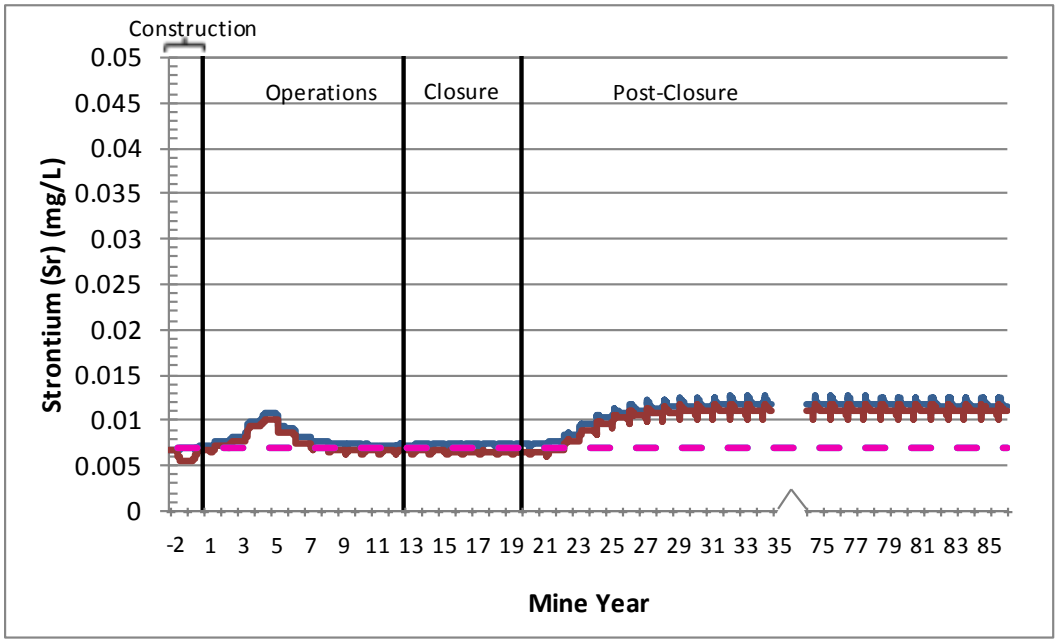
Dissolved and Total Metals - Lake 410 (continued)

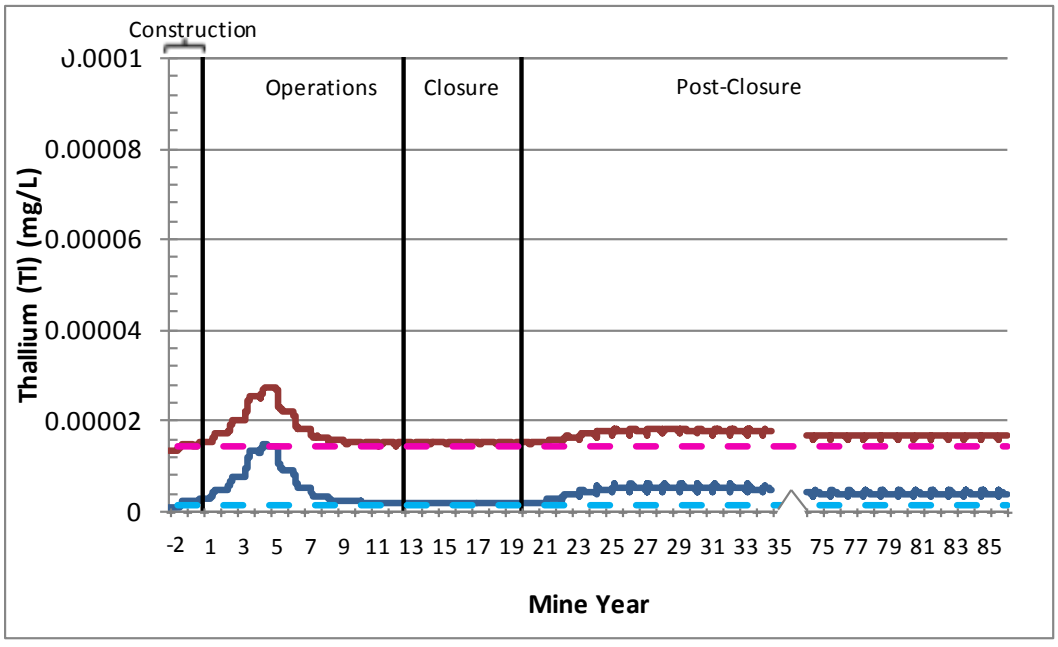


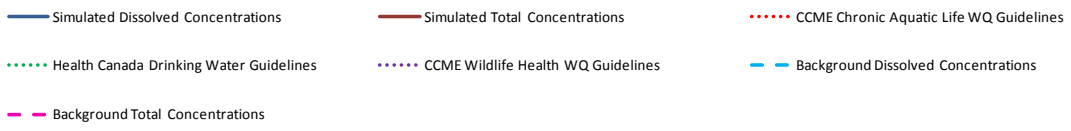




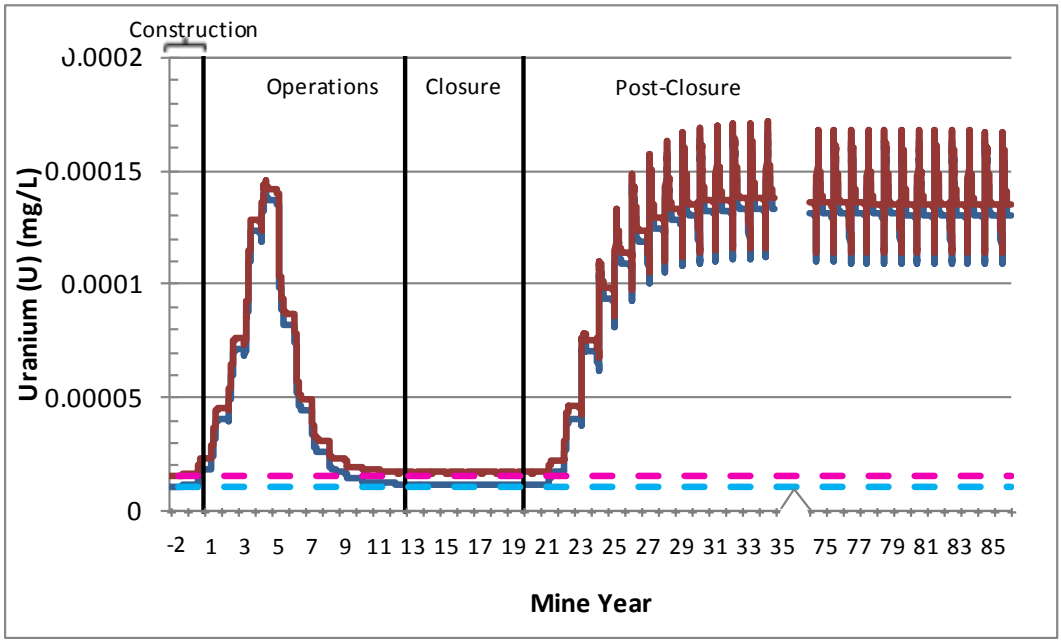
Dissolved and Total Metals - Lake 410 (continued)

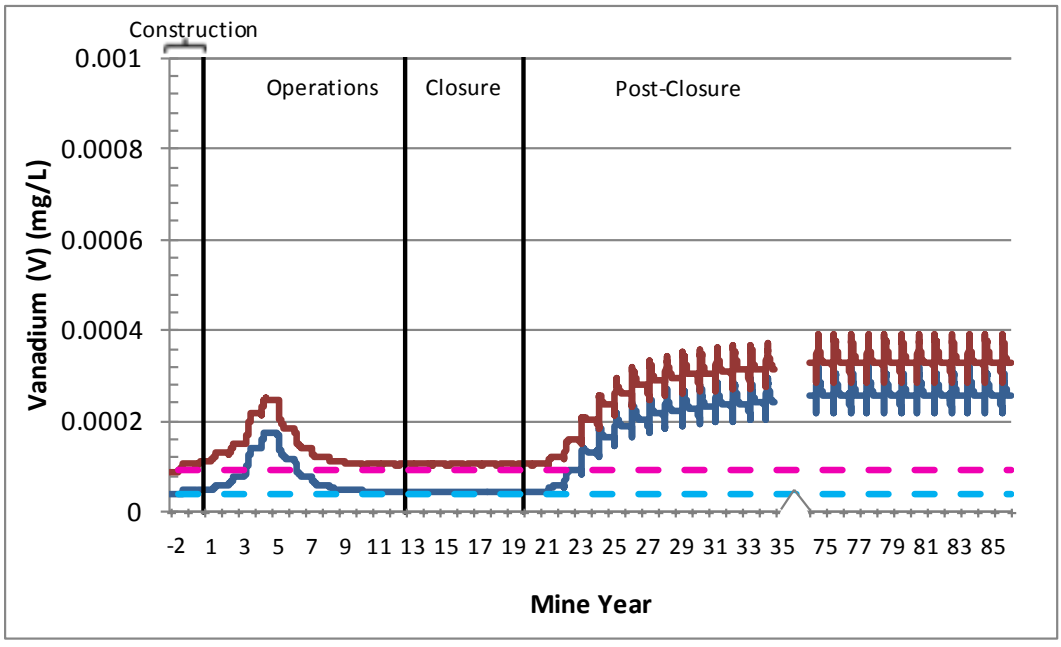


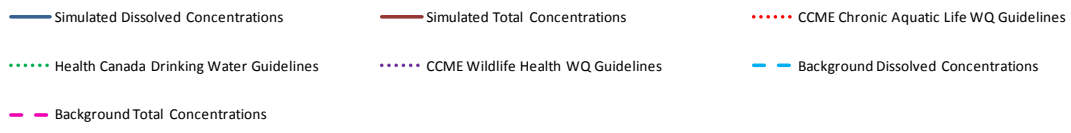




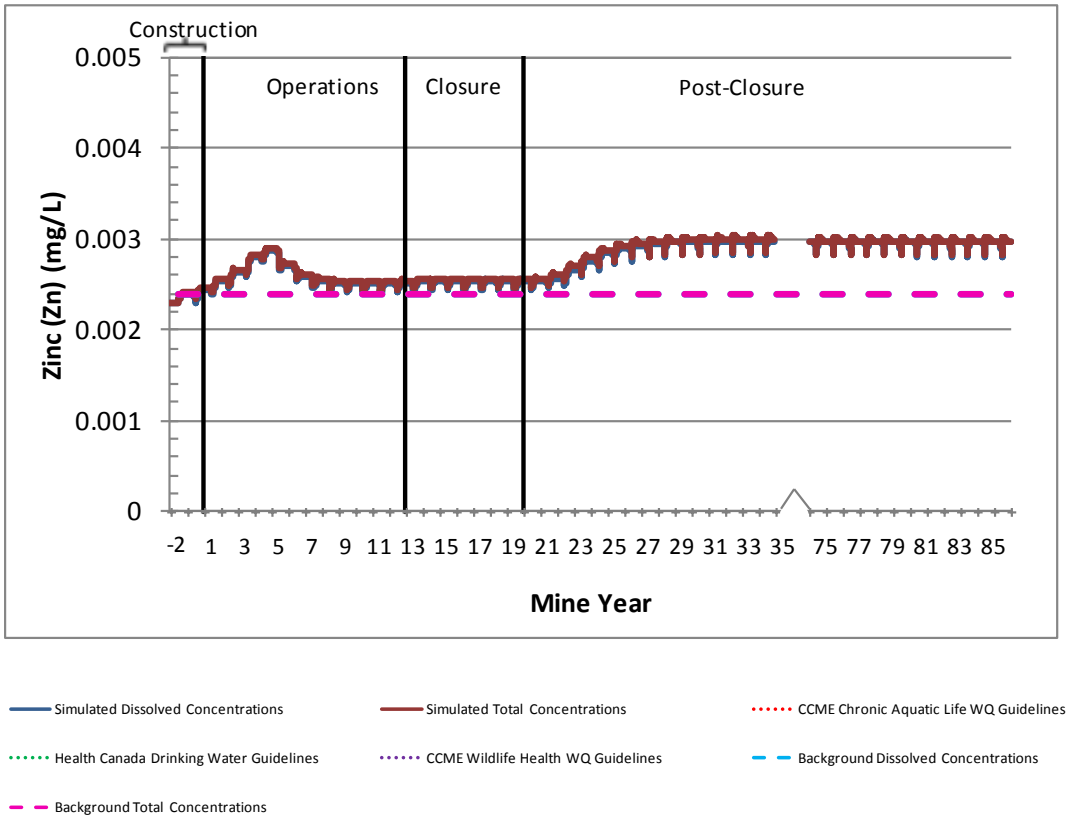
Dissolved and Total Metals - Lake 410 (continued)







Dissolved and Total Metals - Lake 410 (continued)



APPENDIX 9.III

AQUATIC HEALTH

SUPPLEMENTAL ASSESSMENT TABLES

Table 9.III-1 Initial Screening Results for Lake N11 during Construction, Operation, and Closure

Parameter	Background Concentrations (Long-term Average) (mg/L)	CCME Freshwater Aquatic Life Guideline (mg/L) [a]	Predicted Maximum Concentration (mg/L)	Screening		Retained as Substance of Potential Concern?
				Higher than Predicted Background + 10%?	Higher than CCME Guideline?	
Conventional Parameters						
Total Dissolved Solids	16	-	57	yes	-	**yes**
Total Suspended Solids	1.3	5 [b]	1.0	no	no	no
Major Ions						
Chloride	0.49	120	22	yes	no	no
Fluoride	0.03	0.12	0.051	yes	no	no
Nutrients						
Ammonia as Nitrogen	0.019	18 [c]	1.4	yes	no	no
Nitrate as Nitrogen	0.019	2.935	1.5	yes	no	no
Total Metals						
Aluminum	0.019	0.1 [d]	0.029	yes	no	no
Antimony	0.000062	-	0.00035	yes	-	**yes**
Arsenic	0.00012	0.005	0.00074	yes	no	no
Barium	0.0027	-	0.01	yes	-	**yes**
Beryllium	0.000064	-	0.000072	yes	-	**yes**
Boron	0.0017	1.5	0.026	yes	no	no
Cadmium	0.000019	0.000012 [e]	0.000024	yes	yes	**yes**
Chromium	0.00016	0.001 [f]	0.0004	yes	no	no
Cobalt	0.00019	-	0.00036	yes	-	**yes**
Copper	0.0013	0.002 [e]	0.0015	yes	no	no
Iron	0.059	0.3	0.09	yes	no	no
Lead	0.000061	0.001 [f]	0.00011	yes	no	no
Manganese	0.0057	-	0.0136	yes	-	**yes**
Mercury	0.0000051	0.000026	0.0000065	yes	no	no
Molybdenum	0.00003	0.073	0.00157	yes	no	no
Nickel	0.00047	0.04020 [e]	0.0012	yes	no	no
Selenium	0.000032	0.001	0.00006	yes	no	no
Silver	0.0000081	0.0001	0.00002	yes	no	no
Strontium	0.0069	-	0.0172	yes	-	**yes**
Thallium	0.000014	0.0008	0.000049	yes	no	no
Uranium	0.000016	0.015	0.00037	yes	no	no
Vanadium	0.000094	-	0.00051	yes	-	**yes**
Zinc	0.0024	0.03	0.0035	yes	no	no

Source: Adapted from Table 9.9-5 in DeBeers (2011).

[a] From CCME (1999).

[b] Guideline is dependent on background concentration: predicted concentration must not be more than 5 mg/L higher than the background concentration.

[c] Guideline is dependent on temperature and pH. The value is based on pH = 6.5, temperature = 15°C.

[d] Aluminum guideline is dependent on pH; guideline shown is for pH ≥6.5.

[e] Guideline is hardness dependent; value shown based on a maximum predicted hardness of 32 mg/L as calcium carbonate ($CaCO_3$).

[f] Guideline is for hexavalent chromium (CrVI), because it is more stringent than the trivalent chromium (CrIII) guideline of 0.0089 mg/L.

mg/L = milligrams per litre; % = percent; < = less than; - = no guideline available or predicted concentration was less than the observed maximum background.

Table 9.III-2 Initial Screening Results for Lake 410 during Construction, Operation, and Closure

Parameter	Background Concentrations (Long-term Average) (mg/L)	CCME Freshwater Aquatic Life Guideline (mg/L) [a]	Predicted Maximum Concentration (mg/L)	Screening		Retained as Substance of Potential Concern?
				Higher than Predicted Background + 10%?	Higher than CCME Guideline?	
Conventional Parameters						
Total Dissolved Solids	16	-	31	yes	-	**yes**
Total Suspended Solids	1.3	5 [b]	1.0	no	No	no
Major Ions						
Chloride	0.49	120	7.9	yes	No	no
Fluoride	0.03	0.12	0.044	yes	No	no
Nutrients						
Ammonia as Nitrogen	0.019	18 [c]	0.54	yes	No	no
Nitrate as Nitrogen	0.019	2.935	0.6	yes	No	no
Total Metals						
Aluminum	0.019	0.1 [d]	0.025	yes	No	no
Antimony	0.000062	-	0.00016	yes	-	**yes**
Arsenic	0.00012	0.005	0.00034	yes	No	no
Barium	0.0027	-	0.0056	yes	-	**yes**
Beryllium	0.000064	-	0.000073	yes	-	**yes**
Boron	0.0017	1.5	0.013	yes	No	no
Cadmium	0.000019	0.000006 [e]	0.000022	yes	Yes	**yes**
Chromium	0.00016	0.001 [f]	0.00026	yes	No	no
Cobalt	0.00019	-	0.0003	yes	-	**yes**
Copper	0.0013	0.002 [e]	0.0014	no	No	no
Iron	0.059	0.3	0.07	yes	No	no
Lead	0.000061	0.001 [e]	0.00009	yes	No	no
Manganese	0.0057	-	0.0098	yes	-	**yes**
Mercury	0.0000051	0.000026	0.0000061	yes	No	no
Molybdenum	0.00003	0.073	0.00062	yes	No	no
Nickel	0.00047	0.025 [e]	0.00086	yes	No	no
Selenium	0.000032	0.001	0.00006	yes	No	no
Silver	0.0000081	0.0001	0.000019	yes	No	no
Strontium	0.0069	-	0.0119	yes	-	**yes**
Thallium	0.000014	0.0008	0.000028	yes	No	no
Uranium	0.000016	0.015	0.00017	yes	No	no
Vanadium	0.000094	-	0.00039	yes	-	**yes**
Zinc	0.0024	0.03	0.003	yes	No	no

Source: Adapted from Table 9.9-6 in DeBeers (2011).

[a] From CCME (1999).

[b] Guideline is dependent on background concentration: predicted concentration must not be more than 5 mg/L higher than the background concentration.

[c] Guideline is dependent on temperature and pH. The value is based on pH = 6.5, temperature = 15°C.

[d] Aluminum guideline is dependent on pH; guideline shown is for pH ≥6.5.

[e] Guideline is hardness dependent; value shown based on a maximum predicted hardness of 14 mg/L as calcium carbonate ($CaCO_3$).

[f] Guideline is for hexavalent chromium (CrVI), because it is more stringent than the trivalent chromium (CrIII) guideline of 0.0089 mg/L.

mg/L = milligrams per litre; % = percent; < = less than; - = no guideline available or predicted concentration was less than the observed maximum background.

Table 9.III-3 Summary of Substances of Potential Concern Identified in Lake N11 and Lake 410 for the Direct Waterborne Exposure Assessment

Parameter	Lake N11	Lake 410
	Construction, Operation, and Closure	Construction, Operation, and Closure
Conventional Parameters		
Total Dissolved Solids	√	√
Total Suspended Solids	-	-
Major Ions		
Chloride	-	-
Fluoride	-	-
Nutrients		
Ammonia	-	-
Nitrate	-	-
Total Metals		
Aluminum	-	-
Antimony	√	√
Arsenic	-	-
Barium	√	√
Beryllium	√	√
Boron	-	-
Cadmium	√	√
Chromium	-	-
Cobalt	√	√
Copper	-	-
Iron	-	-
Lead	-	-
Manganese	√	√
Mercury	-	-
Molybdenum	-	-
Nickel	-	-
Selenium	-	-
Silver	-	-
Strontium	√	√
Thallium	-	-
Uranium	-	-
Vanadium	√	√
Zinc	-	-

Source: Adapted from Table 9.9-7 in DeBeers (2011).

Checkmark (√) indicates that the substance in question was identified as a substance of potential concern (SOPC); "-" indicates that the substance was not identified as a SOPC.

Table 9.III-4 Predicted Metal Concentrations in Fish Tissues in Lake N11 during Construction, Operation, and Closure

Metal	Predicted Maximum Concentration (mg/L)	Bioaccumulation Factor	Estimated Fish Tissue Concentrations (mg/kg ww)
Aluminum	0.029	278	8.2
Antimony	0.000035	2729	0.94
Arsenic	0.00074	417	0.31
Cadmium	0.000024	237	0.0056
Chromium	0.0004	78	0.029
Copper	0.0015	839	1.3
Lead	0.00011	80	0.009
Mercury	0.0000065	9450	0.061 [(a)]
Nickel	0.0012	232	0.28
Selenium	0.00006	3000	0.168
Silver	0.00002	2000	0.04
Vanadium	0.00051	95	0.049
Zinc	0.0035	379	1.3

Source: Adapted from Table 9.9-9 in De Beers (2011).

[(a)] Mercury concentration in tissue increases with fish size. The largest lake trout captured during the baseline (789 mm) had a measured mercury concentration in muscle tissue that was about three times higher than the median concentration. A predicted tissue concentration that is three times higher than that reported here would not exceed the toxicological benchmark, indicating that there is negligible risk of the predicted mercury water concentrations even to the largest fish.

mg/L = milligrams per litre; mg/kg ww = milligrams per kilogram wet weight.

Table 9.III-5 Predicted Metal Concentrations in Fish Tissues in Lake 410 during Construction, Operation, and Closure

Metal	Predicted Maximum Concentration (mg/L)	Bioaccumulation Factor	Estimated Fish Tissue Concentrations (mg/kg ww)
Aluminum	0.025	278	6.9
Antimony	0.00016	2729	0.45
Arsenic	0.00034	417	0.142
Cadmium	0.000022	237	0.0053
Chromium	0.00026	78	0.020
Copper	0.0014	839	1.2
Lead	0.00009	80	0.007
Mercury	0.0000061	9450	0.058 [(a)]
Nickel	0.00086	232	0.20
Selenium	0.00006	3000	0.17
Silver	0.000019	2000	0.04
Vanadium	0.00039	95	0.037
Zinc	0.003	379	1.1

Source: Adapted from Table 9.9-10 in De Beers (2011).

[(a)] Mercury concentrations in tissue increases with fish size. The largest lake trout captured during the baseline (789 mm) had mercury concentration in muscle tissue that was about three times higher than the median concentration. A predicted tissue concentration that is three times higher than that reported here would not exceed the toxicological benchmark, indicating that there is negligible risk of the predicted mercury water concentrations even to the largest fish.

mg/L = milligrams per litre; mg/kg ww = milligrams per kilogram wet weight; < = less than.