APPENDIX 4

RESULTS OF ANALYSIS 1988

NL - 1

	Feb 4-Mar 2	Mar 2-Apr 6	Apr 6-May 4	May 4-June 2	June 2-July 11	Jul 11-Aug 8	Aug 8-Sept 13	Sept 13-Oct 31	Oct 31-Dec 6
Soluble Dustfall									
Total	0.25	<0.10	<0.10	<0.10	<0.10	<0.10	*	<0.10	<0.10
Fixed	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	*	<0.10	<0.10
Volatile	0.25	<0.10	<0.10	<0.10	<0.10	<0.10	*	<0.10	<0.10
Insoluble Dustfall									
Total	0.33	0.21	0.16	0.51	0.47	0.37	*	0.37	0.42
Fixed	<0.10	<0.10	<0.10	<0.10	0.12	<0.10	*	<0.10	<0.10
Volatile	0.33	0.21	0.16	0.51	0.35	0.37	*	0.37	0.42
Total Dustfall									
Total	0.58	0.21	0.16	0.51	0.47	0.37	*	0.37	0.42
Fixed	<0.10	<0.10	<0.10	<0.10	0.12	<0.10	*	<0.10	<0.10
Volatile	0.58	0.21	0.16	0.51	0.35	0.37	*	0.37	0.42

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*All of these samples were totally dry.

< = Less than

Results expressed as mg/dm^2/day

RESULTS OF ANALYSIS 1988

ML -2

	Feb 4-Mar 2	Mar 2-Apr 6	Apr 6-May 4	May 4-June 2	June 2-July 11	Jul 11-Aug 8	Aug 8-Sept 13	Sept 13-Oct 31	Oct 31-Dec 6
Soluble Dustfall	<0.10								
Total	~~0.25~~	<0.10	<0.10	<0.10	0.29	0.16	*	<0.10	<0.10
Fixed	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	*	<0.10	<0.10
Volatile	~~0.25~~ <0.10	<0.10	<0.10	<0.10	0.29	0.16	*	<0.10	<0.10
Insoluble Dustfall	0.35								
Total	~~0.33~~	0.32	0.75	0.36	1.10	0.85	*	0.98	0.62
Fixed	<0.10	0.13	0.43	0.13	0.34	0.12	*	0.53	0.36
Volatile	~~0.33~~ 0.35	0.19	0.32	0.23	0.76	0.73	*	0.45	0.26
Total Dustfall	0.35								
Total	~~0.58~~	0.32	0.75	0.36	1.39	1.01	*	0.98	0.62
Fixed	<0.10	0.13	0.43	0.13	0.34	0.12	*	0.53	0.36
Volatile	~~0.58~~ 0.35	0.19	0.32	0.23	1.05	0.89	*	0.45	0.26

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	Feb 4-Mar 2	Mar 2-Apr 6	Apr 6-May 4	May 4-June 2	June 2-July 11	Jul 11-Aug 8	Aug 8-Sept 13	Sept 13-Oct 31	Oct 31-Dec 6
Soluble Dustfall									
Total	0.38	<0.10	<0.10	3.5	9.86	<0.10	*	<0.10	<0.10
Fixed	<0.10	<0.10	<0.10	<0.10	3.79	<0.10	*	<0.10	<0.10
Volatile	0.38	<0.10	<0.10	3.5	6.08	<0.10	*	<0.10	<0.10
Insoluble Dustfall									
Total	0.35	3.25	1.65	0.49	1.57	3.79	*	3.26	2.25
Fixed	<0.10	2.37	1.09	0.49	<0.10	2.39	*	2.22	1.42
Volatile	0.35	0.88	0.56	<0.10	1.57	1.40	*	1.04	0.83
Total Dustfall									
Total	0.73	3.25	1.65	3.99	11.43	3.79	*	3.26	2.25
Fixed	<0.10	2.37	1.09	0.49	3.79	2.39	*	2.22	1.42
Volatile	0.73	0.88	0.56	3.50	7.64	1.40	*	1.04	0.83

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RESULTS OF ANALYSIS 1988

ML - 4

	Feb 4-Mar 2	Mar 2-Apr 6	Apr 6-May 4	May 4-June 2	June 2-July 11	Jul 11-Aug 8	Aug 8-Sept 13	Sept 13-Oct 31	Oct 31-Dec 6
Soluble Dustfall									
Total	0.50	<0.10	<0.10	<0.10	0.11	0.12	*	<0.10	<0.10
Fixed	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	*	<0.10	<0.10
Volatile	0.50	<0.10	<0.10	<0.10	0.11	0.12	*	<0.10	<0.10
Insoluble Dustfall									
Total	0.69	9.82	11.30	10.70	11.05	17.7	*	5.84	0.51
Fixed	0.49	7.85	9.58	8.88	9.55	8.33	*	5.44	0.22
Volatile	0.20	1.97	1.72	1.82	1.50	9.37	*	0.40	0.29
Total Dustfall									
Total	1.19	9.82	11.30	10.70	11.16	17.8	*	5.84	0.51
Fixed	0.49	7.85	9.58	8.88	9.55	8.33	*	5.44	0.22
Volatile	0.70	1.97	1.72	1.82	1.61	9.47	*	0.40	0.29

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	Feb 4-Mar 2	Mar 2-Apr 6	Apr 6-May 4	May 4-June 2	June 2-July 11	Jul 11-Aug 8	Aug 8-Sept 13	Sept 13-Oct 31	Oct 31-Dec 6
Soluble Dustfall									
Total	0.89	<0.10	<0.10	1.14	1.15	1.31	0.62	3.18	<0.10
Fixed	0.10	<0.10	<0.10	<0.10	0.23	0.22	<0.10	0.58	<0.10
Volatile	0.79	<0.10	<0.10	1.14	0.92	1.09	0.62	2.60	<0.10
Insoluble Dustfall									
Total	0.38	1.31	0.14	0.72	0.41	0.70	1.59	0.82	1.92
Fixed	<0.10	<0.10	<0.10	0.21	0.23	0.23	0.23	0.12	0.14
Volatile	0.38	1.31	0.14	0.51	0.18	0.57	1.36	0.70	1.78
Total Dustfall									
Total	1.27	1.31	0.14	1.86	1.56	2.01	2.21	3.30	1.92
Fixed	0.10	<0.10	<0.10	0.21	0.46	0.45	0.23	0.70	0.14
Volatile	1.17	1.31	0.14	1.65	1.10	1.56	1.98	2.60	1.78

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	Feb 4-Mar 2	Mar 2-Apr 6	Apr 6-May 4	May 4-June 2	June 2-July 11	Jul 11-Aug 8	Aug 8-Sept 13	Sept 13-Oct 31	Oct 31-Dec 6
Soluble Dustfall									
Total	0.73	<0.10	<0.10	<0.10	<0.10	<0.10	*	<0.10	<0.10
Fixed	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	*	<0.10	<0.10
Volatile	0.73	<0.10	<0.10	<0.10	<0.10	<0.10	*	<0.10	<0.10
Insoluble Dustfall									
Total	0.11	0.15	0.66	0.27	0.22	0.42	*	0.25	<0.10
Fixed	<0.10	<0.10	0.26	0.11	<0.10	<0.10	*	0.13	<0.10
Volatile	0.11	0.15	0.40	0.16	<0.10	0.42	*	0.12	<0.10
Total Dustfall									
Total	0.84	0.15	0.66	0.27	0.22	0.42	*	0.25	<0.10
Fixed	<0.10	<0.10	0.26	0.11	<0.10	<0.10	*	0.13	<0.10
Volatile	0.84	0.15	0.40	0.16	<0.10	0.42	*	0.12	<0.10

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RESULTS OF ANALYSIS 1988

	Feb 4-Mar 2	Mar 2-Apr 6	Apr 6-May 4	May 4-June 2	June 2-July 11	Jul 11-Aug 8	Aug 8-Sept 13	Sept 13-Oct 31	Oct 31-Dec 6
Soluble Dustfall									
Total	1.45	<0.10	0.91	<0.10	0.83	0.32	0.20	<0.10	<0.10
Fixed	0.30	<0.10	<0.10	<0.10	<0.10	<0.10	~~0.20~~ <0.10	<0.10	<0.10
Volatile	1.15	<0.10	0.91	<0.10	0.83	0.32	0.20	<0.10	<0.10
Insoluble Dustfall									
Total	0.70	5.21	7.07	10.38	12.13	6.77	6.96	2.43	0.78
Fixed	0.33	5.21	5.83	8.01	10.48	4.22	6.03	1.84	0.22
Volatile	0.37	<0.10	1.24	2.37	1.75	2.55	0.93	0.59	0.56
Total Dustfall									
Total	2.15	5.21	7.98	10.38	12.96	7.09	7.16	2.43	0.78
Fixed	0.63	5.21	5.83	8.01	10.48	4.22	6.03	1.84	0.22
Volatile	1.52	0.10	2.15	2.37	2.48	2.87	1.13	0.59	0.56

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RESULTS OF ANALYSIS 1988

	Feb 4-Mar 2	Mar 2-Apr 6	Apr 6-May 4	May 4-June 2	June 2-July 11	Jul 11-Aug 8	Aug 8-Sept 13	Sept 13-Oct 31	Oct 31-Dec 6
Soluble Dustfall									
Total	<0.10	0.10	<0.10	<0.10	3.86	0.67	3.77	Dustfall	Missing
Fixed	<0.10	0.10	<0.10	<0.10	0.84	<0.10	~~2.52~~ 1.25	Cannisters	Missing
Volatile	<0.10	0.10	<0.10	<0.10	3.02	0.67	2.52	Missing	Missing
Insoluble Dustfall									
Total	0.38	0.41	0.54	0.96	5.48	1.89	3.40	Dustfall	Missing
Fixed	0.18	<0.10	0.15	<0.10	0.87	0.33	0.48	Cannisters	Missing
Volatile	0.20	0.41	0.39	0.96	4.61	1.56	2.92	Missing	Missing
Total Dustfall									
Total	0.38	0.41	0.54	0.96	9.34	2.56	7.17	Dustfall	Missing
Fixed	0.18	<0.10	0.15	<0.10	1.71	0.33	1.73	Cannisters	Missing
Volatile	0.20	0.41	0.39	0.96	7.63	2.23	5.44	Missing	Missing
					1	3	2		

APPENDIX 5

		Mar 3/88	June 2/88	Sept 19/88	Dec 7/88
Physical Tests					
pH		6.73	6.85	NA	NA
Conductivity		60.0	79.5		
Turbidity	NTU	2.1	1.3		
Suspended Solids		<1.0	<1.0		
Dissolved Solids		50.0	63.6		
Hardness	CaCO3	19.5	33.4		
Anions					
Alkalinity	CaCO3	22.6	28.8		
Sulphate	SO4	<1.0	<1.0		
Chloride	Cl	6.9	6.		
Fluoride	F	0.02	0.03		
Silicate	SiO2	11.4	12.7		
Nutrients					
O-Phosphate	P	0.005	0.008		
D-Phosporous	P	0.005	0.015		
T-Phosphorous	P	0.005	0.024		
Nitrate	N	<0.005	0.023		
Nitrite	N	<0.001	<0.001		
Ammonia	N	<0.005	<0.005		
Tot. Kjeldahl		0.06	0.067		
Total Metals					
Aluminium	T Al	0.077	0.53		
Arsenic	T As	<0.0001	<0.0001		
Cadmium	T Cd	0.0007	<0.0002		
Copper	T Cu	3.18	0.11*		
Iron	T Fe	0.07	<0.03		
Lead	T Pb	<0.001	<0.001		
Manganese	T Mn	<0.005	<0.005		
Mercury	T Hg	<0.00005	<0.00005		
Silver	T Ag	<0.0001	<0.0001		
Zinc	T Zn	0.32	0.076		
Dissolved Metals					
Aluminium	D Al	<0.005	0.026		
Arsenic	D As	<0.0001	<0.0001		
Cadmium	D Cd	0.0007	<0.0002		
Copper	D Cu	2.94	0.10*		
Iron	D Fe	<0.03	<0.03		
Lead	D Pb	<0.001	<0.001		
Manganese	D Mn	<0.005	<0.005		
Silver	D Ag	<0.0001	<0.0001		
Zinc	D Zn	0.31	0.075		
Mercury	D Hg	NA	NA		
Calcium	D Ca	4.14	8.10		
Magnesium	D Mg	2.22	3.20		
Potassium	D K	0.11	0.14		
Sodium	D Na	3.01	3.65		

< = Less than O = Ortho T = Total D = Dissolved

Results expressed as milligrams per litre except for pH, Conductivity (umhos/cm) and Turbidity (NTU)

		Mar 3/88	June 2/88	Sept 19/88	Dec 7/88
Physical Tests					
pH		6.26	6.62	7.14	6.78
Conductivity		98.1	101.	108.	119.
Turbidity	NTU	1.5	<1.0	<1.0	1.2
Suspended Solids		1.3	2.0	2.7	<1.0
Dissolved Solids		68.1	73.5	75.6	84.5
Hardness	CaCO3	28.1	36.5	41.3	36.2
Anions					
Alkalinity	CaCO3	33.7	36.2	18.0	41.4
Sulphate	SO4	<1.0	<1.0	<1.0	<1.0
Chloride	Cl	11.9	7.4	4.1	12.6
Fluoride	F	<0.02	0.02	0.051	<0.02
Silicate	SiO2	9.1	8.7	16.0	9.3
Nutrients					
O-Phosphate	P	0.004	0.002	<0.001	0.003
D-Phosporous	P	0.006	0.004	0.001	0.011
T-Phosphorous	P	0.009	0.007	0.002	0.013
Nitrate	N	0.15	0.50	1.76**	0.080
Nitrite	N	<0.001	0.001	0.003	0.003
Ammonia	N	<0.005	<0.005	<0.005	<0.005
Tot. Kjeldahl		0.07	0.073	0.081	0.15
Total Metals					
Aluminium	T Al	0.010	<0.005	0.008	0.031
Arsenic	T As	<0.0001	<0.0001	0.0001	0.0001
Cadmium	T Cd	<0.0002	<0.0002	<0.0002	<0.0002
Copper	T Cu	1.08	0.56*	0.85	1.36
Iron	T Fe	0.22	0.03	<0.03	0.48
Lead	T Pb	0.002	<0.001	0.001	0.003
Manganese	T Mn	0.15	0.027	0.016	0.19
Mercury	T Hg	<0.00005	<0.00005	<0.00005	<0.00005
Silver	T Ag	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	T Zn	0.24	0.022	0.033	0.038
Dissolved Metals					
Aluminium	D Al	<0.005	<0.005	<0.005	0.012
Arsenic	D As	<0.0001	<0.0001	<0.0001	<0.0001
Cadmium	D Cd	<0.0002	<0.0002	<0.0002	<0.0002
Copper	D Cu	1.01	0.54*	0.79	1.22
Iron	D Fe	<0.03	<0.03	<0.03	0.065
Lead	D Pb	<0.001	<0.001	<0.001	<0.001
Manganese	D Mn	0.14	0.020	0.014	0.17
Silver	D Ag	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	D Zn	0.016	0.021	0.033	0.033
Mercury	D Hg	NA	NA	<0.00005	<0.00005
Calcium	D Ca	8.38	11.9	12.4	11.6
Magnesium	D Mg	1.77	1.66	5.82	1.76
Potassium	D K	0.83	0.85	0.40	0.66
Sodium	D Na	5.53	5.79	5.82	6.85

< = Less than O = Ortho T = Total D = Dissolved

Results expressed as milligrams per litre except for pH, Conductivity (umhos/cm) and Turbidity (NTU)

RESULTS OF ANALYSIS OF GROUND WATER SAMPLE -

		Mar 3/88	June 2/88	Sept 19/88	Dec 7/88
Physical Tests					
pH		7.18	7.22	7.09	7.52
Conductivity		60.0	62.5	59.4	68.0
Turbidity	NTU	<1.0	<1.0	<1.0	<1.0
Suspended Solids		<1.0	<1.0	1.3	<1.0
Dissolved Solids		43.5	51.8	44.5	59.8
Hardness	CaCO3	21.3	23.9	26.3	25.6
Anions					
Alkalinity	CaCO3	29.4	23.4	23.8	27.6
Sulphate	SO4	<1.0	<1.0	<1.0	<1.0
Chloride	Cl	4.1	4.3	3.9	4.1
Fluoride	F	0.04	0.03	0.059	0.03
Silicate	SiO2	15.5	11.5	12.9	15.2
Nutrients					
O-Phosphate	P	0.002	0.004	0.003	0.002
O-Phosporous	P	0.002	0.007	0.006	0.009
T-Phosphorous	P	0.002	0.007	0.009	0.011
Nitrate	N	<0.005	0.007	0.005	<0.005
Nitrite	N	<0.001	<0.001	0.001	<0.001
Ammonia	N	<0.005	<0.005	<0.005	<0.005
Tot. Kjeldahl		<0.05	0.041	<0.05	0.11
Total Metals					
Aluminium	T Al	<0.005	<0.005	0.012	<0.005
Arsenic	T As	0.0002	<0.0001	0.0002	0.0001
Cadmium	T Cd	<0.0002	<0.0002	0.0003	<0.0002
Copper	T Cu	0.042	0.004	0.030	0.026
Iron	T Fe	0.06	<0.03	<0.03	0.023
Lead	T Pb	0.001	<0.001	0.001	0.001
Manganese	T Mn	<0.005	<0.005	0.006	<0.005
Mercury	T Hg	<0.00005	<0.00005	<0.00005	<0.00005
Silver	T Ag	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	T Zn	0.014	0.18	<0.005	<0.005
Dissolved Metals					
Aluminium	D Al	<0.005	<0.005	<0.005	<0.005
Arsenic	D As	0.0001	<0.0001	<0.0001	<0.0001
Cadmium	D Cd	<0.0002	<0.0002	<0.0002	<0.0002
Copper	D Cu	0.040	0.003	0.030	0.026
Iron	D Fe	<0.03	<0.03	<0.030	<0.0151
Lead	D Pb	<0.001	<0.001	<0.001	<0.001
Manganese	D Mn	<0.005	<0.005	<0.005	<0.005
Silver	D Ag	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	D Zn	0.013	0.18	<0.005	<0.005
Mercury	D Hg	NA	NA	<0.00005	<0.00005
Calcium	D Ca	5.08	6.54	7.36	6.94
Magnesium	D Mg	2.10	1.85	2.93	2.02
Potassium	D K	0.12	0.17	0.16	0.10
Sodium	D Na	2.73	3.02	2.93	3.06

< = Less than O = Ortho T = Total D = Dissolved

Results expressed as milligrams per litre except for pH, Conductivity (umhos/cm)

		Mar 3/88	June 2/88	Sept 19/88	Dec 7/88
Physical Tests					
pH		7.68	7.40	7.65	7.81
Conductivity		76.3	79.5	81.0	108.
Turbidity	NTU	<1.0	2.6	<1.0	1.0
Suspended Solids		<1.0	<1.0	1.3	<1.0
Dissolved Solids		64.5	61.3	65.9	86.8
Hardness	CaCO3	31.6	37.9	45.6	48.0
Anions					
Alkalinity	CaCO3	41.8	39.4	36.0	55.2
Sulphate	SO4	1.7	<1.0	1.4	1.7
Chloride	Cl	<0.5	1.	0.7	1.1
Fluoride	F	<0.02	0.02	0.041	<0.02
Silicate	SiO2	8.8	4.5	8.6	8.9
Nutrients					
O-Phosphate	P	0.011	0.006	0.014	0.003
O-Phosporous	P	0.012	0.041	0.019	0.051
T-Phosphorous	P	0.013	0.013	0.028	0.059
Nitrate	N	0.03	0.012	0.048	0.035
Nitrite	N	<0.001	<0.001	0.001	<0.001
Ammonia	N	<0.005	<0.005	<0.005	<0.005
Tot. Kjeldahl		0.05	0.083	<0.05	0.10
Total Metals					
Aluminium	T Al	0.008	<0.005	0.025	<0.005
Arsenic	T As	0.0003	<0.0001	0.0004	0.0002
Cadmium	T Cd	<0.0002	<0.0002	<0.0002	<0.0002
Copper	T Cu	0.011	0.009	0.020	0.012
Iron	T Fe	0.07	0.05	0.06	0.22
Lead	T Pb	<0.001	<0.001	<0.001	0.002
Manganese	T Mn	0.009	0.011	<0.005	0.008
Mercury	T Hg	<0.00005	<0.00005	<0.00005	<0.00005
Silver	T Ag	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	T Zn	0.43	1.51	0.13	0.92
Dissolved Metals					
Aluminium	D Al	<0.005	<0.005	0.006	<0.005
Arsenic	D As	0.0002	<0.0001	<0.0001	0.0002
Cadmium	D Cd	<0.0002	<0.0002	<0.0002	<0.0002
Copper	D Cu	0.017	0.009	0.020	0.010
Iron	D Fe	<0.03	0.05	<0.03	<0.015
Lead	D Pb	<0.001	<0.001	<0.001	<0.001
Manganese	D Mn	<0.005	0.008	<0.005	0.005
Silver	D Ag	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	D Zn	0.37	1.50	0.065	0.15
Mercury	D Hg	NA	NA	<0.00005	<0.00005
Calcium	D Ca	9.07	12.09	14.0	14.7
Magnesium	D Mg	2.17	1.87	0.91	2.74
Potassium	D K	0.24	0.35	0.26	0.23
Sodium	D Na	1.01	1.11	0.91	1.16

< = Less than O = Ortho T = Total D = Dissolved

Results expressed as milligrams per litre except for pH, Conductivity (umhos/cm) and Turbidity (NTU)

		Jul 12/88	Aug 8/88	Sept 19/88	Oct 31/88	Dec 7/88
Physical Tests						
pH		7.14	7.33	6.78	6.94	7.19
Conductivity		55.0	55.0	53.5	68.4	79.4
Turbidity	NTU	<1.0	2.5	2.2	<1.0	22.0
Suspended Solids		2.0	12.0	6.0	<1.0	24.7
Dissolved Solids		33.2	40.0	45.6	34.8	53.9
Hardness	CaCO3	30.2	28.1	25.2	24.6	23.8
Anions						
Alkalinity	CaCO3	17.0	22.0	24.0	23.	20.7
Sulphate	SO4	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride	Cl	1.2	<0.5	1.0	1.1	2.4
Fluoride	F	0.021	0.023	0.043	<0.02	<0.02
Silicate	SiO2	6.8	4.4	4.6	4.3	9.0
Nutrients						
O-Phosphate	P	0.003	<0.001	0.003	<0.001	0.003
D-Phosphorous	P	0.007	0.006	0.003	0.002	0.016
T-Phosphorous	P	0.010	0.013	0.008	0.004	0.053
Nitrate	N	0.006	<0.005	0.015	0.045	1.10
Nitrite	N	0.001	0.005	0.001	0.001	0.002
Ammonia	N	0.017	<0.005	0.007	0.041	<0.005
Tot. Kjeldahl	N	0.094	0.11	0.16	0.16	0.40
Total Metals						
Aluminium	T Al	0.083	0.16	0.030	0.041	0.52
Arsenic	T As	0.0011	0.0014	<0.0001	<0.0001	0.0003
Cadmium	T Cd	<0.0002	0.0002	0.0003	<0.0002	<0.0002
Copper	T Cu	<0.001	0.002	0.017	0.001	0.003
Iron	T Fe	0.21	0.23	0.09	0.17	1.89
Lead	T Pb	<0.001	<0.001	<0.001	<0.001	0.001
Manganese	T Mn	0.011.	0.010	0.008	0.010	0.18
Mercury	T Hg	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Silver	T Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	T Zn	<0.005	0.006	<0.005	<0.005	0.005
Dissolved Metals						
Aluminium	D Al	0.079	0.080	0.005	0.011	0.064
Arsenic	D As	0.0010	0.0008	<0.0001	<0.0001	<0.0001
Cadmium	D Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	D Cu	<0.001	0.002	<0.001	0.001	0.002
Iron	D Fe	0.094	0.22	<0.03	0.08	0.078
Lead	D Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	D Mn	<0.005	0.009	<0.005	<0.005	<0.005
Silver	D Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	D Zn	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	D Ca	10.1	9.07	8.48	8.13	6.40
Magnesium	D Mg	1.22	1.35	0.99	1.04	1.90
Potassium	D K	0.19	0.76	0.10	0.14	0.30
Sodium	D Na	2.51	2.45	1.28	1.48	2.99

< = Less than
Results expressed as milligrams per litre except for pH, Conductivity (umhos/cm), Turbidity (NTU).

		Feb 5/88	Mar 4/88	Apr 7/88	May 5/88	June 2/88
Physical Tests						
pH		7.17	7.23	7.40	7.22	7.38
Conductivity		49.0	42.1	38.5	53.0	48.8
Turbidity	NTU	1.2	2.5	3.0	<1.0	1.5
Suspended Solids		1.3	1.0	25.3	<1.0	8.9
Dissolved Solids		28.6	26.8	34.5	38.2	33.8
Hardness	CaCO3	16.7	14.5	20.4	23.3	22.0
Anions						
Alkalinity	CaCO3	17.3	17.0	15.5	23.5	20.2
Sulphate	SO4	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride	Cl	<0.5	1.1	1.3	1.2	1.1
Fluoride	F	<0.02	0.02	<0.02	<0.02	<0.02
Silicate	SiO2	8.2	6.3	7.7	1.1	1.7
Nutrients						
O-Phosphate	P	<0.001	0.004	0.002	0.002	0.003
D-Phosphorous	P	0.002	0.007	0.033	0.002	0.007
T-Phosphorous	P	0.004	0.032	0.067	0.008	0.007
Nitrate	N	0.15	0.10	0.13	0.042	0.028
Nitrite	N	0.001	0.001	0.001	<0.001	<0.001
Ammonia	N	<0.005	0.009	0.007	<0.005	0.019
Tot. Kjeldahl		0.68	0.17	0.18	0.12	0.25
Total Metals						
Aluminium	T Al	0.11	0.18	0.20	0.036	0.040
Arsenic	T As	0.0004	0.0001	0.0004	0.0006	<0.0001
Cadmium	T Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	T Cu	<0.001	0.001	<0.001	0.001	<0.001
Iron	T Fe	0.10	0.19	0.23	0.12	0.06
Lead	T Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	T Mn	<0.005	<0.005	0.15	<0.005	0.006
Mercury	T Hg	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Silver	T Ag	0.0002	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	T Zn	0.002	0.003	<0.005	<0.005	<0.005
Dissolved Metals						
Aluminium	D Al	0.050	0.024	<0.005	0.013	0.013
Arsenic	D As	<0.0001	<0.0001	<0.0001	0.0006	<0.0001
Cadmium	D Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	D Cu	<0.001	<0.001	<0.001	0.001	<0.001
Iron	D Fe	0.06	0.08	<0.03	0.04	0.05
Lead	D Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	D Mn	<0.005	<0.005	<0.005	<0.005	0.004
Silver	D Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	D Zn	<0.001	0.005	<0.005	<0.005	<0.005
Calcium	D Ca	5.07	4.29	6.42	7.73	7.33
Magnesium	D Mg	0.99	0.91	1.06	0.97	0.89
Potassium	D K	0.09	0.07	0.10	0.08	0.14
Sodium	D Na	2.19	1.42	1.44	1.40	1.48

RESULTS OF ANALYSIS — SURFACE WATER - MLB

		Jul 12/88	Aug 8/88	Sept 19/88	Oct. 31/88	Dec 7/88
Physical Tests						
pH		7.28	7.53	7.57	7.34	7.72
Conductivity		110.	96.9	108.	108.	113.
Turbidity	NTU	1.2	1.5	1.6	<1.0	1.6
Suspended Solids		6.7	4.0	<1.0	<1.0	1.3
Dissolved Solids		69.2	90.	81.5	74.8	89.6
Hardness	CaCO3	57.5	56.9	56.1	51.4	47.8
Anions						
Alkalinity	CaCO3	44.2	54.0	50.0	52.7	57.5
Sulphate	SO4	<1.0	<1.0	1.9	1.0	<1.0
Chloride	Cl	1.3	<0.5	1.7	1.1	2.1
Fluoride	F	0.031	0.032	0.065	0.03	0.03
Silicate	SiO2	14.2	10.8	10.9	9.5	10.8
Nutrients						
O-Phosphate	P	0.011	0.008	0.011	0.010	0.005
O-Phosporous	P	0.015	0.017	0.012	0.018	0.012
T-Phosphorous	P	0.032	0.018	0.023	0.018	0.018
Nitrate	N	0.046	0.075	0.077	0.077	0.17
Nitrite	N	<0.001	0.027	0.003	<0.001	0.003
Ammonia	N	<0.005	0.047	0.035	<0.005	<0.005
Tot. Kjeldahl		0.071	0.10	0.16	0.069	0.09
Total Metals						
Aluminium	T Al	<0.005	0.022	0.085	0.042	0.55
Arsenic	T As	0.0010	0.0006	0.0010	0.0009	0.0015
Cadmium	T Cd	<0.0002	<0.0002	0.0002	<0.0002	<0.0002
Copper	T Cu	<0.001	<0.001	0.001	0.001	0.004
Iron	T Fe	0.29	0.11	0.13	0.27	0.63
Lead	T Pb	<0.001	<0.001	<0.001	<0.001	0.001
Manganese	T Mn	0.14	0.081	0.041	0.015	0.015
Mercury	T Hg	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Silver	T Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	T Zn	<0.005	<0.005	<0.005	<0.005	0.005
Dissolved Metals						
Aluminium	D Al	<0.005	0.005	<0.005	0.007	0.028
Arsenic	D As	0.0008	0.0006	0.0010	0.0005	0.0007
Cadmium	D Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	D Cu	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	D Fe	0.021	0.04	<0.03	<0.03	<0.015
Lead	D Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	D Mn	<0.005	0.008	<0.005	<0.005	0.010
Silver	D Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	D Zn	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	D Ca	16.4	16.0	16.6	15.1	13.7
Magnesium	D Mg	4.01	4.10	3.55	3.32	3.29
Potassium	D K	0.34	0.32	0.43	0.39	0.82
Sodium	D Na	1.96	1.93	1.96	1.82	2.17

< = Less than O = Ortho T = Total D = Dissolved

RESULTS OF ANALYSIS — SURFACE WATER - MLB

		Feb 5/88	Mar 4/8	Apr 7/88	May 5/88	June 2/88
Physical Tests						
pH		7.73	7.73	7.87	7.69	7.70
Conductivity		109.	98.0	105.	106.	104.
Turbidity	NTU	<1.0	2.0	<1.0	<1.0	<1.0
Suspended Solids		3.3	1.0	<1.0	2.7	1.6
Dissolved Solids		78.9	75.1	88.0	82.1	83.3
Hardness	CaCO3	49.1	40.3	55.6	53.7	49.4
Anions						
Alkalinity	CaCO3	54.2	52.0	51.1	49.7	52.2
Sulphate	SO4	1.9	1.5	1.3	2.63	<1.0
Chloride	Cl	0.8	1.8	1.7	1.7	1.6
Fluoride	F	0.03	0.04	0.03	0.031	0.03
Silicate	SiO2	12.9	10.8	11.9	5.5	8.2
Nutrients						
O-Phosphate	P	0.011	0.010	0.008	0.011	0.013
O-Phosphorous	P	0.012	0.018	0.035	0.012	0.016
T-Phosphorous	P	0.013	0.018	0.16	0.012	0.016
Nitrate	N	0.095	0.087	0.12	0.009	0.074
Nitrite	N	0.001	0.002	0.001	0.002	<0.001
Ammonia	N	<0.005	0.007	<0.005	<0.005	<0.005
Tot. Kjeldahl		0.13	0.13	0.09	0.05	0.094
Total Metals						
Aluminium	T Al	0.050	0.043	0.065	0.019	<0.005
Arsenic	T As	0.0007	0.0001	0.0005	0.0002	<0.0001
Cadmium	T Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	T Cu	0.002	<0.001	0.001	<0.001	<0.001
Iron	T Fe	<0.03	0.06	0.08	0.03	<0.03
Lead	T Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	T Mn	<0.005	0.013	0.010	<0.005	<0.005
Mercury	T Hg	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Silver	T Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	T Zn	0.003	0.003	<0.005	<0.005	<0.005
Dissolved Metals						
Aluminium	D Al	0.010	<0.005	0.034	<0.005	<0.005
Arsenic	D As	<0.0001	<0.001	<0.0001	0.0004	<0.0001
Cadmium	D Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	D Cu	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	D Fe	<0.03	<0.03	<0.03	<0.03	<0.03
Lead	D Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	D Mn	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	D Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	D Zn	0.001	<0.001	<0.005	<0.005	<0.005
Calcium	D Ca	13.8	10.6	16.1	15.9	14.7
Magnesium	D Mg	3.55	3.36	3.03	3.39	3.09
Potassium	D K	0.32	0.34	0.36	0.32	0.43
Sodium	D Na	1.97	1.92	1.84	1.80	2.13

< = Less than

Results expressed in milligrams per litre except for pH, Conductivity (micromhos/cm)

		Jul 12/88	Aug 8/88	Sept 19/88	Oct 31/88	Dec 7/88
Physical Tests						
pH		7.00	7.53	7.31	6.90	7.23
Conductivity		65.0	67.1	59.4	62.7	45.4
Turbidity	NTU	1.4	<1.0	4.0	1.4	2.0
Suspended Solids		<1.0	<1.0	10.0	2.6	<1.0
Dissolved Solids		38.1	60.	43.6	37.2	31.9
Hardness	CaCO3	31.1	35.8	29.5	27.3	18.3
Anions						
Alkalinity	CaCO3	22.1	30.	26.0	25.	20.7
Sulphate	SO4	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride	Cl	1.4	<0.5	0.9	<0.5	2.0
Fluoride	F	0.022	0.025	0.047	<0.02	<0.02
Silicate	SiO2	7.4	5.9	5.2	5.1	8.0
Nutrients						
O-Phosphate	P	0.008	0.001	0.004	0.016	0.004
D-Phosporous	P	0.009	0.007	0.004	0.033	0.012
T-Phosphorous	P	0.017	0.008	0.024	0.035	0.013
Nitrate	N	0.018	<0.005	0.051	0.078	0.22
Nitrite	N	0.001	<0.001	0.009	0.004	0.002
Ammonia	N	<0.005	<0.005	0.048	0.083	0.009
Tot. Kjeldahl		0.092	0.10	0.25	0.70	0.17
Total Metals						
Aluminium	T Al	0.027	0.009	0.25	0.10	0.19
Arsenic	T As	0.0013	0.0008	0.0007	0.0003	0.0003
Cadmium	T Cd	<0.0002	<0.0002	<0.0002	<0.0002	0.0003
Copper	T Cu	<0.001	<0.001	0.001	<0.001	0.002
Iron	T Fe	0.34	0.14	0.30	0.10	0.29
Lead	T Pb	<0.001	<0.001	<0.001	<0.001	0.001
Manganese	T Mn	0.023	<0.005	0.023	0.016	0.011
Mercury	T Hg	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Silver	T Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	T Zn	<0.005	0.009	<0.005	<0.005	<0.005
Dissolved Metals						
Aluminium	D Al	0.012	0.009	0.007	0.011	0.081
Arsenic	D As	0.0007	0.0008	0.0007	0.0001	0.0002
Cadmium	D Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	D Cu	<0.001	<0.001	<0.001	<0.001	0.001
Iron	D Fe	0.15	0.13	<0.03	0.10	0.11
Lead	D Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	D Mn	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	D Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	D Zn	<0.005	0.008	<0.005	<0.005	<0.005
Calcium	D Ca	9.78	10.1	9.60	8.73	5.47
Magnesium	D Mg	1.62	2.03	1.34	1.33	1.13
Potassium	D K	0.17	0.21	0.22	0.23	0.27
Sodium	D Na	2.07	2.17	1.53	1.86	1.85

< = Less than O = Ortho T = Total D = Dissolved

Results expressed as milligrams per litre except for pH, Conductivity (umhos/cm) and Turbidity (NTU)

		Feb 5/88	Mar 4/88	Apr 7/88	May 5/88	June 2/88
Physical Tests						
pH		7.12	7.17	7.30	7.27	7.27
Conductivity		43.6	43.6	44.0	53.0	53.0
Turbidity	NTU	1.4	4.5	1.1	<1.0	<1.0
Suspended Solids		<1.0	2.7	5.3	<1.0	2.2
Dissolved Solids		30.5	33.0	35.0	39.5	38.0
Hardness	CaCO3	17.6	15.6	20.8	26.5	24.9
Anions						
Alkalinity	CaCO3	17.1	18.5	15.5	23.8	21.3
Sulphate	SO4	1.2	0.17	<1.0	<1.0	<1.0
Chloride	Cl	0.7	2.0	1.3	1.6	1.6
Fluoride	F	<0.02	<0.02	<0.02	<0.02	0.02
Silicate	SiO2	9.1	10.8	7.9	1.8	2.8
Nutrients						
O-Phosphate	P	<0.001	0.005	0.003	0.003	0.004
D-Phosporous	P	0.004	0.008	0.028	0.005	0.008
T-Phosphorous	P	0.006	0.014	0.14	0.028	0.008
Nitrate	N	0.17	0.12	0.16	0.041	0.027
Nitrite	N	0.002	0.003	0.002	0.001	<0.001
Ammonia	N	<0.005	0.008	<0.005	<0.005	<0.005
Tot. Kjeldahl		0.15	<0.05	0.13	0.10	0.13
Total Metals						
Aluminium	T Al	0.13	0.16	0.35	0.037	0.030
Arsenic	T As	0.0003	<0.0001	0.0004	0.0004	0.0004
Cadmium	T Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	T Cu	<0.001	0.001	0.002	<0.001	<0.001
Iron	T Fe	0.18	0.22	0.15	0.15	0.10
Lead	T Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	T Mn	0.016	0.007	0.012	0.008	0.005
Mercury	T Hg	<0.005	<0.00005	<0.00005	<0.00005	<0.00005
Silver	T Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	T Zn	0.002	0.003	<0.005	< 0.005	<0.005
Dissolved Metals						
Aluminium	D Al	0.055	0.022	0.016	0.012	0.015
Arsenic	D As	0.0012	<0.0001	<0.0001	0.0003	0.0003
Cadmium	D Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	D Cu	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	D Fe	0.09	0.07	0.06	0.05	0.10
Lead	D Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	D Mn	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	D Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	D Zn	<0.001	<0.001	<0.005	<0.005	<0.005
Calcium	D Ca	5.24	4.44	6.28	8.46	8.09
Magnesium	D Mg	1.10	1.10	1.25	1.31	1.15
Potassium	D K	0.10	0.11	0.11	0.10	0.17
Sodium	D Na	3.52	2.67	1.66	1.66	1.87

< = Less than O = Ortho T = Total D = Dissolved

Results expressed as milligrams per litre except for pH, Conductivity (umhos/cm) and Turbidity (NTU)

Physical Tests		Jul 12/88	Aug 8/88	Sept 19/88	Oct 31/88	Dec 7/88
pH		7.65	7.57	7.80	7.46	7.55
Conductivity		105.	105	103.	103.	90.7
Turbidity	NTU	1.0	1.4	3.4	1.4	2.0
Suspended Solids		1.3	12.7	7.3	2.7	4.0
Dissolved Solids		66.6	80.	86.5	70.5	70.5
Hardness	CaCO3	55.2	52.2	50.0	48.6	35.0
Anions						
Alkalinity	CaCO3	42.5	50.0	58.0	48.	39.1
Sulphate	SO4	<1.0	<1.0	<1.0	1.0	<1.0
Chloride	Cl	1.3	<0.5	1.9	1.2	4.8
Fluoride	F	0.037	0.038	0.090	0.05	0.03
Silicate	SiO2	13.7	10.7	11.1	10.4	10.4
Nutrients						
O-Phosphate	P	0.013	0.006	0.012	0.007	0.005
D-Phosporous	P	0.013	0.013	0.014	0.014	0.018
T-Phosphorous	P	0.014	0.019	0.028	0.015	0.018
Nitrate	N	<0.005	<0.005	0.11	0.17	0.61
Nitrite	N	0.002	0.005	0.001	<0.001	0.004
Ammonia	N	<0.005	0.025	<0.005	<0.005	<0.005
Tot. Kjeldahl		0.065	0.080	0.11	0.090	0.13
Total Metals						
Aluminium	T Al	0.085	0.046	0.085	0.057	0.18
Arsenic	T As	0.0007	0.0007	0.0004	0.0010	0.0003
Cadmium	T Cd	<0.0002	<0.0002	<0.0002	0.0002	<0.0002
Copper	T Cu	<0.001	<0.001	<0.001	0.001	0.001
Iron	T Fe	0.13	0.12	0.23	0.22	0.23
Lead	T Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	T Mn	0.009	0.010	0.015	0.009	0.013
Mercury	T Hg	<0.00005	<0.00005	<0.00005	<0.00005	0.00007
Silver	T Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	T Zn	<0.005	0.006	<0.005	<0.005	<0.005
Dissolved Metals						
Aluminium	D Al	0.035	<0.005	0.010	0.018	0.026
Arsenic	D As	0.0006	0.0007	0.0003	0.0003	0.0002
Cadmium	D Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	D Cu	<0.001	<0.001	<0.001	0.001	0.001
Iron	D Fe	0.041	0.04	0.07	0.10	0.047
Lead	D Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	D Mn	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	D Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	D Zn	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	D Ca	15.3	14.6	14.0	13.7	9.44
Magnesium	D Mg	4.12	3.33	3.65	3.49	2.78
Potassium	D K	0.34	0.47	0.58	0.51	0.36
Sodium	D Na	2.03	2.15	2.49	2.62	3.60

< = Less than O = Ortho T = Total D = Dissolved
Results expressed as milligrams per litre except for pH, Conductivity (umhos/cm) and Turbidity (NTU)

Physical Tests		Feb 5/88	Mar 4/88	Apr 7/88	May 5/88	June 2/88
pH		7.65	7.48	7.60	7.61	7.65
Conductivity		98.1	87.2	88.0	101.	101.
Turbidity	NTU	1.2	14.	1.6	<1.0	2.2
Suspended Solids		4.0	28.7	2.7	2.7	10.0
Dissolved Solids		60.5	68.7	42.4	79.3	84.1
Hardness	CaCO3	42.1	34.6	67.1	51.3	51.6
Anions						
Alkalinity	CaCO3	41.8	41.8	33.3	48.6	51.1
Sulphate	SO4	1.6	<1.0	<1.0	2.34	<1.0
Chloride	Cl	2.9	3.8	3.2	2.4	1.9
Fluoride	F	0.04	0.05	0.03	0.053	0.04
Silicate	SiO2	12.5	10.9	11.6	7.3	8.8
Nutrients						
O-Phosphate	P	0.007	0.017	0.004	0.008	0.012
D-Phosporous	P	0.009	0.025	0.059	0.059	0.017
T-Phosphorous	P	0.013	0.060	0.14	0.059	0.032
Nitrate	N	0.30	0.23	0.44	0.072	0.062
Nitrite	N	0.001	0.002	0.001	0.002	<0.001
Ammonia	N	<0.005	<0.005	<0.005	<0.005	<0.005
Tot. Kjeldahl		0.14	0.30	0.11	0.049	0.19
Total Metals						
Aluminium	T Al	0.080	0.76	0.089	0.022	0.076
Arsenic	T As	0.0003	0.0010	0.0003	0.0004	0.0004
Cadmium	T Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	T Cu	0.002	0.004	0.003	<0.001	<0.001
Iron	T Fe	0.13	1.02	0.13	0.13	<0.03
Lead	T Pb	<0.001	0.003	<0.001	<0.001	<0.001
Manganese	T Mn	0.012	0.049	0.012	0.007	0.005
Mercury	T Hg	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Silver	T Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	T Zn	<0.001	0.005	<0.005	<0.005	<0.005
Dissolved Metals						
Aluminium	D Al	0.013	0.013	0.025	0.005	0.024
Arsenic	D As	0.004	0.0006	<0.0001	0.0003	0.0003
Cadmium	D Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	D Cu	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	D Fe	<0.03	0.05	<0.03	0.03	<0.03
Lead	D Pb	<0.001	<0.0001	<0.001	<0.001	<0.001
Manganese	D Mn	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	D Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	D Zn	<0.001	0.002	<0.005	<0.005	<0.005
Calcium	D Ca	11.0	8.55	11.4	14.3	15.2
Magnesium	D Mg	3.56	3.21	3.38	3.80	3.31
Potassium	D K	0.32	0.41	0.32	0.32	0.48
Sodium	D Na	2.34	3.04	2.88	2.56	2.29

< = Less than O = Ortho T = Total D = Dissolved
Results expressed as milligrams per litre except for pH, Conductivity (umhos/cm) and Turbidity (NTU)

RESULTS OF ANALYSIS — SURFACE WATER - MLE

		Jul 12/88	Aug 8/88	Sept 19/88	Oct 31/88	Dec 7/88
Physical Tests						
pH		7.52	7.28	7.17	7.05	7.49
Conductivity		85.0	88.0	70.2	79.8	51.0
Turbidity	NTU	<1.0	1.1	18.0	1.6	2.4
Suspended Solids		<1.0	2.7	13.3	1.3	2.0
Dissolved Solids		51.5	70.0	58.5	51.3	43.7
Hardness	CaCO3	43.4	46.4	34.0	36.2	20.8
Anions						
Alkalinity	CaCO3	32.3	40.0	32.0	35.	21.9
Sulphate	SO4	<1.0	<1.0	<1.0	1.0	<1.0
Chloride	Cl	1.4	<0.5	1.2	<0.5	2.1
Fluoride	F	0.028	0.031	0.054	0.03	<0.02
Silicate	SiO2	10.7	8.1	6.6	<0.5	8.0
Nutrients						
O-Phosphate	P	0.008	0.005	0.011	0.024	0.004
D-Phosporous	P	0.015	0.012	0.014	0.029	0.015
T-Phosphorous	P	0.017	0.016	0.026	0.034	0.018
Nitrate	N	<0.005	0.034	0.093	0.20	0.24
Nitrite	N	<0.001	0.005	0.041	0.010	0.002
Ammonia	N	<0.005	0.033	0.047	0.030	0.007
Tot. Kjeldahl		0.067	0.090	0.25	0.12	0.17
Total Metals						
Aluminium	T Al	0.074	0.020	0.36	0.035	0.25
Arsenic	T As	0.0008	0.0008	0.0007	0.0004	0.0004
Cadmium	T Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	T Cu	<0.001	<0.001	0.001	0.001	0.003
Iron	T Fe	0.20	0.06	0.55	0.19	0.32
Lead	T Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	T Mn	0.013	<0.005	0.033	0.009	0.013
Mercury	T Hg	<0.000005	<0.00005	<0.00005	<0.000005	<0.00005
Silver	T Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	T Zn	<0.005	<0.005	<0.005	<0.005	<0.005
Dissolved Metals						
Aluminium	D Al	0.062	0.012	0.007	0.014	0.078
Arsenic	D As	0.0007	0.0008	0.0007	<0.0001	0.0002
Cadmium	D Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	D Cu	<0.001	<0.001	<0.001	0.001	0.003
Iron	D Fe	0.052	0.05	<0.03	0.09	0.093
Lead	D Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	D Mn	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	D Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	D Zn	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	D Ca	12.8	13.3	10.8	11.1	6.07
Magnesium	D Mg	2.78	2.98	1.72	2.05	1.36
Potassium	D K	0.22	0.32	0.25	0.30	0.20
Sodium	D Na	1.97	2.09	1.60	1.86	2.06

< = Less than O = Ortho T = Total D = Dissolved

Results expressed as milligrams per litre except for pH, Conductivity (umhos/cm) and Turbidity (NTU)

RESULTS OF ANALYSIS — SURFACE WATER - MLE

		Feb 5/88	Mar 4/88	Apr 7/88	May 5/88	June 2/88
Physical Tests						
pH		7.30	7.14	7.30	7.40	7.42
Conductivity		54.5	54.5	55.0	68.9	74.2
Turbidity	NTU	1.4	25.	1.6	<1.0	1.4
Suspended Solids		3.3	89.3	2.7	8.0	5.3
Dissolved Solids		44.3	49.9	44.3	52.7	58.5
Hardness	CaCO3	24.3	21.3	26.4	46.3	37.8
Anions						
Alkalinity	CaCO3	24.7	28.3	20.0	33.0	35.1
Sulphate	SO4	1.4	<1.0	<1.0	2.04	<1.0
Chloride	Cl	1.3	2.1	3.2	1.9	1.7
Fluoride	F	<0.02	0.03	<0.02	0.025	0.03
Silicate	SiO2	9.5	7.8	8.7	2.5	4.6
Nutrients						
O-Phosphate	P	0.004	0.010	0.003	0.010	0.013
D-Phosporous	P	0.006	0.014	0.036	0.011	0.019
T-Phosphorous	P	0.011	0.14	0.052	0.034	0.025
Nitrate	N	0.17	0.15	0.19	0.055	0.053
Nitrite	N	0.008	0.003	0.002	0.013	0.009
Ammonia	N	<0.005	0.046	<0.005	<0.005	<0.005
Tot. Kjeldahl		0.14	0.44	0.15	0.084	0.18
Total Metals						
Aluminium	T Al	0.11	0.72	0.24	0.029	0.061
Arsenic	T As	0.0001	<0.0001	<0.0001	0.0006	<0.0001
Cadmium	T Cd	<0.0002	0.0005	<0.0002	<0.0002	<0.0002
Copper	T Cu	0.001	0.001	0.003	<0.001	<0.001
Iron	T Fe	0.15	0.42	0.14	0.13	0.06
Lead	T Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	T Mn	0.013	0.026	0.009	0.007	<0.005
Mercury	T Hg	<0.00005	<0.00005	<0.00005	<0.00005	<0.000005
Silver	T Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	T Zn	0.060	0.005	<0.005	<0.005	<0.005
Dissolved Metals						
Aluminium	D Al	0.048	0.013	0.027	0.009	0.012
Arsenic	D As	<0.0001	<0.0001	<0.0001	0.0002	<0.0001
Cadmium	D Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	D Cu	0.001	<0.001	<0.001	<0.001	<0.001
Iron	D Fe	<0.03	0.06	<0.03	0.04	0.05
Lead	D Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	D Mn	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	D Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	D Zn	0.020	0.002	<0.005	<0.005	<0.005
Calcium	D Ca	6.99	5.65	7.71	11.3	11.7
Magnesium	D Mg	1.66	1.70	1.73	2.04	2.08
Potassium	D K	0.17	0.18	0.15	0.15	0.27
Sodium	D Na	5.40	2.93	1.81	1.76	2.05

< = Less than O = Ortho T = Total D = Dissolved

Results expressed as milligrams per litre except for pH, Conductivity (umhos/cm) and Turbidity (NTU)

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	Jul 12/88	Aug 8/88	Sept 19/88	Oct 31/88	Dec 7/88
Physical Tests					
pH	7.55	7.58	7.46	7.50	7.60
Conductivity	105.	111.	113.	114.	79.4
Turbidity NTU	6.2	2.9	6.6	3.0	20.0
Suspended Solids	12.7	9.3	10.0	3.3	20.0
Dissolved Solids	66.6	90.0	79.6	76.1	61.5
Hardness CaCO3	48.3	49.2	44.6	44.3	27.1
Anions					
Alkalinity CaCO3	37.4	48.0	40.0	46.	29.9
Sulphate SO4	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride Cl	5.3	<0.5	6.6	7.4	7.1
Fluoride F	0.037	0.038	0.069	0.04	0.03
Silicate SiO2	14.9	12.9	13.1	7.4	9.7
Nutrients					
O-Phosphate P	0.027	0.032	0.030	0.024	<0.001
D-Phosporous P	0.036	0.038	0.030	0.034	0.013
T-Phosphorous P	0.051	0.046	0.063	0.046	0.045
Nitrate N	0.036	0.12	0.25	0.15	0.36
Nitrite N	0.002	0.001	0.001	0.001	0.003
Ammonia N	<0.005	<0.005	<0.005	<0.005	<0.005
Tot. Kjeldahl	0.093	0.074	0.27	0.10	0.20
Total Metals					
Aluminium T Al	0.23	0.14	0.14	0.14	0.85
Arsenic T As	0.0010	0.0011	0.0007	0.0009	0.0005
Cadmium T Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper T Cu	0.006	0.002	0.001	0.001	0.004
Iron T Fe	0.37	0.35	0.33	0.46	1.23
Lead T Pb	<0.001	<0.001	<0.001	0.001	<0.001
Manganese T Mn	0.020	0.018	0.017	0.017	0.029
Mercury T Hg	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Silver T Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc T Zn	<0.005	0.005	<0.005	<0.005	<0.005
Dissolved Metals					
Aluminium D Al	0.097	0.022	0.017	0.023	0.045
Arsenic D As	0.0009	0.0009	0.0007	0.0002	0.0003
Cadmium D Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper D Cu	0.001	<0.001	<0.001	<0.001	<0.001
Iron D Fe	0.068	0.12	0.10	0.13	0.053
Lead D Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese D Mn	<0.005	<0.005	<0.005	<0.005	<0.005
Silver D Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc D Zn	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium D Ca	13.6	13.9	12.9	12.7	7.37
Magnesium D Mg	3.49	3.53	3.01	3.06	2.11
Potassium D K	1.07	1.05	1.44	1.62	0.57
Sodium D Na	4.74	4.85	4.64	5.28	4.45

< = Less than O = Ortho T = Total D = Dissolved

Results expressed as milligrams per litre except for pH, Conductivity (umhos/cm)

	Feb 5/88	Mar 4/88	Apr 7/88	May 5/88	June 2/88
Physical Tests					
pH	7.57	7.45	7.45	7.64	7.65
Conductivity	98.1	87.2	82.5	106.	104.
Turbidity NTU	4.6	32.	7.4	3.6	5.6
Suspended Solids	8.7	77.3	12.6	6.7	31.3
Dissolved Solids	68.8	68.3	61.4	77.2	83.8
Hardness CaCO3	36.4	28.3	34.8	45.9	43.0
Anions					
Alkalinity CaCO3	29.8	38.3	26.6	48.1	44.7
Sulphate SO4	1.7	<1.0	<1.0	1.74	<1.0
Chloride Cl	7.6	7.8	5.0	6.7	6.2
Fluoride F	0.03	0.03	<0.02	0.034	0.04
Silicate SiO2	13.6	11.8	11.8	7.1	10.4
Nutrients					
O-Phosphate P	0.019	0.022	0.009	0.023	0.028
D-Phosporous P	0.020	0.024	0.052	0.023	0.032
T-Phosphorous P	0.034	0.11	0.14	0.034	0.062
Nitrate N	0.25	0.23	0.33	0.12	0.12
Nitrite N	0.002	0.002	~~<0.005~~ <0.002	0.002	0.001
Ammonia N	<0.005	0.019	~~0.14~~ <0.005	<0.005	<0.005
Tot. Kjeldahl	0.15	<0.05	~~<0.002~~ 0.11	0.048	0.27
Total Metals					
Aluminium T Al	0.19	1.56	0.42	0.062	0.036
Arsenic T As	0.0005	0.0008	0.0003	0.0008	0.0003
Cadmium T Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper T Cu	0.001	0.006	0.005	<0.001	<0.001
Iron T Fe	0.31	2.09	0.28	0.24	0.04
Lead T Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese T Mn	0.014	0.055	0.017	0.010	0.007
Mercury T Hg	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Silver T Ag	<0.0001	0.0006	<0.0001	<0.0001	<0.0001
Zinc T Zn	0.003	0.007	<0.005	<0.005	0.007
Dissolved Metals					
Aluminium D Al	0.027	0.023	0.028	0.009	0.025
Arsenic D As	0.0005	0.0007	<0.0001	0.0003	0.0003
Cadmium D Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper D Cu	<0.001	<0.001	<0.001	<0.001	<0.001
Iron D Fe	<0.03	<0.03	<0.03	<0.03	0.03
Lead D Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese D Mn	<0.005	<0.005	<0.005	<0.005	0.006
Silver D Ag	<0.0001	0.0001	<0.0001	<0.0001	<0.0001
Zinc D Zn	<0.001	0.002	<0.005	<0.005	<0.005
Calcium D Ca	9.77	6.90	9.57	13.1	12.60
Magnesium D Mg	2.92	2.69	2.66	3.20	2.8
Potassium D K	0.78	1.07	0.64	0.84	1.32
Sodium D Na	2.10	4.52	4.13	4.70	4.75

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Results expressed as milligrams per litre except for pH, Conductivity (umhos/cm)

		Jul 12/88	Aug 8/88	Sept 19/88	Oct 31/88	Dec 7/88
Physical Tests						
pH		7.36	7.55	7.39	7.16	7.39
Conductivity		85.0	85.8	70.2	79.8	56.7
Turbidity	NTU	1.4	1.1	4.0	1.8	5.2
Suspended Solids		6.7	5.3	3.3	1.3	6.7
Dissolved Solids		52.6	70.0	41.5	53.2	46.1
Hardness	CaCO3	43.8	45.8	35.9	34.9	21.9
Anions						
Alkalinity	CaCO3	31.5	44.0	35.0	35.	23.0
Sulphate	SO4	<1.0	<1.0	<1.0	1.6	<1.0
Chloride	Cl	1.9	<0.5	1.5	1.3	2.8
Fluoride	F	0.029	0.031	0.054	0.03	0.03
Silicate	SiO2	10.5	8.6	7.2	1.3	8.5
Nutrients						
O-Phosphate	P	0.009	0.004	0.009	0.025	0.007
D-Phosporous	P	0.020	0.011	0.015	0.037	0.024
T-Phosphorous	P	0.020	0.018	0.021	0.042	0.021
Nitrate	N	0.26	<0.005	0.075	0.15	0.021
Nitrite	N	0.001	0.003	0.044	0.011	0.004
Ammonia	N	<0.005	0.015	0.046	0.019	0.013
Tot. Kjeldahl		0.077	0.092	0.19	0.12	0.24
Total Metals						
Aluminium	T Al	0.022	<0.005	0.020	0.062	0.31
Arsenic	T As	0.0008	0.0008	0.0001	0.0005	0.0004
Cadmium	T Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	T Cu	<0.001	<0.001	<0.001	0.001	0.002
Iron	T Fe	0.26	0.08	0.15	0.25	0.54
Lead	T Pb	<0.001	<0.001	<0.001	<0.001	0.002
Manganese	T Mn	0.097	<0.005	0.012	0.011	0.019
Mercury	T Hg	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Silver	T Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	T Zn	0.005	<0.005	<0.005	<0.005	<0.005
Dissolved Metals						
Aluminium	D Al	0.015	<0.005	<0.005	0.011	0.085
Arsenic	D As	0.0006	0.0008	<0.0001	0.0001	0.0001
Cadmium	D Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	D Cu	<0.001	<0.001	<0.001	<0.001	0.001
Iron	D Fe	0.075	0.07	0.03	0.07	0.12
Lead	D Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	D Mn	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	D Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	D Zn	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	D Ca	12.9	13.4	11.2	10.7	6.29
Magnesium	D Mg	2.80	3.00	1.93	1.98	1.51
Potassium	D K	0.29	0.45	0.29	0.36	0.21
Sodium	D Na	2.18	2.35	1.80	2.28	2.23

< = Less than   O = Ortho   T = Total   D = Dissolved

Results expressed as milligrams per litre except for pH, Conductivity (umhos/cm) and Turbidity (NTU)

		Feb 5/88	Mar 4/88	Apr 7/88	May 5/88	June 2/88
Physical Tests						
pH		7.28	7.28	7.20	7.50	7.45
Conductivity		60.0	54.5	55.0	74.2	74.2
Turbidity	NTU	1.4	2.2	2.0	1.2	<1.0
Suspended Solids		3.3	7.3	2.0	2.0	4.0
Dissolved Solids		38.8	38.1	42.4	53.9	57.4
Hardness	CaCO3	24.1	20.0	24.4	35.2	35.5
Anions						
Alkalinity	CaCO3	21.5	24.9	20.0	33.9	34.1
Sulphate	SO4	1.2	<1.0	<1.0	1.74	<1.0
Chloride	Cl	1.9	2.6	1.9	2.3	2.2
Fluoride	F	<0.02	0.02	<0.02	0.023	0.03
Silicate	SiO2	10.0	7.6	8.6	2.3	4.6
Nutrients						
O-Phosphate	P	0.001	0.007	0.003	0.011	0.010
D-Phosporous	P	0.004	0.010	0.046	0.011	0.014
T-Phosphorous	P	0.010	0.024	0.073	0.018	0.018
Nitrate	N	0.19	0.15	0.30	0.078	0.051
Nitrite	N	0.003	0.005	~~<0.005~~ 0.001	0.001	0.003
Ammonia	N	<0.005	<0.005	~~0.14~~ <0.005	<0.005	<0.005
Tot. Kjeldahl		0.16	0.17	~~0.001~~ 0.14	0.10	0.14
Total Metals						
Aluminium	T Al	0.18	0.12	0.22	0.044	0.026
Arsenic	T As	0.0003	0.0005	0.0003	0.0006	0.0002
Cadmium	T Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	T Cu	0.001	0.001	<0.001	<0.001	<0.001
Iron	T Fe	0.22	0.20	0.11	0.16	0.03
Lead	T Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	T Mn	<0.005	<0.005	<0.005	0.008	<0.005
Mercury	T Hg	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Silver	T Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	T Zn	<0.001	<0.001	<0.005	<0.005	<0.005
Dissolved Metals						
Aluminium	D Al	0.044	0.020	0.007	0.013	0.017
Arsenic	D As	0.0003	0.0003	0.0001	0.0005	0.0002
Cadmium	D Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	D Cu	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	D Fe	<0.03	0.05	0.05	0.04	0.03
Lead	D Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	D Mn	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	D Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	D Zn	<0.001	<0.001	<0.005	<0.005	<0.005
Calcium	D Ca	6.90	5.61	7.25	10.8	10.9
Magnesium	D Mg	1.67	1.69	1.54	2.01	2.01
Potassium	D K	0.15	0.21	0.16	0.19	0.30
Sodium	D Na	0.68	0.73	1.92	2.02	2.26

< = Less than   O = Ortho   T = Total   D = Dissolved

Results expressed as milligrams per litre except for pH, Conductivity (umhos/cm) and Turbidity (NTU)

		Jul 12/88	Aug 8/88	Sept 19/88	Oct 31/88	Dec 7/88
Physical Tests						
pH		6.80	7.55	7.03	6.97	7.33
Conductivity		45.0	45.8	43.2	45.6	51.0
Turbidity	NTU	2.4	<1.0	<1.0	<1.0	1.0
Suspended Solids		6.7	<1.0	2.7	<1.0	4.0
Dissolved Solids		25.2	21.3	39.6	30.8	41.7
Hardness	CaCO3	21.9	21.3	22.5	22.9	20.9
Anions						
Alkalinity	CaCO3	14.5	16.	20.0	18.	23.0
Sulphate	SO4	<1.0	<1.0	1.4	1.6	<1.0
Chloride	Cl	0.7	<0.5	<0.5	1.7	<0.5
Fluoride	F	0.011	<0.020	0.035	<0.02	<0.02
Silicate	SiO2	4.9	3.5	4.0	1.7	3.5
Nutrients						
O-Phosphate	P	0.001	<0.001	<0.001	<0.001	0.002
D-Phosporous	P	0.010	0.003	<0.001	<0.001	0.007
T-Phosphorous	P	0.018	0.003	0.002	0.006	0.013
Nitrate	N	0.015	0.011	0.006	0.029	0.032
Nitrite	N	<0.001	0.001	<0.001	<0.001	0.001
Ammonia	N	0.035	0.001	<0.005	<0.005	0.008
Tot. Kjeldahl		0.14	0.069	0.11	0.11	0.14
Total Metals						
Aluminium	T Al	0.29	0.018	0.010	0.018	0.15
Arsenic	T As	0.0002	<0.0001	0.0004	0.0001	0.0001
Cadmium	T Cd	0.0003	<0.0002	<0.0002	<0.0002	<0.0002
Copper	T Cu	0.002	0.012	0.001	<0.001	0.001
Iron	T Fe	0.073	<0.03	<0.03	<0.03	0.14
Lead	T Pb	<0.001	<0.001	<0.001	<0.001	0.002
Manganese	T Mn	0.011	0.005	<0.005	<0.005	0.008
Mercury	T Hg	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Silver	T Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	T Zn	0.017	0.008	0.008	0.005	<0.005
Dissolved Metals						
Aluminium	D Al	0.066	0.018	0.010	0.012	0.009
Arsenic	D As	<0.0001	<0.0001	0.0004	<0.0001	<0.0001
Cadmium	D Cd	0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	D Cu	0.001	0.001	<0.001	<0.001	<0.001
Iron	D Fe	0.018	<0.03	<0.03	<0.03	<0.015
Lead	D Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	D Mn	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	D Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	D Zn	0.006	0.007	0.007	<0.005	<0.005
Calcium	D Ca	7.35	7.10	7.47	7.88	7.12
Magnesium	D Mg	0.88	0.78	0.77	0.80	0.77
Potassium	D K	0.08	0.06	0.07	0.08	0.05
Sodium	D Na	0.68	0.58	0.61	0.71	0.77

< = Less than O = Ortho T = Total D = Dissolved

Results expressed as milligrams per litre except for pH, Conductivity (umhos/cm) and Turbidity (NTU)

		Feb 5/88	Mar 4/88	Apr 7/88	May 5/88	June 2/88
Physical Tests						
pH		7.24	7.30	7.33	7.14	7.25
Conductivity		43.6	43.6	44.0	42.4	42.4
Turbidity	NTU	<1.0	<1.0	1.8	<1.0	<1.0
Suspended Solids		5.3	2.0	8.0	2.7	<1.0
Dissolved Solids		39.7	26.5	50.6	37.9	26.9
Hardness	CaCO3	20.5	15.8	22.9	23.0	21.8
Anions						
Alkalinity	CaCO3	20.3	19.4	35.5	20.1	14.9
Sulphate	SO4	1.7	<1.0	1.1	2.34	<1.0
Chloride	Cl	<0.5	<0.5	0.5	0.9	0.9
Fluoride	F	<0.02	<0.02	<0.02	<0.02	<0.02
Silicate	SiO2	4.2	3.0	4.1	<1.0	<1.
Nutrients						
O-Phosphate	P	<0.001	<0.001	0.002	0.002	0.001
D-Phosporous	P	<0.001	<0.001	0.019	0.002	0.011
T-Phosphorous	P	0.001	0.003	0.074	0.013	0.012
Nitrate	N	0.041	0.041	0.047	0.031	0.026
Nitrite	N	<0.001	0.001	0.044 0.041	<0.001	<0.001
Ammonia	N	<0.005	0.017	0.09 0.04	0.009	0.024
Tot. Kjeldahl		0.12	0.11	0.081 0.04	0.044	0.11
Total Metals						
Aluminium	T Al	0.047	0.11	0.046	0.021	0.014
Arsenic	T As	<0.0001	<0.0001	<0.0001	0.0002	<0.0001
Cadmium	T Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	T Cu	0.007	0.003	0.004	<0.001	<0.001
Iron	T Fe	0.10	<0.03	<0.03	<0.03	<0.03
Lead	T Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	T Mn	0.013	<0.005	<0.005	0.006	<0.005
Mercury	T Hg	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Silver	T Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	T Zn	<0.001	<0.001	<0.005	<0.005	0.008
Dissolved Metals						
Aluminium	D Al	0.010	0.007	0.024	0.012	0.012
Arsenic	D As	<0.0001	<0.0001	0.0001	<0.0001	<0.0001
Cadmium	D Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	D Cu	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	D Fe	<0.03	<0.03	<0.03	<0.03	<0.03
Lead	D Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	D Mn	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	D Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	D Zn	<0.001	<0.001	<0.005	<0.005	0.007
Calcium	D Ca	6.84	5.13	7.83	7.86	7.43
Magnesium	D Mg	0.84	0.74	0.82	0.82	0.79
Potassium	D K	0.07	0.05	0.07	0.05	0.09
Sodium	D Na	2.83	0.68	0.71	0.56	0.80

< = Less than O = Ortho T = Total D = Dissolved

Results expressed as milligrams per litre except for pH, Conductivity (umhos/cm) and Turbidity (NTU)

RESULTS OF ANALYSIS — SURFACE WATER — RESULTS OF ANALYSIS — ACE MINE

		Jul 12/88	Aug 8/88	Sept 19/88	Oct 31/88	Dec 7/88
Physical Tests						
pH		6.84	6.68	7.00	6.76	7.01
Conductivity		55.0	52.9	59.4	57.0	46.4
Turbidity	NTU	<1.0	<1.0	<1.0	<1.0	<1.0
Suspended Solids		2.7	3.3	<1.0	<1.0	<1.0
Dissolved Solids		29.3	24.0	39.8	38.2	34.8
Hardness	CaCO3	23.1	24.0	23.1	21.6	13.2
Anions						
Alkalinity	CaCO3	13.6	20.0	18.0	21.	11.5
Sulphate	SO4	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride	Cl	4.8	<0.5	4.4	6.6	5.6
Fluoride	F	0.021	<0.020	0.051	0.02	<0.02
Silicate	SiO2	13.6	10.3	9.8	6.6	7.9
Nutrients						
O-Phosphate	P	<0.001	<0.001	<0.001	<0.001	0.002
D-Phosporous	P	0.005	0.006	0.013	<0.001	0.007
T-Phosphorous	P	0.005	0.008	0.013	0.007	0.007
Nitrate	N	<0.005	<0.005	<0.005	<0.005	0.023
Nitrite	N	<0.001	0.001	<0.001	<0.001	<0.001
Ammonia	N	<0.005	<0.005	<0.005	<0.005	<0.005
Tot. Kjeldahl		0.027	0.047	0.072	0.099	0.14
Total Metals						
Aluminium	T Al	0.008	0.018	0.007	0.014	0.074
Arsenic	T As	0.0002	<0.0001	0.0001	0.00002	<0.0001
Cadmium	T Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	T Cu	<0.001	0.004	<0.001	<0.001	<0.001
Iron	T Fe	0.12	0.15	0.13	0.12	0.073
Lead	T Pb	<0.001	<0.001	<0.001	<.001	0.002
Manganese	T Mn	<0.005	0.005	<0.005	<0.005	<0.005
Mercury	T Hg	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Silver	T Ag	<0.0001	<0.0001	<0.0001	<0.001	<0.0001
Zinc	T Zn	<0.005	0.006	<0.005	<0.005	<0.005
Dissolved Metals						
Aluminium	D Al	0.006	0.016	0.005	0.010	0.074
Arsenic	D As	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cadmium	D Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	D Cu	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	D Fe	0.040	0.05	0.04	0.07	0.037
Lead	D Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	D Mn	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	D Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	D Zn	<0.005	0.005	<0.005	<0.005	<0.005
Calcium	D Ca	6.05	6.27	6.31	5.88	3.41
Magnesium	D Mg	1.94	2.02	1.78	1.69	1.14
Potassium	D K	0.06	0.07	0.13	0.13	0.07
Sodium	D Na	2.83	2.99	2.76	2.91	3.07

< = Less than O = Ortho T = Total D = Dissolved

Results expressed as milligrams per litre except for pH, Conductivity (umhos/cm)

		Feb 5/88	Mar 4/88	Apr 7/88	May 5/88	June 2/88
Physical Tests						
pH		6.63	6.64	6.86	6.78	6.75
Conductivity		35.6	43.6	44.0	53.0	53.0
Turbidity	NTU	<1.0	<1.0	<1.0	<1.0	<1.0
Suspended Solids		2.7	2.0	<1.0	<1.0	1.3
Dissolved Solids		28.3	33.2	31.6	39.3	37.5
Hardness	CaCO3	14.9	14.6	16.3	21.4	20.4
Anions						
Alkalinity	CaCO3	12.4	15.7	8.88	24.0	14.9
Sulphate	SO4	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride	Cl	5.4	5.3	4.8	5.2	4.8
Fluoride	F	<0.02	0.02	<0.02	<0.02	0.02
Silicate	SiO2	<0.02	8.6	8.6	4.3	6.5
Nutrients						
O-Phosphate	P	<0.001	<0.001	0.003	<0.001	0.001
D-Phosporous	P	<0.001	<0.001	0.021	<0.001	0.004
T-Phosphorous	P	0.002	<0.001	0.13	0.014	0.013
Nitrate	N	0.008	<0.005	0.006	<0.005	<0.005
Nitrite	N	<0.001	<0.001	<0.005	<0.001	<0.001
Ammonia	N	<0.005	<0.005	0.008	<0.005	<0.005
Tot. Kjeldahl		0.10	0.12	0.082	<0.020	0.066
Total Metals						
Aluminium	T Al	0.054	0.020	0.042	0.009	0.005
Arsenic	T As	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cadmium	T Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	T Cu	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	T Fe	<0.03	0.09	<0.03	0.07	0.03
Lead	T Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	T Mn	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	T Hg	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Silver	T Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	T Zn	0.002	<0.005	<0.0005	<0.005	0.006
Dissolved Metals						
Aluminium	D Al	0.026	0.012	0.042	0.007	0.005
Arsenic	D As	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cadmium	D Cd	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Copper	D Cu	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	D Fe	<0.03	<0.03	<0.03	<0.03	0.03
Lead	D Pb	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	D Mn	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	D Ag	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	D Zn	<0.001	<0.005	<0.005	<0.005	0.005
Calcium	D Ca	3.65	3.55	4.18	5.69	5.75
Magnesium	D Mg	1.41	1.39	1.43	1.75	1.48
Potassium	D K	0.06	0.07	0.05	0.06	0.09
Sodium	D Na	2.53	2.71	2.65	2.78	3.01

< = Less than O = Ortho T = Total D = Dissolved

Results expressed as milligrams per litre except for pH, Conductivity (umhos/cm)

APPENDIX 6

CANADIAN OCCIDENTAL PETROLEUM LTD.

Property Name McIvor Lake

HOLE NUMBER 88-04 | PAGE NUMBER 1

Core Logged By: R. Swaren

Date: November 22 19 88

Core No.		INTERVAL (FROM) Feet	INTERVAL (FROM) Meters	INTERVAL (TO) Feet	INTERVAL (TO) Meters	SAMPLE NO.	COMPOSITE NO.	DESCRIPTION	INTERVAL THICKNESS Feet	INTERVAL THICKNESS Meters
Run 1 Box 1		443.4	135.16	443.8	135.26			Mudstone: Silty, medium grey soft and crumbly. TOP OF CORE	0.3	0.10
		443.8	135.26	444.7	135.53			Mudstone: Light to medium grey, soft and crumbly.	0.9	0.27
		444.7	135.53	444.9	135.60			Shale: Slightly carbonaceous, friable, dark grey to black.	0.2	0.07
		444.9	135.60	445.6	135.82			Shale: Medium to dark grey, friable and soft to medium hard.	0.7	0.22
		445.6	135.82	446.1	135.97			Mudstone: Silty, medium hard, medium grey.	0.5	0.15
		446.1	135.97	447.9	136.53			Mudstone: Medium grey to dark grey, soft to slightly hard.	1.8	0.56
		447.9	136.53	448.4	136.68			Mudstone: Medium to light grey, soft, crumbly, slightly carboneous.	0.5	0.15

CANADIAN OCCIDENTAL PETROLEUM LTD.

Property Name McIvor Lake

HOLE NUMBER 88-04 | PAGE NUMBER 2

Core Logged By: R. Swaren

Date: November 22 19 88

Core No		INTERVAL (FROM) Feet	INTERVAL (FROM) Meters	INTERVAL (TO) Feet	INTERVAL (TO) Meters	SAMPLE NO.	COMPOSITE NO.	DESCRIPTION	INTERVAL THICKNESS Feet	INTERVAL THICKNESS Meters
Run 1 Box 2		448.4	136.68	450.8	137.40			Shale: Carbonaceous, dark grey to black, medium hard, carbonaceous inclusions throughout.	2.4	0.72
		450.8	137.40	451.2	137.53	880401		Coal: Very hard, bright, black calcite deposits on cleating. TOP OF COAL SEAM.	0.4	0.13
		451.2	137.53	451.3	137.56	880401		Shale: Hard, grey brown, medium hard.	0.1	0.03
		451.3	137.56	452.3	137.87	880401		Coal: hard, black, minor shale laminations, calcite on cleating.	1.0	0.31
		452.3	137.87	453.4	138.20	880401		Coal: Missing. Washed out during coring of Run 1.	1.1	0.33
Run 2 Box 1		453.4	138.20	453.8	138.32	880401		Coal: Missing. Washed out during coring of Run 2.	0.4	0.12
		453.8	138.32	454.4	138.50	880401		Coal: Bright, hard, black, some calcite deposits, slightly shaly at base.	.6	0.18

CANADIAN OCCIDENTAL PETROLEUM LTD.

Property Name McIvor Lake

HOLE NUMBER 88-04 | PAGE NUMBER 3

Core Logged By: R. Swaren

Date: November 22 88

Core No		INTERVAL (FROM) Feet	INTERVAL (FROM) Meters	INTERVAL (TO) Feet	INTERVAL (TO) Meters	SAMPLE NO.	COMPOSITE NO.	DESCRIPTION	INTERVAL THICKNESS Feet	INTERVAL THICKNESS Meters
		454.4	138.50	455.7	138.91	880402		Shale: Carbonaceous, medium hard, black to dark grey, friable.	1.4	0.41
		455.7	138.91	456.4	139.12	880403		Coal: Hard, bright, black, slight 2 mm band of shale in the middle. BASE OF COAL SEAM	0.7	0.21
		456.4	139.12	456.6	139.16			Shale: Carbonaceous, hard, medium grey to black.	0.1	0.04
		456.6	139.16	457.0	139.30			Shale: Coal inclusions and slightly carbonaceous, medium hard, dull, medium to dark grey.	0.5	0.14
		457.0	139.30	457.1	139.32			Coal: Small band, hard, bright in shale beds.	0.1	0.02
		457.1	139.32	458.0	139.60			Shale: Carbonaceous, dark grey to black, medium hard.	0.9	0.28
Run 2 Box 1 Box 2	(0.18)	458.0	139.60	459.5	140.04			Shale: Medium grey to light grey, very little carbonaceous material, medium hard.	1.4	0.44

CANADIAN OCCIDENTAL PETROLEUM LTD.

Property Name McIvor Lake

HOLE NUMBER 88-04 | PAGE NUMBER 4

Core Logged By: R. Swaren

Date: November 22 19 88

Core No		INTERVAL (FROM) Feet	INTERVAL (FROM) Meters	INTERVAL (TO) Feet	INTERVAL (TO) Meters	SAMPLE NO.	COMPOSITE NO.	DESCRIPTION	INTERVAL THICKNESS Feet	INTERVAL THICKNESS Meters
Run 3 Box 1		459.5	140.4	463.1	141.16			Shale: Medium hard, medium grey to light grey. More friable near the base.	2.5	0.76
		463.1	141.16	465.6	141.92			Shale: Less hard more friable and darker grey than above.	2.5	0.76
Run 3 Box 2		465.6	141.92	469.8	143.18			Shale: Medium to dark grey, hard in parts & softer & more friable in others.	4.1	1.26
		469.8	143.18	470.3	143.34			Shale: Slightly carbonaceous, dark grey to black, very friable.	0.5	0.16
		470.3	143.34	470.6	143.44			Shale: More carbonaceous with small 1 cm coal band in the middle. Black and very friable	0.3	0.10
Run 4 Box 1		470.6	143.44	470.8	143.49			Coal: Bright, hard, blochy, black, calcite on cleating.	0.2	0.05
		470.8	143.49	471.1	143.58			Shaly Coal: Black, hard, shale is more medium to dark grey and medium hard.	0.3	0.09

CANADIAN OCCIDENTAL PETROLEUM LTD.

Property Name McIvor Lake

HOLE NUMBER 88-04 | PAGE NUMBER 5

Core Logged By: R. Swaren

Date: November 22 88 19

Core No		INTERVAL (FROM) Feet	INTERVAL (FROM) Meters	INTERVAL (TO) Feet	INTERVAL (TO) Meters	SAMPLE NO.	COMPOSITE NO.	DESCRIPTION	INTERVAL THICKNESS Feet	INTERVAL THICKNESS Meters
		471.1	143.58	471.4	143.68			Coaly Shale: Hard, dark grey to black, slightly friable.	0.3	0.10
		471.4	143.68	472.5	144.02			Shale: Soft to medium hard, slightly carbonaceous at top, dark grey to medium grey.	1.1	0.34
		472.5	144.02	472.7	144.08			Shaly Coal: Friable and medium hard, black to dark grey.	0.2	0.06
		472.7	144.08	473.1	144.20			Coaly Shale: Medium hard, dark grey to black, friable.	0.4	0.12
		473.1	144.20	473.9	144.43			Mudstone: Very soft and sticky, light grey.	0.8	0.23
		473.9	144.43	475.6	144.96			Shale: Dark grey to almost black, slightly carbonaceous and friable. Medium hard.	1.7	0.53
Run 4 Box 2		475.6	144.96	476.2	145.13			Shale: Same as above.	0.6	0.17

CANADIAN OCCIDENTAL PETROLEUM LTD.

Property Name McIvor Lake

HOLE NUMBER 88-04 | PAGE NUMBER 6

Core Logged By: R. Swaren

Date: November 22 88 19

Core No		INTERVAL (FROM) Feet	INTERVAL (FROM) Meters	INTERVAL (TO) Feet	INTERVAL (TO) Meters	SAMPLE NO.	COMPOSITE NO.	DESCRIPTION	INTERVAL THICKNESS Feet	INTERVAL THICKNESS Meters
		476.2	145.13	477.1	145.43			Coaly Shale: Medium grey to black, coaly inclusions throughout which are hard, bright & shiny.	1.0	0.30
		477.1	145.43	477.7	145.59			Shaly Coal: Very hard coal with disseminated shales throughout. Dark grey to black, more shaly at top.	0.5	0.16
		477.7	145.59	478.1	145.72			Coaly Shale: Medium grey to black, coaly inclusions & finely disseminated throughout. Medium hard and friable.	0.4	0.13
		478.1	145.72	480.1	146.34			Shale: Light to medium grey, medium hard. Some carbonaceous inclusions.	2.0	0.62
		480.1	146.34	480.6	146.48			Coaly Shale: Medium hard, fairly hard, dark grey to black laminations.	0.5	0.14
Run 5 Box 1		480.6	146.48	482.5	147.07			Shale: Carbonaceous throughout, some sections more carbonaceous & more friable. Medium hard, dark to grey to black.	1.9	0.59
		482.5	147.07	482.6	147.09			Coal: Small stringer of hard bright black coal.	0.1	0.02

CANADIAN OCCIDENTAL PETROLEUM LTD.

Property Name McIvor Lake

HOLE NUMBER 88-04 | PAGE NUMBER 7

Core Logged By: R. Swaren

Date: ~~November 22 88~~ 19

Core No		INTERVAL (FROM) Feet	INTERVAL (FROM) Meters	INTERVAL (TO) Feet	INTERVAL (TO) Meters	SAMPLE NO.	COMPOSITE NO.	DESCRIPTION	INTERVAL THICKNESS Feet	INTERVAL THICKNESS Meters
		482.6	147.09	483.9	147.48			Shale: Carbonaceous laminations & inclusions in minor amounts. Medium hard to blocky, light to medium grey.	1.3	0.39
		483.9	147.48	484.4	147.65			Siltstone: Carbonaceous inclusions, slightly muddy by very hard. Shattered medium grey.	0.6	0.17
		484.4	147.65	485.6	148.0			Shale: Slightly carbonaceous & muddy. Medium hard to soft light to medium grey.	1.2	0.35
Run 5 Box 2		485.6	148.0	489.1	149.08			Shale: Medium to light grey, soft to medium hard, carbonaceous plant fragments throughout. Crumbly and fragmented.	3.5	1.08
		489.1	149.08	490.6	149.52			Shale: Missing. Washed out in Run 5.	1.4	0.44
Run 6 Box 1		490.6	149.52	491.2	149.71			Silty Shale: Medium grey, hard, minor carbonaceous inclusions.	0.6	0.19
		491.2	149.71	491.7	149.88			Siltstone: Very hard, medium grey and blocky.	0.6	0.17

CANADIAN OCCIDENTAL PETROLEUM LTD.

Property Name McIvor Lake

HOLE NUMBER 88-04 | PAGE NUMBER 8

Core Logged By: R. Swaren

Date: November 22 88

Core No		INTERVAL (FROM) Feet	INTERVAL (FROM) Meters	INTERVAL (TO) Feet	INTERVAL (TO) Meters	SAMPLE NO.	COMPOSITE NO.	DESCRIPTION	INTERVAL THICKNESS Feet	INTERVAL THICKNESS Meters
		491.7	149.88	492.1	149.99			Silty Shale: Same as the previous one.	0.4	0.11
		492.1	149.99	492.5	150.11			Shale: Dark grey, slightly carbonaceous, medium hard.	0.4	0.12
		492.5	150.11	493.6	150.44			Silty Shale: Medium hard, carbonaceous inclusions are minor, medium to dark grey.	1.1	0.33
		493.6	150.44	494.5	150.71			Shale: Carbonaceous, black to dark grey, medium hard.	0.9	0.27
		494.5	150.71	494.6	150.75			Sandstone: Coarse grained to conglomeritic, ____ basement rocks, salt & pepper texture.	0.1	0.04
		494.6	150.75	495.5	151.04			Basement: Conglomerite	1.0	0.29
Run 6 Box 2		495.5	151.04	500.5	152.56			Basement: Conglomeritic	5.0	1.52

CANADIAN OCCIDENTAL PETROLEUM LTD.

Property Name McIvor Lake

HOLE NUMBER 88-04 | PAGE NUMBER 9

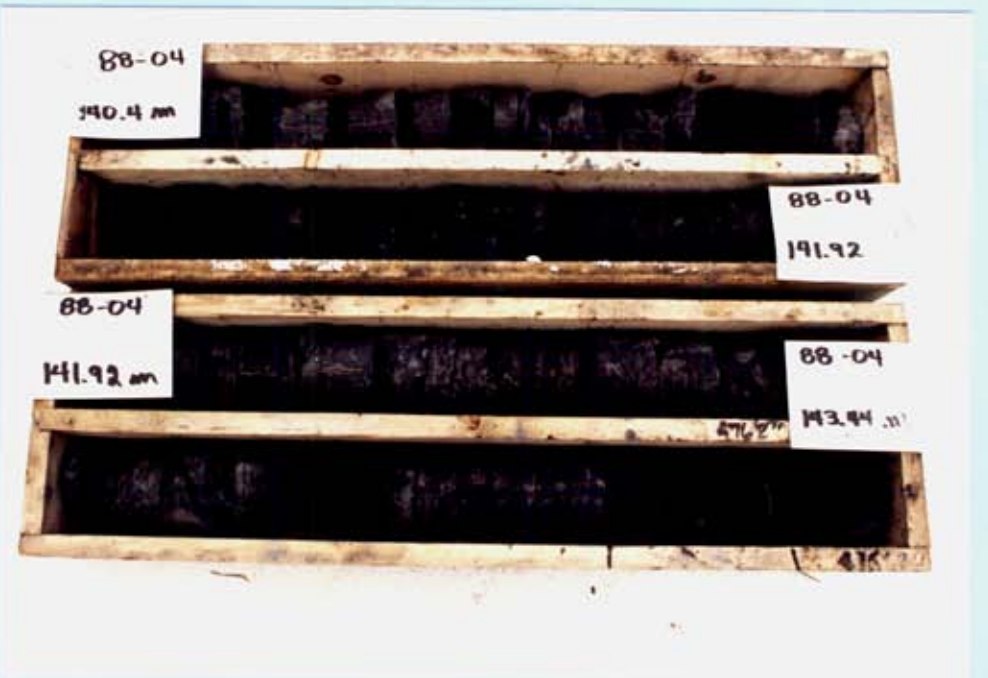
Core Logged By: R. Swaren

Date: November 22 88

Core No.		INTERVAL (FROM) Feet	INTERVAL (FROM) Meters	INTERVAL (TO) Feet	INTERVAL (TO) Meters	SAMPLE NO.	COMPOSITE NO.	DESCRIPTION	INTERVAL THICKNESS Feet	INTERVAL THICKNESS Meters
Run 7 Box 1		500.5	152.56	505.5	154.08			Basement: Conglomeritic	5.0	1.52
Run 7 Box 2		510.5	154.08	515.5	155.6			Basement:	5.0	1.52
Run 8 Box 1		520.5	155.6	525.5	157.12			Basement:	5.0	1.52
Run 8 Box 2		530.5	157.12	535.5	158.64			Basement: Bottom of Core.	5.0	1.52


88-04
TOP OF CORE
135.16 mm
88-04
136.68 mm
88-04
136.68 mm
88-04
TOP OF COAL SEAM
137.40 mm
45.7"
COAL
MISSING
88-04
138.20 mm


88-04
138.20M
COAL
MISSING
88-04
BASE OF COAL SEAM
139.12mm
88-04
139.78mm
88:04
140.4 M

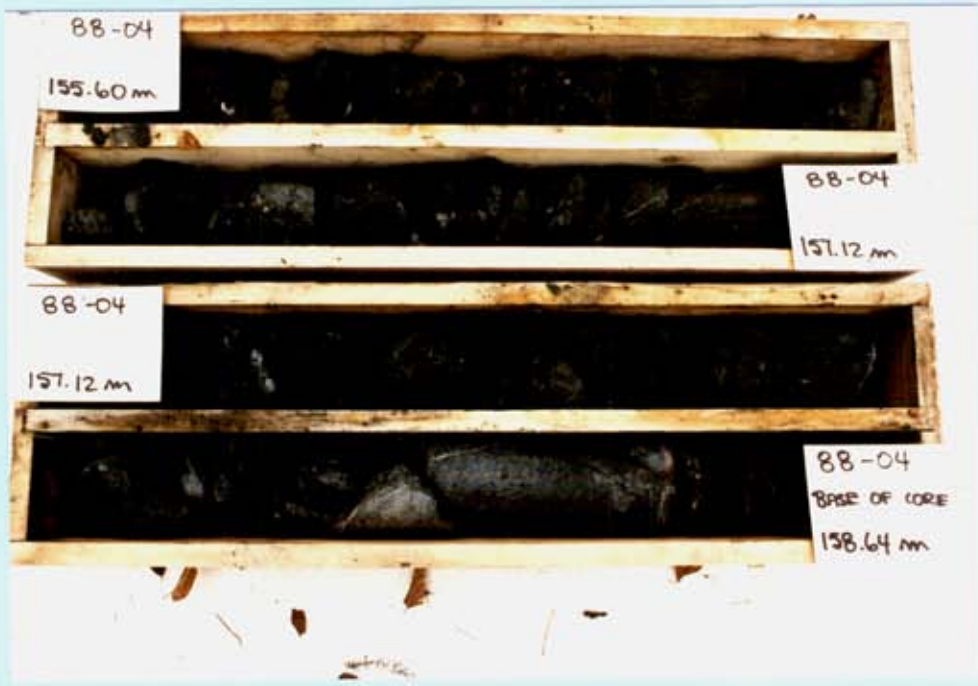

88-04
140.4 mm
88-04
141.92
88-04
141.92 mm
88-04
143.44


88-04
143.44 m
88-04
144.96 m
88-04
146.48 m


88-04
146.48 m
88-04
148.0 m
88-04
148.0 m
88-04
149.08m
SHALE
MISSING.
88-04
149.52 m


88-04
149.52 m
88-04
BASEMENT
150.75m
88-04
151.04m
88-04
151.04m
88-04
152.56m


88-04
152.56 m
88-04
154.08 m
88-04
154.08 m
88-04
155.60 m


88-04
155.60 m
88-04
157.12 m
88-04
157.12 m
88-04
BASE OF CORE
158.64 m

CANADIAN OCCIDENTAL PETROLEUM LTD.

Property Name McIvor Lake

HOLE NUMBER 88-05 | PAGE NUMBER 1

Core Logged By: R. Swaren

Date: November 23 88 19

Core No		INTERVAL (FROM) Feet	INTERVAL (FROM) Meters	INTERVAL (TO) Feet	INTERVAL (TO) Meters	SAMPLE NO.	COMPOSITE NO.	DESCRIPTION	INTERVAL THICKNESS Feet	INTERVAL THICKNESS Meters
Run 1 Box 1		227.5	69.33	230.0	70.09			Silty Mudstone: Medium grey to light grey, soft to medium hard. More silty & laminated towards the base. TOP OF CORE.	2.5	0.76
		230.0	70.09	230.6	70.29			Sandstone: Very fine grained, carbonaceous to coaly laminations. Sandstone coarsens downwards. Salt & pepper texture. More silty at top. ~~Medium hard to soft.~~	0.7	0.20
		230.6	70.29	232.0	70.70			Sandstone: Fine grained to medium grained downwards. Finely laminated. Salt & pepper texture. Medium hard to hard.	1.4	0.41
Run 2 Box 1		232.0	70.70	234.2	71.37			Sandstone: Salt & pepper texture. Medium to coarse grained at base. Carbonaceous laminations in basal portions. Medium hard to soft.	2.2	0.67
		234.2	71.37	234.5	71.46			Silty Shale: Soft to medium hard, medium grey to dark grey.	0.3	0.09
		234.5	71.46	234.7	71.55			Sandstone: Salt & pepper texture, fine to medium grained and medium hard.	0.3	0.09
		234.7	71.55	236.1	71.97			Shale: Silty near top. More shaly and carbonaceous near the base. Medium hard, medium to	1.4	0.42

CANADIAN OCCIDENTAL PETROLEUM LTD.

Property Name McIvor Lake

HOLE NUMBER 88-05 | PAGE NUMBER 2

Core Logged By: R. Swaren

Date: November 23, 88

Core No		INTERVAL (FROM) Feet	INTERVAL (FROM) Meters	INTERVAL (TO) Feet	INTERVAL (TO) Meters	SAMPLE NO.	COMPOSITE NO.	DESCRIPTION	INTERVAL THICKNESS Feet	INTERVAL THICKNESS Meters
		236.1	71.97	236.6	72.12			Sandstone: Salt and pepper texture, medium grained, medium hard.	0.5	0.15
		236.6	72.12	236.9	72.22			Silty Shale: Carbonaceous inclusions and coal. Medium hard, dark grey to black.	0.3	0.10
Run 2 Box 2		236.9	72.22	240.5	73.29			Shale: Carbonaceous, more shaly carbonaceous material fine and laminated throughout. Medium hard, dark grey to black.	3.5	1.07
		240.5	73.29	241.9	73.74			Shale: Dark grey to black, grey little carbonaceous material. Medium hard to soft.	1.5	0.45
Run 3 Box 1		241.9	73.74	246.9	75.26			Shale: Carbonaceous. Coal stringers 1 mm thick in basal half. Dark grey to black, soft and friable.	5.0	1.52
Run 3 Box 2		246.9	75.26	248.5	75.75			Shale: Carbonaceous, dark grey to black, friable. Soft to medium hard.	1.6	0.49
		248.5	75.75	248.8	75.84			Shale: 2 coal stringers at top and bottom. Black to dark grey Coal hard & bright. Shale soft	0.3	0.09

CANADIAN OCCIDENTAL PETROLEUM LTD.

Property Name McIvor Lake

HOLE NUMBER 88-05 | PAGE NUMBER 3

Core Logged By: R. Swaren

Date: November 23 88

Core No		INTERVAL (FROM) Feet	INTERVAL (FROM) Meters	INTERVAL (TO) Feet	INTERVAL (TO) Meters	SAMPLE NO.	COMPOSITE NO.	DESCRIPTION	INTERVAL THICKNESS Feet	INTERVAL THICKNESS Meters
		248.8	75.84	251.1	76.53			Shale: Black, medium hard, friable, minor carbonaceous material.	2.3	0.69
		251.1	76.53	251.2	76.56			Coal: Small stringer of hard bright coal partly shaly.	0.1	0.03
		251.2	76.56	251.9	76.78			Shale: Black to dark grey, medium hard, some carbonaceous inclusions and stringers.	0.7	0.22
Run 4 Box 1		251.9	76.78	252.4	76.94			Shale: Carbonaceous, friable black to dark grey and soft.	0.5	0.16
		252.4	76.94	253.0	77.10			Shale: Medium grey to light grey and hard.	0.5	0.16
		253.0	77.10	253.2	77.17			Coal Shaly: Medium hard, dark grey to black, poor quality.	0.2	0.07
		253.2	77.17	254.3	77.52			Shale: Carbonaceous, medium hard, dark grey to black and friable.	1.2	0.35

CANADIAN OCCIDENTAL PETROLEUM LTD.

Property Name McIvor Lake

HOLE NUMBER 88-05 | PAGE NUMBER 4

Core Logged By: R. Swaren

Date: ~~November 23, 88~~ 19

Core No		INTERVAL (FROM) Feet	INTERVAL (FROM) Meters	INTERVAL (TO) Feet	INTERVAL (TO) Meters	SAMPLE NO.	COMPOSITE NO.	DESCRIPTION	INTERVAL THICKNESS Feet	INTERVAL THICKNESS Meters
		254.3	77.52	254.6	77.60			Shaly Coal: Very poor quality, medium hard, medium to dark grey, black coal laminations.	0.3	0.10
		254.6	77.60	256.3	78.12			Shale: More carbonaceous laminations at top and base. Medium grey to black. Soft and friable.	1.7	0.52
		256.3	78.12	256.5	78.17			Shaley Coal: Coal, bright and hard. Shale soft and friable and dark grey to black.	0.2	0.05
		256.5	78.17	256.8	78.28			Shale: Black, carbonaceous soft and friable.	0.4	0.11
Run 4 Box 2		256.8	78.28	260.4	79.36			Shale: Soft to medium hard, dark grey to black, slightly carbonaceous.	3.5	1.08
		260.4	79.36	260.6	79.44			Sandstone: Salt & pepper, fine grained and very hard. Coal in basal 0.04 meters.	0.3	0.08
		260.6	79.44	261.8	79.80			Shale: Soft, friable, medium grey, carbonaceous at base. BASE OF CORE.	1.2	0.36

CANADIAN OCCIDENTAL PETROLEUM LTD.

Property Name McIvor Lake

HOLE NUMBER 88-05 | PAGE NUMBER 5

Core Logged By: R. Swaren

Date: ~~November 23 88~~ 19

Core No		INTERVAL (FROM) Feet	INTERVAL (FROM) Meters	INTERVAL (TO) Feet	INTERVAL (TO) Meters	SAMPLE NO.	COMPOSITE NO.	DESCRIPTION	INTERVAL THICKNESS Feet	INTERVAL THICKNESS Meters
Run 5 Box 1		323.5	98.60	324.5	98.92			Shale: Carbonaceous with coaly lenses & inclusions throughout. Medium soft, broken dark grey to black. TOP OF CORE	1.1	0.32
		324.5	98.92	324.7	98.97			Shale: Carbonaceous as above with a 1 cm coal stringer at the top and another at the bottom. Coal is hard and bright.	.2	0.05
		324.7	98.97	325.3	99.14			Shale: Carbonaceous, soft and friable. Dark grey to black.	0.6	0.17
		325.3	99.14	325.8	99.30			Shale: Medium grey grading down to light grey. More silty at the base. Medium hard and blocky.	0.6	0.16
		325.8	99.30	327.2	99.73			Silty Shale: Medium to dark grey, hard, fairly blocky. Carbonaceous plant material in basal portions.	1.4	0.43
		327.2	99.73	327.4	99.80			Silty Shale: Slightly softer and a darker grey.	0.3	0.07
		327.4	99.80	327.8	99.92			Shale: With a 1 cm thick coal seam in a vertical joint. Shale is soft to medium hard and dark	0.4	0.12

CANADIAN OCCIDENTAL PETROLEUM LTD.

Property Name McIvor Lake

HOLE NUMBER 88-05 | PAGE NUMBER 6

Core Logged By: R. Swaren

Date: ~~November 23, 88~~ 19

Core No		INTERVAL (FROM) Feet	INTERVAL (FROM) Meters	INTERVAL (TO) Feet	INTERVAL (TO) Meters	SAMPLE NO.	COMPOSITE NO.	DESCRIPTION	INTERVAL THICKNESS Feet	INTERVAL THICKNESS Meters
		327.8	99.92	328.5	100.12			Shale: Medium hard to medium soft. Light to medium grey at top grading down to black friable shale.	0.7	0.20
Run 5 Box 2		328.5	100.12	329.3	100.38			Shale: Carbonceous stringer or laminations more prevalent at top. Soft to medium soft. Dark grey to black.	0.9	0.26
		329.3	100.38	330.2	100.63			Shale: Light to medium grey, medium hard.	0.8	0.25
		330.2	100.63	331.3	100.98			Shale: Dark grey to black. Carbonaceous material & laminations throughout. Soft to medium hard and friable.	1.2	0.35
		331.3	100.98	331.8	101.14			Shale: Slightly silty. Light to medium grey. Soft to medium soft.	0.5	0.16
Run 6 Box 1		331.8	101.14	332.0	101.20			Shale: Carbonaceous, dark grey to black. Medium hard. Coaley laminations are bright and hard.	0.2	0.06
		332.0	101.20	332.2	101.26			Shale: Medium grey. Soft to medium soft.	0.2	0.06

CANADIAN OCCIDENTAL PETROLEUM LTD.

Property Name McIvor Lake

HOLE NUMBER 88-05 | PAGE NUMBER 7

Core Logged By: R. Swaren

Date: November 23, 88

Core No		INTERVAL (FROM) Feet	INTERVAL (FROM) Meters	INTERVAL (TO) Feet	INTERVAL (TO) Meters	SAMPLE NO.	COMPOSITE NO.	DESCRIPTION	INTERVAL THICKNESS Feet	INTERVAL THICKNESS Meters
		332.2	101.20	336.8	102.66			Sandstone: Fine grained salt & pepper texture. Laminated, hard to very hard, massive. Minor carbonaceous inclusions.	4.6	1.40
Run 6 Box 2		336.8	102.66	341.8	104.18			Sandstone: Fine grained as above becoming more medium grained in basal 0.20 m. Very hard, laminated salt & pepper texture Minor carbonaceous inclusions.	5.0	1.52
Run 7 Box 1		341.8	104.18	342.2	104.29			Sandstone: Very hard, medium grained salt & pepper texture. Massive.	0.4	0.11
		342.2	104.29	344.8	105.01			Sandstone: Coarse grained, salt & pepper texture, carbonaceous inclusions. Jointry at 65 deg. Very hard.	2.4	0.72
		344.8	105.01	346.8	105.70			Sandstone: Fine grained, slat & pepper texture, carbonaceous laminations in spots, slightly shaly near base. Very hard.	2.3	0.69
Run 7 Box 2		346.8	105.70	349.8	106.63			Sandstone: Medium grained, carbonaceous and shaly inclusions. Salt & pepper texture. Very hard turning to shale at the base.	3.1	0.93
		349.8	106.63	350.4	106.81			Shale: Soft to medium soft. Dark grey and crumbly.	0.6	0.18

CANADIAN OCCIDENTAL PETROLEUM LTD.

Property Name McIvor Lake

HOLE NUMBER 88-05 | PAGE NUMBER 8

Core Logged By: R. Swaren

Date: November 23, 19 88

Core No		INTERVAL (FROM) Feet	INTERVAL (FROM) Meters	INTERVAL (TO) Feet	INTERVAL (TO) Meters	SAMPLE NO.	COMPOSITE NO.	DESCRIPTION	INTERVAL THICKNESS Feet	INTERVAL THICKNESS Meters
		350.4	106.81	351.8	107.22			Shale: Missing. Washed out in Run 7.	1.4	0.41
Run 8 Box 1		351.8	107.22	352.8	107.52			Shale: Soft, friable, medium grey and crumbly.	1.0	0.30
		352.8	107.52	355.0	108.20			Siltstone: Shaly, hard, light to medium grey. Massive with fine laminations	2.2	0.68
		355.0	108.20	355.7	108.43			Siltstone: Medium grey, very hard.	0.8	0.23
		355.7	108.43	356.8	108.74			Sandstone: Very fine grained, massive, very hard, medium to light grey to salt & pepper texture.	1.0	0.31
Run 8 Box 2		356.8	108.74	357.6	108.99			Sandstone: Fine grained, salt & pepper texture, very hard. Carbonaceous laminations.	0.8	0.25
		357.6	108.99	358.7	109.32			Siltstone: Becoming shaly at base. Finely laminated, hard, salt & pepper texture.	1.1	0.33

CANADIAN OCCIDENTAL PETROLEUM LTD.

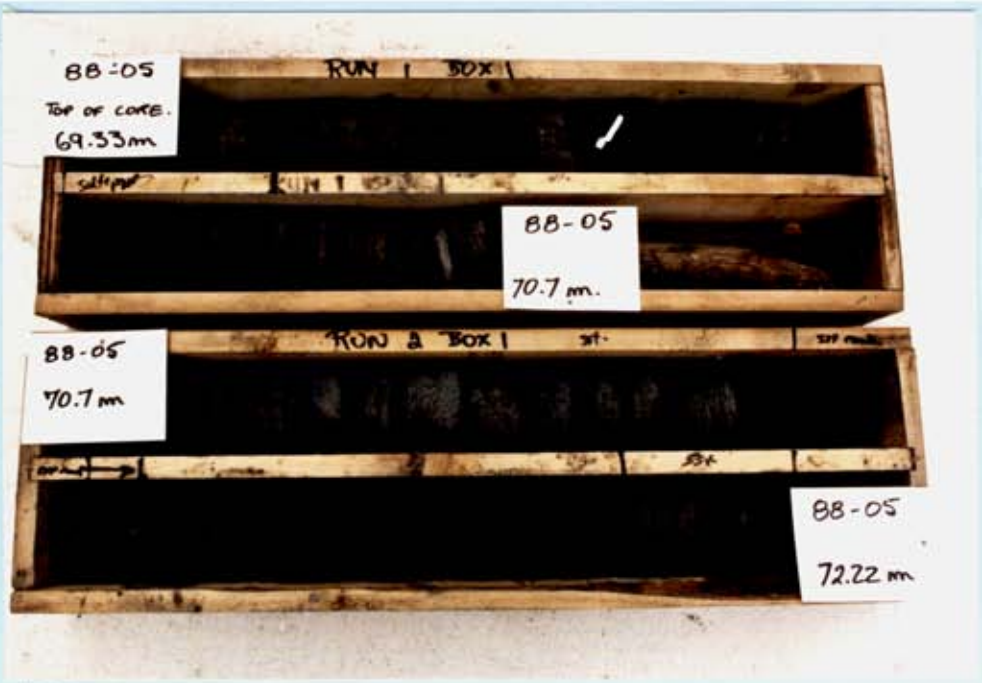
Property Name McIvor Lake

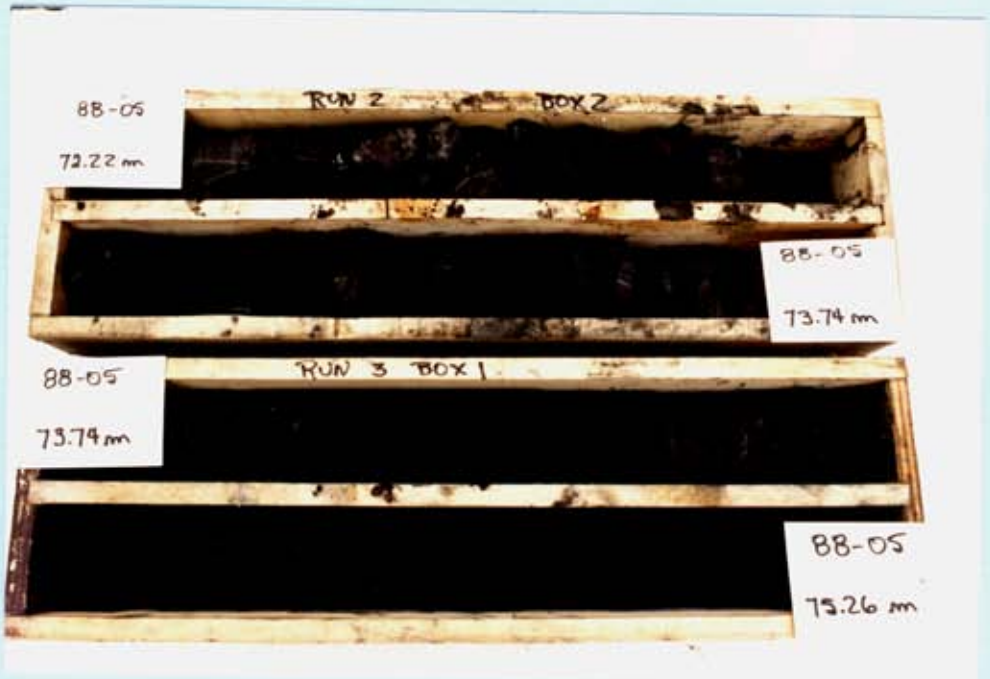
HOLE NUMBER 88-05 | PAGE NUMBER 9

Core Logged By: R. Swaren

Date: November 23 88

Core No		INTERVAL (FROM) Feet	INTERVAL (FROM) Meters	INTERVAL (TO) Feet	INTERVAL (TO) Meters	SAMPLE NO.	COMPOSITE NO.	DESCRIPTION	INTERVAL THICKNESS Feet	INTERVAL THICKNESS Meters
		358.7	109.32	358.9	109.39			Shale: Medium to dark grey. Medium hard.	0.2	0.07
		358.9	109.39	360.8	109.97			Shale: Carbonaceous, medium soft to soft, friable. Coaly inclusions. Black to dark grey.	1.9	0.58
		360.8	109.97	361.8	110.26			Siltstone: Hard, shaly at top grading down to salt & pepper texture. END OF CORE.	1.0	0.29


88-05
TOP OF CORE.
69.33m
RUN 1 BOX 1
88-05
70.7 m.
88-05
70.7 m
RUN 2 BOX 1
88-05
72.22 m


88-05
72.22 m
RUN 2 BOX 2
88-05
73.74 m
88-05
73.74 m
RUN 3 BOX 1
88-05
75.26 m


88-05
75.26 m
RUN 3 BOX 2
88-05
76.94 m
88-05
76.94 m
RUN 4 BOX 1
88-05
78.28 m


88-05
RUN 4 BOX 2
78.28 m
88-05
BASE OF CORE
79.80 m


88-05
TOP OF CORE
98.60m
RUN 5 BOX
88-05
100.12 m
88-05
100.12 m
RUN 5 BOX 2
88-05
101.14 m


88-05
101.14 m
RUN 6 BOX 1
88-05
102.66 m
88-05
102.66 m
RUN 6 BOX 2.
88-05
104.18 m


88-05
104.18 m
RUN 7 BOX 1
88-05
105.70m
88-05
105.70m
RUN 7 BOX 2
SHALE
MISSING.
88-05
107.22 m.


88-05
107.22 m
RUN 8 BOX 1
88-05
108.74 m
88-05
108.74 m
RUN 8 BOX 1
88-05
END OF CORE
110.26 m

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Vol. 2

McIVOR LAKE COAL PROJECT

VOLUME II

PHASE I EXPLORATION REPORT

FEBRUARY 1989

VOLUME II

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APPENDIX 7

DIAMOND CORE LOG

PROPERTY: McIvor Lake

HOLE NO.: No.1

CONTRACTOR: Western Fuel Company

Interval(m)	Thickness(m)	Lithology
0 - 78.33	78.33	Clay, Gravel and Boulders
78.33-128.32	49.99	Sandstone
128.32-130.15	1.83	Shale
130.15-148.74	18.59	Sandstone
148.74-149.96	1.22	Shale
149.96-153.01	3.05	Shale two COAL stringers
153.01-156.06	3.05	Grey Shale
156.06-159.11	3.05	Dark Brown Shale COAL streaks
159.11-160.63	1.52	Grey Shale
160.63-164.59	3.96	Coarse Sandstone
164.59-165.81	1.22	Dark Shale
165.81-168.86	3.05	Coarse Sandstone
168.86-176.48	7.62	Sandstone
176.48-176.63	0.15	Bony COAL
176.63-177.39	0.76	Dark Shale
177.39-181.35	3.97	Sandstone
181.35-181.97	0.62	Sandy Shale
181.97-186.23	4.26	Sandstone
186.23-187.15	0.92	Brown Shale
187.15-187.30	0.15	COAL and Shale
187.30-190.50	3.20	Sandy Shale
190.50-197.21	6.71	Sandstone
197.21-197.28	0.07	COAL
197.28-200.25	2.97	Shale
200.25-201.32	1.07	Sandy Shale

Interval(m)	Thickness(m)	Lithology
201.32-201.40	0.08	COAL
201.40-203.61	2.21	Sandstone
203.61-212.14	62.06	Sandstone
212.14-213.36	1.22	Brown Shale
213.36-214.00	0.64	Shale
214.00-223.42	9.42	Sandstone
223.42-224.49	1.07	Sandy Shale
224.49-224.64	0.15	COAL
224.64-225.86	1.22	Brown Shale
225.86-226.47	0.61	Shale
226.47-231.19	4.72	Sandstone
231.19-238.35	7.16	Shale
238.35-241.40	3.05	Sandy Shale
241.40-243.76	2.36	Sandstone
243.76-244.45	0.69	Shale
244.45-255.27	10.82	Sandstone
255.27-257.18	1.91	Shale
257.18-257.25	0.07	COAL
257.25-258.17	0.92	Shale COAL streaks
258.17-261.82	3.65	Shale
261.82-265.18	3.36	Shale COAL streaks
265.18-268.22	3.04	Sandstone
268.22-271.27	3.05	Shale two COAL streaks
271.27-274.02	3.00	Sandy Shale
274.02-274.09	0.07	COAL
274.09-276.00	1.91	Shale
276.00-276.30	0.30	COAL
276.30-281.48	5.18	Shale
281.48-281.64	0.16	COAL
281.64-281.94	0.30	Shale and COAL
281.94-283.01	1.07	Sandy Shale
283.01-283.31	0.30	Shale and COAL
283.31-284.07	0.76	Shale
284.07-285.90	1.83	Sandy Shale

Interval(m)	Thickness(m)	Lithology
285.90-301.68	15.78	Sandstone
301.68-302.21	0.53	Shale
302.21-302.29	0.08	COAL
302.29-304.19	1.90	Shale
304.19-314.55	10.36	Sandstone
314.55-315.32	0.77	Brown Shale
315.32-315.47	0.15	COAL
315.47-316.38	0.91	Brown Shale with COAL
316.38-320.50	4.12	Shale two COAL seams
320.50-320.80	0.30	COAL with Shale
320.80-323.39	2.59	Shale
323.39-323.55	0.16	COAL
323.55-326.75	3.20	Shale
326.75-327.96	1.21	Sandstone
327.96-330.40	2.44	Sandstone with Shale Laminations
330.40-332.84	2.44	Sandstone
332.84-334.98	2.14	Sandstone, 2 Shale partings
334.98-340.46	5.48	Sandstone
340.46-343.81	3.35	Shale
343.81-343.96	0.15	COAL
343.96-344.12	0.16	Fire Clay
344.12-344.27	0.15	COAL
344.27-346.56	2.29	Dark Shale
346.56-346.71	0.15	Shale
346.71-347.01	0.30	Bony COAL
347.01-348.69	1.68	Sandy Shale
348.69-350.22	1.53	Shale with COAL streak
350.22-350.82	0.60	Sandstone
350.82-352.96	2.14	Shale
352.96-358.52	5.56	Sandstone
358.52-358.75	0.23	COAL and Fire Clay
358.75-359.05	0.30	Fire Clay

Interval(m)	Thickness(m)	Lithology
359.05-361.34	2.29	Sandstone
361.34-361.80	0.46	Fire Clay
361.80-362.41	0.61	Sandstone
362.41-366.67	4.26	Shale one small COAL seam
366.67-383.59	16.92	Sandstone
383.59-385.27	1.68	Blue Shale
385.27-386.79	1.52	Sandstone
386.79-390.68	3.89	Shale
390.68-390.75	0.07	COAL
390.75-391.06	0.31	Shale
391.06-391.21	0.15	COAL
391.21-391.36	0.15	Fire Clay
391.36-391.44	0.08	COAL
391.44-403.56	12.12	Shale
403.56-414.68	11.12	Sandstone
414.68-414.83	0.15	Dark Shale
414.83-415.90	1.07	Sandstone
415.90-416.35	0.45	Dark Shale
416.35-419.71	3.36	Shale
419.71-420.62	0.91	Sandy Shale
420.62-421.23	0.61	Sandstone
421.23-426.11	4.88	Shale
426.11-428.85	2.74	Sandy Shale
428.85-431.60	2.75	Shale
431.60-444.02	12.42	Sandstone
444.02-445.92	1.90	Shale
445.92-458.65	12.73	Sandstone
458.65-462.08	3.43	Shale COAL streaks
462.08-464.06	1.98	Sandy Shale
464.06-493.93	29.87	Sandstone
493.93-494.54	0.61	Dark Shale
494.54-498.65	4.11	Sandstone
498.65-499.26	0.61	Shale

Interval(m)	Thickness(m)	Lithology
499.26-500.18	0.92	Fine Sandstone
500.18-503.53	3.35	Shale
503.53-504.60	1.07	Sandy Shale
504.60-505.97	1.37	Sandstone Plies
505.97-523.95	17.98	Sandstone
523.95-526.85	2.90	Shale
526.85-528.07	1.22	Sandstone
528.07-530.96	2.89	Shale
530.96-532.03	1.07	Sandstone Plies
532.03-534.62	2.59	Shale
534.62-553.67	19.05	Sandstone
553.67-554.13	0.46	Shale COAL stringers
554.13-555.35	1.22	Sandy Shale
555.35-556.87	1.52	Sandstone
556.87-557.94	1.07	Shale
557.94-560.83	2.89	Sandstone
560.83-562.05	1.22	Fine Sandstone
562.05-569.06	3.01	Coarse Sandstone
569.06-569.67	0.61	Sandy Shale
569.67-574.24	4.57	Shale
574.24-577.29	3.05	Sandy Shale
577.29-581.86	4.57	Shale
581.86-582.47	0.61	Fire Clay
582.47-585.83	3.36	Sandy Shale
585.83-601.07	15.24	Sandstone
601.07-603.50	2.43	Sandstone with Pebbles

Interval(m)	Thickness(m)	Lithology
603.50-608.99	5.49	Sandstone
608.99-649.22	40.23	Coarse Sandstone
649.22-652.58	3.36	Sandstone Shale Partings

Total Depth = 652.58 metres.

NOTE: - Hole did not encounter basement rocks.

- Coal seams may be the present at greater depth.

DIAMOND CORE LOG

PROPERTY: McIvor Lake

HOLE NO.: No.2

CONTRACTOR: Western Fuel Company

Interval(m)	Thickness(m)	Lithology
0 - 74.37	74.37	Clay, Gravel, Till
74.37-75.90	1.53	Sandstone
75.90-80.77	4.87	Grey Shale
80.77-86.87	6.10	Brown Shale
86.87-87.17	0.30	Coarse Sandstone
87.17-90.22	3.05	Grey Shale
90.22-90.83	0.61	Basement Rock
90.83-92.05	1.22	Brown Shale COAL stringer at 91.14m.
92.05-94.49	2.44	Shale COAL streak at 92.35m.
94.49-111.86	17.37	Basement

Total Depth is 111.86 metres.

DIAMOND CORE LOG

PROPERTY: McIvor Lake

HOLE NO.: No.3

CONTRACTOR: Western Fuel Company

Interval(m)	Thickness(m)	Lithology
0 - 105.16	105.16	Clay, Sand, Gravel
105.16-130.45	25.29	Conglomerate
130.45-131.98	1.53	Sandstone
131.98-132.59	0.61	Shale
132.59-134.42	1.83	Sandstone with Shale Partings
134.42-138.99	4.57	Sandstone with Shale Partings COAL markings
138.99-139.60	0.61	Sandstone
139.60-141.05	1.45	Grey Shale
141.05-141.20	0.15	Shale and Coal
141.20-142.19	0.99	COAL
142.19-142.37	0.18	COAL and Shale Stratified
142.37-142.88	0.51	COAL
142.88-143.12	0.24	Shale and COAL
143.12-146.08	2.96	Grey Shale
146.08-146.44	0.36	COAL
146.44-146.67	0.23	Bony COAL
146.67-147.28	0.61	Grey Shale
147.28-148.74	1.46	Shale and COAL
148.74-153.31	4.57	Grey Shale and COAL Interbedded
153.31-156.06	2.75	Sandy Shale
156.06-156.36	0.30	Coarse Sandstone
156.36-157.28	0.92	Basement - Soft
157.28-160.32	3.04	Basement

Total Depth is 160.32 metres.

DIAMOND CORE LOG

PROPERTY: McIvor Lake

HOLE NO.: No.4

CONTRACTOR: Western Fuel Company

Interval(m)	Thickness(m)	Lithology
0 - 62.78	62.78	Clay, Gravel, Till
62.78-64.92	2.14	Sandstone
64.92-71.02	6.10	Sandstone with COAL markings
71.02-79.25	8.23	Sandstone
79.25-79.55	0.30	Blue Shale
79.55-91.44	11.89	Sandstone
91.44-91.75	0.31	Blue Shale
91.75-94.79	3.04	Sandy Shale
94.79-103.94	9.15	Sandstone
103.94-106.99	3.05	Coarse Sandstone
106.99-111.86	4.87	Sandstone
111.86-114.91	3.05	Sandy Shale
114.91-120.09	5.18	Sandstone
120.09-120.40	0.31	Sandy Shale
120.40-131.37	10.97	Sandstone
131.37-137.46	6.10	Grey Shale
137.46-137.92	0.46	Sandstone
137.92-138.07	0.15	Fire Clay
138.07-138.68	0.61	Grey Shale
138.68-144.48	5.80	Sandstone
144.48-148.74	4.26	Grey Shale
148.74-150.88	2.14	Sandy Shale
150.88-153.92	3.04	Shale with COAL marks
153.92-156.67	2.75	Sandy Shale with COAL marks
156.67-157.28	0.61	Sandstone
157.28-157.89	0.61	Sandy Shale

Interval(m)	Thickness(m)	Lithology
157.89-158.34	0.45	Sandstone
158.34-165.20	6.86	Shale
165.20-167.18	1.98	Sandy Shale
167.18-173.74	6.56	Sandstone
173.74-177.70	3.96	Grey Shale
177.70-187.76	10.06	Brown Shale
187.76-194.46	6.70	Brown & Grey Shale Interbedded
194.46-200.56	6.10	Basement

Total Depth is 200.56 Metres.

DIAMOND CORE LOG

PROPERTY: McIvor Lake

HOLE NO.: No.5

CONTRACTOR: Western Fuel Company

Interval(m)	Thickness(m)	Lithology
0 - 93.27	93.27	Sand, Gravel and Till
93.27-102.72	9.45	Sandstone
102.72-102.87	0.15	Sandy Shale
102.87-107.90	5.03	Sandstone
107.90-110.34	2.44	Sandy Shale
110.34-112.01	1.67	Sandstone
112.01-137.16	26.15	Conglomerate
137.16-137.43	0.27	Brown Shale
137.43-137.77	0.34	COAL
137.77-138.23	0.46	Brown Shale
138.23-138.47	0.24	COAL
138.47-149.05	10.58	Brown Shale
149.05-149.14	0.09	COAL
149.14-150.48	1.34	Brown Shale
150.48-150.80	0.32	COAL
150.80-151.87	1.07	Brown Shale
151.87-151.94	0.07	COAL
151.94-152.40	0.46	Brown Shale
152.40-153.47	1.07	Brown Shale & COAL markings
153.47-154.23	0.76	Grey Shale
154.23-154.84	0.61	Brown Shale
154.84-156.97	2.13	Basement

Total Depth is 156.97 Metres.

DIAMOND CORE LOG

PROPERTY: McIvor Lake

HOLE NO.: No.6

CONTRACTOR: Western Fuel Company

Interval(m)	Thickness(m)	Lithology
0 - 80.77	80.77	Sand, Gravel, Clay
80.77-86.87	2.10	Sandstone
86.87-87.48	0.61	Grey Shale
87.48-89.00	1.52	Fine Sandstone
89.00-93.57	4.57	Grey Shale
93.57-96.01	2.44	Sandstone
96.01-101.50	5.49	Grey Shale
101.50-110.64	9.14	Sandstone
110.64-111.25	0.61	Sandy Shale
111.25-111.86	0.61	Sandstone
111.86-114.30	2.44	Grey Shale
114.30-121.01	6.71	Grey Shale COAL markings
121.01-122.22	1.21	Sandy Shale
122.22-124.36	2.14	Sandstone
124.36-128.02	3.66	Sandstone with COAL markings
128.02-130.76	2.74	Grey Shale
130.76-131.06	0.30	Sandy Shale
131.06-133.96	2.90	Sandstone with COAL markings
133.96-134.42	0.46	Grey Shale
134.42-142.34	7.92	Sandstone with COAL markings
142.34-144.78	2.44	Grey Shale with COAL markings
144.78-146.30	1.52	Sandy Shale
146.30-161.24	14.94	Grey Shale
161.24-162.46	1.22	Sandy Shale
162.46-175.72	13.26	Sandstone with COAL markings
175.72-177.04	1.32	Grey Shale

Interval(m)	Thickness(m)	Lithology
177.04-177.24	0.20	Coal and Shale
177.24-177.77	0.53	Coal
177.77-177.84	0.07	Brown Shale
177.84-178.48	0.64	COAL
178.48-180.00	1.52	Brown Shale
180.00-180.17	0.17	COAL
180.17-180.18	0.01	Grey Shale
180.18-181.39	1.21	COAL
181.39-181.52	0.13	Brown Shale
181.52-181.89	0.47	COAL
181.89-181.95	0.06	Brown Shale
181.95-192.94	10.99	Sandstone
192.94-193.70	0.76	Grey Shale
193.70-195.38	1.68	COAL
195.38-195.42	0.04	Shale
195.42-196.37	0.95	COAL
196.37-199.64	3.27	Brown Shale with Coal Streaks
199.64-204.22	4.58	Brown Shale
204.22-205.44	1.22	Basement

Total Depth is 205.44 Metres.

DIAMOND CORE LOG

PROPERTY: McIvor Lake

HOLE NO.: No.7

CONTRACTOR: Utah Construction

Interval(m)	Thickness(m)	Lithology
0 - 56.48	56.48	Gravel, Sand, Till
56.48-60.35	3.87	Sandstone, course, med. white
60.35-61.37	1.02	Sandstone, as above with bands of grey sandy shale.
61.37-64.31	2.94	Sandstone, course to medium greyish white.
64.31-64.92	0.61	Sandy Shale, Grey
64.92-67.66	2.75	Sandstone, fine and laminated sandy shale with coarse sandstone grains.
68.28-69.04	0.76	Shale, faint maroon
69.04-70.87	1.83	Sandstone, fine & sandy shale maroon.
70.87-71.27	0.40	Sandy shale, dark grey with COAL markings.
71.27-72.34	1.07	Sandstone, fine yet yellowish and dark sandy shale, interlaminated.
72.34-73.91	1.57	Shale, dark grey, one heavy COAL mark, slight shearing
73.91-75.44	1.53	Shale, light grey with carbonate veinlets, some shearing.
75.44-78.33	2.89	Sandy shale, dark, interlaminated with yellowish fine sandstone.

Interval(m)	Thickness(m)	Lithology
78.33-86.12	7.78	Sandstone, coarse-medium, white, few shale flakes.
86.12-86.87	0.75	Sandstone, fine to medium, yellowish with shale bands and flakes.
86.87-88.19	1.32	Shale & sandy shale inter-bedded.
88.19-89.46	1.27	Sandstone, fine, grey-yellow, some shale.
89.46-90.52	1.07	Sandy shale, light grey, brown carbonate veinlets.
90.52-94.49	3.97	Sandstone, yellowish, inter-banded with dark grey sandy shale.
94.49-96.62	2.13	Sandy shale, light to dark grey with calcite veinlets.
96.62-97.92	1.30	Sandstone, yellowish, laminated with grey sandy shale.
97.92-108.66	10.74	Sandstone, medium grained, white, laminated with few shale bands & flakes, few COAL marks.
108.66-113.77	5.11	Sandstone, medium grained, yellowish.
113.77-114.99	1.22	Sandstone, fine interbanded with shale & sandstone bands
114.99-116.13	1.14	Sandstone, medium grained, yellowish.
116.13-117.20	1.07	Sandy shale, grey.
117.20-117.50	0.30	Sandy shale, reddish.
117.50-117.86	0.36	Sandy shale, dark grey.

Interval(m)	Thickness(m)	Lithology
117.86-122.53	4.67	Sandstone, medium grained, yellowish some sandy shale & bands of grey shale.
122.53-129.13	6.61	Sandstone, medium grained, yellow.
129.13-129.84	0.71	Sandy shale, grey.
129.84-131.98	2.14	Sandy shale, red.
131.98-134.42	2.44	Shale, dark with carbonate veins.
134.42-135.71	1.29	Sandstone, yellow & dark sandy shale interbedded.
135.71-147.52	11.81	Sandstone, coarse to medium white, few shale pebbles 1/2 in.
147.52-147.83	0.31	Sandstone, coarse with medium shale flakes.
147.83-149.35	1.52	Conglomerate round pebbles of crystalline rock, 1 in. to 3 in. in diameter.
149.35-149.96	0.61	Sandstone, fine, grey, cross-bedded.
149.96-150.57	0.61	Sandy shale, light and dark laminate, scant COAL marks.
150.57-152.10	1.53	Sandy shale, grey, top 1 foot & bottom 0.5 foot show a few 1/4 in. COAL marks.
152.10-152.22	0.12	Shale, black, carbonaceous, brown streak, a few coal marks.

Interval(m)	Thickness(m)	Lithology
152.22-152.55	0.33	COAL: Interlaminated bands of bright hard coal to 1/2 in. thick making about 20% of the bench and containing numerous paper thin step-dipping calcite veinlets, interbedded with dull, dirty looking Coal with a black streak.
152.55-152.60	0.05	Shale: black, carbonaceous, brown streak.
152.60-153.01	0.41	COAL: same as coal above.
153.01-153.06	0.05	SHALE; same as shale above.
153.06-153.90	0.84	SHALE; and sandy shale, grey.
153.90-153.94	0.04	SHALE; black carbonaceous.
153.94-153.95	0.01	COAL; half bright, half dull grey.
153.95-154.13	0.18	SHALE; grey with coal marks, last 1 in. shows heavy concentration of calcite veinlets, veinlets contorted, not vertical.
154.18-154.23	0.05	COAL; bright hard, many calcite veinlets, veinlets contorted, not vertical.
154.18-154.23	0.05	SHALE; black, carbonaceous with coal marks.
154.23-154.72	0.49	COAL; same as above.
154.72-154.74	0.02	SHALE; grey.
154.74-154.94	0.20	COAL; bright hard, black streak.
154.94-155.02	0.08	SHALE; black carbonaceous.

Interval(m)	Thickness(m)	Lithology
155.02-155.14	0.12	COAL; bright & dull coal interbedded, calcite
155.14-155.17	0.03	SHALE; black, carbonaceous.
155.17-155.28	0.11	COAL; as above.
155.28-155.33	0.05	SHALE; grey a few coal marks.
155.33-155.38	0.05	SANDSTONE; grey white, fine grained.
155.38-155.64	0.26	SHALE; grey, scant, coal marks.
155.64-156.20	0.56	COAL; 50% bright hard coal & no calcite laminae. At 5 in. from top is a 1/8 in. sulfide stream parallel to bedding and associated with a little calcite.
156.20-156.31	0.11	SHALE; scant coal marks.
156.31-156.80	0.49	SHALE; grey bottom inch has heavy coal markings.
156.80-157.58	0.78	COAL; half bright, half dull grey about 25% bright hard.
157.58-157.81	0.23	SHALE; abundant coal marks.
157.81-158.44	0.63	SHALE; dark grey, plant remains.
158.44-158.47	0.03	SHALE; brown speckled with 1/8 in. sandstone grains.
158.47-159.13	0.66	SHALE; brown with 2 in. band of sandy shale.
159.13-159.49	0.36	SHALE CONGLOMERATE - sand grains and pebble to 1 in. diameter in shale.

Interval(m)	Thickness(m)	Lithology
159.45-159.56	0.11	SANDSTONE; fine, yellowish green.
159.56-163.02	3.46	BASEMENT; weathered.
163.02-165.76	2.74	BASEMENT

Total Depth is 165.76 Metres.

DIAMOND CORE LOG

PROPERTY: McIvor Lake

HOLE NO.: No.9

CONTRACTOR: Canadian Collieries

Interval(m)	Thickness(m)	Lithology
0 - 10.36	10.36	Sandy Clay
10.36-13.41	3.05	Gravel and Boulders
13.41-14.02	0.61	Sandstone
14.02-16.46	2.44	Shale with Sandstone Bands
16.46-16.76	0.30	Shale
16.76-17.68	0.92	Sandstone
17.68-21.64	3.96	Shale
21.64-23.77	2.13	Sandstone
23.77-29.26	5.49	Shale with Sandstone Bands
29.26-31.09	1.83	Sandstone with Shale Streaks
31.09-33.53	2.44	Sandy Shale
33.53-34.44	0.91	Shale with COAL Markings
34.44-37.49	3.05	Shale
37.49-44.50	7.01	Sandstone
44.50-45.72	2.22	Shale with Sandstone Streaks
45.72-59.13	13.41	Sandstone, Fine Conglomerate 48.8-51.8
59.13-61.87	2.74	Sandy Shale, Sandstone Bands
61.87-62.79	0.92	Sandstone, Shale Streaks
62.79-63.70	0.91	Shale
63.70-64.08	0.38	Shale with COAL Markings
64.08-64.54	0.46	Shale
64.54-64.69	0.15	Shale with COAL Markings
64.69-64.75	0.06	Shale and COAL
64.75-66.63	1.88	Shale and Sandstone Streaks
66.63-67.36	0.73	Shale

Interval(m)	Thickness(m)	Lithology
67.36-67.97	0.61	Sandy Shale
67.07-78.33	10.36	Sandstone
78.33-78.94	0.61	Conglomerate
78.94-81.38	2.44	Sandstone
81.38-84.44	3.06	Shale
84.44-119.79	35.35	Sandstone (1" coal @ 107m)
119.79-120.40	0.61	Sandstone and Shale
120.40-149.66	29.26	Sandstone
149.66-151.79	2.13	Shale
151.79-153.62	1.83	Sandstone with Shale Streaks
153.62-154.38	0.76	Shale with scattered coal markings
154.53-154.99	0.46	Shale
154.99-156.67	1.68	Sandstone
156.67-163.68	7.01	Sandstone
163.68-165.81	2.13	Sandstone with Shale Bands
165.81-168.25	2.44	Sandstone and Shale Streaks
168.25-168.86	0.61	Shale with COAL Markings
168.86-169.47	0.61	Shale
169.47-171.60	2.13	Shale and Sandstone Streaks
171.60-190.50	18.90	Sandstone
190.50-194.31	3.81	Sandstone (Broken)
194.31-194.33	0.02	COAL
194.31-203.61	9.30	Sandstone
203.61-206.04	2.43	Sandstone (Broken)
206.04-209.09	3.05	Shale
209.09-216.41	7.32	Sandstone
216.41-220.98	4.57	Shale
220.98-221.13	0.15	Conglomerate
221.13-222.50	1.37	Shale
222.50-225.86	3.36	Sandy Shale & Sandstone Streaks

Interval(m)	Thickness(m)	Lithology
225.86-226.47	0.61	Shale
226.47-230.43	3.96	Sandstone
230.43-232.26	1.83	Sandstone; Shale Steaks
232.26-234.39	2.13	Sandstone: Broken
234.39-235.31	0.92	Sandstone
235.31-248.42	13.11	Sandstone
248.42-249.33	0.91	Shale
249.33-251.15	1.83	Sandy Shale
251.56-252.37	0.81	Shale with Sandstone Streaks
252.37-254.51	2.14	Shale
254.51-261.52	7.01	Sandstone
261.52-263.96	2.44	Shale
263.96-266.70	2.74	Sandstone; Shale Streaks
266.70-269.44	2.74	Shale
269.44-271.27	1.83	Sandy Shale with Sandstone Bands
271.27-273.71	2.44	Shale
273.71-274.02	0.31	Shale, Red
274.02-274.78	0.76	Sandy Shale
274.78-274.93	0.15	Shale, Red
274.93-276.76	1.83	Sandy Shale;Sandstone Streaks
276.76-279.81	3.05	Shale
279.81-285.90	6.09	Sandstone
285.90-287.43	1.53	Sandstone with scattered shale
287.43-288.34	0.91	Conglomerate
288.34-291.08	2.74	Sandstone; Shale Bands
291.08-292.61	1.53	Conglomerate
292.61-294.44	1.83	Shale, Broken
294.44-295.35	0.91	Shale
295.35-298.43	3.08	Shale
298.43-299.53	1.10	Sandy Shale
299.53-300.26	0.73	Sandstone; Shale Bands

Interval(m)	Thickness(m)	Lithology
300.26-303.06	2.80	Shale; Sandstone Blebs
303.06-303.57	0.51	COAL
303.57-303.60	0.03	Shale and COAL
303.60-304.36	0.76	Shale
304.36-304.48	0.12	COAL and Shale
304.48-304.63	0.15	COAL
304.63-304.68	0.05	COAL and Shale
304.68-309.55	4.87	Shale
309.55-311.05	1.50	COAL
311.05-311.14	0.09	COAL and Shale
311.14-313.03	1.89	COAL
313.03-313.25	0.22	Shale
313.25-313.56	0.31	Shale and COAL
313.56-321.56	8.00	Basement (Shale on top).

Total Depth = 321.56 Metres.

DIAMOND CORE LOG

PROPERTY: McIvor Lake

HOLE NO.: No.12

CONTRACTOR: Canadian Collieries

Interval(m)	Thickness(m)	Lithology
0 - 6.40	6.40	Overburden
6.40-10.70	4.30	Sandstone
10.70-10.84	0.14	Shale with slight COAL
10.84-11.58	0.74	Shale
11.58-12.50	0.92	Sandstone & shale, cross-bedded
12.50-13.67	1.17	Conglomerate, rounded shale chunks + bands 2" thick in sandstone.
13.67-18.29	4.62	Sandstone: medium to coarse.
18.29-19.66	1.34	Sandstone: very coarse.
19.66-19.81	0.15	Shale
19.81-19.83	0.02	Bone with thin shale lenses.
19.83-19.95	0.12	Shale; few coal markings.
19.95-20.86	0.91	Sandy shale, cross-bedded with sandstone.
20.86-20.89	0.03	Shale, COAL lenses to 1/4".
20.89-21.08	0.19	COAL: some bone, calcite, pyrite.
21.08-21.24	0.16	Shale
21.24-21.34	0.10	COAL: 75% shale
21.34-24.99	3.65	Sandy shale and sandstone.
24.99-27.43	2.44	Sandstone: medium to coarse.
27.43-32.26	4.83	Sandstone
32.26-32.57	0.31	Shale: COAL markings to 1/16".
32.57-32.96	0.39	Shale: many thin coal markings.

Interval(m)	Thickness(m)	Lithology
32.96-33.99	1.03	Shale: a few thin coal markings.
33.99-34.44	0.45	Shale: several COAL layers 1/4" thick.
34.44-36.58	2.14	Sandy Shale: few scattered COAL markings.
36.58-37.19	0.61	Sandy Shale
37.19-39.62	2.43	Sandstone, one calcite vein 1/4".
39.62-40.74	1.12	Sandstone, shale blebs.
40.74-41.00	0.26	Sandstone and shale interbedded thinly.
41.00-41.15	0.15	Sandstone: shale blebs.
41.15-48.77	7.62	Sandstone
48.77-51.82	3.05	Sandstone: shale blebs
51.82-56.69	4.87	Sandstone
56.69-59.44	2.75	Sandstone: shale blebs.
59.44-60.20	0.76	Sandstone: scattered shale blebs.
60.20-62.48	2.28	Conglomerate, pebbles 1/4"-1/2"
62.48-68.58	6.10	Sandstone
68.58-70.86	2.29	Sandstone, shale blebs.
70.86-71.06	0.20	Conglomerate, shale blebs 1/2"-1" in sandstone.
71.06-73.11	2.05	Sandstone.
73.11-73.32	0.21	Conglomerate; thin blebs in sandstone.
73.32-77.98	4.66	Sandstone: few calcite veinlets
77.98-78.30	0.32	Sandstone: blebs + curved coaly markings.
78.30-78.49	0.19	Sandstone and sandy shale, small blebs.

Interval(m)	Thickness(m)	Lithology
78.49-80.77	2.28	Sandstone: few shale blebs.
80.77-81.69	0.92	Sandstone, shale blebs, pebbles 1/2"-1 1/2".
81.69-85.65	3.96	Sandstone.
85.65-85.80	0.15	Conglomerate, rounded 1/4"x3/3" shale pebbles in sandstone.
85.80-88.70	2.90	Sandstone.
88.70-88.85	0.15	Conglomerate, large rounded shale pebbles in sandstone.
88.85-90.53	1.68	Sandy shale and shale.
90.53-90.78	0.25	Shale, few thin COAL markings.
90.78-92.40	1.62	Sandy Shale: cross bedded sandstone.
92.40-99.06	6.66	Sandstone: last 4" small pebbles.
99.06-102.11	3.05	Sandstone grades to conglomerate last 1".
102.11-102.87	0.76	Sandstone.
102.87-103.10	0.23	Conglomerate, shale pebbles 1/2" - 2".
103.10-103.56	0.46	Sandstone
103.56-104.55	0.99	Shale.
104.55-105.16	0.61	Shale, few plant remains.
105.16-108.20	3.04	Sandstone, cross-bedded.
108.20-113.39	5.19	Sandstone.
113.39-113.55	0.16	COAL, very slight bone.
113.55-113.71	0.16	Shale.
113.71-115.37	1.66	Shale, few COAL markings.
115.37-115.67	0.30	Shale, COAL lenses to 1/4".
115.67-117.35	1.68	Shale.
117.35-118.48	1.13	Sandy shale with sandstone cross-beds.

Interval(m)	Thickness(m)	Lithology
118.48-119.39	0.91	Shale, one sandstone band.
119.39-120.70	1.31	Sandy Shale.
120.70-122.38	1.68	Sandstone with much shale.
122.38-123.44	1.06	Sandy shale + cross-bedded sandstone.
123.44-123.90	0.46	Shale.
123.90-124.57	0.67	Shale with several 1/8" COAL markings.
124.57-124.75	0.18	Shale.
124.75-125.12	0.37	Sandy shale.
125.12-126.49	1.37	Sandstone, few rounded pebbles 1/8"x1/2".
126.49-132.59	6.10	Sandstone.
132.59-132.76	0.17	Conglomerate.
132.76-132.82	0.06	COAL.
132.82-133.88	1.06	Conglomerate & shale fragments.
133.88-135.64	1.76	Sandstone, few bands sandy shale.
135.64-141.43	5.79	Sandstone.
141.43-142.20	0.77	Sandstone, numerous shale bands.
142.20-143.42	1.22	Sandstone.
143.22-144.48	1.26	Shale grading to cross-bedded sandstone.
144.48-147.52	3.04	Sandy shale, laminated sandstone beds.
147.52-148.74	1.22	Sandstone, laminated with sandy shale.
148.74-149.50	0.76	Shale, slightly sandy.
149.50-149.96	0.46	Sandy Shale.
149.96-154.76	4.80	Sandstone, well laminated.
154.76-154.84	0.08	Sandstone, well laminated, shale breccia.

Interval(m)	Thickness(m)	Lithology
154.84-155.89	1.05	Sandstone.
155.89-158.05	2.16	Sandstone, faint laminations.
158.05-158.66	0.61	Sandstone, thin laminations of shale blebs.
158.66-161.85	3.19	Sandstone.
161.85-162.00	0.15	Shale.
162.00-163.53	1.53	Sandstone.
163.53-164.59	1.06	Sandstone, coarse.
164.59-167.94	3.35	Sandstone, medium coarse.
167.94-169.03	1.09	Sandstone, laminated with fine sandstone.
169.03-169.94	0.91	Sandstone laminated with shale specks.
169.94-171.83	1.89	Sandstone, shale bleb layers.
171.83-171.92	0.09	Sandstone, laminated.
171.92-174.65	2.73	Sandstone.
174.65-177.13	2.48	Sandstone, few shale fragments & COAL markings.
177.13-177.53	0.40	As above with shale breccia.
177.53-177.93	0.40	Shale.
177.93-178.51	0.58	Sandstone, thin coal markings.
178.51-179.57	1.06	Sandy shale.
179.57-179.79	0.22	Shale.
179.79-180.88	1.09	Sandstone.
180.88-182.58	1.70	Sandstone, well laminated.
182.58-183.18	0.60	Sandy shale.
183.18-186.32	3.14	Shale, slightly sandy.
186.32-187.35	1.03	Sandstone and sandy shale.
187.35-188.34	0.99	Shale.
188.34-189.17	0.83	Sandstone, few shale blebs.
189.17-194.66	5.49	Sandstone.

Interval(m)	Thickness(m)	Lithology
194.66-196.60	1.94	Sandstone, shale lenses.
196.60-197.77	1.17	Sandstone.
197.77-197.91	0.14	Broken sandstone, shale breccia layer.
197.91-201.17	3.26	Sandstone; (medium).
201.17-203.50	2.33	Sandstone; coarse.
203.50-206.44	2.94	Sandstone, medium to coarse.
206.44-206.79	0.35	Sandy shale.
206.79-207.00	0.21	Shale; thin coal markings.
207.00-207.42	0.42	Sandstone, and coal mark.
207.42-208.03	0.61	Shale, green.
208.03-208.33	0.30	Shale, grey.
208.33-209.09	0.76	Sandstone and sandy shale.
209.09-209.96	0.87	Sandstone.
209.96-211.49	2.03	Shale.
211.49-211.88	0.39	Sandstone.
211.88-212.00	0.12	Shale; slightly sandy.
212.00-215.17	3.17	Sandstone; few shale fragments.
215.17-215.19	0.02	Shale with 1/8" COAL layers.
215.19-218.56	3.37	Sandstone, some shale breccia.
218.56-219.59	1.03	Shale.
219.59-219.97	0.38	Sandstone; few shale lenses.
219.97-220.81	0.84	Shale.
220.81-221.64	0.83	Sandy shale, laminated.
221.64-221.68	0.04	Sandstone.
221.68-222.60	0.92	Sandy shale.
222.60-223.46	0.86	Sandstone.
223.46-223.98	0.52	Sandy shale & laminated sandstone.
223.98-225.50	1.52	Sandstone.
225.50-231.34	5.84	Sandstone.

Interval(m)	Thickness(m)	Lithology
231.34-231.65	0.31	Conglomerate.
231.65-231.91	0.26	Sandstone.
231.91-233.02	1.11	Shale.
233.02-233.95	0.93	Sandy shale.
233.95-235.17	1.22	Sandstone.
235.17-235.92	0.75	Sandstone, laminated with sandy shale.
235.92-236.31	0.39	Sandstone.
236.31-237.13	0.82	Sandstone, laminated with sandy shale.
237.13-237.70	0.57	Sandstone with laminated shale blebs.
237.70-242.67	4.97	Sandstone.
242.67-243.23	0.56	Conglomerate, shale lenses in sandstone.
243.23-243.76	0.53	Sandstone, some large shale fragments.
243.76-250.45	6.69	Sanstone, few shale pebbles.
250.45-252.59	2.14	Sandstone with small pebbles last 0.15 m.
252.59-253.38	0.79	Sandstone and sandy shale.
253.38-254.28	0.90	Shale, few plant remains.
254.28-254.43	0.15	Shale.
254.43-254.86	0.43	Sandy shale.
254.86-255.56	0.70	Sandstone grading to shale.
255.56-257.60	2.04	Sandy shale and shale.
257.60-258.24	0.64	Sandstone, thinly laminated.
258.24-258.64	0.40	Sandstone, grading to sandy shale.
258.64-259.03	0.39	Sandy shale.
259.03-260.56	1.53	Shale.

Interval(m)	Thickness(m)	Lithology
260.56-261.05	0.49	Shale.
261.05-261.78	0.73	Sandy shale.
261.78-263.50	1.72	Sandstone with intermixed shale.
263.50-263.80	0.30	Conglomerate.
263.80-264.72	0.92	Sandstone.
264.72-268.61	3.89	Conglomerate, xtalive pebbles to 4".
268.61-269.28	0.67	Sandstone.
269.28-269.37	0.09	Sandstone with COAL markings.
269.37-269.44	0.07	Shale.
269.44-269.70	0.26	COAL.
269.70-269.84	0.14	COAL, slightly bony.
269.84-269.92	0.08	Bone.
269.92-270.13	0.21	Shale, thin coal markings.
270.13-277.32	7.19	Shale with sandy laminations.
277.32-277.37	0.05	Shale and COAL.
277.37-277.54	0.17	COAL.
277.54-277.67	0.13	Shale and COAL.
277.67-279.29	1.62	Shale, few 1/2" COAL marks.
279.29-280.46	1.17	COAL.
280.46-280.51	0.05	Shale.
280.51-280.63	0.12	COAL.
280.63-281.07	0.44	Shale and COAL.
281.07-281.80	0.73	COAL - dirty.
281.80-282.02	0.22	Shale.
282.02-282.09	0.07	COAL.
282.09-282.17	0.08	Shale and COAL markings.
282.17-282.93	0.76	Shale.
282.93-283.45	0.52	COAL.
283.45-283.63	0.18	Shale and COAL markings.

Interval(m)	Thickness(m)	Lithology
283.63-283.94	0.31	Shale.
283.94-284.15	0.21	COAL.
284.15-284.42	0.27	Bony shale.
284.48-286.25	1.83	Shale.
286.25-286.86	0.61	COAL.
286.86-288.69	1.83	Shale and COAL markings.
288.69-288.86	0.17	COAL.
288.86-289.61	0.75	Shale and COAL markings.
289.61-289.82	0.21	Shale and 20% COAL in thin lenses.
289.82-289.94	0.14	COAL.
289.94-291.98	2.04	Shale with COAL markings.
291.98-292.07	0.09	Shale.
292.07-292.52	0.45	Shale with COAL markings.
292.52-298.99	6.47	Sandy shale with laminated sandstone.
298.99-299.25	0.26	Shale, sandstone streaks, one COAL mark.
299.25-300.27	1.02	Sandstone with shale laminations.
300.27-300.75	0.52	Sandy shale with COAL marks.
300.75-304.85	4.10	Sandy shale.
304.85-305.03	0.18	Sandstone with intermixed shale.
305.03-305.70	0.67	Shale.
305.70-305.85	0.15	Sandstone.
305.85-307.38	1.53	Shale, somewhat sandy.
307.38-308.69	1.31	Shale and sandy shale, grey.
308.69-311.67	2.98	Shale and sandy shale, red.
311.67-312.12	0.45	Sandy shale, dark red.
312.12-312.37	0.25	Sandy shale, green.

Interval(m)	Thickness(m)	Lithology
312.37-313.24	0.87	Sandstone, sandy shale, conglomerate.
313.24-313.99	0.75	Sandy shale.
313.99-315.82	1.83	Conglomerate, sandstone bands.
315.82-317.21	1.39	Basement conglomerate.
317.21-318.73	1.52	Basement, altered.
318.73-321.91	3.18	Basement, altered, 99% chlorite.
321.91-322.39	0.48	Basement.

DIAMOND CORE LOG

PROPERTY: McIvor Lake

HOLE NO.: No.14

CONTRACTOR: Canadian Collieries

Interval(m)	Thickness(m)	Lithology
0-27.51	27.51	Overburden.
27.51-41.75	14.25	Sandstone (shale flecks + blebs).
41.75-44.85	3.10	Sandstone.
44.85-45.58	0.73	Sandstone (shale specks).
45.58-47.85	2.27	Sandstone.
47.85-47.93	0.08	Shale.
47.93-48.37	0.44	Sandstone, scattered shale blebs.
48.37-49.59	1.22	Sandstone.
49.59-51.83	2.24	Sandstone, cross-bedded.
51.83-52.12	0.29	Sandstone.
52.12-53.64	1.52	Sandstone, shale specks.
53.64-57.91	4.27	Sandstone.
57.91-63.86	5.95	Sandstone, shale specks + blebs.
63.86-64.77	0.91	Shale.
64.77-65.68	0.91	Sandstone, shale fragments.
65.68-65.84	0.16	Shale.
65.84-66.45	0.61	Sandstone.
66.45-69.49	3.04	Shale, faintly sandy.
69.49-70.32	0.83	Shale.
70.32-73.75	3.43	Sandstone.
73.75-74.77	1.02	Sandstone.
74.77-74.83	0.06	Shale.

Interval(m)	Thickness(m)	Lithology
74.83-80.41	5.58	Sandstone.
80.41-83.61	3.20	Sandy shale, sandstone laminations, COAL markings.
83.61-85.44	1.83	Sandy shale, sandstone laminations.
85.44-86.05	0.61	Sandstone.
86.05-91.38	5.33	Sandstone, shale speck laminations.
91.38-93.57	2.19	Sandstone.
93.57-93.80	0.23	Shale.
93.80-94.49	0.69	Sandstone.
94.49-97.84	3.35	Shale.
97.84-98.15	0.31	Sandstone.
98.15-98.45	0.30	Sandy shale.
98.45-100.13	1.68	Sandstone & sandy shale.
100.13-101.42	1.29	Sandstone, sandy shale laminations.
101.42-104.01	2.59	Sandstone.
104.01-104.15	0.14	Sandstone, shale pebbles & COAL marks.
104.15-106.31	2.16	Sandstone.
106.31-106.83	0.52	Shale.
106.83-107.29	0.46	Sandstone.
107.29-107.90	0.61	Shale, few COAL markings.
107.90-108.72	0.82	Sandstone.
108.72-111.08	2.36	Shale.
111.08-111.77	0.69	Sandstone, laminated with sandy shale.
111.77-122.74	10.97	Sandstone.
122.74-123.00	0.26	Shale.
123.00-123.18	0.18	Sandy shale.

Interval(m)	Thickness(m)	Lithology
123.18-123.89	0.71	Sandstone.
123.89-124.97	1.08	Sandstone, calcite filled fractures.
124.97-127.41	2.44	Sandstone.
127.41-128.17	0.76	Sandy shale.
128.17-128.32	0.15	Shale.
128.32-130.15	1.83	Sandstone, laminated with sandy shale.
130.15-137.46	7.31	Sandstone.
137.46-140.38	2.92	Sandstone, scattered pebbles xtaline.
140.38-141.14	0.76	Sandstone, few bands of fine conglomerate.
141.14-142.13	0.99	Sandstone, few shale fragments.
142.13-142.48	0.35	Shale, slightly sandy.
142.48-148.74	6.26	Sandy shale.
148.74-148.99	0.25	Sandy shale with COAL markings.
148.99-149.14	0.15	Sandy shale.
149.14-149.81	0.67	Sandstone.
149.81-149.96	0.15	Shale.
149.96-150.21	0.25	Sandy shale with thin sandy streaks.
150.21-153.76	3.55	Sandy shale.
153.76-157.41	3.65	Sandstone, pebble bands throughout.
157.41-158.94	1.53	Sandstone.
158.94-163.68	4.74	Conglomerate 2" pebbles.
163.68-164.29	0.61	Sandstone, some pebbles.
164.29-165.35	1.06	Conglomerate, 2" pebbles.
165.35-165.66	0.31	Sandy shale, grey.
165.66-168.25	2.59	Sandy shale, red.

Interval(m)	Thickness(m)	Lithology
168.25-168.39	0.14	Sandy shale, grey.
168.39-168.69	0.30	Sandy shale, red.
168.69-169.76	1.07	Sandstone with intermixed shale.
169.76-170.99	1.23	Conglomerate, pebbles over 1" diameter.
170.99-174.04	3.05	Conglomerate, pebbles over 1/2", much shale in mass.
174.04-174.80	0.76	Shale.
174.80-175.50	0.70	COAL.
175.50-175.61	0.11	Shale, COAL markings.
175.61-176.37	0.76	Shale, few COAL markings.
176.37-179.22	2.85	Sandy shale laminated with sandstone.
179.22-183.49	4.27	Shale + sandy shale.
183.49-183.63	0.14	Sandy shale, laminated with sandstone.
183.63-183.64	0.01	Bone.
183.64-184.10	0.46	COAL.
184.10-184.19	0.09	Shale, thin COAL markings.
184.19-185.32	0.13	Sandy shale, COAL marks.
185.32-187.76	2.44	Sandy shale.
187.76-190.80	3.04	Sandy shale, sandstone bands.
190.80-192.57	1.77	Sandy shale, COAL marks.
192.57-192.88	0.31	COAL.
192.88-194.68	1.76	Sandy shale.
194.68-196.52	1.84	Sandy shale.
196.52-196.90	0.38	Sandy shale, red.
196.90-198.73	1.83	Sandy shale, grey.
198.73-199.34	0.61	Sandstone, very fine grained.
199.34-203.00	3.66	Sandstone, very coarse.

Interval(m)	Thickness(m)	Lithology
203.00-203.15	0.15	Sandy shale, few COAL markings.
203.15-209.40	6.25	Sandstone, very coarse, few shale fragments.
209.40-213.97	4.57	Conglomerate.
213.97-217.02	3.05	Sandstone, bands of sandy shale.
217.02-220.07	3.05	Sandy shale with shale bands.
220.07-224.94	4.87	Sandy shale.
224.94-229.51	4.57	Sandstone.
229.51-240.18	10.67	Sandstone, conglomerate bands, shale fragments.
240.18-243.23	3.05	Sandstone + sandy shale, some conglomerate.
243.23-249.33	6.10	Sandstone, coarse, laminated with fine grained sandstone and conglomerate in sandy shale.
249.33-250.24	0.91	Sandy shale.
250.24-251.16	0.92	Sandstone with shale, few COAL marks.
251.16-252.37	1.21	Sandy shale + sandstone.
252.37-256.03	3.66	Sandstone + shale.
256.03-257.56	1.53	Conglomerate.
257.56-260.60	3.04	Sandstone.
260.60-263.96	3.36	Conglomerate, 3/8" pebbles, sandy shale bands.
263.96-267.69	3.73	Sandy shale.
267.69-267.92	0.23	Sandstone, shale fragments.
267.92-269.44	1.52	Sandy shale.
269.44-269.90	0.46	Sandstone, few COAL lenses.

Interval(m)	Thickness(m)	Lithology
269.90-276.91	7.01	Conglomerate, pebbles average 1", pebbles of basement material.
276.91-280.57	3.66	Sandy shale, red.
280.57-280.87	0.30	Sandy shale.
280.87-283.31	2.44	Conglomerate.
283.31-284.53	1.22	Sandy shale, red.
284.53-290.02	5.49	Sandy shale.
290.02-291.54	1.52	Sandy shale, red.
291.54-292.46	0.92	Conglomerate.

Total Depth is 292.46 Metres.

Note: Basement should not be too much deeper.

DIAMOND CORE LOG

PROPERTY: McIvor Lake

HOLE NO.: No.16

CONTRACTOR: Canadian Collieries

Interval(m)	Thickness(m)	Lithology
0-4.88	4.88	Sand and clay.
4.88-9.14	4.26	Sand and clay with gravel bands.
9.14-19.51	10.37	Clay.
19.51-19.81	0.30	Gravel.
19.81-22.56	2.75	Clay with gravel bands.
22.56-22.86	0.30	Boulder.
22.86-23.47	0.61	Gravel + boulders.
23.47-26.52	3.05	Boulders in gravel.
26.52-37.80	11.78	Gravel + boulders.
37.80-53.04	15.24	Clay and gravel + boulder bands.
53.04-59.74	6.70	Sand + gravel in clay.
59.74-60.96	1.22	Sandstone.
60.96-65.53	4.57	Sandstone.
65.53-69.80	4.37	Shale.
69.80-70.41	0.61	Sandy shale, laminated with sandstone.
70.41-71.32	0.91	Shale, slightly sandy.
71.32-71.63	0.31	Sandstone, few COAL marks.
71.63-73.15	1.52	Sandy shale, COAL markings.
73.15-75.29	2.14	Sandstone, few shale fragments.
75.29-78.64	3.35	Sandy shale, sandstone laminations.
78.64-80.77	2.13	Sandstone.

Interval(m)	Thickness(m)	Lithology
80.77-82.30	1.53	Sandstone and sandy shale.
82.30-84.43	2.13	Shale.
84.43-84.89	0.46	Shale, COAL markings.
84.89-84.95	0.06	COAL.
84.95-85.04	0.09	Shale with COAL.
85.04-85.08	0.04	COAL.
85.08-85.69	0.61	Shale.
85.69-85.74	0.05	COAL.
85.74-86.26	0.52	Shale, COAL markings.
86.26-87.17	0.91	Shale.
87.17-87.78	0.61	Sandstone.
87.78-88.39	0.61	Shale.
88.39-90.53	2.14	Sandy shale.
90.53-93.27	2.74	Shale.
93.27-99.21	5.94	Sandstone.
99.21-99.59	0.38	Sandstone, sandy shale laminations.
99.59-101.19	1.60	Sandstone with interlaminated shale.
101.19-103.63	2.44	Shale; few COAL markings.
103.63-105.46	1.83	Sandstone.
105.46-106.07	0.61	Shale.
106.07-109.42	3.35	Sandstone.
109.42-110.49	1.07	Shale.
110.49-110.95	0.46	Sandstone.
110.95-111.86	0.91	Shale.
111.86-112.47	0.61	Shale.
112.47-114.30	1.83	Sandstone.
114.30-114.60	0.30	Shale.
114.60-115.21	0.61	Sandy shale.
115.21-120.70	5.49	Sandstone.

Interval(m)	Thickness(m)	Lithology
120.70-127.71	7.01	Sandstone, few shale fragments.
127.71-129.84	2.13	Sandstone.
129.84-131.37	1.53	Sandstone shale.
131.37-133.20	1.83	Shale.
133.20-133.50	0.30	Sandy shale.
133.50-134.42	0.92	Shale.
134.42-135.33	0.91	Sandstone, slight sandy shale.
135.33-138.07	2.74	Shale.
138.07-139.90	1.83	Sandstone.
139.90-150.88	10.98	Sandstone, few shale fragments.
150.88-151.49	0.61	Shale.
151.49-151.53	0.04	COAL with shale.
151.53-152.61	1.08	Shale.
152.61-152.92	0.31	Shale, thin sandstone beds.
152.92-154.23	1.31	Sandy shale.
154.23-154.84	0.61	Sandstone.
154.84-167.34	12.50	Sandstone.
167.34-171.15	3.81	Sandstone, shale fragments.
171.15-171.45	0.30	Conglomerate 30% shale fragments.
171.45-180.44	8.99	Sandstone.
180.44-200.10	19.66	Sandstone, shale fragments.
200.10-200.86	0.76	Sandstone.
200.86-206.81	5.95	Sandstone, shale fragments.
206.81-206.96	0.15	Shale.
206.96-213.45	6.49	Sandstone.
213.45-214.62	1.17	Shale, slightly sandy.
214.62-223.02	8.40	Sandstone, few shale fragments.
223.02-223.94	0.92	Sandstone, many shale fragments.
223.94-226.31	2.37	Shale, COAL marks.

Interval(m)	Thickness(m)	Lithology
226.31-226.33	0.02	COAL - 75% caclite in thin veinlets.
226.33-230.73	4.40	Shale.
230.73-234.54	3.81	Sandy shale, interbedded sandstone.
234.54-237.18	2.64	Sandstone.
237.18-237.48	0.30	Shale, few COAL markings.
237.48-237.74	0.26	Shale, COAL markings.
237.74-238.43	0.69	Shale, faintly sandy.
238.43-239.65	1.22	Sandy shale with sandstone beds.
239.65-240.18	0.53	Sandstone.
240.18-240.32	0.14	Sandy shale.
240.32-245.50	5.18	Sandstone with shale fragments.
245.50-248.11	2.61	Sandstone.
248.11-251.16	3.05	Sandstone, scattered 3/8" xtalline pebbles.
251.16-251.37	0.21	Same as above, large shale fragments.
251.37-253.50	2.13	Sandstone.
253.50-255.03	1.53	Conglomerate, xtalline pebbles to 1".
255.03-259.08	4.05	Sandstone.
259.08-267.83	8.75	Sandstone, shale pebbles.
267.83-270.88	3.05	Shale.
270.88-271.36	0.48	Shale, slightly sandy.
271.36-272.43	1.07	Sandy shale.
272.43-278.94	2.51	Sandstone.
278.94-279.55	0.61	Shale.
279.55-280.26	0.71	Sandstone, laminated sandy shale.

Interval(m)	Thickness(m)	Lithology
280.26-284.68	4.42	Shale.
284.68-287.43	2.75	Sandstone.
287.43-288.04	0.61	Sandy shale.
288.04-289.86	1.82	Shale.
289.86-290.78	0.92	Sandy shale.
290.78-301.14	10.36	Sandstone.
301.14-301.45	0.31	Shale + sandstone.
301.45-304.80	3.35	Sandstone.
304.80-305.41	0.61	Shale.
305.41-306.02	0.61	Sandy shale.
306.02-307.54	1.52	Shale, sandstone structures.
307.54-308.76	1.22	Shale.
308.76-310.59	1.83	Sandy shale.
310.59-311.81	1.22	Sandstone, shale structures.
311.81-320.34	8.53	Sandstone.
320.34-320.95	0.61	Shale.
320.95-321.56	0.61	Sandy shale.
321.56-322.17	0.61	Sandstone.
322.17-324.00	1.83	Sandstone, shale structures.
324.00-324.15	0.15	Shale.
324.15-325.53	1.38	Sandy shale.
325.53-326.75	1.22	Sandy shale, sandstone bands.
326.75-328.27	1.52	Sandstone.
328.27-331.17	2.90	Shale.
331.17-331.77	0.60	Shale, sandstone structures.
331.77-345.34	13.57	Sandstone.
345.34-347.01	1.67	Shale.
347.01-352.50	5.49	Sandstone.
352.50-354.48	1.98	Shale.
354.48-356.31	1.83	Shale.
356.31-356.77	0.46	Sandstone.

Interval(m)	Thickness(m)	Lithology
356.77-359.46	2.89	Shale.
359.66-359.97	0.31	Sandstone.
359.97-362.71	2.74	Shale, sandstone structures.
362.71-364.24	1.53	Sandstone, shale structures.
364.24-364.54	0.30	Conglomerate.
364.54-365.15	0.61	Shale.
365.15-369.42	4.27	Basement, altered.
369.42-381.40	11.98	Basement.

Total Depth is 381.40 Metres.

DIAMOND CORE LOG

PROPERTY: McIvor Lake

HOLE NO.: No.17

CONTRACTOR: Canadian Collieries

Interval(m)	Thickness(m)	Lithology
0-0.91	0.91	Overburden.
0.91-10.06	9.15	Sandstone.
10.06-10.67	0.61	Sandy shale.
10.67-12.65	1.98	Shale.
12.65-13.11	0.46	Shale, faintly sandy.
13.11-13.72	0.61	Shale.
13.72-14.11	0.39	Sandy shale.
14.11-14.94	0.83	Shale.
14.94-19.81	4.87	Sandstone.
19.81-21.34	1.53	Sandstone, broken.
21.34-24.99	3.65	Sandstone.
24.99-25.91	0.92	Sandstone, rounded shale fragments.
25.91-28.35	2.44	Sandy Shale, COAL markings + sandstone laminations.
28.35-40.23	11.88	Sandstone and sandy shale.
40.23-40.31	0.08	Sandy shale.
40.31-41.83	1.52	Sandstone, small shale fragments.
41.83-44.50	3.12	Sandy shale, grey.
44.50-45.42	0.92	Sandy shale, red.
45.42-45.93	0.51	Sandy shale, grey.
45.93-57.91	11.98	Sandstone, scattered xtalline pebbles 3/4".
57.91-61.57	3.66	Sandy shale.

Interval(m)	Thickness(m)	Lithology
61.57-64.77	3.20	Sandy shale, red.
64.77-65.38	0.61	Sandy shale grading to sandstone.
65.38-68.12	2.74	Sandy shale.
68.12-69.19	1.07	Sandstone, bands of sandy shale.
69.19-70.87	1.68	Sandstone.
70.87-71.63	0.76	Sandstone, COAL markings.
71.63-72.31	0.68	Sandstone, white.
72.31-72.92	0.61	Sandstone, grey.
72.92-73.84	0.92	Sandstone, xtalline 1/2" pebbles in top 1".
73.84-79.25	5.41	Conglomerate, 3" cobbles.
79.25-82.60	3.35	Sandstone, scattered 1" xtalline pebbles.
82.60-82.81	0.21	Sandy shale.
82.81-82.84	0.03	Bony shale.
82.84-83.00	0.16	Bony COAL.
83.00-83.76	0.76	Sandy shale, 1/4" COAL marks.
83.76-84.37	0.61	Shale.
84.37-85.56	1.19	Sandy shale becoming sandstone.
85.56-89.21	3.65	Sandstone.
89.21-89.76	0.55	Shale, COAL markings.
89.76-103.40	13.64	Sandstone, laminated with sandy shale.
103.40-103.72	0.32	COAL; sulfur lands, calcite streaks.
103.72-104.03	0.31	Shale; COAL markings.
104.03-104.18	0.15	COAL; 1/8" shale + sulfur lenses.
104.18-106.68	2.50	Sandy shale, COAL markings.

Interval(m)	Thickness(m)	Lithology
106.68-107.99	1.31	Sandstone, laminated with sandy shale & very fine grained sandstone.
107.99-108.51	0.52	Sandy shale, COAL lenses.
108.51-108.72	0.21	Shale, COAL markings.
108.72-109.10	0.38	Sandstone, laminated with sandy shale & COAL markings.
109.10-109.88	0.78	Shale, COAL markings.
109.88-110.25	0.37	COAL.
110.25-110.58	0.33	Bony shale.
110.58-113.63	3.05	Sandy shale, sandstone laminations COAL lenses 1/2", COAL markings.
113.63-113.69	0.06	Shale and COAL.
113.69-114.04	0.35	COAL.
114.04-114.21	0.17	COAL and Shale.
114.21-114.82	0.61	COAL.
114.82-114.91	0.09	Shale and COAL.
114.91-115.76	0.85	COAL.
115.76-115.82	0.06	Shale & COAL.
115.82-117.50	1.68	Sandstone, sandy shale laminations, few 1" COAL lenses.
117.50-120.09	2.59	Sandstone.
120.09-129.08	8.99	Sandstone, sandy shale laminations.
129.08-130.00	0.92	Conglomerate.
130.00-131.67	1.67	Sandstone.
131.67-131.98	0.31	Conglomerate.
131.98-132.28	0.30	Sandy shale grading to sandstone.

Interval(m)	Thickness(m)	Lithology
132.28-132.89	0.61	Sandstone.
132.89-150.57	17.68	Sandstone, conglomerate bands.
150.57-151.18	0.61	Conglomerate.
151.18-151.79	0.61	Sandstone.
151.79-153.01	1.22	Conglomerate in sandy shale matrix.
153.01-156.67	3.66	Sandy shale.
156.67-157.12	0.45	Conglomerate in sandy shale matrix.
157.12-157.58	0.46	Sandy shale.
157.58-158.19	0.61	Conglomerate, sandy shale matrix.
158.19-159.56	1.37	Sandy shale.
159.56-160.02	0.46	Conglomerate in sandy matrix.
160.02-160.32	0.30	Sandy shale.
160.32-160.48	0.16	Conglomerate in sandy matrix.
160.48-164.59	4.11	Sandy shale, red.
164.59-164.90	0.31	Sandy shale, grey.
164.90-165.66	0.76	Sandy shale, red.
165.66-166.57	0.91	Conglomerate in shale matrix.
166.57-167.03	0.46	Sandy shale.
167.03-167.18	0.15	Conglomerate in sandy shale matrix.
167.18-167.49	0.31	Sandy shale.
167.49-169.77	2.28	Conglomerate in sandy shale matrix.
169.77-170.38	0.61	Sandy shale.
170.38-171.60	1.22	Basement conglomerate.
171.60-171.82	1.22	Sandy shale, pebbles + COAL marks.

Interval(m)	Thckness(m)	Lithology
172.82-173.74	0.92	Basement conglomerate.
173.74-175.56	1.82	Shale.
175.56-182.27	6.71	Basement conglomerate.

Total Depth is 182.27 Metres.

DIAMOND CORE LOG

PROPERTY: McIvor Lake

HOLE NO.: No.18

CONTRACTOR: Canadian Collieries

Interval(m)	Thickness(m)	Lithology
0-20.12	20.12	Overburden
20.12-21.64	1.52	Sandstone
21.64-24.08	2.44	Sandstone, scattered xtalline pebbles 1/2".
24.08-25.91	1.83	Conglomerate, pebbles to 3".
25.91-26.37	0.45	Sandstone, COAL markings.
26.37-28.35	1.98	Conglomerate, pebbles to 3".
28.35-32.40	4.05	Sandstone, scattered 3/4" pebbles.
32.40-32.75	0.35	Sandy shale, grey.
32.75-33.51	0.76	Sandy shale, red.
33.51-34.43	0.92	Shale becoming sandy.
34.43-35.20	0.77	Sandy shale + sandstone, COAL markings.
35.20-36.58	1.38	Shale.
36.58-37.80	1.22	Laminated sandstone + sandy shale.
37.80-46.56	8.76	Conglomerate pebbles 1"-5" in sandstone.
46.56-46.79	0.23	Sandy shale, COAL markings.
46.79-47.09	0.88	COAL.
47.09-47.24	0.15	Shale + COAL.
47.24-47.40	0.16	COAL.
47.40-47.55	0.15	Shale + COAL.
47.55-48.46	0.91	Shale, COAL markings.

Interval(m)	Thickness(m)	Lithology
48.46-48.54	0.08	Shale, COAL markings.
48.54-48.69	0.15	Shale + COAL.
48.69-48.84	0.15	COAL.
48.84-49.07	0.23	Shale + COAL.
49.07-49.23	0.16	Shale, COAL markings.
49.23-49.51	0.28	Shale.
49.51-49.91	0.40	COAL.
49.91-49.97	0.06	Shale, COAL markings.
49.97-50.64	0.67	Shale.
50.64-50.99	0.35	COAL.
50.99-51.11	0.12	Shale.
51.11-51.15	0.04	COAL.
51.15-52.21	1.06	Shale; COAL markings.
52.21-57.91	5.70	Sandy shale, sandstone laminations.
57.91-58.06	0.15	Shale, bony shale + COAL lenses
58.06-60.09	2.03	Sandy shale, heavy COAL marks.
60.09-60.20	0.11	COAL.
60.20-60.29	0.09	COAL, in thin bony bands.
60.29-60.50	0.21	Sandy shale, COAL markings.
60.50-64.31	3.81	Sandy shale, numerous COAL markings.
64.31-64.92	0.61	COAL.
64.92-65.01	0.09	Shale.
65.01-65.07	0.06	Shale, brown.
65.07-65.15	0.08	Shale.
65.15-66.28	1.13	COAL.
66.28-66.52	0.24	Shale and COAL.
66.52-67.82	1.30	Sandstone + sandy shale, laminated.

Interval(m)	Thickness(m)	Lithology
67.82-69.65	1.83	Sandstone, shale blebs, COAL markings.
69.65-72.69	3.44	Sandy shale, grey.
72.69-79.40	6.71	Sandy shale, red.
79.40-81.23	1.83	Sandy shale, grey.
81.23-83.97	2.74	Sandstone & sandy shale.
83.97-85.65	1.68	Sandstone.
85.65-90.53	4.88	Conglomerate, qtz. grains in sandstone.
90.53-91.44	0.91	Conglomerate, coarser + more pebbles.
91.44-93.57	2.13	Conglomerate, subangular pebbles 1/2".
93.57-93.62	0.05	Conglomerate, coarse.
93.62-94.18	0.56	Conglomerate, shaly. Qtz pebbles in sandy shale.
94.18-95.71	1.53	Conglomerate, angular 1" pebbles with shaly hands, one 1/8" COAL mark.
95.71-97.08	1.37	Sandy shale speckled with quartz grains.
97.08-124.05	26.97	Basement conglomerate.
124.05-124.66	0.61	Basement?

Total Depth is 124.66 Metres.

DIAMOND CORE LOG

PROPERTY: McIvor Lake

HOLE NO.: No.20

CONTRACTOR: Canadian Collieries

Interval(m)	Thickness(m)	Lithology
0-51.51	51.51	Sand.
51.51-52.43	0.92	Basement, somewhate altered.
52.43-54.25	1.82	Basement.

Total Depth is 54.25 Metres.

DIAMOND CORE LOG

PROPERTY: McIvor Lake

HOLE NO.: No.22

CONTRACTOR: Canadian Collieries

Interval(m)	Thickness(m)	Lithology
0-43.28	43.28	Overburden.
43.28-45.26	1.98	Sandstone, becoming laminated.
45.26-50.29	5.03	Sandstone, scattered 2" xtalline pebbles.
50.29-53.34	3.05	Sandy shale.
53.34-53.95	0.61	Sandstone, fine to medium.
53.95-55.47	1.52	Sandstone, medium to coarse.
55.47-66.14	10.67	Conglomerate, pebbles to 2".
66.74-66.43	0.29	Shale with COALY matter.
66.43-66.68	0.25	COAL and shale.
66.68-66.83	0.15	Shale with COAL markings.
66.83-67.04	0.21	COAL.
67.04-67.19	0.15	Shale and COAL.
67.19-67.53	0.34	Shale.
67.53-67.67	0.14	COAL and shale.
67.67-68.88	1.21	Shale with COAL markings.
68.88-69.19	0.31	COAL.
69.19-70.76	1.57	Shale with COAL markings and bands.
70.76-71.63	0.87	Shale.
71.63-71.93	0.30	COAL.
71.93-72.09	0.16	Shale and COAL.
72.09-72.39	0.30	COAL.
72.39-75.07	2.68	Shale.
75.07-75.21	0.14	COAL and shale.

Interval(m)	Thickness(m)	Lithology
75.21-76.28	1.07	Shale, COAL markings.
76.28-76.43	0.15	COAL.
76.43-78.03	1.60	Shale with COAL markings.
78.03-78.18	0.15	COAL.
78.18-79.25	1.07	Shale.
79.29-81.38	2.09	Sandstone, shale streaks.
81.38-94.18	12.80	Coarse sandstone to conglomerate @ shale bands.
94.18-95.19	1.01	Sandy shale with sandstone inclusions.
95.19-95.72	0.53	Sandy shale, red.
95.72-96.47	0.75	Sandy shale, grey.
96.47-96.70	0.23	Sandy shale, red.
96.70-97.08	0.38	Sandy shale, grey.
97.08-104.79	7.71	Sandy shale, red.
104.79-106.89	2.10	Sandy shale, red and grey.
106.89-109.02	2.14	Sandy shale, grey becoming more shaly.
109.02-109.33	0.31	Sandy shale and sandstone, laminated.
109.33-111.08	1.75	Conglomerate, xtalline pebbles to 1/2".
111.08-111.25	0.17	Sandstone.
111.25-114.45	3.20	Conglomerate, xtalline pebbles to 1/2".

Total Depth is 114.45 Metres.

DIAMOND CORE LOG

PROPERTY: McIvor Lake

HOLE NO.: No.23

CONTRACTOR: Canadian Collieries

Interval(m)	Thickness(m)	Lithology
0-12.80	12.80	Overburden.
12.80-19.45	6.65	Sandstone, scattered xtalline pebbles.
19.45-21.03	1.58	Conglomerate, small shale lenses.
21.03-21.79	0.76	Sandstone & sandy shale laminated.
21.79-23.32	1.53	Sandstone.
23.32-23.77	0.45	Shale.
23.77-25.82	2.05	Shale, slightly sandy.
25.82-26.82	1.00	Sandy shale.
26.82-28.65	1.83	Sandstone + sandy shale, laminated.
28.65-30.18	1.53	Sandstone, sandy shale laminations.
30.18-33.07	2.89	Sandstone, scattered xtalline + shale pebbles to 1".
33.07-35.51	2.44	Conglomerate, broken pebbles over 1".
35.51-39.62	4.11	Sandstone.
39.62-47.24	7.62	Sandy shale, sandstone bands. One 2" COAL lense at 44.81m.
47.24-48.20	0.96	COAL.
48.20-48.23	0.03	Shale.
48.23-48.68	0.45	COAL.

Interval(m)	Thickness(m)	Lithology
48.68-48.75	0.07	Shale and COAL.
48.75-49.06	0.31	COAL.
49.06-49.15	0.09	Shale and COAL.
49.15-49.36	0.21	Shale.
49.36-49.42	0.06	COAL.
49.42-49.53	0.11	Shale, COAL lenticles.
49.53-50.60	1.07	Shale, COAL markings.
50.60-51.05	0.45	COAL.
51.05-52.12	1.07	Shale, COAL markings.
52.12-53.64	1.52	Sandstone, thin shale laminations.
53.64-53.72	0.08	Bony shale, sandstone lenses.
53.72-53.86	0.14	COAL, sulfur + bone bands.
53.86-56.53	2.67	Shale, sandstone bands.
56.53-57.39	0.86	COAL.
57.39-58.31	0.92	Shale, COAL markings.
58.31-63.78	5.47	Sandy shale, sandstone bands.
63.78-65.15	1.37	Sandstone + sandy shale laminated.
65.15-68.28	3.23	Sandy shale, sandstone bands.
68.28-68.44	0.16	Sandstone + shale, COAL marks.
68.44-71.17	2.73	Shale, several COAL marks.
71.17-71.32	0.15	COAL + bony shale.
71.32-71.63	0.41	Sandy shale, COAL + sandstone lenses.
71.63-73.23	1.60	COAL.
73.23-73.38	0.15	Shale.
73.38-73.47	0.09	Shale and COAL.
73.47-74.46	0.99	Shale.
74.46-77.21	2.75	Sandy shale, quite sandy.

Interval(m)	Thickness(m)	Lithology
77.21-77.82	0.61	Sandy shale.
77.82-78.64	0.82	Sandstone, intermixed shale.
78.64-80.47	1.83	Sandy shale, grey.
80.47-83.12	2.65	Sandy shale, red.
83.12-85.19	2.07	Sandstone, sandy shale.
85.19-94.64	9.45	Conglomerate, 1/4" xtalline pebbles.
94.64-94.95	0.31	Shale, becoming sandy.
94.95-103.33	0.38	Conglomerate.
103.33-103.63	0.30	Sandstone, intermixed shale.
103.63-104.85	1.22	Conglomerate.
104.85-105.46	0.61	Shale becoming shaly conglomerate xtalline pebbles to 1/4".
105.46-106.68	1.22	Sandy shale.
106.68-108.20	1.52	Shaly conglomerate + sandy shale layers of 1/2" angular pebbles. Few thin COAL markings.
108.20-109.42	1.22	Basement - Conglomerate, boulders in altered basement to 10".

Total Depth is 109.42 Metres.

DIAMOND CORE LOG

PROPERTY: McIvor Lake

HOLE NO.: No. 24

CONTRACTOR: Canadian Collieries

Interval(m)	Thickness(m)	Lithology
0-32.00	32.00	Overburden.
32.00-33.53	1.53	Sandstone becoming shale.
33.53-34.14	0.61	Shale becoming sandstone + sandy shale.
34.14-34.75	0.61	Shale with sandstone bands.
34.75-35.05	0.30	Sandy shale becoming sandier.
35.05-35.97	0.92	Sandstone.
35.97-36.27	0.30	Shale.
36.27-37.03	0.76	Sandy shale.
37.03-37.95	0.92	Shale.
37.95-41.00	2.05	Sandy shale.
41.00-42.52	1.52	Sandy shale becoming sandstone.
42.52-48.84	6.32	Sandstone.
48.84-50.29	1.45	Shale.
50.29-51.72	1.43	Sandy shale.
51.72-52.11	0.39	Sandstone becoming sandy shale.
52.11-53.42	1.31	Sandy shale.
53.42-54.47	1.05	Sandstone.
54.47-56.30	1.83	Sandstone.
56.30-67.27	10.97	Sandstone, shale lenses + COAL marks.
67.27-67.67	0.40	Conglomerate, 1" angular fragments.
67.67-68.88	1.21	Shale.
68.88-74.68	5.80	Sandstone and sandy shale.

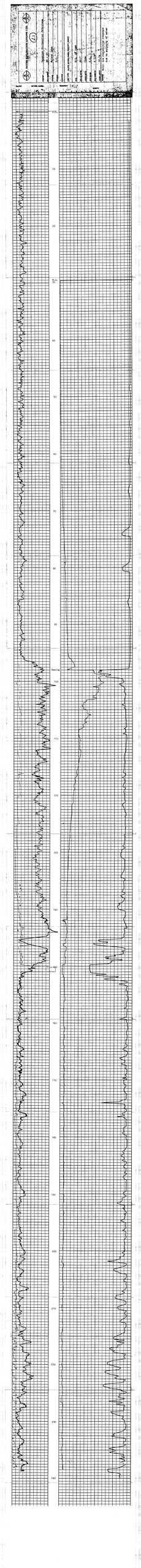
Interval(m)	Thickness(m)	Lithology
74.68-78.03	3.35	Sandstone.
78.03-81.08	3.05	Sandstone, few scattered pebbles.
81.08-82.24	1.16	Conglomerate.
82.24-84.83	2.59	Sandstone.
84.83-87.17	2.34	Shale; faintly sandy.
87.17-89.92	2.75	Sandy shale.
89.92-92.05	2.13	Sandy shale, green.
92.05-92.66	0.61	Sandy shale, maroon.
92.66-93.88	1.22	Sandy shale, laminated with sandstone.
93.88-95.71	1.83	Sandstone, laminated with sandy shale and COAL markings.
95.71-98.15	2.44	Sandstone with scattered 1 1/2" xtalline pebbles.
98.15-99.36	1.21	Conglomerate, xtalline pebbles as above.
99.36-99.75	0.39	Sandstone.
99.75-107.59	7.84	Conglomerate.
107.59-108.13	0.54	Sandstone, shaly matrix.
108.13-109.27	1.14	Shale, sandstone layers.
109.27-116.68	7.41	Sandy shale and sandstone.
116.68-116.75	0.07	Shale and COAL.
116.75-117.12	0.37	COAL.
117.12-117.42	0.30	Shale with COAL markings.
117.42-117.50	0.08	COAL.
117.50-117.58	0.08	Shale and COAL.
117.58-117.81	0.23	Shale.
117.81-117.88	0.07	Shale with COAL markings.
117.88-118.40	0.52	Shale.
118.40-118.51	0.11	Shale with COAL markings.

Interval(m)	Thickness(m)	Lithology
118.51-118.78	0.27	Shale and COAL
118.78-118.86	0.08	COAL.
118.86-118.89	0.03	COAL and shale.
118.89-119.16	0.27	COAL.
119.16-119.25	0.09	Shale with COAL markings.
119.25-119.56	0.31	Sandy shale, thin sandstone bands.
119.56-119.77	0.21	COAL.
119.77-119.88	0.11	Bony shale.
119.88-124.66	4.78	Shale, thin sandy bands.
124.66-127.10	2.44	Sandstone with laminated sandy shale.
127.10-132.89	5.79	Sandy shale.
132.89-136.55	3.66	Sandstone, thin shaly laminations COAL markings.
136.55-138.59	2.04	Shale, COAL markings.
138.59-138.73	0.14	Shale and COAL.
138.73-139.51	0.78	COAL.
139.51-139.77	0.26	Shale and COAL.
139.77-139.92	0.15	Shale, COAL markings.
139.92-140.74	0.82	Shale.
140.74-140.82	0.08	Shale and COAL.
140.82-141.03	0.21	COAL.
141.03-141.06	0.03	COAL and shale.
141.06-141.13	0.37	COAL.
141.43-144.78	3.35	Sandy shale.
144.78-145.47	0.69	Sandy shale.
145.47-146.38	0.91	Sandstone, grey.
146.38-147.05	0.67	Sandstone, white.
147.05-148.45	1.40	Sandstone, thin COAL markings.
148.45-148.74	0.29	Sandy shale.
148.74-149.29	0.55	Sandstone, white.

Interval(m)	Thickness(m)	Lithology
149.29-150.57	1.28	Sandstone, greyish yellow.
150.57-152.40	1.83	Sandstone, white.
152.40-155.75	3.35	Conglomerate, shale + sandstone bands.
155.75-157.58	1.83	Sandstone + very sandy shale.
157.58-162.46	4.88	Conglomerate, sandstone bands.
162.46-170.08	7.62	Conglomerate, thin bands very sandy shale.
170.08-170.86	0.78	Sandy shale with conglomerate.
170.86-174.65	3.79	Conglomerate, 2" pebbles.
174.65-177.39	2.74	Sandy shale.
177.39-177.85	0.46	Sandstone, sandy shale bands.
177.85-178.00	0.15	Shale, scattered pebbles, one 2" COAL parting.
178.00-181.97	3.97	Sandy shale.
181.97-182.65	0.68	Sandy shale, COAL markings.
182.65-184.10	1.45	Sandy shale.

Total Depth is 184.10 Metres.

APPENDIX 8


Casing
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250

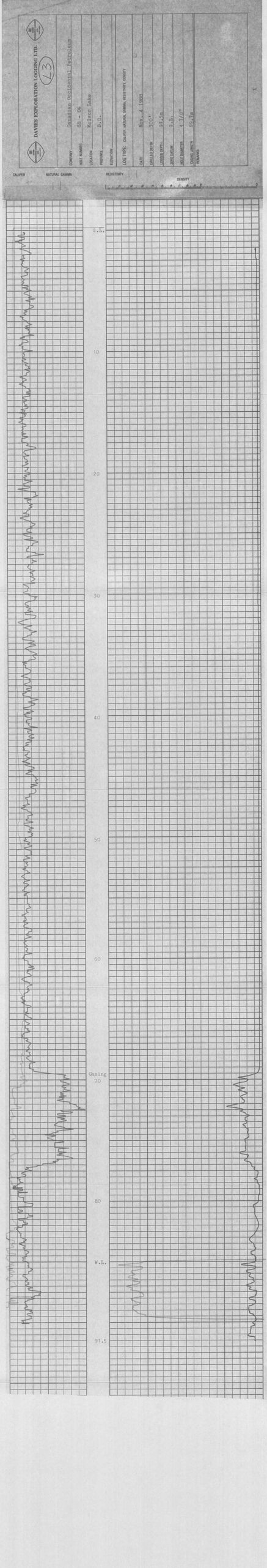
DAVIES EXPLORATION LOGGING LTD.

L2

COMPANY	Canadian Occidental Petroleum
HOLE NUMBER	88 - 04
LOCATION	McIvor Lake
PROVINCE	B.C.
ELEVATION	

LOG TYPE:	CALIPER, NATURAL GAMMA, RESISTIVITY, DENSITY
DATE	Oct.2 1988
DRILLED DEPTH	520'
LOGGED DEPTH	158.3m
ZERO DATUM	G.L.
HOLE DIAMETER	4 7/8"
CASING LENGTH	106.3m
REMARKS:	

CALIPER NATURAL GAMMA RESISTIVITY DENSITY


DAVIES EXPLORATION LOGGING LTD.
(3)
COMPANY Canadian Occidental Petroleum
WELL NAME 88 - 06
LOCATION McIvor Lake
PROVINCE B.C.
ELEVATION
LOG TYPE CALIPER, NATURAL GAMMA, RESISTIVITY, DENSITY
DATE Nov. 4 1988
DRILLED DEPTH 300'
LOGGED DEPTH 91.5m
ZERO DATUM G.L.
HOLE DIAMETER 4 7/8"
CASING LENGTH 69.7m
REMARKS
CALIPER
NATURAL GAMMA
RESISTIVITY
DENSITY
G.L.
10
20
30
40
50
60
Casing
70
80
W.L.
91.5

DAVIES EXPLORATION LOGGING LTD.

LA

COMPANY	Canadian Occidental Petroleum
HOLE NUMBER	88 - 06
LOCATION	McIvor Lake
PROVINCE	B.C.
ELEVATION	
LOG TYPE:	CALIPER, NATURAL GAMMA, RESISTIVITY, DENSITY
DATE	Nov. 4 1988
DRILLED DEPTH	300'
LOGGED DEPTH	91.5m
ZERO DATUM	G.L.
HOLE DIAMETER	4 7/8"
CASING LENGTH	69.7m
REMARKS:	

CALIPER NATURAL GAMMA RESISTIVITY DENSITY