

APPENDIX F

THERMISTOR MONITORING DATA

POLARIS MINE - GARROW LAKE DAM THERMISTOR TEMPERATURES

NORTH THERMISTOR

DATE	Core A	Core B	Core C	Core D	Core E	Core F	Core G	Core H	Core J	Bedrock K	Bedrock L
15-Jan-03											
10-Feb-03	-18.9	-15.7	-14.0	-12.9	-12.2	-11.9	-11.7	-11.7	-11.9	-12.0	-12.0
11-Mar-03	-20.8	-17.9	-15.7	-14.3	-13.1	-12.6	-12.2	-12.2	-12.2	-12.2	-12.1
17-Apr-03	-20.8	-18.7	-17.1	-15.8	-14.5	-13.6	-13.1	-13.1	-12.8	-12.8	-12.5
14-May-03	-17.7	-17.5	-16.9	-16.0	-15.0	-14.2	-13.7	-13.7	-13.3	-13.1	-12.9
16-Jun-03	-13.9	-19.1	-14.9	-15.0	-14.6	-14.3	-13.8	-13.8	-13.5	-13.3	-13.0
18-Jul-03	-9.6	-15.9	-11.5	-12.8	-13.4	-13.5	-13.3	-13.3	-13.4	-13.4	-13.2

CENTRE THERMISTOR

DATE	Core A	Core B	Core C	Core D	Core E	Core F	Core G	Bedrock H	Bedrock J	Bedrock K	Bedrock L
15-Jan-03											
10-Feb-03	-13.7	-12.7	-12.2	-12.0	-11.8	-11.8	-11.8	-11.8	-11.8	-11.9	-12.1
11-Mar-03	-15.3	-14.0	-13.2	-12.6	-12.2	-12.2	-12.1	-12.1	-12.0	-11.8	-12.1
17-Apr-03	-16.6	-15.3	-14.5	-13.7	-13.1	-12.9	-12.7	-12.7	-12.4	-12.2	-12.4
14-May-03	-16.5	-15.7	-14.9	-14.3	-13.6	-13.4	-13.1	-13.1	-12.6	-12.5	-12.6
16-Jun-03	-15.0	-14.9	-14.5	-14.2	-13.7	-13.5	-13.5	-13.5	-12.9	-12.8	-12.8
18-Jul-03	-12.4	-12.9	-13.3	-13.6	-13.5	-13.4	-13.4	-13.4	-13.1	-13.0	-13.0

SOUTH THERMISTOR

DATE	Core A	Core B	Core C	Core D	Core E	Core F	Core G	Core H	Bedrock J	Bedrock K	Bedrock L
15-Jan-03											
10-Feb-03	-12.8	-12.3	-11.9	-11.8	-11.6	-11.8	-11.5	-11.5	-11.6	-11.6	-11.8
11-Mar-03	-14.1	-13.5	-12.9	-12.6	-12.4	-12.4	-12.0	-12.0	-11.9	-11.8	-12.0
17-Apr-03	-15.5	-14.8	-14.1	-13.8	-13.4	-13.3	-12.8	-12.8	-12.5	-12.3	-12.3
14-May-03	-15.7	-15.1	-14.6	-14.3	-13.9	-13.8	-13.3	-13.3	-12.9	-12.6	-12.6
16-Jun-03	-14.3	-13.5	-13.9	-13.2	-13.2	-12.5	-13.4	-13.4	-12.8	-12.1	-12.6
18-Jul-03	-11.9	-11.5	-12.5	-12.8	-13.0	-13.4	-13.2	-13.2	-13.1	-12.9	-13.0

POLARIS MINE - OPERATIONAL LANDFILL TEMPERATURE MONITORING - THERMISTOR STRING #1
TEMPERATURES IN DEGREES C

	Bead # 1	Bead # 2	Bead # 3	Bead # 4	Bead # 5	Bead # 6	Bead # 7	Bead # 8	Bead # 9	Bead # 10	Bead # 11	Bead # 12
Installation Depth Below Collar (M)	-0.5	-1.0	-1.5	-2.0	-3.0	-4.0	-4.5	-5.0	-5.5	-6.0		
20-Mar-99	-22.9	-23.9	-24.0	-23.7	-21.7	-17.0	-15.9	-15.0	-14.2	-13.5		
22-Mar-99	-22.7	-23.3	-23.5	-23.3	-21.6	-17.1	-16.0	-15.2	-14.3	-13.6		
23-Mar-99	-22.5	-23.2	-23.3	-23.1	-21.5	-17.2	-16.0	-15.2	-14.4	-13.6		
24-Mar-99	-22.4	-23.0	-23.2	-22.9	-21.4	-17.2	-16.1	-15.3	-14.4	-13.7		
25-Mar-99	-22.4	-22.9	-23.0	-22.8	-21.4	-17.2	-16.2	-15.4	-14.5	-13.8		
26-Mar-99	-23.1	-22.8	-22.9	-22.6	-21.3	-17.3	-16.2	-15.4	-14.5	-13.8		
27-Mar-99	-23.7	-23.0	-22.8	-22.5	-21.2	-17.3	-16.3	-15.5	-14.6	-13.9		
29-Mar-99	-24.7	-23.4	-22.8	-22.4	-21.0	-17.4	-16.4	-15.6	-14.7	-14.0		
30-Mar-99	-25.9	-23.9	-23.0	-22.3	-21.0	-17.4	-16.4	-15.6	-14.7	-14.0		
6-Apr-99	-24.1	-24.1	-23.5	-22.7	-20.9	-17.5	-16.6	-15.9	-15.0	-14.3		
13-Apr-99	-22.7	-22.8	-22.6	-22.2	-20.8	-17.6	-16.8	-16.0	-15.3	-14.5		
20-Apr-99	-19.9	-20.6	-21.2	-21.3	-20.6	-17.7	-16.9	-16.2	-15.5	-14.7		
26-Apr-99	-18.4	-19.8	-20.5	-20.6	-20.0	-17.7	-17.0	-16.4	-15.6	-14.9		
4-May-99	-16.2	-18.0	-19.0	-19.5	-19.4	-17.6	-17.0	-16.4	-15.7	-15.1		
11-May-99	-14.1	-16.2	-17.4	-18.2	-18.7	-17.4	-16.9	-16.4	-15.8	-15.2		
18-May-99	-9.6	-12.8	-15.0	-16.5	-17.7	-17.2	-16.8	-16.4	-15.8	-15.3		
25-May-99	-6.7	-10.1	-12.6	-14.5	-16.5	-16.8	-16.6	-16.3	-15.8	-15.3		
1-Jun-99	-5.0	-8.4	-10.7	-12.7	-15.1	-16.3	-16.2	-16.0	-15.7	-15.3		
8-Jun-99	-0.5	-2.9	-7.0	-10.2	-13.6	-15.7	-15.8	-15.8	-15.5	-15.2		
15-Jun-99	-0.7	-2.7	-5.6	-8.3	-12.0	-15.0	-15.3	-15.4	-15.3	-15.1		
22-Jun-99	0.2	-1.8	-4.5	-7.1	-10.7	-14.2	-14.7	-14.9	-15.0	-14.9		
29-Jun-99	1.3	-1.3	-3.5	-5.9	-9.4	-13.2	-14.0	-14.3	-14.5	-14.6		
5-Jul-99	4.3	-0.5	-2.3	-4.7	-8.8	-12.8	-13.5	-13.9	-14.2	-14.4		
13-Jul-99	3.9	2.9	-1.6	-4.3	-8.0	-12.2	-13.0	-13.5	-13.8	-14.1		
20-Jul-99	3.3	1.3	-1.3	-3.8	-7.4	-11.6	-12.5	-13.0	-13.4	-13.8		
27-Jul-99	3.9	1.7	-1.1	-3.4	-6.8	-11.1	-12.0	-12.5	-13.1	-13.4		
3-Aug-99	4.8	2.0	-0.8	-3.0	-6.4	-10.6	-11.5	-12.1	-12.7	-13.2		
10-Aug-99	4.8	2.4	-0.8	-2.8	-6.0	-10.3	-11.1	-11.8	-12.3	-12.8		
17-Aug-99	3.9	2.0	-0.7	-2.6	-5.7	-9.9	-10.7	-11.4	-12.0	-12.5		
24-Aug-99	1.4	0.7	-0.7	-2.5	-5.4	-9.6	-10.4	-11.1	-11.7	-12.3		
31-Aug-99	0.0	0.1	-0.7	-2.4	-5.2	-9.3	-10.2	-10.8	-11.4	-12.0		
7-Sep-99	-0.2	-0.1	-0.2	-1.5	-4.3	-8.2	-9.5	-10.2	-10.8	-11.5		
14-Sep-99	-0.4	-0.1	-0.3	-1.6	-4.1	-8.0	-9.3	-10.0	-10.6	-11.2		
22-Sep-99	-1.3	-0.4	-0.4	-1.6	-4.0	-7.8	-9.1	-9.7	-10.4	-11.1		
28-Sep-99	-1.0	-0.5	-0.5	-1.6	-3.9	-7.6	-8.8	-9.5	-10.2	-10.9		
5-Oct-99	-5.9	-3.0	-1.4	-1.8	-3.9	-7.4	-8.6	-9.3	-10.0	-10.7		
12-Oct-99	-8.1	-5.4	-3.7	-2.8	-3.9	-7.3	-8.5	-9.1	-9.8	-10.5		
19-Oct-99	-12.9	-9.4	-6.3	-4.5	-4.3	-7.2	-8.3	-9.0	-9.6	-10.3		
26-Oct-99	-14.3	-11.3	-8.4	-6.4	-5.2	-7.2	-8.2	-8.8	-9.5	-10.1		
2-Nov-99	-15.8	-13.7	-10.8	-8.3	-6.3	-7.3	-8.2	-8.7	-9.3	-10.0		
9-Nov-99	-21.1	-16.7	-12.7	-10.0	-7.6	-7.6	-8.2	-8.7	-9.3	-9.9		
16-Nov-99	-20.7	-17.0	-13.7	-11.5	-9.0	-8.1	-8.4	-8.8	-9.3	-9.8		
23-Nov-99	-18.6	-17.8	-15.7	-13.3	-10.3	-8.7	-8.8	-9.0	-9.4	-9.8		
30-Nov-99	-19.3	-16.7	-15.1	-13.6	-11.4	-9.4	-9.2	-9.3	-9.5	-9.9		
7-Dec-99	-24.9	-21.4	-17.8	-15.2	-12.3	-10.0	-9.6	-9.6	-9.8	-10.0		
13-Dec-99	-26.8	-23.8	-20.3	-17.3	-13.6	-10.6	-10.1	-10.0	-10.0	-10.2		
22-May-00	-12.3	-14.1	-15.7	-16.9	-18.2	-18.1	-17.8	-17.4	-16.9	-16.4		
29-May-00	-10.3	-13.2	-14.7	-15.9	-17.2	-17.6	-17.4	-17.2	-16.8	-16.4		
6-Jun-00	-0.3	-0.1	-1.0	-2.3	-10.8	-12.2	-13.0	-15.6	-16.6	-16.2		
16-Jun-00	1.0	-2.0	-5.7	-9.6	-13.9	-16.2	-16.4	-16.4	-16.2	-16.0		
26-Jun-00	5.3	1.2	-1.8	-5.6	-10.9	-14.8	-15.5	-15.8	-15.8	-15.7		
4-Jul-00	2.1	0.7	-1.3	-4.4	-9.3	-13.7	-14.7	-15.1	-15.3	-15.4		
11-Jul-00	2.8	1.0	-1.2	-3.9	-8.2	-12.8	-14.0	-14.5	-14.8	-15.0		
18-Jul-00	2.5	1.2	-1.1	-3.5	-7.5	-12.1	-13.3	-13.9	-14.3	-14.6		
19-Sep-00	-3.9	-0.4	-1.0	-2.1	-4.6	-8.4	-9.6	-10.3	-11.0	-11.6		
26-Sep-00	-6.3	-3.7	-2.4	-2.6	-4.5	-8.2	-9.4	-10.1	-10.8	-11.4		
10-Oct-00	-9.9	-7.4	-5.6	-4.9	-5.2	-7.9	-9.0	-9.7	-10.3	-10.9		
10-Nov-00	-18.7	-16.8	-14.2	-12.0	-9.5	-8.8	-9.2	-9.5	-9.9	-10.4		
27-Apr-01	-19.8	-21.5	-23.0	-23.7	-23.5	-21.0	-19.8	-19.1	-18.2	-17.3		
22-May-01	-9.9	-12.8	-15.5	-17.6	-19.7	-19.6	-19.1	-18.7	-18.2	-17.5		
18-Jun-01	1.9	-0.7	-3.9	-7.3	-12.1	-16.0	-16.8	-17.0	-17.0	-16.9		
19-Jul-01	8.5	2.4	-1.1	-3.4	-7.3	-12.0	-13.4	-14.1	-14.6	-15.0		
21-Aug-01	0.0	0.0	-0.1	-2.0	-5.3	-9.8	-11.2	-11.9	-12.6	-13.2		
21-Aug-01	0.0	0.0	-0.1	-2.0	-5.3	-9.8	-11.2	-11.9	-12.6	-13.2		
16-Nov-02	-14.3	-13.3	-11.4	-9.7	-8.1	-8.5	-9.1	-9.5	-10.0	-10.6		
18-Dec-02	-18.6	-17.6	-16.8	-15.8	-13.7	-11.0	-10.6	-10.5	-10.5	-10.7		
10-Feb-03	-27.6	-25.3	-23.4	-21.6	-18.6	-14.8	-13.8	-13.3	-12.9	-12.5		
11-Mar-03	-28.3	-26.2	-24.9	-23.8	-21.4	-17.0	-15.7	-15.0	-14.3	-13.8		
17-Apr-03	-24.7	-24.5	-24.0	-23.3	-21.9	-18.6	-17.4	-16.7	-16.0	-15.2		
15-May-03	-15.2	-17.1	-18.1	-18.8	-19.4	-18.3	-17.6	-17.1	-16.6	-15.9		
17-Jun-03	-24.7	-24.5	-24.0	-23.3	-21.9	-18.6	-17.4	-16.7	-16.0	-15.2		

POLARIS MINE - OPERATIONAL LANDFILL TEMPERATURE MONITORING - THERMISTOR STRING #2
TEMPERATURES IN DEGREES C

	Bead # 1	Bead # 2	Bead # 3	Bead # 4	Bead # 5	Bead # 6	Bead # 7	Bead # 8	Bead # 9	Bead # 10	Bead # 11	Bead # 12
Installation Depth Below Collar (M)	-0.5	-1.0	-1.5	-2.0	-2.5	-3.0	-3.5	-4.0	-4.5	-5.0		
20-Mar-99	-24.2	-24.8	-24.9	-24.5	-23.8	-22.7	-21.5	-20.0	-18.6	-17.4		
22-Mar-99	-24.0	-24.2	-24.5	-24.2	-23.5	-22.5	-21.5	-20.1	-18.7	-17.5		
23-Mar-99	-23.7	-24.2	-24.3	-24.0	-23.4	-22.5	-21.4	-20.1	-18.8	-17.6		
24-Mar-99	-23.5	-24.0	-24.1	-23.9	-23.3	-22.4	-21.4	-20.1	-18.8	-17.6		
25-Mar-99	-23.5	-23.8	-23.9	-23.7	-23.1	-22.3	-21.3	-20.1	-18.8	-17.6		
26-Mar-99	-24.0	-23.8	-23.8	-23.6	-23.0	-22.2	-21.3	-20.1	-18.9	-17.7		
27-Mar-99	-24.3	-24.0	-23.7	-23.5	-22.9	-22.2	-21.3	-20.1	-18.9	-17.7		
29-Mar-99	-25.2	-24.4	-23.8	-23.3	-22.8	-22.0	-21.2	-20.1	-18.9	-17.8		
30-Mar-99	-26.1	-25.0	-23.9	-23.3	-22.7	-21.9	-21.2	-20.0	-18.9	-17.8		
6-Apr-99	-24.7	-24.8	-24.3	-23.6	-22.8	-21.9	-21.0	-20.0	-19.0	-18.0		
13-Apr-99	-23.5	-23.6	-23.4	-23.0	-22.5	-21.8	-21.0	-20.0	-19.0	-18.1		
20-Apr-99	-20.9	-21.5	-22.0	-22.2	-21.9	-21.4	-20.8	-20.0	-19.1	-18.2		
26-Apr-99	-19.9	-20.7	-21.4	-21.5	-21.3	-20.9	-20.5	-19.8	-19.0	-18.3		
4-May-99	-18.1	-19.3	-20.1	-20.4	-20.5	-20.4	-20.1	-19.6	-18.9	-18.2		
11-May-99	-16.1	-17.6	-18.8	-19.4	-19.7	-19.7	-19.5	-19.2	-18.7	-18.2		
18-May-99	-12.5	-14.6	-16.6	-17.8	-18.5	-18.8	-18.9	-18.8	-18.5	-18.0		
25-May-99	-10.2	-12.3	-14.5	-15.9	-17.0	-17.7	-18.1	-18.2	-18.1	-17.8		
1-Jun-99	-7.6	-10.4	-12.7	-14.3	-15.6	-16.5	-17.1	-17.5	-17.5	-17.4		
8-Jun-99	-3.3	-6.2	-9.6	-11.9	-13.8	-15.2	-16.0	-16.7	-16.9	-17.0		
15-Jun-99	-1.4	-4.1	-7.4	-9.8	-11.9	-13.6	-14.7	-15.7	-16.2	-16.5		
22-Jun-99	-0.4	-2.1	-5.0	-7.7	-10.2	-12.1	-13.4	-14.7	-15.5	-15.9		
29-Jun-99	1.6	-1.0	-3.6	-6.1	-8.4	-10.4	-11.9	-13.3	-14.4	-15.1		
5-Jul-99	4.2	0.0	-2.7	-5.3	-7.6	-9.6	-11.2	-12.7	-13.8	-14.6		
13-Jul-99	3.9	1.1	-1.9	-4.4	-6.7	-8.7	-10.3	-11.9	-13.1	-13.9		
20-Jul-99	3.1	1.0	-1.5	-3.8	-6.0	-7.9	-9.5	-11.1	-12.4	-13.3		
27-Jul-99	4.0	1.2	-1.3	-3.4	-5.4	-7.3	-8.8	-10.4	-11.7	-12.7		
3-Aug-99	4.3	1.6	-1.1	-3.1	-5.0	-6.8	-8.3	-9.9	-11.1	-12.1		
10-Aug-99	4.2	1.7	-1.0	-2.8	-4.7	-6.4	-7.8	-9.4	-10.6	-11.7		
17-Aug-99	3.3	1.7	-0.8	-2.6	-4.4	-6.0	-7.4	-8.9	-10.2	-11.2		
24-Aug-99	1.0	0.5	-0.7	-2.4	-4.2	-5.7	-7.1	-8.6	-9.8	-10.8		
31-Aug-99	0.0	0.0	-0.9	-2.4	-4.0	-5.5	-6.7	-8.2	-9.4	-10.4		
7-Sep-99	-0.1	-0.2	-1.0	-2.4	-3.9	-5.3	-6.5	-7.9	-9.1	-10.1		
14-Sep-99	-0.2	-0.3	-1.2	-2.3	-3.7	-5.1	-6.3	-7.6	-8.8	-9.8		
21-Sep-99	-0.8	-0.5	-1.4	-2.5	-3.7	-5.0	-6.1	-7.4	-8.6	-9.5		
28-Sep-99	-1.1	-1.2	-1.8	-2.6	-3.7	-4.9	-6.0	-7.2	-8.3	-9.3		
5-Oct-99	-4.7	-3.2	-2.7	-3.0	-3.9	-4.9	-5.9	-7.1	-8.1	-9.1		
12-Oct-99	-6.8	-5.2	-4.3	-4.0	-4.3	-5.0	-5.8	-6.9	-7.9	-8.8		
19-Oct-99	-11.7	-9.0	-6.7	-5.6	-5.2	-5.4	-6.1	-7.0	-7.9	-8.7		
26-Oct-99	-13.9	-11.3	-9.0	-7.6	-6.7	-6.4	-6.6	-7.2	-7.9	-8.6		
2-Nov-99	-15.9	-14.0	-11.5	-9.7	-8.3	-7.6	-7.5	-7.7	-8.1	-8.7		
9-Nov-99	-19.7	-16.3	-13.2	-11.3	-9.9	-8.9	-8.5	-8.3	-8.5	-8.9		
16-Nov-99	-20.3	-17.0	-14.3	-12.7	-11.3	-10.2	-9.6	-9.1	-9.0	-9.2		
23-Nov-99	-19.1	-18.1	-16.1	-14.4	-12.7	-11.4	-10.6	-9.9	-9.6	-9.6		
30-Nov-99	-18.7	-17.0	-15.6	-14.6	-13.4	-12.3	-11.5	-10.8	-10.3	-10.1		
7-Dec-99	-24.2	-21.2	-18.1	-16.0	-14.4	-13.1	-12.2	-11.4	-10.8	-9.9		
13-Dec-99	-26.6	-23.8	-20.7	-18.3	-16.1	-14.4	-13.2	-12.1	-11.4	-11.0		
22-May-00	-11.9	-13.3	-15.0	-16.3	-17.3	-18.1	-18.5	-18.8	-18.9	-18.6		
29-May-00	-11.0	-12.7	-14.2	-15.3	-16.3	-17.1	-17.7	-18.1	-18.3	-18.2		
6-Jun-00	-7.2	-10.0	-12.3	-13.9	-15.2	-16.2	-16.8	-17.4	-17.6	-17.7		
16-Jun-00	0.0	-2.3	-6.7	-10.2	-12.6	-14.3	-15.4	-16.3	-16.8	-17.1		
26-Jun-00	2.4	-1.0	-4.3	-7.1	-9.7	-11.9	-13.3	-14.8	-15.7	-16.2		
4-Jul-00	1.4	-0.4	-3.2	-5.8	-8.2	-10.3	-11.9	-13.6	-14.7	-15.4		
11-Jul-00	1.7	-0.2	-2.8	-5.0	-7.3	-9.3	-10.9	-12.6	-13.9	-14.7		
18-Jul-00	1.8	-0.2	-2.4	-4.5	-6.6	-8.6	-10.1	-11.8	-13.0	-14.1		
19-Sep-00	-3.8	-2.4	-2.5	-3.2	-4.3	-5.4	-6.5	-7.9	-9.0	-10.0		
26-Sep-00	-5.7	-4.1	-3.7	-3.9	-4.6	-5.6	-6.5	-7.8	-8.9	-9.8		
10-Oct-00	-9.5	-7.7	-6.6	-6.1	-6.1	-6.4	-7.0	-7.8	-8.7	-9.5		
10-Nov-00	-18.6	-16.8	-14.7	-13.0	-11.6	-10.6	-10.1	-9.8	-9.8	-10.0		
27-Apr-01	-20.5	-22.2	-23.3	-23.9	-23.9	-23.6	-23.1	-22.3	-21.3	-20.4		
22-May-01	-15.1	-17.4	-18.9	-20.0	-20.6	-21.0	-21.0	-20.8	-20.5	-20.0		
18-Jun-01	-0.3	-3.2	-6.6	-9.4	-12.1	-14.2	-15.6	-17.0	-17.7	-18.2		
19-Jul-01	4.3	-0.1	-2.4	-4.7	-7.0	-9.0	-10.5	-12.3	-13.6	-14.7		
21-Aug-01	-0.1	-0.1	-1.3	-3.0	-4.9	-6.5	-8.0	-9.6	-11.0	-12.1		
14-Sep-02	-0.1	-0.4	-1.6	-3.0	-4.5	-5.9	-7.2	-8.6	-9.8	-10.9		
23-Oct-02	-6.9	-6.9	-6.8	-6.8	-6.8	-7.0	-7.5	-8.1	-8.9	-9.6		
16-Nov-02	-14.8	-13.1	-11.7	-10.5	-9.6	-9.2	-9.1	-9.2	-9.5	-9.9		
18-Dec-02	-18.4	-17.7	-17.0	-16.1	-15.1	-14.0	-13.1	-12.3	-11.7	-11.4		
10-Feb-03	-27.0	-25.2	-23.5	-21.9	-20.2	-18.8	-17.7	-16.4	-15.4	-14.6		
11-Mar-03	-28.0	-26.4	-25.3	-24.2	-22.9	-21.6	-20.3	-18.9	-17.6	-16.5		
17-Apr-03	-24.9	-24.9	-24.4	-23.7	-15.8	-22.2	-21.4	-20.4	-19.3	-18.4		
15-May-03	-16.0	-17.3	-18.1	-18.9	-19.4	-19.7	-19.7	-19.5	-19.1	-18.6		
17-Jun-03	-1.5	-4.0	-6.6	-8.9	-11.0	-12.8	-14.0	-15.2	-16.1	-16.5		

POLARIS MINE - OPERATIONAL LANDFILL TEMPERATURE MONITORING - THERMISTOR STRING #4
TEMPERATURES IN DEGREES C

Installation Depth Below Collar (M)	Bead # 1	Bead # 2	Bead # 3	Bead # 4	Bead # 5	Bead # 6	Bead # 7	Bead # 8	Bead # 9	Bead # 10	Bead # 11	Bead # 12
	-0.5	-1.0	-1.5	-2.0	-2.5	-3.0	-4.0	-5.0	-5.5	-6.0	-6.5	-7.0
20-Mar-99	-23.1	-23.8	-23.7	-23.3	-22.5	-21.2	-18.1	-15.3	-14.2	-13.3	-12.5	
22-Mar-99	-22.7	-23.2	-23.3	-22.9	-22.2	-21.1	-18.2	-15.4	-14.3	-13.4	-12.6	
23-Mar-99	-22.7	-23.1	-23.1	-22.7	-22.1	-21.0	-18.2	-15.5	-14.3	-13.5	-12.7	
24-Mar-99	-22.4	-22.9	-22.9	-22.6	-22.0	-20.9	-18.2	-15.5	-14.4	-13.5	-12.7	
25-Mar-99	-22.3	-22.7	-22.7	-22.4	-21.8	-20.8	-18.2	-15.6	-14.4	-13.6	-12.8	
26-Mar-99	-22.7	-22.6	-22.5	-22.3	-21.7	-20.7	-18.2	-15.6	-14.5	-13.6	-12.8	
27-Mar-99	-23.2	-22.6	-22.4	-22.2	-21.6	-20.6	-18.2	-15.6	-14.5	-13.7	-12.8	
29-Mar-99	-24.3	-23.0	-22.4	-22.0	-21.4	-20.5	-18.2	-15.7	-14.6	-13.7	-12.9	
30-Mar-99	-25.4	-23.4	-22.6	-21.9	-21.3	-20.4	-18.1	-15.7	-14.6	-13.8	-13.0	
6-Apr-99	-23.9	-23.6	-23.0	-22.3	-21.4	-20.3	-18.1	-15.8	-14.8	-14.0	-13.2	
13-Apr-99	-22.4	-22.3	-22.0	-21.7	-21.1	-20.2	-18.1	-15.9	-15.0	-14.2	-13.4	
20-Apr-99	-20.3	-20.8	-21.0	-20.9	-20.6	-19.8	-18.0	-16.0	-15.1	-14.4	-13.6	
26-Apr-99	-18.8	-20.0	-20.3	-20.2	-19.9	-19.3	-17.8	-16.0	-15.2	-14.5	-13.8	-13.2
4-May-99	-17.6	-18.7	-19.0	-19.2	-19.1	-18.8	-17.6	-16.0	-15.3	-14.6	-13.9	-13.3
11-May-99	-15.3	-17.0	-17.7	-18.1	-18.3	-18.1	-17.3	-15.9	-15.2	-14.6	-14.0	-13.5
18-May-99	-10.5	-13.7	-15.3	-16.4	-17.0	-17.2	-16.9	-15.7	-15.2	-14.6	-14.1	-13.6
25-May-99	-8.0	-11.2	-13.0	-14.4	-15.4	-16.0	-16.2	-15.5	-15.1	-14.6	-14.1	-13.6
1-Jun-99	-6.2	-9.5	-11.2	-12.7	-13.8	-14.7	-15.5	-15.2	-14.8	-14.5	-14.0	-13.6
8-Jun-99	-1.9	-4.7	-7.7	-10.1	-11.9	-13.3	-14.6	-14.7	-14.5	-14.2	-13.9	-13.6
15-Jun-99	-1.3	-3.5	-5.9	-8.1	-9.9	-11.5	-13.6	-14.2	-14.2	-14.0	-13.7	-13.5
22-Jun-99	-0.4	-2.5	-4.7	-6.7	-8.4	-10.1	-12.4	-13.6	-13.7	-13.7	-13.5	-13.3
29-Jun-99	0.3	-1.8	-3.7	-5.5	-7.1	-8.7	-11.1	-12.6	-13.0	-13.1	-13.2	-13.1
5-Jul-99	2.1	-1.4	-3.2	-4.9	-6.5	-8.0	-10.6	-12.2	-12.6	-12.8	-13.0	-12.9
13-Jul-99	3.1	-0.8	-2.6	-4.3	-5.8	-7.3	-9.9	-11.5	-12.1	-12.4	-12.6	-12.7
20-Jul-99	2.4	-0.6	-2.2	-3.7	-5.2	-6.7	-9.2	-11.0	-11.6	-11.9	-12.2	-12.4
27-Jul-99	3.1	-0.4	-1.9	-3.3	-4.7	-6.1	-8.6	-10.4	-11.0	-11.4	-11.8	-12.0
3-Aug-99	3.5	-0.2	-1.7	-3.0	-4.3	-5.7	-8.1	-10.0	-10.6	-11.1	-11.5	-11.7
10-Aug-99	3.6	0.0	-1.5	-2.8	-4.0	-5.3	-7.7	-9.6	-10.2	-10.7	-11.2	-11.5
17-Aug-99	3.2	0.2	-1.3	-2.5	-3.7	-5.0	-7.3	-9.2	-9.9	-10.4	-10.9	-11.1
24-Aug-99	1.1	0.0	-1.2	-2.3	-3.4	-4.7	-7.0	-8.8	-9.5	-10.1	-10.5	-10.9
7-Sep-99	0.0	-0.3	-0.1	-0.6	-1.5	-2.4	-4.6	-6.6	-7.5	-8.4	-9.1	-9.6
14-Sep-99	-0.6	-0.6	-0.2	-0.9	-1.6	-2.4	-4.4	-6.3	-7.3	-8.1	-8.8	-9.3
21-Sep-99	-1.3	-1.8	-1.5	-1.4	-1.9	-2.5	-4.3	-6.1	-7.0	-7.9	-8.6	-9.1
28-Sep-99	-2.4	-1.6	-1.7	-2.0	-2.3	-2.8	-4.3	-5.9	-6.8	-7.6	-8.3	-8.8
5-Oct-99	-10.1	-6.9	-4.3	-3.1	-3.0	-3.1	-4.3	-5.8	-6.7	-7.4	-8.1	-8.7
12-Oct-99	-14.6	-8.7	-6.2	-4.8	-4.2	-4.0	-4.5	-5.8	-6.6	-7.3	-7.9	-8.4
19-Oct-99	-15.7	-14.1	-10.2	-7.0	-5.7	-5.0	-4.9	-5.8	-6.4	-7.1	-7.7	-8.2
26-Oct-99	-16.5	-15.6	-12.1	-9.1	-7.6	-6.6	-5.7	-6.0	-6.6	-7.1	-7.7	-8.1
2-Nov-99	-18.9	-16.9	-14.6	-11.4	-9.5	-8.1	-6.5	-6.4	-6.7	-7.2	-7.7	-8.1
9-Nov-99	-25.9	-22.1	-16.9	-12.7	-10.8	-9.4	-7.5	-6.9	-7.0	-7.4	-7.7	-8.1
16-Nov-99	-24.7	-21.6	-17.0	-13.5	-11.8	-10.6	-8.4	-7.4	-7.4	-7.6	-7.9	-8.2
23-Nov-99	-17.4	-19.1	-17.6	-15.2	-13.4	-11.8	-9.3	-8.1	-7.9	-7.9	-8.1	-8.3
30-Nov-99	-25.6	-19.3	-16.4	-14.7	-13.5	-12.4	-10.2	-8.7	-8.4	-8.2	-8.3	-8.4
7-Dec-99	-28.8	-25.7	-21.0	-17.0	-14.9	-13.3	-10.8	-9.3	-8.9	-8.6	-8.6	-8.6
13-Dec-99	-30.5	-27.3	-23.4	-19.5	-17.1	-15.0	-11.7	-9.9	-9.3	-9.0	-8.9	-8.8
22-May-00	-3.3	-10.4	-11.9	-13.8	-14.9	-15.7	-16.7	-16.7	-16.4	-16.0	-15.5	-15.0
29-May-00	3.3	-9.5	-11.7	-13.2	-14.1	-14.9	-15.9	-16.1	-16.0	-15.7	-15.3	-14.9
6-Jun-00	4.3	-5.8	-9.3	-11.7	-13.0	-13.9	-15.2	-15.5	-15.5	-15.3	-15.1	-14.7
16-Jun-00	16.3	6.8	2.5	-1.8	-5.7	-8.8	-13.1	-14.6	-14.8	-14.9	-14.7	-14.5
26-Jun-00	15.8	5.5	2.0	-1.1	-3.5	-5.8	-10.2	-12.8	-13.6	-14.0	-14.1	-14.1
4-Jul-00	7.5	2.9	1.6	-0.8	-2.9	-4.8	-8.8	-11.5	-12.5	-13.1	-13.5	-13.6
11-Jul-00	7.1	3.2	-1.7	-6.6	-10.9	-13.5	-15.0	-15.3	-15.5	-15.6	-15.3	-15.1
18-Jul-00	4.8	3.0	-1.5	-5.9	-10.0	-12.5	-14.4	-14.8	-15.1	-15.3	-15.1	-15.0
19-Sep-00	-6.1	-3.8	-1.5	-1.4	-1.9	-2.6	-4.6	-6.5	-7.4	-8.3	-9.0	-9.5
26-Sep-00	-10.4	-5.6	-3.5	-2.6	-2.6	-3.0	-4.6	-6.3	-7.2	-8.1	-8.7	-9.3
10-Oct-00	-9.4	-10.0	-7.3	-5.5	-5.0	-4.7	-5.1	-6.3	-7.0	-7.7	-8.4	-8.9
10-Nov-00	-19.4	-19.0	-16.4	-13.1	-11.4	-10.1	-8.2	-7.6	-7.7	-8.0	-8.3	-8.6
27-Apr-01	-17.5	-18.2	-20.1	-21.9	-22.4	-22.4	-21.3	-19.5	-18.5	-17.4	-16.5	-15.8
22-May-01	-0.2	-8.9	-12.0	-15.1	-16.7	-17.8	-18.7	-18.3	-17.8	-17.2	-16.6	-16.1
18-Jun-01	6.4	1.7	-0.8	-3.6	-6.3	-8.6	-12.6	-14.9	-15.4	-15.7	-15.6	-15.5
19-Jul-01	18.4	5.9	0.0	-1.8	-3.5	-5.1	-8.4	-10.8	-11.9	-12.7	-13.2	-13.5
21-Aug-01	2.3	0.0	0.0	-1.0	-2.3	-3.5	-6.3	-8.6	-9.6	-10.5	-11.2	-11.7
14-Sep-02	3.5	-0.1	-0.6	-1.5	-2.5	-3.5	-6.0	-8.1	-9.1	-10.0		
23-Oct-02	-6.8	-6.7	-6.7	-6.6	-6.6	-6.5	-6.8	-7.6	-8.2	-8.9	-9.5	-10.0
16-Nov-02	-19.4	-17.0	-14.8	-13.1	-11.6	-10.3	-8.8	-8.5	-8.8	-9.1	-9.5	-9.8
18-Dec-02	-22.1	-19.3	-18.7	-18.2	-17.5	-16.6	-14.0	-11.9	-11.2	-10.8	-10.5	-10.5
10-Feb-03	-31.7	-29.2	-27.1	-25.4	-23.8	-22.1	-18.8	-16.1	-15.0	-14.1	-13.5	-13.0
11-Mar-03	-25.5	-29.6	-27.6	-26.6	-25.7	-24.7	-21.7	-18.7	-17.3	-16.2	-15.2	-14.5
17-Apr-03	-21.6	-24.8	-25.1	-24.9	-24.5	-23.9	-22.3	-20.2	-19.1	-18.0	-17.1	-16.3
15-May-03	-6.1	-13.6	-15.6	-16.9	-18.0	-18.8	-19.7	-19.3	-18.8	-18.2	-17.6	-17.0
17-Jun-03	8.2	-0.3	-2.9	-5.8	-8.3	-10.5	-13.8	-15.5	-15.4	-15.9	-16.2	-16.2

POLARIS MINE - OPERATIONAL LANDFILL TEMPERATURE MONITORING - THERMISTOR STRING #5
TEMPERATURES IN DEGREES C

	Bead # 1	Bead # 2	Bead # 3	Bead # 4	Bead # 5	Bead # 6	Bead # 7	Bead # 8	Bead # 9	Bead # 10	Bead # 11	Bead # 12
Installation Depth Below Cellar (M)	0.2	-0.3	-1.3	-2.3	-3.3	-4.3	-5.3	-5.8	-6.3	-6.8	-7.3	-7.8
20-Mar-99	-19.9	-23.6	-25.1	-23.9	-21.4	-18.5	-15.5	-14.6	-13.9	-13.1	-12.4	
22-Mar-99	-19.0	-23.5	-24.5	-23.6	-21.4	-18.6	-15.7	-14.8	-14.1	-13.2	-12.5	
23-Mar-99	-19.1	-23.3	-24.3	-23.4	-21.3	-18.6	-15.8	-14.9	-14.1	-13.2	-12.6	
24-Mar-99	-20.5	-23.1	-24.1	-23.3	-21.3	-18.7	-15.8	-14.9	-14.2	-13.3	-12.7	
25-Mar-99	-21.6	-23.0	-23.9	-23.1	-21.2	-18.7	-15.9	-15.0	-14.3	-13.3	-12.7	
26-Mar-99	-22.6	-23.5	-23.7	-23.0	-21.2	-18.7	-16.0	-15.1	-14.3	-13.4	-12.7	
27-Mar-99	-24.9	-23.9	-23.6	-22.9	-21.1	-18.7	-16.0	-15.1	-14.3	-13.4	-12.8	
29-Mar-99	-29.1	-25.0	-23.6	-22.7	-21.0	-18.7	-16.1	-15.2	-14.5	-13.5	-12.8	
30-Mar-99	-25.6	-26.2	-23.8	-22.6	-21.0	-18.8	-16.2	-15.3	-14.5	-13.6	-12.9	
6-Apr-99	-18.8	-24.6	-24.4	-22.7	-20.8	-18.8	-16.5	-15.6	-14.9	-14.0	-13.2	
13-Apr-99	-20.1	-23.1	-23.3	-22.3	-20.8	-18.9	-16.7	-15.9	-15.2	-14.3	-13.5	
20-Apr-99	-16.6	-20.7	-21.9	-21.8	-20.6	-18.9	-16.8	-16.1	-15.5	-14.5	-13.7	
26-Apr-99	-16.4	-19.8	-21.2	-21.0	-20.2	-18.8	-17.0	-16.3	-15.6	-14.8	-14.0	-13.3
4-May-99	-14.4	-18.1	-19.9	-20.3	-19.8	-18.7	-17.1	-16.4	-15.8	-15.0	-14.2	-13.6
11-May-99	-8.9	-16.1	-18.6	-19.5	-19.3	-18.5	-17.1	-16.5	-16.0	-15.1	-14.4	-13.8
18-May-99	-6.0	-11.8	-16.1	-18.2	-18.7	-18.2	-17.0	-16.5	-16.0	-15.3	-14.6	-13.9
25-May-99	-5.0	-9.2	-13.6	-16.5	-17.8	-17.7	-16.9	-16.5	-16.1	-15.4	-14.7	-14.1
1-Jun-99	2.4	-6.3	-11.5	-14.9	-16.8	-17.1	-16.7	-16.4	-16.0	-15.4	-14.8	-14.2
8-Jun-99	3.3	-3.3	-9.0	-13.2	-15.6	-16.4	-16.4	-16.2	-15.9	-15.4	-14.8	-14.2
15-Jun-99	7.1	-2.0	-7.2	-11.5	-14.5	-15.7	-16.0	-16.0	-15.7	-15.3	-14.8	-14.3
22-Jun-99	2.4	-0.8	-5.4	-10.1	-13.3	-14.9	-15.6	-15.6	-15.5	-15.2	-14.8	-14.3
29-Jun-99	6.7	1.7	-3.8	-8.3	-11.9	-13.8	-15.0	-15.1	-15.1	-14.9	-14.7	-14.3
5-Jul-99	8.2	4.9	-1.1	-7.3	-11.2	-13.2	-14.6	-14.8	-14.9	-14.8	-14.6	-14.2
13-Jul-99	7.5	5.0	-1.5	-6.4	-10.2	-12.5	-14.0	-12.2	-14.5	-14.5	-14.4	-14.1
20-Jul-99	6.4	3.6	-1.0	-5.6	-9.4	-11.7	-13.5	-13.9	-14.1	-14.2	-14.2	-14.0
27-Jul-99	9.8	4.3	-0.8	-5.0	-8.7	-11.0	-12.9	-13.4	-13.7	-13.9	-14.0	-13.9
3-Aug-99	10.0	5.0	-0.5	-4.6	-8.1	-10.5	-12.4	-12.9	-13.2	-13.6	-13.7	-13.7
10-Aug-99	10.3	4.8	-0.4	-4.2	-7.6	-9.9	-11.9	-12.5	-12.9	-13.3	-13.5	-13.5
17-Aug-99	6.2	4.0	-0.2	-3.9	-7.2	-9.5	-11.5	-12.1	-12.5	-12.9	-13.2	-13.3
24-Aug-99	1.5	1.6	-0.2	-3.6	-6.8	-9.1	-11.1	-11.7	-12.1	-12.6	-12.9	-13.1
31-Aug-99	-0.3	0.2	-0.3	-3.4	-6.5	-8.7	-10.7	-11.4	-11.8	-12.3	-12.7	-12.9
7-Sep-99	0.0	-0.2	-0.4	-3.3	-6.2	-8.4	-10.4	-11.0	-11.5	-12.0	-12.4	-12.7
15-Sep-99	-0.7	-0.3	-0.5	-3.2	-5.9	-8.1	-10.1	-10.7	-11.1	-11.7	-12.2	-12.5
21-Sep-99	-1.3	-0.8	-0.7	-3.1	-5.7	-7.8	-9.8	-10.4	-10.9	-11.5	-12.0	-12.3
28-Sep-99	-1.9	-0.7	-0.9	-3.1	-5.5	-7.6	-9.5	-10.1	-10.6	-11.2	-11.8	-12.1
5-Oct-99	-8.8	-4.1	-1.5	-3.1	-5.4	-7.4	-9.2	-9.9	-10.3	-11.0	-11.5	-11.9
12-Oct-99	-13.0	-6.3	-3.2	-3.5	-5.3	-7.2	-9.0	-9.6	-10.1	-10.8	-11.3	-11.6
19-Oct-99	-15.4	-12.1	-5.8	-4.4	-5.4	-6.9	-8.7	-9.4	-9.9	-10.5	-11.1	-11.5
26-Oct-99	-16.5	-14.2	-8.6	-6.2	-5.8	-7.0	-8.6	-9.2	-9.7	-10.3	-10.9	-11.3
2-Nov-99	-18.4	-16.4	-11.4	-7.8	-6.6	-7.2	-8.5	-9.1	-9.5	-10.2	-10.7	-11.2
9-Nov-99	-25.5	-20.7	-13.2	-9.4	-7.6	-7.5	-8.5	-9.0	-9.4	-10.0	-10.5	-11.0
16-Nov-99	-24.3	-20.6	-14.4	-10.9	-8.7	-8.1	-8.6	-9.4	-9.4	-9.9	-10.5	-10.9
23-Nov-99	-18.2	-19.8	-16.5	-12.3	-9.8	-8.7	-8.8	-9.1	-9.4	-9.9	-10.4	-10.7
30-Nov-99	-24.7	-18.8	-16.0	-13.2	-10.8	-9.4	-9.1	-9.3	-9.5	-9.9	-10.3	-10.7
7-Dec-99	-28.4	-25.4	-18.5	-14.1	-11.5	-10.1	-9.5	-9.5	-9.6	-10.0	-10.3	-10.6
13-Dec-99	-30.3	-27.5	-21.4	-15.9	-12.6	-10.7	-9.9	-9.8	-9.9	-10.1	-10.4	-10.6
22-May-00	-5.2	-11.4	-14.4	-16.8	-18.3	-18.5	-18.0	-17.7	-17.3	-16.5	-15.8	-15.2
29-May-00	1.0	-10.7	-13.6	-15.9	-17.4	-18.0	-17.7	-17.5	-17.1	-16.5	-15.9	-15.2
6-Jun-00	2.7	-7.0	-12.0	-14.9	-16.6	-17.3	-17.4	-17.2	-16.9	-16.4	-15.9	-15.3
16-Jun-00	13.3	-1.0	-7.8	-12.5	-15.3	-16.4	-16.8	-16.8	-16.6	-16.2	-15.8	-15.3
26-Jun-00	13.9	3.3	-3.8	-9.5	-13.4	-15.3	-16.2	-16.3	-16.2	-16.0	-15.7	-15.2
4-Jul-00	7.5	2.3	-2.1	-7.8	-12.0	-14.3	-15.6	-15.9	-15.9	-15.8	-15.5	-15.2
11-Jul-00	7.6	3.5	1.8	-0.9	-2.5	-4.3	-7.8	-10.6	-11.6	-12.3	-13.0	-13.0
18-Jul-00	5.2	3.2	1.6	-0.8	-2.3	-3.9	-7.2	-9.9	-10.9	-11.6	-12.4	-12.5
19-Sep-00	-5.8	-2.2	-1.4	-3.6	-6.2	-8.3	-10.4	-11.0	-11.5	-12.1	-12.6	-12.9
26-Sep-00	-9.7	-4.3	-2.3	-3.8	-6.0	-8.1	-10.1	-10.7	-11.2	-11.9	-12.4	-12.7
10-Oct-00	-9.1	-8.6	-5.4	-5.1	-6.1	-7.8	-9.6	-10.2	-10.7	-11.3	-11.9	-12.3
10-Nov-00	-19.2	-18.2	-13.8	-10.6	-8.9	-8.6	-9.3	-9.7	-10.0	-10.6	-11.1	-11.5
27-Apr-01	-17.9	-20.2	-23.2	-23.8	-22.9	-21.4	-19.3	-18.5	-17.8	-16.8	-15.8	-15.1
22-May-01	-1.9	-11.5	-16.4	-19.3	-20.4	-20.2	-19.2	-18.7	-18.1	-17.3	-16.5	-15.7
18-Jun-01	4.7	-0.5	-6.4	-11.6	-15.3	-17.0	-17.7	-17.7	-17.5	-17.1	-16.6	-16.0
19-Jul-01	17.4	4.8	-1.8	-6.4	-10.3	-12.9	-14.9	-15.4	-15.6	-15.8	-15.8	-15.5
21-Aug-01	2.5	0.0	-0.7	-4.3	-7.7	-10.2	-12.4	-13.0	-13.5	-14.0	-14.4	-14.5
14-Sep-02	2.6	-0.1	-1.2	-4.0	-6.8	-9.1	-11.1	-11.8	-12.3	-13.0	-13.5	-13.8
23-Oct-02	-6.7	-6.6	-6.3	-6.2	-6.7	-8.0	-9.7	-10.3	-10.8	-11.5	-12.1	-12.5
16-Nov-02	-18.7	-16.1	-12.6	-9.8	-8.5	-8.6	-9.6	-10.0	-10.4	-10.9	-11.6	-11.9
18-Dec-02	-21.5	-19.5	-18.6	-16.3	-13.6	-11.7	-10.8	-10.7	-10.8	-10.9	-11.3	-11.6
10-Feb-03	-30.9	-28.8	-25.6	-21.9	-18.5	-16.1	-14.2	-13.6	-13.2	-12.8	-12.5	-12.4
11-Mar-03	-27.7	-29.1	-27.1	-24.7	-21.6	-18.7	-16.2	-15.5	-14.9	-14.1	-13.6	-13.2
17-Apr-03	-22.8	-25.5	-25.4	-24.2	-22.5	-20.6	-18.4	-18.4	-16.8	-15.9	-15.1	-14.5
15-May-03	-8.9	-15.5	-18.0	-19.8	-20.5	-20.0	-18.8	-18.2	-17.6	-16.8	-16.0	-15.3
17-Jun-03	5.3	-2.1	-7.4	-11.8	-15.0	-16.6	-17.3	-17.3	-17.1	-16.8	-16.3	-15.8

APPENDIX G

SUMMARY OF EFFLUENT MONITORING AND EFFLUENT CHARACTERIZATION

August 14, 2003

Prairie & Northern Region
Environment Canada
Room 200, 4999 98th Ave.
Edmonton, AB T6B 2X3

Attention: Peter Blackall, Regional Director of Environmental Protection

Dear Sir;

Re: Polaris Mine – 2003 2nd Quarter Metal Mining Effluent Regulations Report

Despite having a designated discharge location for effluent identified under Section 9 of the MMER, there was no discharge from the Garrow Lake Tailings Impoundment Area during the period April 1st to June 30th of 2003. This will be the situation through most of each year. While there is no data to report other than that there was no effluent discharge, I have completed the monitoring report as required by the regulations and have attached it to this letter.

Please note that the Final Discharge Point referred to in Section 8.1.1 'Effluent' of the 2003, 1st Quarter report was missing the location of the Final Discharge Point. The Final Discharge Point for Garrow Lake siphons is geo referenced as 75° 22' 32" N, 97° 48' 37" W.

If you have any questions regarding the quarterly report or aspects of the application of the MMER to the Polaris Mine, please feel free to contact me at any time.

Yours truly,

Bruce Donald

Attachments: Quarterly Monitoring Report

cc:

Walter Kuit (Teck Cominco Ltd.)
John Knapp (Teck Cominco Ltd.)
Randy Baker (Azimuth Consulting Group)

POLARIS MINE – MMER MONITORING REPORT

2nd QUARTER 2003

APPENDIX A

- i. Information specified by Section 8.1 of Reference Method EPS 1/Rm/13

APPENDIX B

- i. Information specified by Section 8.1 of Reference Method EPS 1/Rm/14

APPENDIX C

- i. Concentration & monthly mean concentrations of each deleterious substance of Schedule 4
- ii. pH of the effluents samples as required by subsection 12(1)
- iii. Description of sample collection method
- iv. Total volume of effluent deposited during each month of the quarter as per section 19
- v. Mass loading of the deleterious substances set out in Schedule 4 and as per section 20

APPENDIX D

- i. Results of the effluent characterization as per paragraph 15(1)(a)

APPENDIX A

Reporting Requirements for Reference Method EPS 1/RM/13

Section 8.1.1 Effluent

- i. Name & location of operation generating the effluent
 - Polaris Mine, Little Cornwallis Island, Nunavut
 - Final Discharge Point for Garrow Lake is geo referenced as 75° 22' 32" N, 97° 48' 37" W.
- ii. Date & time of sampling
 - No sampling conducted as there was no effluent discharge during the quarter.
- iii. Type of sample
 - No sampling conducted as there was no effluent discharge during the quarter
- iv. Brief description of sampling point
 - Discharge point of siphon at Garrow Lake dam
- v. Sampling method
 - No sampling conducted as there was no effluent discharge during the quarter
- vi. Name of person submitting samples
 - No sampling conducted as there was no effluent discharge during the quarter

Section 8.1.2 Test Facilities and Conditions

- i. Test type & method
 - No testing conducted as there was no effluent discharge during the quarter
- ii. Indications of deviations from requirements in Sections 2 to 7 of Method EPS 1/RM/13
 - No deviations to report as there was no testing conducted during the quarter
- iii. Name and city of testing laboratory
 - No laboratory used during the quarter
- iv. Percent mortality of fish in stock tank(s)
 - None to report. There were no tests conducted during the period
- v. Species of test organism
 - None to report as there were no tests conducted during the period
- vi. Date and time for start of definitive test
 - None to report as there were no tests conducted during the period
- vii. Person(s) performing the test and verifying the results
 - No tests performed during the quarter
- viii. pH, temperature, dissolved oxygen, and conductivity of unadjusted, undiluted effluent
 - No data to report as there were no tests conducted during the period
- ix. Confirmation that no adjustment of sample or solution pH occurred
 - No adjustment to report as there were no tests conducted during the period
- x. Indication of aeration of test solutions before introduction of fish
 - None to report as there were no tests conducted during the period
- xi. Concentrations and volumes tested
 - No data to report as there were no tests conducted during the period
- xii. Measurements of dissolved oxygen, pH and temperature
 - No data to report as there were no tests conducted during the period
- xiii. Number of fish added to each test vessel
 - No fish added as there were no tests conducted during the period
- xiv. Mean and range of fork length of control fish at end of test
 - No data to report as there were no tests conducted during the period
- xv. Mean wet weight of individual control fish at end of the test
 - No data to report as there were no tests conducted during the period
- xvi. Estimated loading density of fish in test solutions
 - No data to report as there were no tests conducted during the period

Reporting Requirements for Reference Method EPS 1/RM/13 - Continued

Section 8.1.3 Results

- i. Number of mortalities of fish in each test solution
 - None to report. No tests conducted during the period
- ii. Number of control fish showing atypical/stressed behaviour
 - None to report. No tests conducted.
- iii. Mean mortality rate in solutions of effluent and control water
 - None to report. No tests conducted
- iv. Estimate of 96-h LC50 in multi-concentration tests
 - No data to report. No tests conducted
- v. Most recent 96-h LC50 for reference toxicity test(s)
 - No data to report. No tests conducted

APPENDIX B

Reporting Requirements for Reference Method EPS 1/RM/14

Section 8.1.1 Effluent

- i. Name & location of operation generating the effluent
 - Polaris Mine, Little Cornwallis Island, Nunavut
 - Final Discharge Point for Garrow Lake is geo referenced as 75° 22' 32" N, 97° 48' 37" W.
- ii. Date & time of sampling
 - No sampling conducted as there was no effluent discharge during the quarter.
- iii. Type of sample
 - No sampling conducted as there was no effluent discharge during the quarter
- iv. Brief description of sampling point
 - Discharge point of siphon at Garrow Lake dam
- v. Sampling method
 - No sampling conducted as there was no effluent discharge during the quarter
- vi. Name of person submitting samples
 - No sampling conducted as there was no effluent discharge during the quarter

Section 8.1.2 Test Facilities and Conditions

- i. Test type & method
 - No testing conducted as there was no effluent discharge during the quarter
- ii. Indications of deviations from requirements in Sections 2 to 7 of Method EPS 1/RM/13
 - No deviations to report as there was no testing conducted during the quarter
- iii. Name and city of testing laboratory
 - No laboratory used during the quarter
- iv. Species of test organism
 - None to report as there were no tests conducted during the period
- v. Date and time for start of definitive test
 - None to report as there were no tests conducted during the period
- vi. Person(s) performing the test and verifying the results
 - No tests performed during the quarter
- vii. pH, temperature, dissolved oxygen, and conductivity of unadjusted, undiluted effluent
 - No data to report as there were no tests conducted during the period
- viii. Confirmation that no adjustment of sample or solution pH occurred
 - No adjustment to report as there were no tests conducted during the period
- ix. Indication of any adjustment of hardness of effluent sample
 - No adjustment to report as there were no tests conducted during the period
- x. Indication of any aeration of sample
 - No indication to report as there were no tests conducted during the period
- xi. Concentrations and volumes tested
 - No data to report as there were no tests conducted during the period
- xii. Measurements of dissolved oxygen, pH and temperature
 - No data to report as there were no tests conducted during the period
- xiii. Estimates of time to first brood, average number of neonates per brood, and percent mortality during the seven-day period prior to the test
 - No data to report as there were no tests conducted during the period
- xiv. Number of neonates per test vessel and milliliters of solution per daphnid
 - No data to report as there were no tests conducted during the period

Reporting Requirements for Reference Method EPS 1/RM/14 - Continued

Section 8.1.3 Results

- i. Number of dead and/or immobile daphnids in each test solution including controls
 - No data to report. No tests conducted during the period.
- ii. For single-concentration test the number of daphnids dead in each of three replicate effluent solutions and in each of three replicate control solutions at end of test. Also report the mean value.
 - No data to report. No tests conducted during the period.
- iii. Estimate of 48-h LC50 and 95% confidence limits in multi-concentration tests, 48-h EC50 for immobilization and 95% confidence limits, indication of statistical method on which results are based.
 - No data to report. No tests conducted during the period
- iv. Most recent 48-h LC50 for reference toxicant test(s), reference chemical(s), date test initiated, historic geometric mean LC50 and warning limits.
 - No data to report. No tests conducted during the period.

APPENDIX C

2003 2nd QUARTER MMER REPORT
LOCATION - FINAL DISCHARGE POINT FROM GARROW LAKE (GARROW LAKE DAM SIPHONS)

CONCENTRATIONS OF EFFLUENT FOR MMER SCHEDULE 4 SAMPLED WEEKLY

Sample Taken During The Week of	Date Sample Taken	DELETERIOUS SUBSTANCE								pH	Collection Method ¹
		Arsenic	Copper	Cyanide	Lead	Nickel	Zinc	TSS	Radium 226		
07-Apr-03	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²
14-Apr-03	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²
21-Apr-03	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²
28-Apr-03	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²
05-May-03	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²
12-May-03	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²
19-May-03	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²
26-May-03	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²
02-Jun-03	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²
09-Jun-03	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²
16-Jun-03	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²
23-Jun-03	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²
30-Jun-03	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²

All concentration in mg/L except Radium 226 which is Bq/L

Note ¹ - Collection Method is either grab sample or composite sample

Note ² - No effluent discharge to sample

MONTHLY MEAN CONCENTRATIONS OF EFFLUENT FOR MMER SCHEDULE 4

MONTH OF	MONTHLY MEAN CONCENTRATION OF DELETERIOUS SUBSTANCE ¹							
	Arsenic	Copper	Cyanide	Lead	Nickel	Zinc	TSS	Radium 226
April-03	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²
May-03	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²
June-03	na ²	na ²	na ²	na ²	na ²	na ²	na ²	na ²

All concentration in mg/L except Radium 226 which is Bq/L

Note ¹ - Monthly Mean Concentrations - the MEAN value of the concentrations measured in all composite or grab samples collected from each final discharge measured during each month when a deleterious substance is deposited.

Note ² - No effluent discharge to sample

MASS LOADING OF DELETERIOUS SUBSTANCE FOR EACH DAY SAMPLED

Sample Taken During The Week of	Date Sample Taken	DAILY MASS LOADING OF DELETERIOUS SUBSTANCE ¹								Flow Rate ² (m ³ /day)
		Arsenic	Copper	Cyanide	Lead	Nickel	Zinc	TSS	Radium 226	
07-Apr-03	na ³	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
14-Apr-03	na ³	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
21-Apr-03	na ³	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
28-Apr-03	na ³	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
05-May-03	na ³	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
12-May-03	na ³	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
19-May-03	na ³	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
26-May-03	na ³	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
02-Jun-03	na ³	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
09-Jun-03	na ³	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
16-Jun-03	na ³	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
23-Jun-03	na ³	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
30-Jun-03	na ³	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0

Note ¹ - Mass Loading is in kilograms per day of the deleterious substance deposited

Note ² - Flow Rate must be taken at the same time as samples are effluent quality samples are taken

Note ³ - na refers to no effluent sampled due to no discharge of effluent

MASS LOADING PER CALENDAR MONTH FOR EACH DELETERIOUS SUBSTANCE

CALENDAR MONTH OF	MASS LOADING FOR DELETERIOUS SUBSTANCE (kg/month) ¹								Average Weekly Flow Rate ²	Total Monthly Volume ³
	Arsenic	Copper	Cyanide	Lead	Nickel	Zinc	TSS	Radium 226		
April-03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
May-03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
June-03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0

Note ¹ - Total Mass Loading for Calendar month calculated by multiplying the Total Calendar Month Volume x Average Daily Mass Loading for the Month

- Refer to Section 20.(3)

Note ² - Average Weekly Flow Rate - Average each of the weekly flow rates taken during the calendar month

- Refer to Section 20.(3)

Note ³ - Total Monthly Volume calculated by multiplying 7 x Average Daily Flow Rate for the month x days in month

APPENDIX D

RESULTS OF EFFLUENT CHARACTERIZATION

AS PER PARAGRAPH 15(1)(a)

No effluent samples were collected during the 2nd Quarter of 2003 as there was no effluent discharge.
No Acute Lethality Testing conducted during the quarter as there was no effluent being discharged.

APPENDIX H

CD of the report