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CULLATON LAKE GOLD MINES LTD

WATER LICENCE NWB1CUL9902

Nutawut Water Board
2001
Public Registry

ANNUAL WATER LICENCE REPORT 2000

PREPARED BY:
HOMESTAKE CANADA INC
P.O. BOX 11115, 1100 - 1055 WEST GEORGIA STREET
VANCOUVER, B.C.
V6E 3P3

March 2001

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EXECUTIVE SUMMARY

Cullaton Lake Gold Mines Ltd. is wholly owned by Homestake Canada Inc. (Homestake).

The Cullaton Lake Gold Mines property is located in the southern part of the District of Keewatin in the Nunavut Territory. The property is 250 km west of Arviat, NU, 400 km northwest of Churchill, Manitoba and 645 km north of Thompson, Manitoba. The mine was in operation for four years, from 1981 to 1985. Between September 1985 and summer 1991 the mine was in a care and maintenance phase.

Decommissioning began in 1991/92 with the rehabilitation of the Tailings Pond #1 dam including construction of a spillway in the dam, covering of the exposed tailings with water or with till/mine rock, and the elimination of Tailings Pond #2 (the polishing pond).

The fresh water intake, pump house and pipelines at the old diamond drill camp on the Kognak River were dismantled and removed in 1991. By 1993, all buildings and debris around the drill camp had been removed. In 1995 and 1996 the mill buildings were dismantled. Inert, non-salvageable material was crushed and placed in the quarry pit. In 1997, additional cover material was placed over the tailings cover and the tailings area was seeded and fertilized with a specialized arctic seed mix. The former mill site was also seeded and fertilized. During the winter of 1998/99 some salvageable equipment was removed from the site.

The contractor hired by Homestake was unable to complete the restoration of the site. Homestake became aware of this situation in Spring, 2000 and the Company proceeded with a site investigation to assess the status of the site and the work required to complete the restoration of the property. Based on this investigation, Homestake completed a revised work schedule for the final clean up of the site. This revised work schedule was submitted to the Nunavut Water Board (NWB) and Indian and Northern Affairs Canada (INAC) for approval in October 2000. The plan was approved by both agencies prior to the end of the year. Homestake then began the process of retaining a qualified contractor to complete the work. Homestake intends to hire the contractor and complete the work in 2001.

Homestake applied for a water licence renewal in April 1999. Licence NWB1CUL9902 was issued by the Nunavut Water Board effective September 1, 1999, expiring October 31, 2002. As per this Water Licence, Homestake is required to file a yearly report outlining details on water use and/or waste disposal at Cullaton Lake Gold Mine.

1.0 FINAL RESTORATION WORK

While the majority of the restoration work has been completed on this property, some work remains unfinished, and some mining equipment and materials remain on site.

The contractor hired by Homestake in 1996 has been unable to complete the restoration of the site. Homestake became aware of this situation in Spring, 2000 and the Company proceeded with a site investigation to assess the status of the site and the work required to complete the restoration of the property. Based on this investigation, Homestake completed a revised work schedule for the final clean up of the site. This revised work schedule was submitted to the NWB and INAC for approval in October 2000. The plan was approved by both agencies prior to the end of the year. Homestake then began the process of retaining a qualified contractor to complete the work. Homestake intends to hire the contractor and complete the work in 2001.

2.0 WATER QUALITY MONITORING

Water sampling continued at Cullaton Lake in 2000. Duplicate sampling is required at 7 stations, once each year during peak flow. Samples were collected once on July 10, 2000. See Appendix 1 for water quality results.

Station 940-2 (Pond #1 discharge to Pond #2) Duplicate water samples were taken during July. All parameters were well below the limits prescribed in the water licence.

Station 940-3 (Pond #2 discharge) Duplicate water samples were taken during July. All parameters were well below the limits prescribed in the water licence.

Station 940-18 (Pond #1 spillway) Duplicate water samples were taken during July. All parameters were well below the limits prescribed in the water licence.

Station 940-19 (Tailings #1) Duplicate water samples were taken during July. All parameters were well below the limits prescribed in the water licence.

Station 940-20 (Seepage at E side of tailings) Duplicate water samples were taken in July. All parameters were well below the limits prescribed in the water licence.

Station 940-22 (Seepage at NE corner of tailings) was dry during 2000 and could not be sampled.

Station 940-Q (Quarry Pit) Water was sampled at the quarry pit as agreed. Duplicate water samples were taken in July. All sampling results were well within the limits prescribed in the water licence.

3.0 TAILINGS

In order to prevent possible acid generation, reclamation of the tailings area involved two oxygen-limiting methods; a water cover overlying the eastern portion of the tailings impoundment area and a till/mine-rock cover on the remaining western area. The application of the till/mine-rock cover had a two-fold

purpose; it was primarily intended to reduce oxygen infiltration and, secondarily as a Mine Environment Neutral Drainage (MEND) project, to test whether the level of permafrost in the tailings would rise to the top of the tailings if the tailings were covered. Thermistors were installed in the covered tailings in August 1991 in order to monitor any rise in permafrost levels. Thermistor readings have been taken yearly (or more often) since that time. In 1997 the area was seeded with an arctic seed mix.

The 2000 site inspections identified a number of grass species established on the tailings cover. The grasses were more abundant in the protected furrows and tracks. Vegetation growth in 2000 was without the assistance of fertilizer.

4.0 THERMISTORS

Thermistor readings (Station 940-21) have been taken at the tailings impoundment since 1991. Before the application of a cover on the tailings, the top 1.4 metres of tailings material thawed every summer. After the placement of cover, the permafrost level rose, reducing the depth of thaw in the tailings mass to approximately 0.7 metres by the end of 1995.

Thermistor readings in 1998 and 1999 indicated that the summer thaw zone in the tailings has remained static at 0.7 metres. The Thermistors were read once in 2000 with similar results (see Appendix 1 for results).

Although the entire tailings mass has not become encapsulated in permafrost, placement of cover has been a partially successful experiment. Instead of the top 1.4 m of tailings material thawing each summer, as was happening before any cover was placed, now only the top 0.7 m of tailings material thaws for a short period each year. It is anticipated that, as the vegetation becomes more dense over the covered tailings, the permafrost level may resume its upward trend.

5.0 ROCK QUARRY

A site inspection of the quarry pit in 2000 identified a number of small areas of subsidence where the non-salvageable materials were buried. Filling voids will be completed in 2001 during the final cleanup of the site.

6.0 B-ZONE MILL SITE

The buildings located at the mill site were removed in 1995/96, with the exception of the machine shop building, which was removed in 1998. Some foundations remain on site as per the approved 1996 A & R Plan. Exposed rebar in the foundations will be removed in 2001. Between 1995 and 1998 equipment and scrap located at the millsite was either flown to Thompson, Manitoba or

Arviat, NU, or removed to the airstrip for storage. No equipment remains at this location.

In 1997, the entire mill site was graded, seeded and fertilized with the same arctic seed mix used on the tailings area. Grasses now cover much of this area.

7.0 SHEAR LAKE SITE

Non-salvageable equipment and scrap remains at the Shear Lake camp and will be removed and disposed of during final cleanup.

An area of Potentially Acid Generating (PAG) waste rock was identified at this site in 2000. Tests are currently underway to characterize the rock, and an application for a modification to the current Water Permit, to allow placement of this rock in a small, non-fish bearing lake, was submitted to the NWB in February 2001.

8.0 FIELD OBSERVATIONS

During the two site inspections no erosion or sloughing of material from the tailings dam was identified. No areas of acid generation or seepage were noted. Field pH and temperatures are presented in Appendix 1.

9.0 2001 PROPOSED WORK SCHEDULE

A geotechnical inspection of the tailings dams is required in 2001 and will be carried out during the summer by a qualified geotechnical engineer.

If permission is received to proceed, PAG waste rock located at the Shear Lake site will be disposed of underwater.

The remaining decommissioning work will be completed by the end of 2001 as outlined in the work plan submitted to the NWB and INAC in October 2000.

Once the final cleanup and equipment removal is achieved, a Company / government agency site inspection will be scheduled to verify that the decommissioning work has been completed.

APPENDIX 1

Licence Requirements (SNP)
Water Quality Data
Thermistor Data
Field Data

be modified at the discretion of the Board.

7. The Licensee shall post signs in the appropriate area to identify the stations of the "Surveillance Network Program". All postings shall be located and maintained to the satisfaction of an Inspector.
8. The Licensee shall ensure a copy of this Licence is maintained at the Licensee's Head Office at all times.

PART C: CONDITIONS APPLYING TO WASTE DISPOSAL

1. The Tailings containment Area shall be operated and maintained to engineering standards such that:
 - a. Seepage from the Tailings Containment Area shall be minimized at station 940-20 and 940-22 if present;
 - b. Erosion of constructed facilities is addressed immediately;
 - c. The solids fraction of the mill tailings shall be permanently contained within the Tailings Containment Area; and
 - d. An inspection of the Tailings Containment Area shall be carried out between June and September 2001 by a qualified geotechnical engineer registered in the Northwest Territories. The engineer's report shall be submitted to the Board within sixty (60) days of the inspection, including a covering letter from the licensee outlining an implementation plan to respond to the engineer's recommendations.
2. All Waste discharged by the Licensee from the Tailings Containment Area shall meet the following effluent quality requirements:

Parameter	Maximum Average Concentration	Maximum Concentration of any Grab Sample
Total Arsenic	0.30 mg/L	0.60 mg/L
Total Copper	0.20 mg/L	0.40 mg/L
Total Cyanide	0.80 mg/L	1.60 mg/L
Total Lead	0.20 mg/L	0.40 mg/L
Total Nickel	0.30 mg/L	0.60 mg/L
Total Zinc	0.30 mg/L	0.60 mg/L
Total Suspended Solids	25.0 mg/L	50.0 mg/L
Oil and Grease		Visible Sheen

The waste discharged shall have a pH between 6.0 and 9.5

3. All waste discharges shall be conducted in such a manner to minimize surface erosion.

A. SNP SAMPLING LOCATIONS, SAMPLING REQUIREMENTS, AND ANALYSIS REQUIREMENT.

Station Numbers	Description	Sampling Requirements	Analysis Requirements
940-1	Kognak River freshwater pumphouse	Not required	Not required
940-2	Tailings Pond No. 1 adjacent to the point of discharge to Tailings Pond No. 2.	Once a year during peak flow	Total Arsenic Total Zinc Total Lead Total Copper Total Mercury pH Total Nickel Total Cyanide Total Suspended Solids
940-3	Tailings Pond No.2 adjacent to the point of discharge to the marshland.	Once a year during peak flow	Total Arsenic Total Zinc Total Lead Total Copper Total Mercury pH Total Nickel Total Cyanide Total Suspended Solids
940-3A	Effluent discharge pipe at outlet to marshland	Not required	Not required
940-4	Mill tailings pump box at the mill	Not required	Not required
940-5	Tailings Pond No. 2 near the northwest corner, adjacent to the western most point of the tailings dam.	Not required	Not required
940-6	Tailings Pond No. 2 offshore, near middle of pond.	Not required	Not required
940-7	Tailings Containment Area diversion ditch adjacent to the northwest corner of Tailings Pond No. 2.	Not required	Not required
940-8	Channel in marshland approximately 600 metres downstream of Tailings Pond No. 2. Also identified as SITE 8 in the Environmental Investigation of the Kognak River at Cullaton Lake Gold Mine by Diamond and Meach, 1984 (EIKR).	Not required	Not required
940-9	Outflow channels from marshland below Tailings Pond No. 2 to Kognak River. Also identified as SITE 9 in EIKR.	Not required	Not required
940-10	Control marsh site approximately 100 metres west of rad leading to the fresh water intake, 50 metres north of the Kognak River, and 30 metres east of a small creek. Also identified as SITE 10 in EIKR	Not required	No: required
940-11	Kognak River approximately 200 metres upstream of Station No. 940-1. Also identified as SITE 2 in EIKR	Not required	Not required
940-12	Kognak River approximately 1300 metres downstream of Station No. 940-1. Also identified as SITE 3 in EIKR	Not required	Not required
940-13	Kognak River approximately 2850 metres downstream of Station No. 940-1. Also identified as SITE 4 in EIKR	Not required	Not required
940-14	Kognak River approximately 4400 metres downstream of Station No. 940-1. Also identified as SITE 5 in EIKR	Not required	Not required
940-15	B Zone Mine at the outlet of the minewater discharge pipe.	Not required	Not required
940-16A	Shear Lake minewater disposal system at point of discharge	Not required	Not required

Station Numbers	Description	Sampling Requirements	Analysis Requirements
940-17	Environment Canada stream gauging station number 06HD001 - Kognak River below Mountain Lake.	Not required	Not required
940-18	Discharge from spillway or siphon at Tailings Pond No.1.	Once a year during peak flow	Total Arsenic Total Zinc Total Lead Total Copper Total Mercury pH Total Nickel Total Cyanide Total Suspended Solids
940-19	Piezometer stations within Tailings Pond No.1.	Once a year during peak flow	Total Arsenic Total Zinc Total Lead Total Copper Total Mercury pH Total Nickel Total Cyanide Total Suspended Solids
940-20	Area of seepage from east side of Tailings Pond No.1.	Once a year during peak flow	Total Arsenic Total Zinc Total Lead Total Copper Total Mercury pH Total Nickel Total Cyanide Total Suspended Solids
940-21	Thermistors installed in Tailings Pond No.1.	Once a year after June 1 and before August 31	Temperature
940-22	Area of seepage from north east corner of Tailings Pond No.1.	Once a year during peak flow if flow present	Total Arsenic Total Zinc Total Lead Total Copper Total Mercury pH Total Nickel Total Cyanide Total Suspended Solids
940-23	Quarry pit	Once a year during peak flow	Total Arsenic Total Zinc Total Lead Total Copper Total Mercury pH Total Nickel Total Cyanide Total Suspended Solids

•The pH, temperature and specific conductivity of the sample shall be recorded at the time of sampling.



P.O. Box 119
GJOA HAVEN, NT X0E 1J0
TEL: (867) 360-6338
FAX: (867) 360-6369

NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI

3050-100

File No: NWB1CUL9902

March 2, 2000

Sharon Meyer
Environmental Specialist
Homestake Canada Inc.
PO Box 11115
1100-1055 West Georgia St
Vancouver, BC V6E 3P3
VIA FACSIMILE: 604-684-9831

RE: Amendment Request

Dear Ms. Meyer,

The Nunavut Water Board hereby grants your request for the removal of field conductivity as a sampling requirement of the "Surveillance Network Program". The inclusion of the requirement for field conductivity was a clerical error and we apologize for any inconvenience this may have caused. Should you require clarification please do not hesitate to contact our office.

Sincerely,

Dionne Filiatrault, P.Eng.
Technical Advisor

cc. Philippe Lavallee, Water Resources Officer

**Cullaton Lake Mine - Water Quality
2000**

940-2: POND #1 DISCHARGE

<u>DATE</u>	LAB PH <u>pH unit</u>	SUSPENDED SOLIDS <u>mg/l</u>	SPECIFIC CONDUCT. <u>umhos/cm</u>	TOTAL CYANIDE <u>mg/l</u>	TOTAL NICKEL <u>mg/l</u>	
10/07/2000	7.8	3	609	0.017	0.005	
10/07/2000	7.8	3	608	0.016	0.005	
Mean	7.8	3	608	0.016	0.005	
<u>DATE</u>	TOTAL ARSENIC <u>mg/l</u>	TOTAL COPPER <u>mg/l</u>	TOTAL IRON <u>mg/l</u>	TOTAL LEAD <u>mg/l</u>	TOTAL MERCURY <u>mg/l</u>	TOTAL ZINC <u>mg/l</u>
10/07/2000	0.0021	0.003	0.039	<0.005	<0.0002	0.022
10/07/2000	0.0033	0.003	0.086	<0.005	<0.0002	0.033
Mean	0.0027	0.003	0.062	0.005	0.0002	0.027

940-3: POND #2 DISCHARGE

<u>DATE</u>	LAB PH <u>pH unit</u>	SUSPENDED SOLIDS <u>mg/l</u>	SPECIFIC CONDUCT. <u>umhos/cm</u>	TOTAL CYANIDE <u>mg/l</u>	TOTAL NICKEL <u>mg/l</u>	
10/07/2000	7.7	4	239	0.003	0.005	
10/07/2000	7.7	4	243	0.002	0.005	
Mean	7.7	4	241	0.002	0.005	
<u>DATE</u>	TOTAL ARSENIC <u>mg/l</u>	TOTAL COPPER <u>mg/l</u>	TOTAL IRON <u>mg/l</u>	TOTAL LEAD <u>mg/l</u>	TOTAL MERCURY <u>mg/l</u>	TOTAL ZINC <u>mg/l</u>
10/07/2000	0.0057	0.004	0.210	<0.005	<0.0002	0.017
10/07/2000	0.0061	0.004	0.261	<0.005	<0.0002	0.020
Mean	0.0059	0.004	0.236	0.005	0.0002	0.019

**Cullaton Lake Mine - Water Quality
2000**

940-18: TAILINGS POND #1 SPILLWAY

<u>DATE</u>	LAB PH <u>pH unit</u>	SUSPENDED SOLIDS <u>mg/l</u>	SPECIFIC CONDUCT. <u>umhos/cm</u>	TOTAL CYANIDE <u>mg/l</u>	TOTAL NICKEL <u>mg/l</u>	
10/07/2000	7.6	4	621	0.008	0.004	
10/07/2000	7.6	4	626	0.008	0.004	
Mean	7.6	4	624	0.008	0.004	
<u>DATE</u>	TOTAL ARSENIC <u>mg/l</u>	TOTAL COPPER <u>mg/l</u>	TOTAL IRON <u>mg/l</u>	TOTAL LEAD <u>mg/l</u>	TOTAL MERCURY <u>mg/l</u>	TOTAL ZINC <u>mg/l</u>
10/07/2000	0.0018	0.003	0.140	<0.005	<0.0002	0.014
10/07/2000	0.0018	0.003	0.092	<0.005	<0.0002	0.032
Mean	0.0018	0.003	0.116	0.005	0.0002	0.023

940-19: TAILINGS POND #1 PIESOMETER

<u>DATE</u>	LAB PH <u>pH unit</u>	SUSPENDED SOLIDS <u>mg/l</u>	SPECIFIC CONDUCT. <u>umhos/cm</u>	TOTAL CYANIDE <u>mg/l</u>	TOTAL NICKEL <u>mg/l</u>	
10/07/2000	7.8	9	612	0.018	0.005	
10/07/2000	7.8	9	605	0.016	0.005	
Mean	7.8	9	608	0.017	0.005	
<u>DATE</u>	TOTAL ARSENIC <u>mg/l</u>	TOTAL COPPER <u>mg/l</u>	TOTAL IRON <u>mg/l</u>	TOTAL LEAD <u>mg/l</u>	TOTAL MERCURY <u>mg/l</u>	TOTAL ZINC <u>mg/l</u>
10/07/2000	0.0021	0.003	0.093	<0.005	<0.0002	0.005
10/07/2000	0.0019	0.003	0.096	<0.005	<0.0002	0.018
Mean	0.0020	0.003	0.095	0.005	0.0002	0.011

**Cullaton Lake Mine - Water Quality
2000**

940-20: EAST SIDE OF TAILINGS POND #1

<u>DATE</u>	LAB PH <u>pH unit</u>	SUSPENDED SOLIDS <u>mg/l</u>	SPECIFIC CONDUCT. <u>umhos/cm</u>	TOTAL CYANIDE <u>mg/l</u>	TOTAL NICKEL <u>mg/l</u>	
10/07/2000	7.9	10	1030	0.032	0.011	
10/07/2000	7.9	10	1050	0.010	0.012	
Mean	7.9	10	1040	0.021	0.012	
<u>DATE</u>	TOTAL ARSENIC <u>mg/l</u>	TOTAL COPPER <u>mg/l</u>	TOTAL IRON <u>mg/l</u>	TOTAL LEAD <u>mg/l</u>	TOTAL MERCURY <u>mg/l</u>	TOTAL ZINC <u>mg/l</u>
10/07/2000	0.0046	0.008	0.352	<0.005	<0.0002	0.002
10/07/2000	0.0049	0.008	0.380	<0.005	<0.0002	0.019
Mean	0.0048	0.008	0.366	0.005	0.0002	0.010

940-Q

<u>DATE</u>	LAB PH <u>pH unit</u>	SUSPENDED SOLIDS <u>mg/l</u>	SPECIFIC CONDUCT. <u>umhos/cm</u>	TOTAL CYANIDE <u>mg/l</u>	TOTAL NICKEL <u>mg/l</u>	
10/07/2000	7.7	7	150	0.008	0.004	
10/07/2000	7.6	7	150	0.006	0.003	
Mean	7.6	7	150	0.007	0.004	
<u>DATE</u>	TOTAL ARSENIC <u>mg/l</u>	TOTAL COPPER <u>mg/l</u>	TOTAL IRON <u>mg/l</u>	TOTAL LEAD <u>mg/l</u>	TOTAL MERCURY <u>mg/l</u>	TOTAL ZINC <u>mg/l</u>
10/07/2000	0.0016	0.004	0.358	<0.005	<0.0002	0.033
10/07/2000	0.0015	0.002	0.152	<0.005	<0.0002	0.046
Mean	0.0015	0.003	0.255	0.005	0.0002	0.039

Cullaton Lake Field Data 2000

Station	Date	pH	Temperature C°
940-2	July	7.7	23.6
940-3	July	8.1	28.1
940-18	July	8.0	23.9
940-19	July	7.5	23.03
940-20	July	7.9	25.3
940-22	July	no seepage	no seepage
Quarry Pit	July	7.5	21.5

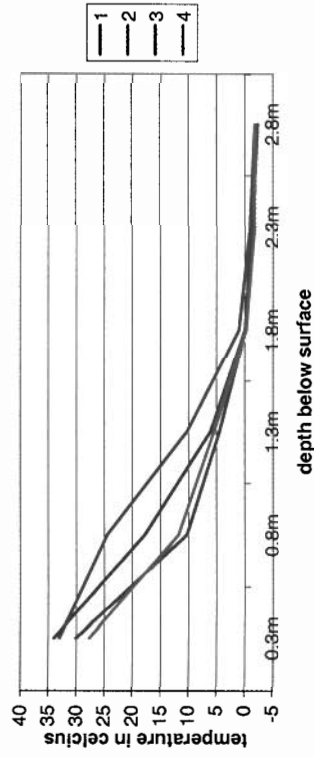
Thermistor Temperatures (°C) – 2000 (940-21)

Thermistor	Date	1	2	3	4	5	6
No. 1							
	July 10	34	17.8	6.1	-0.08	-1.45	-2.31
No.2							
	July 10	30.1	10.3	4.5	-0.2	-1.12	-2.31
No.3							
	July 10	33	24.5	10.3	1.03	-1.01	-1.85
No.4							
	July 10	27.7	11.8	5.5	-0.31	-1.78	-1.89

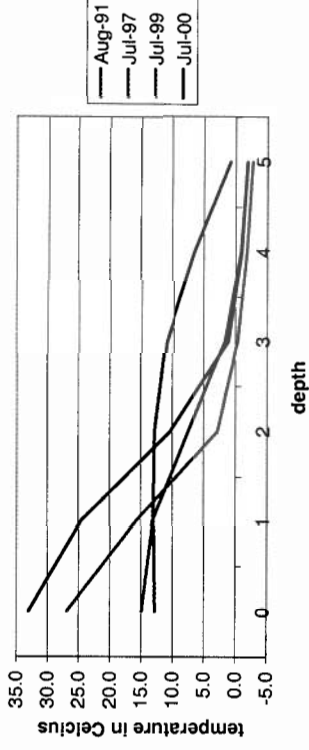
Depth below Surface (from top of cover)

Setting 1	0.3 metres
Setting 2	0.8 metres
Setting 3	1.3 metres
Setting 4	1.8 metres
Setting 5	2.3 metres
Setting 6	2.8 metres

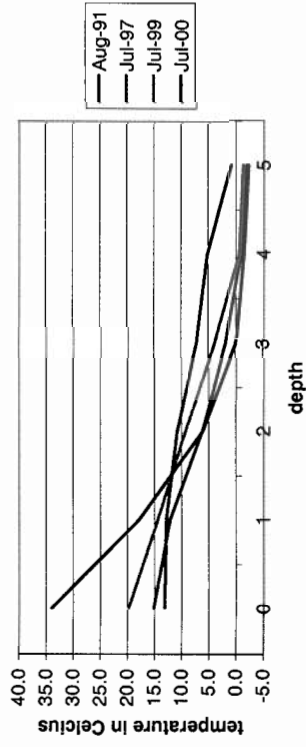
Thermistor Readings 2000



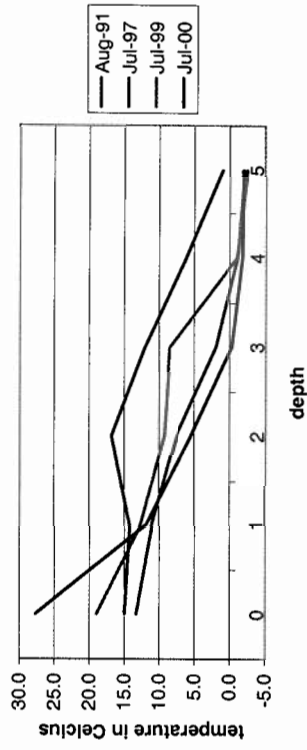
Thermistor 3 - Change



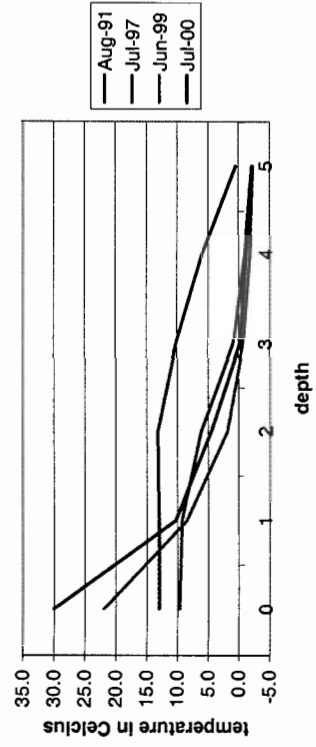
Thermistor 1 - Change



Thermistor 4 - Change



Thermistor 2 - Change



Thermistor Readings in Celsius

	No.1	No.2	No.3	No.4
0.3m	34	30.1	33	27.7
0.8m	17.8	10.3	24.5	11.8
1.3m	6.1	4.5	10.3	5.5
1.8m	-0.08	-0.2	1.03	-0.31
2.3m	-1.45	-1.12	-1.01	-1.78
2.8m	-2.31	-2.31	-1.85	-1.89

APPENDIX 2

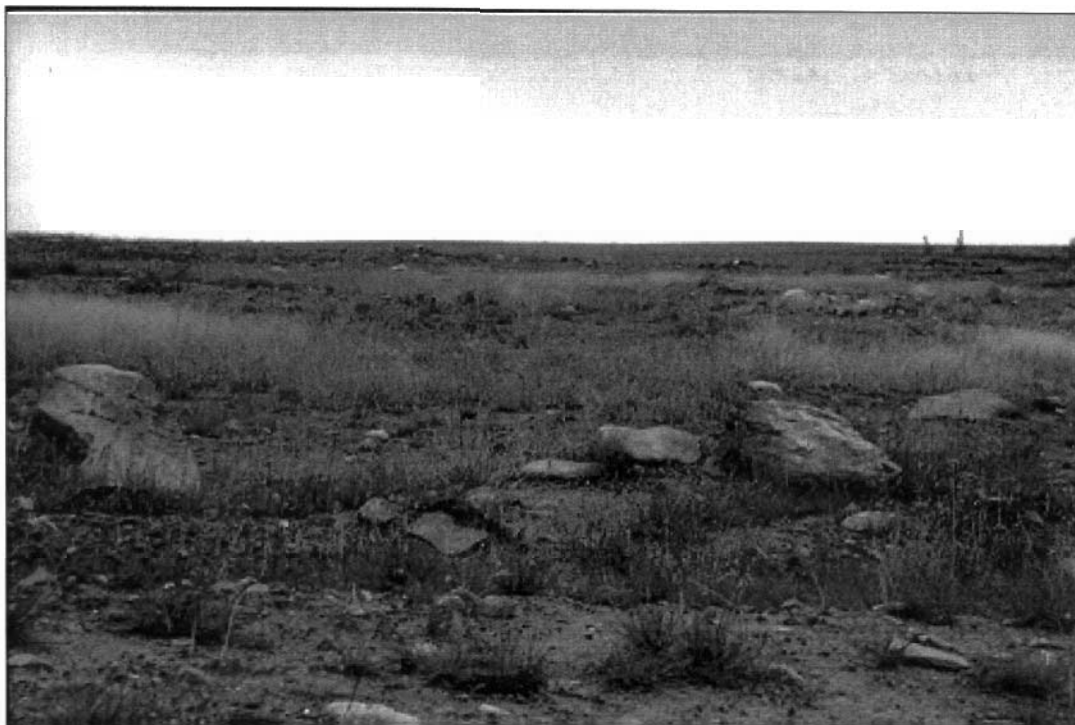
Photographs



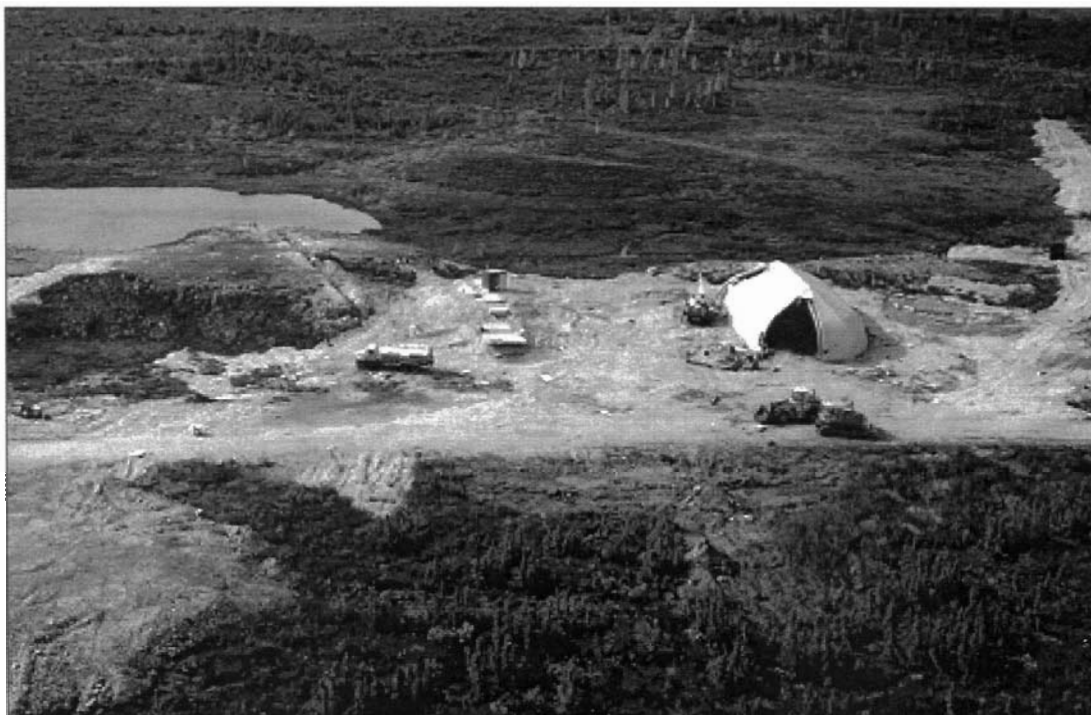
Non-salvageable materials at the airstrip



Non-salvageable materials at the airstrip



Tailings area revegetation – Fall 2000



Shear Lake site requires cleanup