Lupin Mine, Nunavut
Phone (780) 890-7000
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ECHO BAY MINES LTD.

9818 International Airport
Edmonton, Alberta
T5J 2T2

March 18, 2002

Our File: NWB1LUP0008 01Annual
Your File: Water Register
NWB1LUP0008

Executive Director
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU
X0B 1J0

Dear Sir:

RE: Echo Bay Mines Ltd., Lupin Gold Mine, Contwoyto Lake, NT; Water Licence No. NWB1LUP0008; 2001 Annual Report

Please find enclosed three (3) copies (via mail) of the 2001 Annual Report for Water Licence NWB1LUP0008 as required by Part B, Item 5. A PDF file version of the Report has been sent via email, however the QC data from Norwest Labs Ltd. was not in a format that could be included in the email and is included in the hardcopy version for your review.

The 2001 Annual Report includes all the water use and waste disposal information as outlined in the mine's Water Licence. No discharge took place from the TCA in 2001, therefor water quality sampling and results were restricted to the freshwater intake (Station 925-01) and the Sewage Lakes effluent (Station 925-14).

Should you have any questions or comments regarding this report, please feel free to contact the undersigned at (780) 890-8794.

Yours truly,

D. Hohnstein C.E.T.
Environmental Coordinator, Lupin

Attach. 2001 Annual Report

cc B. Danyluk
H. Ducasse
B. Lowe
Mill Operations

ECHO BAY MINES LTD.

2001
ANNUAL REPORT
LUPIN GOLD MINE

Submitted under

WATER LICENCE NWB1LUP0008
NUNAVUT WATER BOARD

Date: March 18, 2002

Prepared by: David Hohnstein, C.E.T.
Environmental Coordinator, Lupin

INDEX

TABLES, FIGURES, GRAPHS and PHOTOS

APPENDIX A

INTRODUCTION

This report is submitted to fulfil requirements under Part B, Item 5 of Water Licence NWB1LUP0008 granted by the Nunavut Water Board pursuant to its authority under Article 13 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada*.

The Annual Report for 2001 contains the following information that is required under Part B, Items 5(a) through (k).

a) the monthly and annual quantity in cubic metres of water pumped from Contwoyto Lake at Station 925-01;

b) the monthly and annual quantities in cubic metres of treated tailings effluent discharged at Station 925-10

c) the monthly and annual quantity in cubic metres of minewater discharged at Station 925-11;

d) the monthly and annual quantity in cubic metres of treated sewage effluent discharged at Station 925-14;

e) tabular summaries of all data generated under the Surveillance Network Program;

f) a summary of modifications and/or major maintenance work carried out on the water supply and the waste disposal facilities including all associated structures;

g) a list of unauthorized discharges and follow-up action taken;

h) revisions to the Contingency Plan;

i) revisions to the Abandonment and Restoration Plan;

j) a summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year; and

k) any other details on water use or waste disposal requested by the Board by November 1st of the year being reported.

A. INTAKE VOLUME; Station 925-01

The quantity of fresh water pumped on a monthly basis from Contwoyto Lake is shown in Table No.1, 2001 Pumping Report. The yearly total was 886,630 m^3 as determined by flowmeter. Of this volume, 805,061 m^3 was used for industrial purposes with the remaining 81,569 m^3 being used as potable water.

The quantity of fresh water used in 2001 had increased from that of 2000 mainly due to the continuous twelve month operation of the mill. The water use for 2000 reflects initial start-up in March 2000 and nine months of operation. The potable water use had only increased slightly over that of 2000 due to the hiring of employees prior to start-up and the minimum volume capacity of the pumps as mentioned in the 2000 Annual Report.

B. TAILINGS EFFLUENT; Station 925-10

Release of tailings effluent from Pond 2 (Station 925-10) did not occur in 2001 as capacity of the ponds indicated that adequate storage was available through to 2002. The additional year of holding time was also seen as a potential advantage to further improving the final effluent water quality for discharge in 2002.

Pond No.1 syphons were operated for a short period in the spring to lower water levels as required. They were again operated during the late summer to transfer as much water as possible from Pond No.1 to Pond No.2 prior to the winter. Approximately 951,662 m^3 of water was transferred in 2001.

C. MINEWATER; Station 925-11

The monthly and annual quantity of water pumped from the mine is included in Table 1. All minewater in 2001 was directed to the lower sewage lake.

The total quantity of water pumped from underground to the second sewage lake in 2001 was 50,177 m^3.

D. SEWAGE EFFLUENT; Station 925-14

The monthly and annual quantity of sewage effluent discharged to the environment from the second sewage lake at Station 925-14 is listed in Table No.1. Total flow for the seasonal discharge was approximately 337,398 m^3. The discharge volume is calculated from hydraulic tables for flow over a V-notch weir as well as an ultrasonic flow meter on the 8" syphon line.

The measured discharge volume for 2001 was more than double that of 2000. This reflects the full operational status (12 months versus 9 months in 2000) for the Lupin site during 2001 and

the higher than average annual precipitation (snowfall and accumulation) that had occurred. Total precipitation for 2001 was 285.6 mm compared to 253.8 mm in 2000 and the total snowfall in 2001 was 172.8cm compared to 143.2cm in 2000. The snowfall and accumulation (through drifting) plays a significant role in the total precipitation and runoff (catchment) that reports to the sewage lakes system in the spring. Data provided by the Lupin site weather station. Photo 6 shows some of the typical snowfall drifting that occurred in 2001.

E. SURVEILLANCE NETWORK PROGRAM DATA

Tabular summaries of data required under the Surveillance Network Program annexed to Water Licence NWB1LUP0008 are presented in the Tables attached. Table No.1 provides a summary the water use, waste disposal volumes and the monthly ore milled, recorded in dry tonnes. The summary of water quality data collected at stations 925-01 and 925-14 is provided in Table No.2. QC data from Norwest Labs Ltd. with regard to their analytical precision is included in Appendix B.

In addition to the freshwater use, mine water pumped from underground and the sewage lakes discharge volumes, the 2001 Pumping Report includes the data for waste discharged to the tailings pond. These are calculated figures obtained from the mill daily statistics report and includes the amount of ore milled (tonnes), calculated volume of solids used in backfill for underground and the total waste (separated to show the fraction of solution and solids) discharged to the tailings area.

F. MAINTENANCE WORK

Minimal modification and routine maintenance work was carried out on the water supply and sewage disposal facilities in 2001. Repairs made in 2000 to the gated culvert on the No.2 Sewage Lake discharge were again required due to damage caused by ice in the late spring. In addition to the repair on the gate valve, the discharge side of the culvert had to be excavated to determine the source of water flow along the outside of the culvert. The flow had resulted from the full volume pipe flow and subsequent pressure. A failure of the culvert pipe was suspected. Photos 1 through 3, included in the appendix, show the excavation work, repair to a separated section of the culvert pipe and the completed backfilling of the excavation. The separation was repaired by installation of a clamp over top the pipe to hold the sections together.

Mdam Modifications

During the spring, prior to pumping of water from Cell No.5, a minor seepage from Cell No.5 through to Pond No.2 was noted near the abutment of the Mdam with Jdam. Once the snow had cleared, it was obvious that the water flow was emitting from fractures in the rock that ran parallel with the Jdam and originated within Cell No.5. A catchment pond was created on the Pond No.2 side of the Mdam and the contained water was pumped back into Cell No.5 to limit

the contamination of Pond No.2. This was noted in the DIAND Inspectors report of July 8, 2001. Please see Figure 1 for a full plan view of the Tailings Containment Area for 2001.

Pumping of Cell No.5 water was then initiated and water levels were lowered. Water flow through to the Pond No.2 side of Mdam was stopped. To permanently address the seepage problem, a containment berm was built on the upstream side and filled with tailings (solids) to seal the fractures in the bedrock. No further seepage was noted. Photos 4 and 5 show the Mdam structure.

Cell No.3 Modifications

In the 2000 Annual Report it was noted that an additional containment berm, approximately 280m in length, was placed within Cell No.3, 100m parallel to the Kdam. This berm will provide additional retention of solids and allow a sectional filling of the upper portion of the cell. A drawing specific to these modifications was omitted in the previous report. Please refer to Figures 2 and 3 for the containment berm plan layout and the typical cross-section.

Other maintenance items completed were as follows:

- All recommended maintenance work was completed as specified in the 2001 Geotechnical Inspection of the Tailings Containment Perimeter Embankments carried out by BGC Engineering Inc. There are currently no other outstanding issues with respect to the 2001 or previous geotechnical inspections.

- General operations included the addition of a secondary lift on what is referred to as “xdam”. This is an internal dyke within Cell No.5, which aids in the retention of tailings solids in the upper portion of the cell, allowing the solution and solids portions to separate with the solution accumulating along the Mdam. Run-of-mine waste rock was used in this construction. It is expected that annual lifts will be utilized until such a time as the maximum storage elevation of 490m is reached.

- A portion of the containment dyke for the internal Cell No.3b was constructed for future deposition of tailings during the summer of 2002. This dyke is similar in dimensions to that of the 3a dyke and is shown in Figure 2.

G. LIST OF UNAUTHORIZED DISCHARGES

There were no unauthorized discharges during 2001 under Water Licence NWB1LUP0008.

H. REVISIONS TO THE CONTINGENCY PLAN

A revised Contingency Plan was prepared in December in accordance with the Licence issued July 1, 2000 and submitted for Board approval by letter dated December 22, 2000. At the present time of writing this annual report, the only correspondence received has been the letter confirming receipt of the document. There are a few minor corrections to be made to the document, however any changes will be made once the NWB review has been completed.

I. REVISIONS TO THE ABANDONMENT AND RESTORATION PLAN

A revised Abandonment and Restoration Plan was submitted to the Board April 28, 2001 in accordance with the Licence NWB1LUP0008. The plan has been acknowledged and received by the Board and is currently under review. Any changes or further review of the plan will be completed once the Board's review is complete and deficiencies, if any, are noted.

J. SUMMARY OF ABANDONMENT AND RESTORATION ACTIVITIES

2001 Abandonment and Restoration Activities

Activity during 2001included the removal of several camp accommodation annexes (Photos 7 through 10) and the dismantling/removal of an approximate six kilometre length of six inch tailings line; see Photo 11. This line was used initially during startup of the mill (1982) and was taken out of service in 1989 when it was replaced with an eight inch line in conjunction with a mill expansion.

Collection of data from thermistor strings that were installed during 1995 (esker cover of Cells No.1, No.2 and Dam4) and 2000 (Dam1a, Dam2 and Fingers Lake Esker) continued through 2001. A review of the containment dam temperature data was completed during data review of the 2001 Geotechnical Inspection, carried out by BGC Engineering Inc. The information to date indicates that subzero temperatures exist at depth with no apparent indications of warming. The active layer of the dam section is indicated as approximately 3m. The temperature information demonstrates that the core of the dams appears to remain frozen and that the foundation of the dam is maintained below freezing year round.

The indicated active layer of the dams is not necessarily a true representation of the active surface layer as most thermistors that are currently in use on the dams have been installed near one of the crest slopes, not through the centre line of the dam. Therefor, there is some influence upon the active layer measured due to the slope of the dam (widening with vertical depth). This allows some warming to the dam crest (where the thermistor is located) from the slope side of the dam indicating a further active layer penetration than if the thermistor string were installed at the centre line. The temperature profile graphs for Dam1a and Dam2 (see Graphs 1 and 2) illustrate this further with the upstream thermistors (with a 1:2.5 embankment

slope) indicating a slightly shallower active layer than the downstream thermistors (with a 1:1.5 embankment slope).

The data obtained from the Fingers Lake thermistor string (being on a near flat surface) gives a better representation of the true active layer. The data obtained over the last two seasons indicates an active layer of approximately 1.5m depth. Subzero temperatures occur beyond this depth through to the bedrock, which is encountered at approximately 12.3m and is maintained at approximately –6° to –7°C. See Graph No.3 'Fingers Lake Esker Monitoring' in the appendix. Actual excavation investigations have placed the maximum thaw depth in September to be approximately 1.3m depth.

Temperature monitoring in Cell No.1 has been ongoing since installation of the original thermistor strings in 1995. The only string that is actively monitored is string TC1-3. This string is located at the north east end of the cell near Cell No.1a. The other two strings in this cell are not providing data at many of the depths and the data is sparse. Graph No.4 shows the temperature profile at TC1-3 for the month of October during the years of monitoring. October is usually the month when the active layer has penetrated the deepest and cooling has begun. There is still some warming that occurs further at depth, however the temperatures remain below 0°C year round.

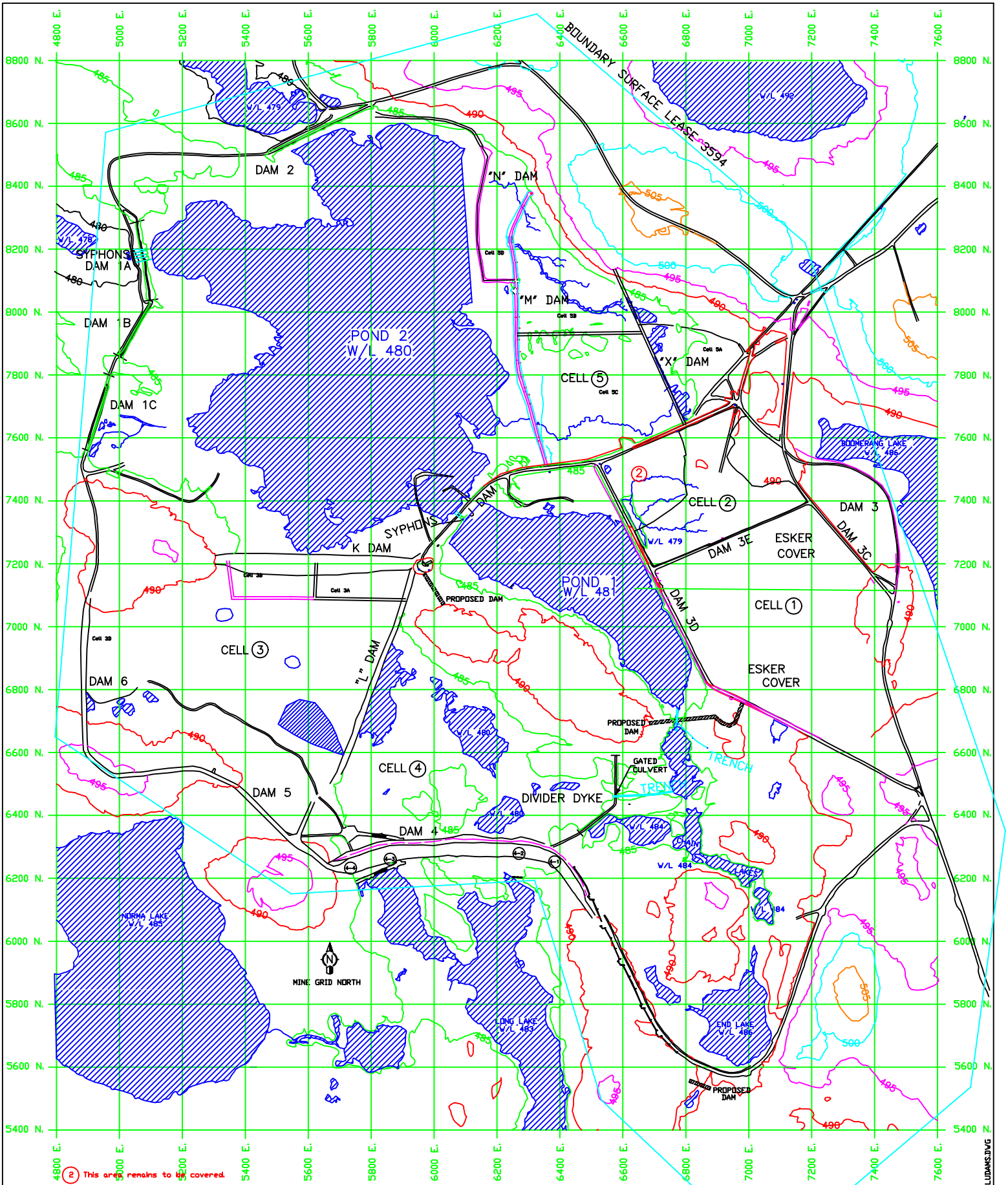
Temperature monitoring in Dam4 began with installation of thermistors in 1995. These strings were all installed along the downstream crest; one at each abutment and one in each of the "low" points of the foundation for a total of four strings. The four profiles are included within this Annual Report. As mentioned in the Geotechnical Inspection, the data indicates an active layer of approximately 2.5 to 3 metres at the downstream crest as shown in Graphs 5, 6, 7 and 8. These profiles are single date graphs for 1997-2001, using a date (October) that coincides with what is typically the warmest temperatures at a 2-3 metre depth, whereas the temperatures closer to surface are beginning to cool at this time.

Planned Abandonment and Restoration Activities; 2002

- Continue to monitor the thermistor strings installed in the esker cover of Cells 1 and 2, Dam4 and newer strings in Dam1a, Dam2 and the Fingers Lake Esker to build the database information regarding the characteristics of the active thaw zone in natural esker, constructed dams and covered tailings.

K. ANY OTHER DETAILS ON WATER USE OR WASTE DISPOSAL REQUESTED BY THE BOARD BY NOVEMBER 1st OF THE YEAR BEING REPORTED

There were no requests received from the Board prior to November 1, 2001 for additional information to be included in this annual report.



NOTE:
ORIGINAL SCALE - 1:2000 - PLOTTING RATIO OF 1=1 (METRIC)
REDUCED SCALE OF 1:5000 - PLOTTING RATIO IS 1=5 (METRIC)
SHEET NUMBERS REFER TO 1:2000 STEWART WEIR LAND DATA MAPS

MAPPING BASED ON PHOTOGRAMMETRY BY STEWART WEIR , AUG. 1989

MAP SCALE
0 50 100 200 METERS

No	DATE	MADE BY	DESCRIPTION
1			
2			
3			
4			
0	Feb/98	S.B.L.	Updated 1997 work

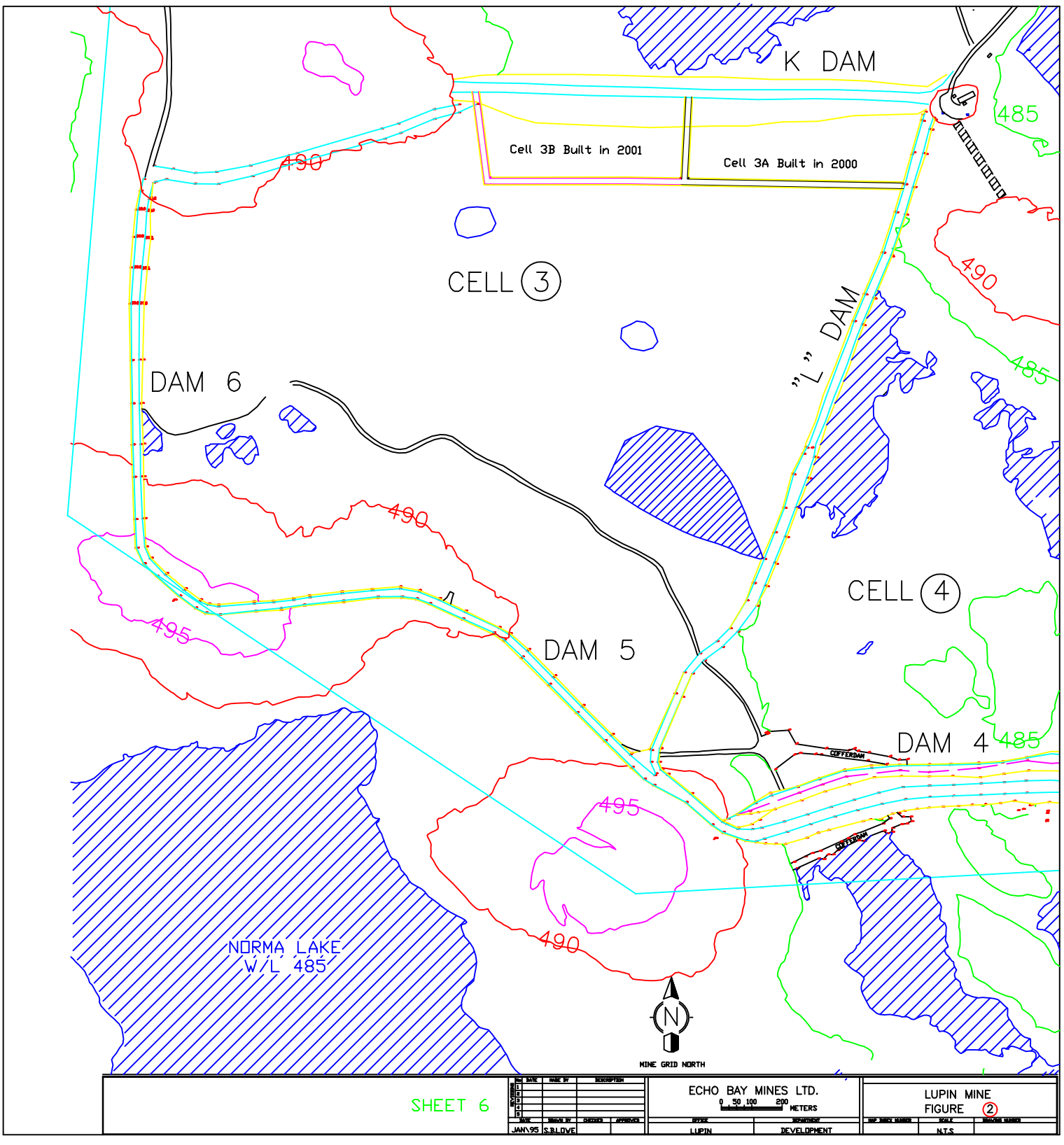
DATE	DRAWN BY	CHECKED	APPROVED
JAN\95	S.B.LOWE		

ECHO BAY MINES LTD.
FIGURE (1)

OFFICE	DEPARTMENT
LUPIN	DEVELOPMENT

LUPIN MINE
TAILINGS AREA

MAP INDEX NUMBER	SCALE	DRAWING NUMBER
	NTS	


K DAM
Cell 3B Built in 2001
Cell 3A Built in 2000
CELL 3
"L" DAM
DAM 6
DAM 5
CELL 4
DAM 4
CUFFERDAM
CUFFERDAM
NORMA LAKE
W/L 485
490
485
490
485
490
495
495
490
N
MINE GRID NORTH
SHEET 6
ECHO BAY MINES LTD.
0 50 100 200 METERS
LUPIN MINE
FIGURE 2
JAN\95 S.B.LOWE
LUPIN
DEVELOPMENT
N.T.S

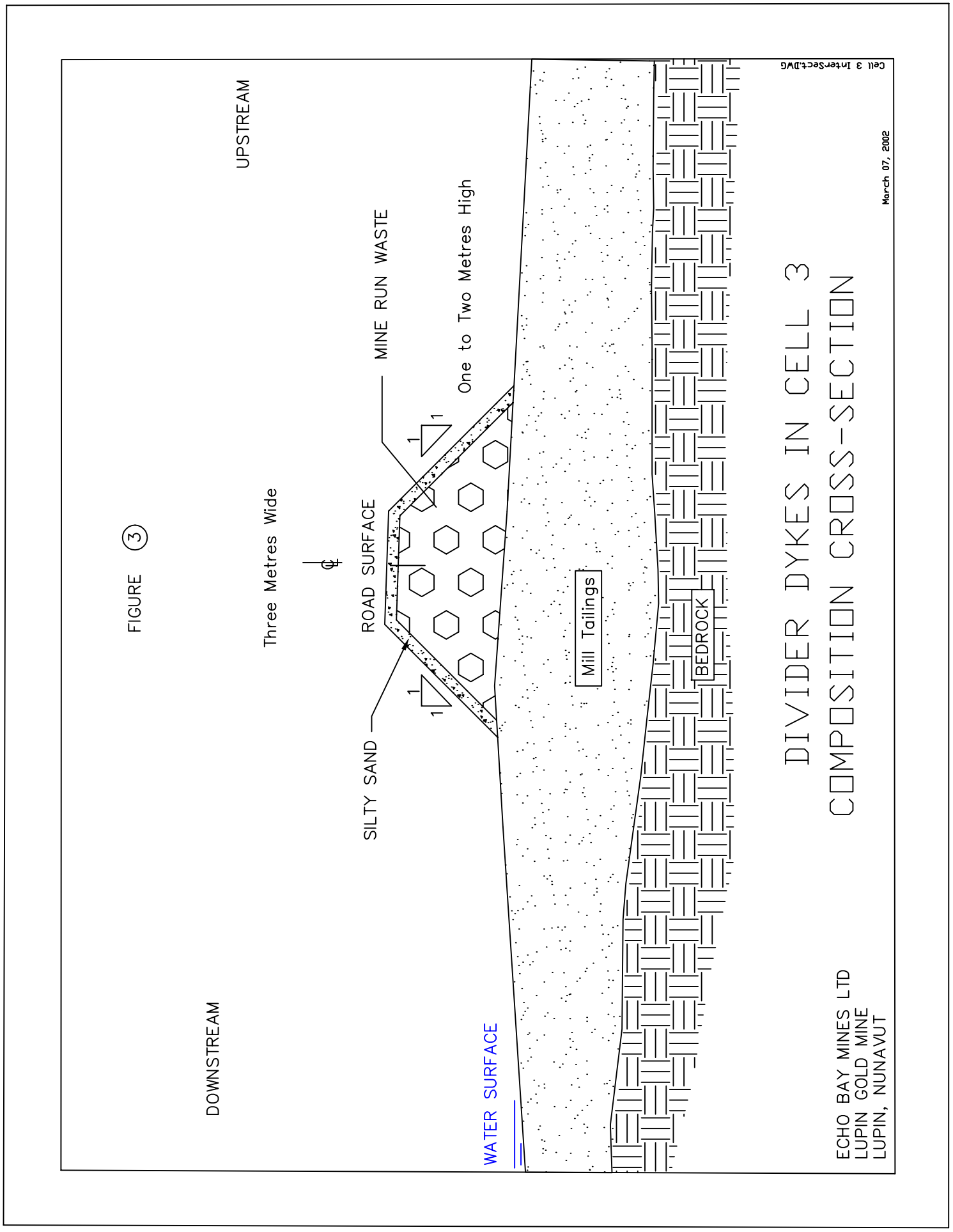
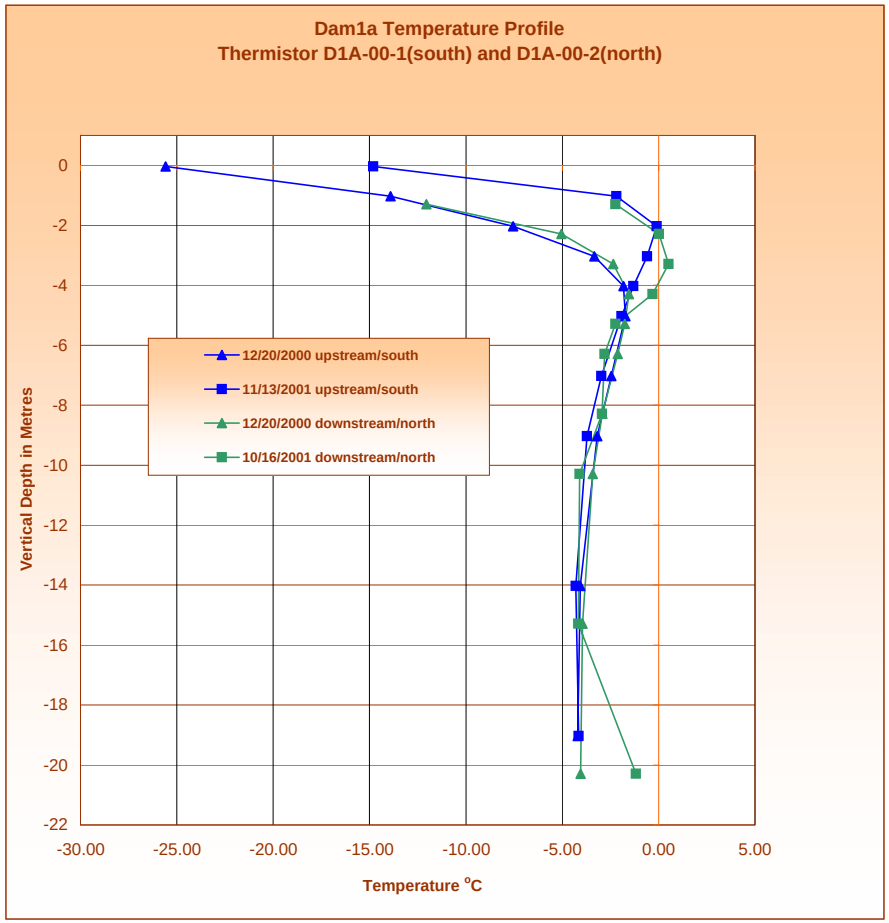
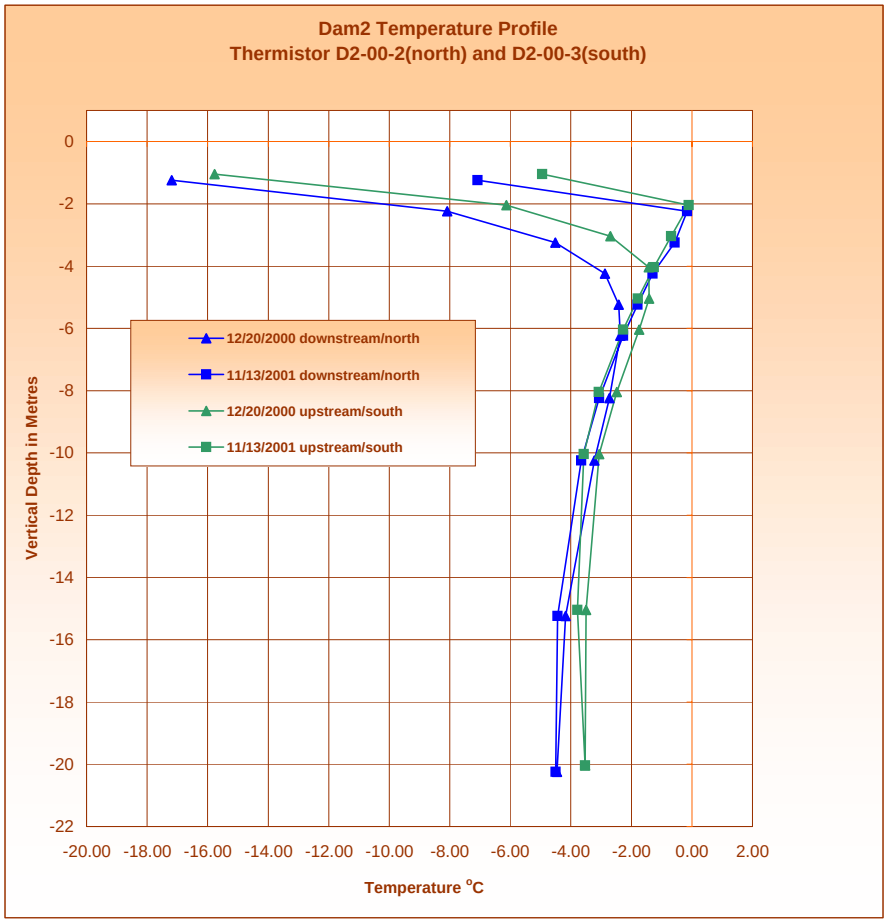


FIGURE 3
DIVIDER DYKES IN CELL 3
COMPOSITION CROSS-SECTION
ECHO BAY MINES LTD
LUPIN GOLD MINE
LUPIN, NUNAVUT
March 07, 2002
Cell 3 InterSect.DWG
UPSTREAM
DOWNSTREAM
Three Metres Wide
ROAD SURFACE
MINE RUN WASTE
One to Two Metres High
SILTY SAND
WATER SURFACE
Mill Tailings
BEDROCK
1
1

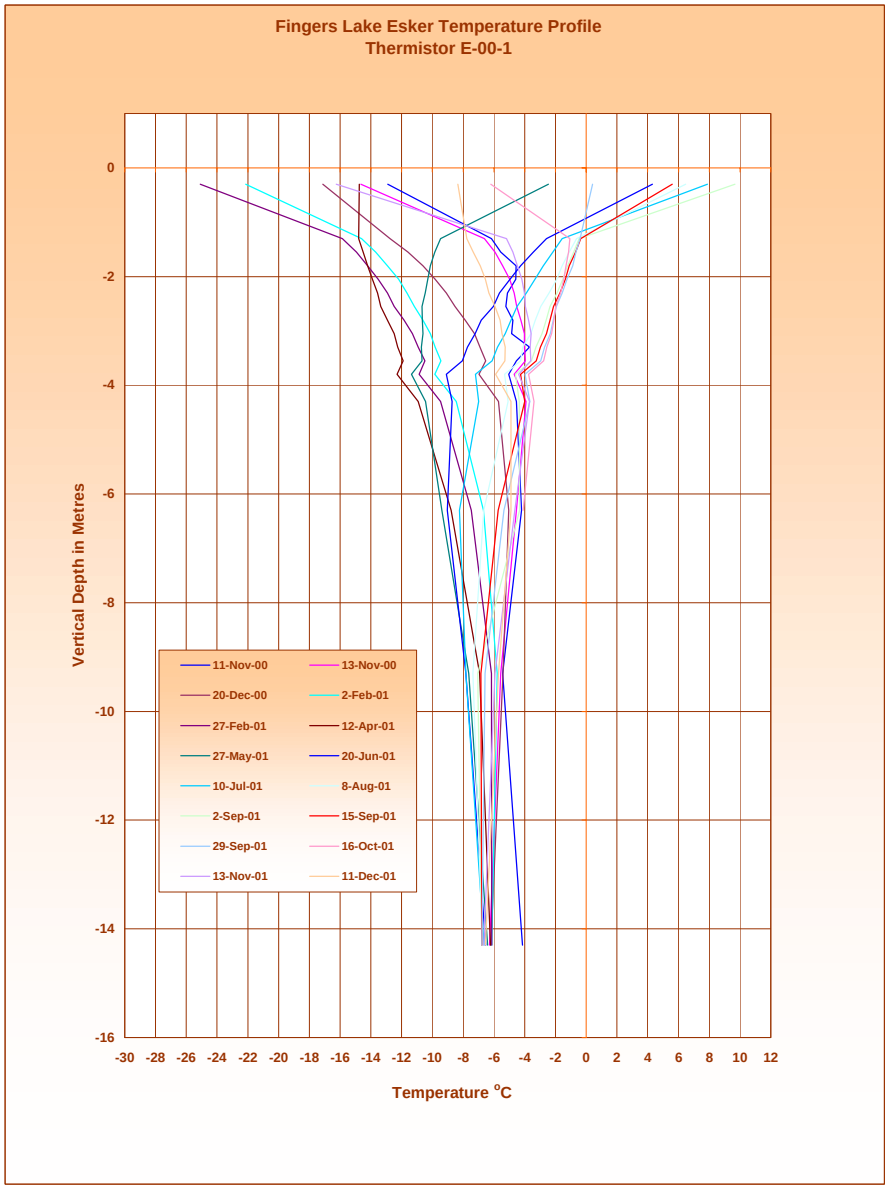
Graph No.1



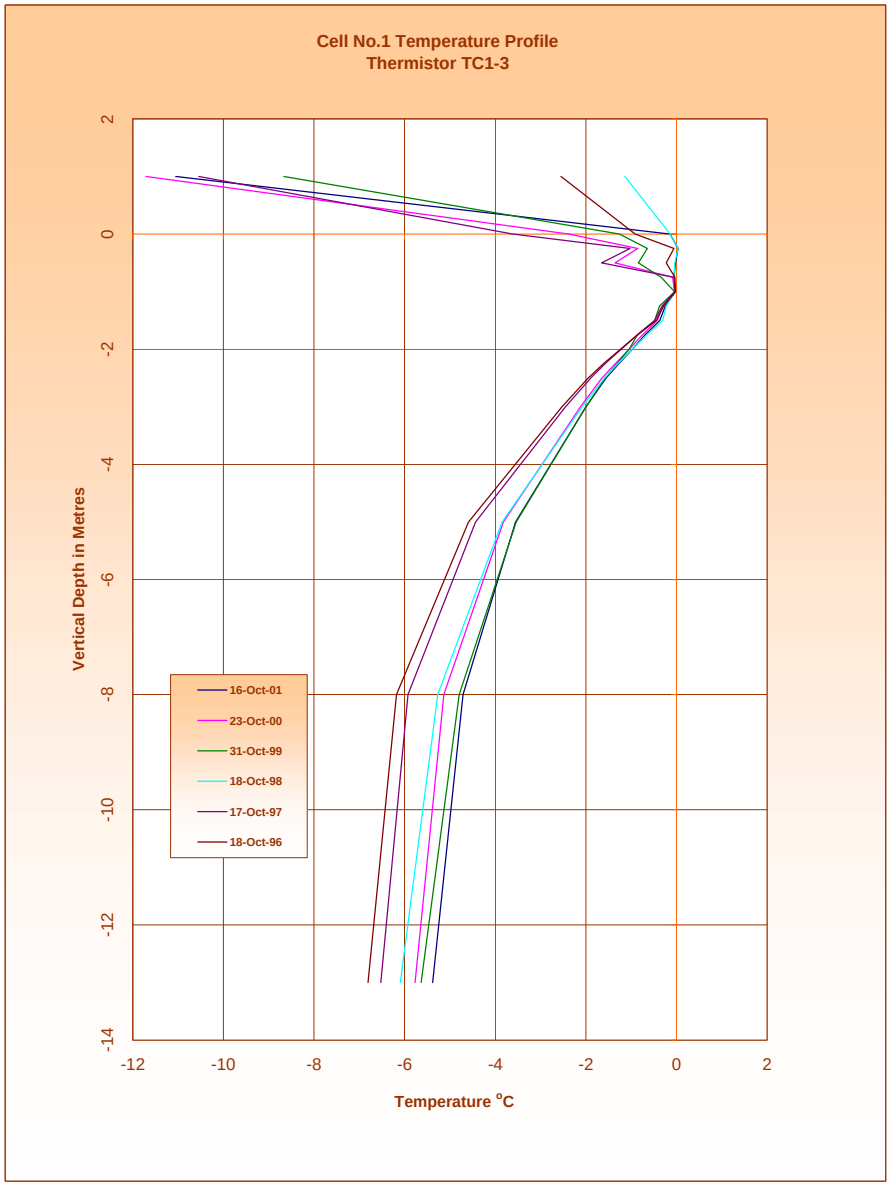
Graph No.2



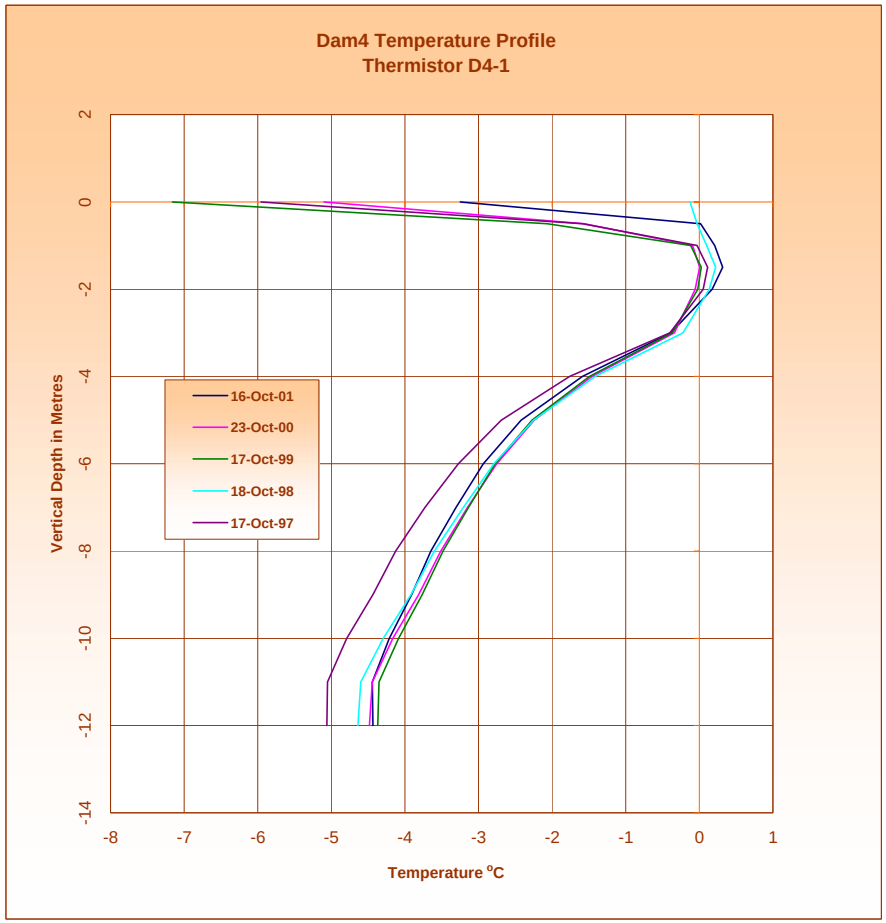
Graph No.3



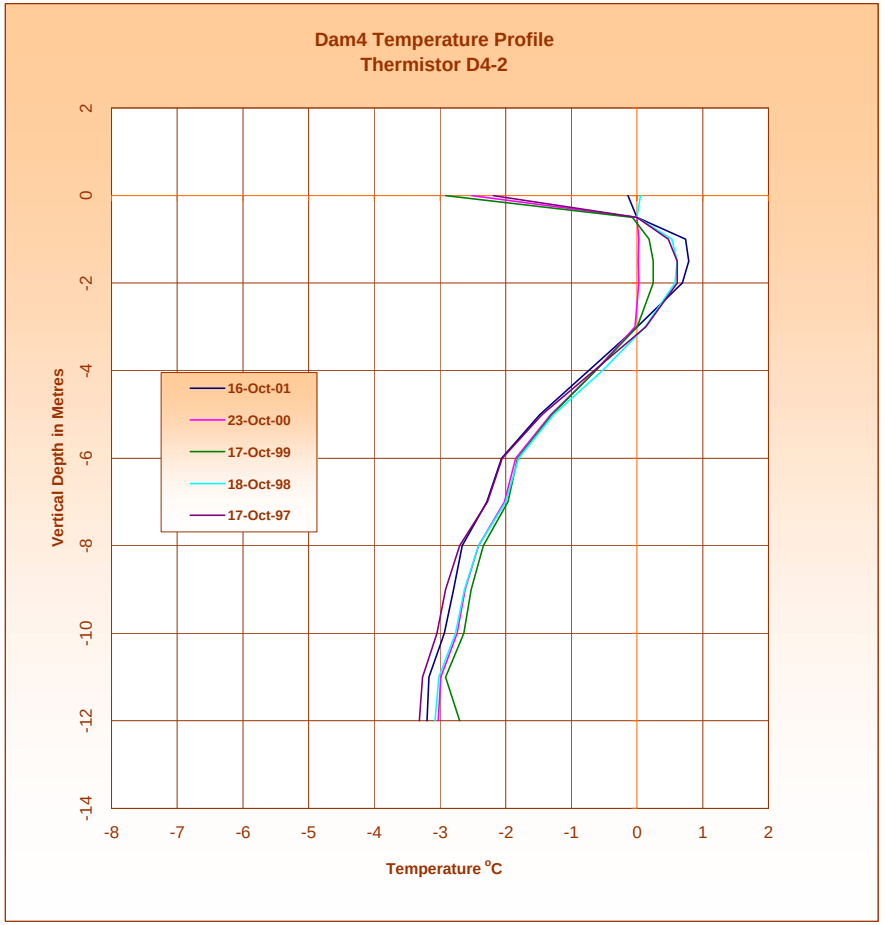
Graph No.4



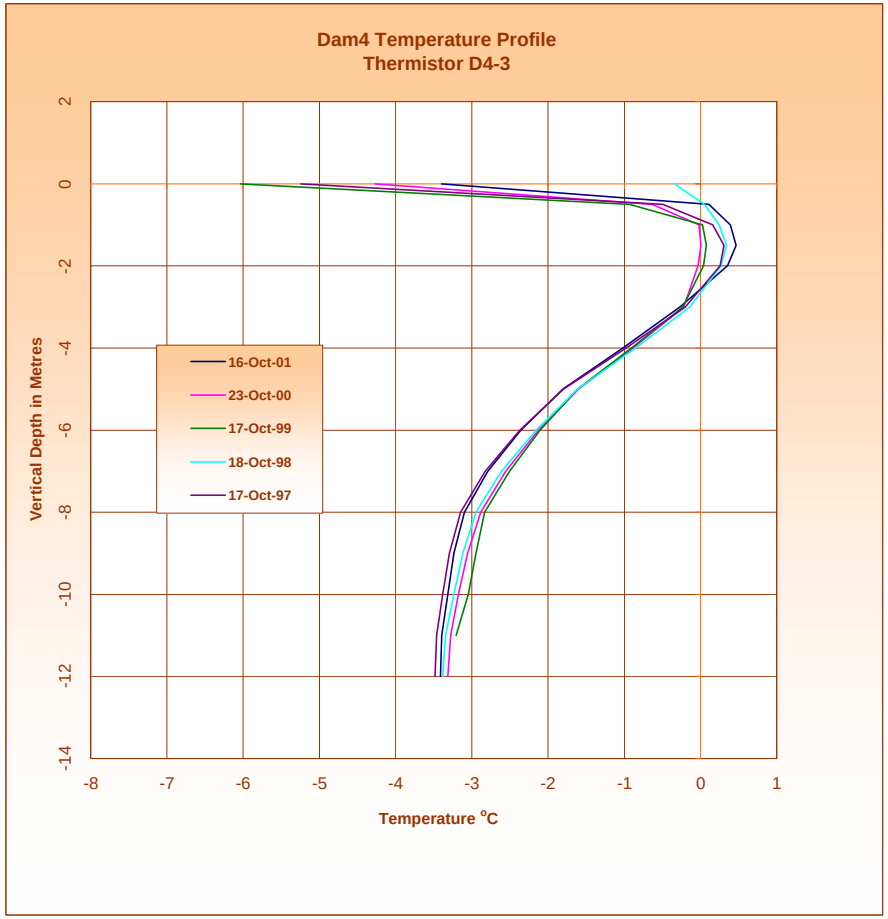
Graph No.5



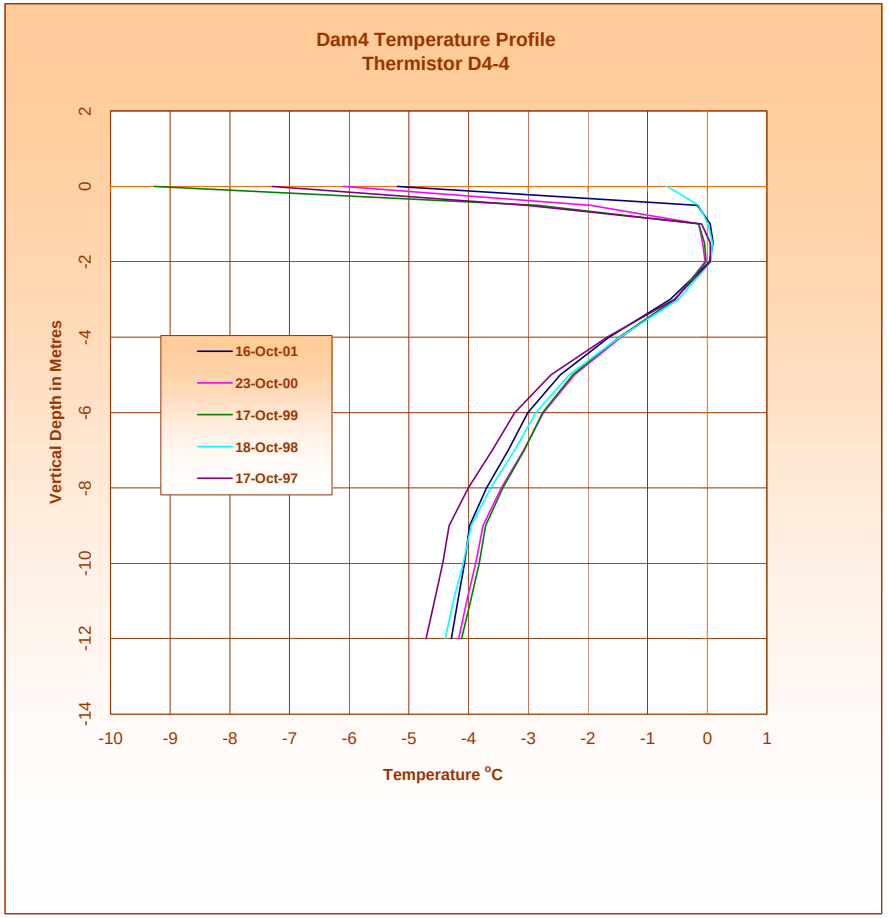
Graph No.6



Graph No.7



Graph No.8



APPENDIX A

TABLES and PHOTOS

ECHO BAY MINES LTD.
LUPIN GOLD MINE, Nunavut

WATER LICENCE NWB1LUP0008

2001

PUMPING REPORT

(CUBIC METERS)*

TABLE NO.1

	FRESHWATER FROM CONTWOYTO LAKE (METERED)			WASTE DISCHARGED TO TAILINGS POND (CALCULATED)						
MONTH	**TOTAL**	**PROCESS**	**POTABLE**	**TOTAL**	**SOLUTION**	**SOLIDS**	**ORE Milled TONNES**	**BACKFILL SOLIDS**	**MINEWATER (METERED)**	**SEWAGE (CALC.)**
January-01	70,368	62,351	8,017	79,303	65,900	13,403	51,747	4,441	4,605	0
February-01	65,706	58,756	6,950	82,962	69,457	13,505	47,504	2,876	3,290	0
March-01	70,096	62,330	7,766	69,476	56,224	13,251	51,581	4,535	2,926	0
April-01	69,798	62,196	7,602	59,150	49,166	9,984	47,856	6,518	2,923	0
May-01	74,656	67,782	6,874	84,404	70,891	13,513	50,972	4,063	3,697	0
June-01	70,319	64,150	6,169	71,935	58,489	13,446	51,344	4,259	6,009	107,172
July-01	77,336	70,970	6,366	54,460	45,921	8,539	50,064	8,724	5,336	175,902
August-01	80,436	74,271	6,165	65,928	53,772	12,155	56,448	7,310	4,680	54,324
September-01	72,065	65,652	6,413	63,069	50,632	12,437	51,130	5,194	5,072	0
October-01	79,138	73,021	6,117	67,763	54,072	13,691	59,835	6,941	3,828	0
November-01	79,170	72,448	6,722	76,869	60,061	16,809	56,629	2,719	3,948	0
December-01	77,542	71,134	6,408	56,107	45,762	10,345	48,406	6,347	3,802	0
TOTAL (m^3)*	886,630	805,061	81,569	831,424	680,347	151,078	623,516 t	63,928	50,117	337,398

*ore milled reported in tonnes

ECHO BAY MINES LTD.
LUPIN GOLD MINE, Nunavut

WATER LICENCE NWB1LUP0008

Table No.2

SURVEILLANCE NETWORK PROGRAM
MONTHLY REPORT - 2001 Summary

- all units are in mg/L except pH which is unitless and where otherwise indicated.

DATE	SAMPLING STATION	TEMP ^{0}C	pH	TSS	Total CN	Total As	TOTAL METALS Cd	Cu	Hg	Ni	Pb	Fe	Zn	cond. us/cm	F-col #/100mL	BOD_5
28-May-01	925-01	1.6	6.64	2		<0.0004	<0.0006	<0.001	<0.0001	0.001	<0.002		0.0042	19.6	<1	
18-Jun-01	925-14	4	5.85	3	N/A	0.0109	<0.0006	0.006		0.012	<0.002		0.0278		5	<4
16-Jul-01	925-14	14.2	6.86	2	N/A	0.0078	<0.0006	0.005		0.025	0.004		0.0428		<1	<4
13-Aug-01	925-14	12	5.96	< 1	N/A	0.0072	0.0006	0.006		0.042	0.009		0.0857		<1	<4

	Total Nitrate-N	Total Nitrite-N	TK-N	NH4-N	Total Ortho-P	Total Phosph.	Total O&G	T-Alk.	Hard.
18-Jun-01 925-14			2.8	1.09	0.1	0.26	6		93.1
16-Jul-01 925-14	8.46	<1	4.02	3.39	<0.05	0.22		10	476
13-Aug-01 925-14	13.7	<0.002	9.67	8.5	<0.05	0.23		< 5	684

Sewage Lakes Discharge Control Structure

Photo 1

Decant control structure; discharge excavation for repairs.

July 28, 2001.

Photo 2

Decant control structure; discharge excavation (top view showing location of clamp).

July 28, 2001

Photo 3

Sewage decant control structure; completed backfill.

September 11, 2001

Cell No.5; Mdam

Photo 4

Cell No.5; Mdam pumping station. South end.

Containment berm was placed adjacent to the pump station ramp and filled with tailings.

Photo 5

Cell No.5; Mdam, north end

Photo 6

Tailings Containment Area; Typical snow accumulation around End Lake area access road.

Abandonment and Restoration work; 2001

Photos 7&8 Removal of A and B accommodation units in July 2001.

Photos 9&10 Removal of Redpath accommodation units in July 2001.

Photo 11

Removal of original six inch tailings line; a distance of approximately 6km.

APPENDIX B

Norwest Labs Ltd.; Analysis QC Data