ECHO BAY MINES LTD.

Mailing Address:
Lupin Operation
Bag No. 1
Nisku, Alberta
T0C 2G0

Lupin Operation
No. 10, Yellowknife Airport
Yellowknife, N.W.T.
X1A 3T2

Phone: (403) 890-7000 Fax: (403) 890-8766

August 24, 1998

Our File: Ulu Water Licence
Your File: Water Permit No.NWB2ULU9700

Executive Director
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NT
X0E 1J0

Dear Sir:

RE: Ulu Project, NT
Estimate of Current Mine Restoration Liability
Water Licence NWB2ULU9700

As required by Part I, Item 3 of Water Permit No.NWB2OCC9799, please accept the attached document as the submission for the purposes of estimating the current mine restoration liability at the Ulu Project, Echo Bay Mines Ltd.

The estimate was recently compiled using current quotations from project specific contractors, previous operating experience at Ulu and best engineering estimates. The Ulu Project Manager, now relocated to Lupin (Edmonton office) as Chief Mine Engineer at Lupin prepared a considerable amount of the estimate with the Lupin site staff.

Both a working LOTUS spreadsheet and the RECLAIM model are included in the package. Although considerable changes to the model were required to accommodate the unique requirements for closure at Ulu, the cost summary should be representative of the closure requirements.

Should you have any questions or comments regarding the attached information, please do not hesitate to contact the undersigned at (403) 890-8794.

Yours truly,

D. Hohnstein

D. Hohnstein
Environmental Coordinator, Lupin

cc: J. McCrank H. Ducasse B. Lowe

ESTIMATE OF CURRENT MINE RESTORATION LIABILITY

WATER LICENCE NWB2ULU9700

ULU PROJECT, NT

ECHO BAY MINES LTD.

Prepared: August 20, 1998

Table of Contents

Estimate of Current Mine Restoration Liability; 1998

1.0 Requirement of Mine Restoration Liability Estimate

Echo Bay Mines Ltd., Lupin Operations applied for and received a Water Licence for the Ulu Project located approximately 150 km north of the Lupin Mine. Within the Licence, under Part I, Item 3, is the requirement to submit to the Water Board an initial estimate of the current mine restoration liability using the current version of RECLAIM, its equivalent or some other method acceptable by the Board. On July 06, 1998, the requirement to submit the estimate within 6 months of issuance of the Licence was extended by the Board to September 1, 1998.

In September, 1997 the Ulu exploration program was temporarily suspended due to the low price of gold and the current economics of progressing the site to the production phase of development. Considerable underground development work had been completed to date as well as definition diamond drilling. Bulk samples were obtained from several underground levels for metallurgical testing at Lupin. As well, surface exploration activity took place to further investigate the Ulu ore body.

The reclamation liability at Ulu is mainly concerned with the area site disturbance and the potential contamination of the area through hydrocarbon use at the site and the storage of potentially acid generating ore and waste rock on the surface. The extent of site disturbance has been kept to a minimum through efficient planning and land use. The airstrip in use is currently serving two functions, being a roadway as well. The site laydown areas and ore stockpile are incorporated adjacent to the portal area and have been expanded as waste rock becomes available and the need for storage increases.

The reclamation liability estimate included in this summary covers the liability associated with the initial construction and approximately one year of exploration activity. The only known expansion to the current site conditions and therefor liability, are the completion of the ore storage pad and additional road (portages) along the haul route during the production phase of the project.

2.0 Summary of Current Liability Cost Estimate

The reclamation cost estimates are summarized below. The estimates were completed on a LOTUS v.5 spreadsheet to identify and itemize all the components at the Ulu project site. Many of these components are unique to Ulu (which is advanced exploration in contrast to a mining/milling site) and require custom insertion into the RECLAIM model.

The information from the LOTUS spreadsheet was transferred to the most recent RECLAIM version 3.1 (September, 1997; Brodie Consulting Ltd.) formated for Quatro Pro. Printed output from both spreadsheets are attached for detailed review of all

component areas. Slight changes in some of the methods of calculating from one spreadsheet to the other result in minor differences, however the final estimate from both is within 10 %. Supporting rationale and assumptions for each of the cost components are also attached. Unit costs for the different components were derived by three methods: estimates obtained from the original contractors (Weatherhaven camp), estimates based on previous experience (winter road haul) and best engineering estimates (dismantle Ulu trailer camp). Where possible, the model unit costs were used within the RECLAIM spreadsheet, however most were not applicable or were on an extreme high side.

Estimate of Restoration Liability for the Ulu Project, Echo Bay Mines Ltd.
Major Items Summary

Component	Reclamation Cost
Cap Vent Raise	$16,560
Dismantle Fuel Tanks	$135,500
Dismantle Weatherhaven	$68,000
Dismantle Ulu	$210,540
Winter Road/Air Freight Haul	$805,234
Sub Total	$1,235,834
Other Misc. Items (grading, scarifying, hauling)	$31,669
Total	$1,267,503

3.0 Notes to Restoration Cost Estimate; Ulu Project

3.1 Weatherhaven Camp and associated structures

Weatherhaven Camp facilities are to be dismantled, packaged in fifteen (15) SeaContainers and transported off site to Lupin or another destination as may be required. The seven modular type trailer units (used as staging camp at Camp 3 location) adjacent to the Weatherhaven will be used during the dismantling and demobilization, then transported south. Costs are based on estimates obtained from Weatherhaven Structures on the dismantling of the camp.

3.2 Other Buildings and contents

There are several other small buildings at the site which serve as storage and support areas (core shack, gensets, vans). These smaller units, depending on their end use, will be removed (either dismantled or as is) or burned prior to disposal.

The Steel clad building used as a shop at Camp 3 to be collapsed and removed. 850 m^2 building area with potential for a hydrocarbon contaminated base. Allow 850 m^3.

3.3 Camp Pad and Laydown Areas

The camp pad, adjacent laydown area and portal laydown consist of 34,000 m^2 of material that is composed of waste rock and a top layer of esker sand. Scarifying of the surface is required. Also, a perimeter distance of 1,100 metres with an average height of two meters requires slope contouring to 3:1 (horizontal:vertical).

3.4 Infrastructure Support

Fresh Water Intake at West Lake consists of a floating barge and associated piping to supply the camp. Allowing for the removal of 860 metres of pipe and support material and transportation to Lupin.

Sewage Disposal Facilities consist of a portable treatment plant and associated piping to disposal at East Lake. Allowing for the removal of 400 metres of piping and transportation of pipe and plant to Lupin.

Roads and Airstrip amount to approximately 14 kilometres of road averaging 10 metres width (with the exception of the airstrip; 1,150 metres by 30 metres width). Scarify 16.3 hectares and contour slopes of approximately 50% of the overall length to complete. There are only six culverts in the current road system connecting Ulu Project Camp with Camp 3 at Reno Lake, the result of construction on higher ground. Minimal excavation and re-sloping of the roadway required for closure at these locations.

Fuel Storage areas located at both the Ulu Camp and at Camp 3. The Ulu camp and Camp 3 fuel storage areas consists of five 14,000 usg portable tanks (P40 / P50) and six 14,000 usg portable tanks (P50) respectfully, to be removed via winter road. The Camp 3 fuel storage also contains two 350,000 usg tanks (P40) to be dismantled (estimate from Gem Steel) prior to removal. A small 1,500 usg day tank at the shop also has a berm containment.

The total area involved in the fuel storage at both camps is 4,160 m^2 which includes the offloading aprons. Allowing the possibility of bioremediation for the construction material above the liners at a 0.5 metre depth gives 1,074 m^3 of material.

Explosive Magazines consist of four (4) SeaContainers enclosed within a fenced compound. These containers are to be utilized for containment of other materials to be transported and removed from the site during winter road operations. The fence (100m) is to be removed @ $10/metre.

Quarry use at the Ulu Project has been limited to disturbance at the Camp 3 esker. These

areas are limited to the lower elevations of the esker and are contoured to the surrounding topography upon completion of quarry operations during the season. Only minimal grading and sloping should be required.

3.5 Underground Development

Currently the underground exploration at the Ulu Project has seen development of a portal and ramp to a depth of 155 metres over a distance of approximately 1,762 metres. There is the need to allow for a single bulkhead at the portal and a reinforced cap over a single, fresh air vent raise.

Minor equipment (pumps, electrical) removal from the underground will be required. At present, during the shutdown all equipment has been removed.

3.6 Waste Rock

Waste rock is limited to the constructed storage pad areas and the camp pad. It is expected that, prior to the end of the production phase, some potentially acid generating rock may be stored on the ore storage pad. However, until that time, there is only a small amount of ore currently on the pad that will require disposal (within the underground workings).

3.7 Ore Stockpile

At the end of the production phase, the ore stockpile is expected to be depleted. A layer of esker material separates the waste rock pad from the ore stockpile therefor little intermixing of the materials is expected. The storage pad itself is currently 19,000 m^2 and will require re-sloping on approximately 600metres of the perimeter.

3.8 Revegetation

There are currently no plans to commence revegetation of the disturbed areas in addition to the scarifying of disturbed ground. Enhanced re-introduction of the native species is viewed as potentially the most effective form of vegetative reclamation for the long term. There are no immediate areas of concern with regard to erosion that may require the need for the short-term establishment of vegetation. No provision (other than scarify) for revegetation has been included at this time.

3.9 Post Closure Monitoring

The underground development at the Ulu Project is entirely in continuous permafrost. The permanent closure of the portal and the fresh air raise will eliminate any potential of surface waters entering the voids. Minor amounts of water that do manage to enter will

ultimately freeze at depth and at surface during the winter months. No allowance for water monitoring or treatment is being considered from this source.

Monitoring of seepage from the camp pad and the ore storage pad is planned for a minimum period of three years . Initial run off will not be included in the three sampling periods per season at $4,000 per period. Allow an annual cost of $12,000 x 3 = $36,000 for inspections and water quality sampling/analysis.

Further studies relating to ARD issues are not expected and therefor not included in the cost estimate. Studies to date have been completed by Klohn-Crippen Consulting Ltd. and focused both on the ARD potential of the ore and the waste rock used to construct the pads at the site. A kinetic study has been completed and further sample collection is ongoing during the shutdown to increase the data base for the water quality at minimal cost. Allow $5,000/year x 3 = $15,000.

3.10 Mobilization/Demobilization

The allowance for Mob/demob costs has been limited to the demobilization of equipment from the Ulu Project area on the assumption that all reclamation work would be complete prior to final removal of equipment via the winter road. These costs are based on Echo Bay Mines Ltd. past experience and cost. All costs are included in the winter road/air freight haul and fuel haul components. These costs are based on previous experience however, they may vary from year to year dependent on equipment availability from contractors.

PROJECT: Echo Bay Mines - Ulu
DATE: 05-Nov-99

UNIT COST SUMMARY TABLE

ITEM	Detail	COST CODE	UNITS	LOW $	HIGH $	SPECIFIED $
1 **excavate Rock, Bulk**						
	drill, blast, load short haul, < 500 m dump	RB1	m3	8	12	NA
	tram blasted rock, u/g	RBT	m3	1.44	3.35	NA
	RB1 + long haul, up to 1500 m	RB2	m3	8.5	12.5	NA
	RB1 + spread and compact	RB3	m3	8.5	12.5	NA
	RB1 + long haul + spread and compact	RB4	m3	9	13	NA
	RB1 + Specified activity	RBS	m3	NA	NA	NA
2 **excavate Rock, Controlled**						
	drill, blast, load short haul, < 500 m dump	RC1	m3	8	12	NA
	RC1 + long haul, up to 1500 m	RC2	m3	9	13	NA
	RC1 + spread and compact	RC3	m3	8.5	12.5	NA
	RC1 + long haul + spread and compact	RC4	m3	9.5	13.5	NA
	RC1 + Specified activity	RCS	m3	NA	NA	NA
3 **excavate Soil, Bulk**						
	excavate, load short haul, < 500 m dump	SB1	m3	2.74	4.15	NA
	SB1 + long haul, up to 1500 m	SB2	m3	3.4	5.12	NA
	SB1 + spread and compact	SB3	m3	3.15	4.55	NA
	SB1 + long haul + spread and compact	SB4	m3	3.8	7.67	NA
	SB1 + Specified activity	SBS	m3	1.99	NA	NA
4 **excavate Soil, Controlled**						

PROJECT: Echo Bay Mines - Ulu
DATE: 05-Nov-99

UNIT COST SUMMARY TABLE

ITEM	Detail	COST CODE	UNITS	LOW $	HIGH $	SPECIFIED $
	excavate, load short haul, < 500 m dump	SC1	m3	1.76	5.75	NA
	SC1 + long haul, over 500 m	SC2	m3	5.75	8.25	NA
	SC1 + spread and compact	SC3	m3	4.8	10	NA
	SC1 + long haul + spread and compact	SC4	m3	5.4	10.6	NA
	SC1 + Specified activity	SCS	m3	NA	NA	NA
5 **Concrete work**						
	Small pour, no forms	CS	m3	250	350	NA
	Large pour, no forms	CL	m3	200	300	NA
	Small pour, Formed	CSF	m3	800	1440	NA
	Large pour, Formed	CLF	m3	250	350	NA
6 **Vegetation**						
	Hydroseed, Flat	VHF	ha	1100	4000	NA
	Hydroseed, Sloped	VHS	ha	3500	4500	NA
	veg. Blanket/erosion mat	VB	ha	10000	12000	NA
	Tree planting	VT	ha	10000	12000	NA
	Wetland species	VW	ha	50000	75000	NA
7 **Pumps**						
	Small, <	PS	each	3000	6000	NA
	Large, >	PL	each	5000	9000	NA
8 **PiPes**						
	Small, < 6 inch diameter	PPS	m	25	75	NA
	Large, > 6 inch diameter	PPL	m	1	150	NA
9 **pump sand BackFill**		BF	m3	1.5	5	NA
10 **Fence, Erect**		FE	m	100	150	NA
Fence, Remove		FR	m	9.9	15	NA

PROJECT: Echo Bay Mines - Ulu
DATE: 05-Nov-99

UNIT COST SUMMARY TABLE

ITEM	Detail	COST CODE	UNITS	LOW $	HIGH $	SPECIFIED $
11 **Signs**		S	each	10	30	NA
12 **rock, Drill and Blast only (flatten slope, collapse drift)**		DB	m3	5	10	NA
13 **excavate Rip Rap**						
	drill, blast, load short haul, < 500 m dump and spread	RR1	m3	8	12	NA
	RR1 + long haul	RR2	m3	9.5	14.5	NA
	excavate rock from waste dump, short haul, spread	RR3	m3	1.05	2.37	NA
	RR3 + long haul	RR4	m3	4	5.35	NA
	specified rip rap source	RR5	m3	NA	NA	NA
14 **Import LimeStone**		ILS	tonne	8	12	NA
15 **Import LiMe**		ILM	tonne	136	290	NA
16 **Grouting**		G	m3	45	70	NA
17 **Dozing**						
	grade sides of pads, <1m	DR	m3	0.21	1.32	NA
	grade sides of pads, >1m	DR	m3	0.21	1.32	NA
	doze Rock piles	DR	m3	0.28	1.39	NA
	doze overburden/Soil piles	DS	m3	0.67	5.68	NA
18 **Equipment - Mobile**						
	Sell	EMS	tonne	0	0	NA
	decontaminate and Dispose	EMD	tonne	1000	10000	NA
19 **Equipment - Stationary (hoist, crusher, grinder, power plant)**						
	Sell	ESS	each	0	0	NA
	decontaminate and Dispose	ESD	tonne	1000	20000	NA
20 **Autoclave**						
	Sell	AS	each	0	0	NA
	decontaminate and Dispose	AD	each	5000	20000	NA
21 **Buildings - Decontaminate**						

PROJECT: Echo Bay Mines - Ulu
DATE: 05-Nov-99

UNIT COST SUMMARY TABLE

ITEM	Detail	COST CODE	UNITS	LOW $	HIGH $	SPECIFIED $
	Chemicals	BDC	m3	NA	NA	NA
	Asbestos	BDA	m2	NA	NA	NA
22	**Buildings - Remove**					
	Wood - teardown	BRW1	m	5	10	NA
	Wood - burn	BRW2	m	2.5	5	NA
	Weatherhaven - dismantle	BRT1	all	5	10	68000
	Trailers - dismantle	BRT2	all	10	20	118800
	350,000 gal tanks - teardown	BRS1	each	67750	90000	NA
	Steel - salvage	BRS2	m2	50	75	NA
23	**Buildings - Mothball**					
	Seal windows & doors	BMS	each	NA	NA	NA
	drain Plumbing	BMP	each	NA	NA	NA
24	**Laboratory Chemicals**					
	Remove from site	LCR	pallet	1500	2000	NA
	Dispose on site	LCD	each	NA	NA	NA
25	**PCB - Remove from site**	PCBR	litre	5	7.5	NA
26	**FueL**					
	Remove from site	FLR	litres	0.3	0.93	NA
	Burn on site	FB	kg	NA	NA	NA
27	**Oil**					
	Remove from site	OR	kg	0.12	0.88	NA
	Burn on site	OB	kg	NA	NA	NA
28	**Process Chemicals**					
	Remove from site	PCR	kg	0.12	1.76	NA
	Dispose on site	PCD	kg	NA	NA	NA
29	**Explosives**					
	Remove from site	ER	kg	0	2	NA
	Dispose on site	ED	kg	NA	NA	NA

PROJECT: Echo Bay Mines - Ulu
DATE: 05-Nov-99

UNIT COST SUMMARY TABLE

ITEM	Detail	COST CODE	UNITS	LOW $	HIGH $	SPECIFIED $
30	**Contaminated Soils**					
	Remediate on site	CSR	m3	25	200	NA
	consolidate & cover	Use cost code items 1 - 4				
	cover in place	Use cost code items 1 - 4				
31	**Mobilize Heavy Equipment**					
	Road access, Nodwells	MHERN	$/trip	15330	16420	NA
	Road access, Commanders	MHERC	$/trip	550	612	NA
	Air access	MHEA	$/trip	1100	2250	NA
	Transport, flatbeds	MHEF				122712
	Winter Road, open	MHEW				260110
32	**Mobilize Camp**					
	<20 persons Road access	MC<R	each	NA	NA	NA
	<20 persons Air access	MC<A	each	NA	NA	NA
33	**Mobilize Workers**					
	<20 persons	MM<	person	175	330	NA
	>20 persons	MM>	person	NA	NA	NA
34	**Mobilize Misc. Supplies**	MMS	each	NA	NA	NA
35	**House Workers, Catering**	HWC	$/man-day	22	30	NA
36	**Visual site Inspection**	VI	each	12000	18000	NA
37	**Survey site Inspection**	SI	each	NA	NA	NA
38	**Water Sampling**	WS	each	5000	7500	NA
39	**site inspection RePorT**	RPT	each	NA	10000	NA
40	**Security Guard**	SG	pers/mon	5000	7000	NA
41	**ACCoModation**	ACCM	pers/mon	660	900	NA
42	**Maintain Pumping**	MP	month	3000	NA	NA
43	**Clear SpillWay**	CSW	each	1700	4800	NA
44	**Build Treatment Plant**					
	Small (< 1000 m3/d)	BTPS	lump sum	1E+06	2E+06	NA
	Large (> 1000 m3/d)	BTPL	lump sum	2E+06	3.5E+06	NA

PROJECT: Echo Bay Mines - Ulu
DATE: 05-Nov-99

UNIT COST SUMMARY TABLE

ITEM	Detail	COST CODE	UNITS		LOW $	HIGH $	SPECIFIED $
45	**Operate Treatment Plant**	OTP		m3	0.19	1.5	NA
46	**SCariFY road and install water breaks**	SCFY		m2	0.04	0.45	NA

PROJECT NAME: Echo Bay Mines - Ulu DATE: 28-Aug-98

COMPONENT TYPE: UNDERGROUND MINE

COMPONENT NAME:

COMPONENT No.: 1

BEST ESTIMATE FOR UNIT COSTS

	ACTIVITY/MATERIAL	UNITS	QUANTITY	COST CODE	UNIT COST	COST
A	OBJECTIVE: CONTROL ACCESS					
	Fence	m		NA	0	$0
	Signs	each		NA	0	$0
	Ditch, mat'l A	m3		NA	0	$0
	, mat'l B	m3		NA	0	$0
	Uncover portal	m3	400	DSH	5.68	$2,272
	Block portal with waste	m3	800	RR3L	1.05	$840
	Cap shaft	m3		NA	0	$0
	Cap ventilation raise	m3	11.5	CSFH	1440	$16,560
	Cap raise #2	m3		NA	0	$0
	Backfill adits	m3		NA	0	$0
	Backfill shaft	m3		NA	0	$0
	Backfill raise #1	m3		NA	0	$0
	Backfill raise #2	m3		NA	0	$0
	Backfill open stopes	m3		NA	0	$0
	Specified control			NA	0	$0
				NA		
B	OBJECTIVE: STABILIZE GROUND SURFACE			NA		
	Backfill mine	m3		NA	0	$0
	Collapse mine	m3		NA	0	$0
	Contour, mat'l A	m3		NA	0	$0
	, mat'l B	m3		NA	0	$0
	Maintain dewatering (see "MONITORING/MAINTENANCE" costing c			NA		
	Other			NA	0	$0
				NA		
C	OBJECTIVE: FLOOD MINE			NA		
	Plug adits	m3		NA	0	$0
	Plug drillholes to surface	each		NA	0	$0
	Grouting	m3		NA	0	$0
	Other			NA	0	$0
				NA		
D	OBJECTIVE: DEVELOP WETLAND			NA		
	Earthworks, mat'l A	m3		NA	0	$0
	, mat'l B	m3		NA	0	$0
	Vegetate	ha		NA	0	$0
	Other			NA	0	$0
				NA		
E	SPECIALIZED ITEMS			NA	0	$0
	Subtotal					$19,672

PROJECT NAME: Echo Bay Mines - Ulu DATE: 28-Aug-98

COMPONENT TYPE: BUILDINGS AND EQUIPMENT

COMPONENT NAME: **Ulu Camp**

COMPONENT No.: 1

BEST ESTIMATE FOR UNIT COSTS

	ACTIVITY/MATERIAL	UNITS	QUANTITY	COST CODE	UNIT COST	COST
A	OBJECTIVE: DISPOSE MOBILE EQUIPMENT					
	Sell equipment 1	each		NA	0	$0
	Decontaminate and dispose 1	each		NA	0	$0
	Other			NA	0	$0
				NA		
B	OBJECTIVE: DISPOSE STATIONARY EQUIPMENT			NA		
	Sell equipment 1	each		NA	0	$0
	Decontaminate and dispose 1	each		NA	0	$0
	Other			NA	0	$0
				NA		
C	OBJECTIVE: DISPOSE ORE CONCENTRATION EQUIPMENT			NA		
	Autoclave - sell	each		NA	0	$0
	Decontaminate tanks & plumb.	each		NA	0	$0
	Remove tanks & plumbing	each		NA	0	$0
	Other			NA	0	$0
				NA		
D	OBJECTIVE: DISPOSE WATER TREATMENT EQUIPMENT			NA		
	Decontaminate tanks & plumb.	each		NA	0	$0
	Remove tanks & plumbing	each		NA	0	$0
	Other			NA	0	$0
				NA		
E	OBJECTIVE: DECONTAMINATE BUILDINGS & TANKS			NA		
	Building 1 , chemicals	m3		NA	0	$0
	, asbestos	m2		NA	0	$0
	Other			NA	0	$0
				NA		
F	OBJECTIVE: REMOVE/MOTHBALL BUILDINGS			NA		
	Weatherhaven tents	all	1	BRT1S	68000	$68,000
	Accomodation trailers	all	1	BRT2S	118800	$118,800
	Remove fences	m	100	FRL	9.9	$990
	350,000 gallon fuel tanks	each	2	BRS1L	67750	$135,500
	Building 5			NA	0	$0
	Other			NA	0	$0
				NA		
G	OBJECTIVE: BREAK BASEMENT SLABS			NA		
	Building 1	m2		NA	0	$0
	Other			NA	0	$0
				NA		
H	OBJECTIVE: REMOVE BURIED TANKS			NA		
	Tank 1, decontaminate	m3		NA	0	$0
	, excavate & dispose	m3		NA	0	$0
	Other			NA	0	$0
				NA		

PROJECT NAME: Echo Bay Mines - Ulu DATE: 28-Aug-98

COMPONENT TYPE: BUILDINGS AND EQUIPMENT

COMPONENT NAME: **Ulu Camp**

COMPONENT No.: 1

BEST ESTIMATE FOR UNIT COSTS

	ACTIVITY/MATERIAL	UNITS	QUANTITY	COST CODE	UNIT COST	COST
I	OBJECTIVE: GRADE AND CONTOUR			NA		
	Grade mill area	m2		NA	0	$0
	Place soil cover	m3		NA	0	$0
	Rip rap on ditches	m3		NA	0	$0
	Vegetate	ha		NA	0	$0
	Other			NA	0	$0
				NA		
J	OBJECTIVE: RECLAIM ROADS			NA		
	Scarify and install water breaks	m2	163000	SCFYL	0.04	$6,520
	Remove road culverts	each	6	CRL	533	$3,198
	Flatten side slopes, roads	m3	12900	DRL	0.21	$2,709
	Vegetate	ha		NA	0	$0
				NA		
K	SPECIALIZED ITEMS			NA	0	$0
	Subtotal					$335,717

COMMENTS:

PROJECT NAME: Echo Bay Mines - Ulu DATE: 28-Aug-98

COMPONENT TYPE: MOBILIZATION/DEMOBILIZATION

COMPONENT NAME: **Freight Handling - Camp 2, Ulu**

COMPONENT No.: 1

BEST ESTIMATE FOR UNIT COSTS

	ACTIVITY/MATERIAL	UNITS	QUANTITY	COST CODE	UNIT COST	COST
A	MOBILIZE HEAVY EQUIPMENT					
	Nodwells - Ulu to Camp 2	trips	5	MHERNL	15330	$76,650
	Commanders - Ulu to Camp 2	trips	76	MHERCH	612	$46,512
	Aircraft - Ulu to Lupin	trips	53	MHEAH	2250	$119,250
	Transport - Camp 2 to Lupin	all	1	MHEFS	122712	$122,712
	Winter Road - Lupin to Camp 2		1	MHEWS	260110	$260,110
				NA		
B	MOBILIZE CAMP			NA	0	$0
				NA		
C	MOBILIZE WORKERS	mdays	75	MM<H	330	$24,750
				NA		
D	MOBILIZE MISC. SUPPLIES			NA	0	$0
				NA		
E	HOUSE WORKERS person days		3000	HWCL	22	$66,000
				NA		
F	BONDING lump sum			NA	0	$0
				NA		
G	TAXES lump sum			NA	0	$0
				NA		
H	INSURANCE lump sum			NA	0	$0
	Subtotal					$715,984

COMMENTS:

PROJECT NAME: Echo Bay Mines - Ulu DATE: 28-Aug-98

COMPONENT TYPE: CHEMICALS & CONTAMINATED SOILS

COMPONENT NAME:

COMPONENT No.: 1

BEST ESTIMATE FOR UNIT COSTS

	ACTIVITY/MATERIAL	UNITS	QUANTITY	COST CODE	UNIT COST	COST
	Note: The procedures, equipment and packaging for clean up and removal of chemicals or contaminated soils are highly dependent on the nature of the chemicals and their existing state of containment. Government guidelines should be consulted on an individual chemical basis. Any estimate made here should be considered very rough unless specific evaluations have been conducted.					
A	LABORATORY CHEMICALS	kg		NA	0	$0
				NA		
B	PCB	kg		NA	0	$0
				NA		
C	FUEL			NA		
	Remove from site, by aircraft	litres	600000	FLRL	0.3	$180,000
	Type 2	kg		NA	0	$0
				NA		
D	OIL			NA		
	Type 1	kg		NA	0	$0
	Type 2	kg		NA	0	$0
				NA		
E	PROCESS OR TREATMENT CHEMICALS			NA		
	Type 1	kg		NA	0	$0
	Type 2	kg		NA	0	$0
	Type 3	kg		NA	0	$0
	Type 4	kg		NA	0	$0
				NA		
F	EXPLOSIVES	kg		NA	0	$0
				NA		
G	CONTAMINATED SOILS			NA		
	Camp 3 tank farm - excav., haul to portal	m3	617	SC2L	5.75	$3,548
	Haul underground	m3	617	RBTH	3.35	$2,067
	Ulu tank farm - excavate, haul to portal	m3	457	SC1L	1.76	$804
	Haul underground	m3	457	RBTH	3.35	$1,531
	Subtotal					$187,950

COMMENTS:

PROJECT NAME: **Echo Bay Mines - Ulu**

BEST ESTIMATE FOR UNIT COSTS 28-Aug-98

CAPITAL COST COMPONENT NAME	COMPONENT TYPE		TOTAL COST
	OPEN PIT		$0
	UNDERGROUND MINE		$19,672
	TAILINGS IMPOUNDMENT		$0
Pads: Ore Storage, Camp, Portal	ROCK PILE		$8,444
Ulu Camp	BUILDINGS AND EQUIPMENT		$335,717
	CHEMICALS & CONTAM. SOILS		$187,950
	WATER MANAGEMENT		$0
Freight Handling - Camp 2, Ulu	MOBILIZATION/DEMOBILIZATION		$715,984
SUBTOTAL			**$1,267,767**
PROJECT MANAGEMENT		3 % of subtotal	$38,033
ENGINEERING		% of subtotal	$0
CONTINGENCY		10 % of subtotal	$126,777
GRAND TOTAL - CAPITAL COSTS			**$1,432,576**
	MONITORING & MAINTENANCE		$51,000
CONTINGENCY		10 % of subtotal	$5,100
TOTAL - ANNUAL ONGOING COSTS			**$56,100**
ESTIMATED SALVAGE VALUE			***NA***

PROJECT NAME: Echo Bay Mines - Ulu DATE: 27-Aug-98

COMPONENT TYPE: MONITORING AND MAINTENANCE

COMPONENT NAME:

COMPONENT No.: 1

BEST ESTIMATE FOR UNIT COSTS

	ACTIVITY/MATERIAL	UNITS	QUANTITY PER YEAR	COST CODE	UNIT COST	COST
A	OBJECTIVE: INSPECTIONS					
	Visual inspection - 3 trips per year for 3 years	trips	3	VIL	12000	$36,000
	Survey inspection	each		NA	0	$0
	Monitor acid rock generation, 3 years	each	3	WSL	5000	$15,000
	Reporting	each		NA	0	$0
	Other			NA	0	$0
				NA		
B	OBJECTIVE: MAINTENANCE			NA		
	Security guard	month		NA	0	$0
	Accomodation	month		NA	0	$0
	Maintain pumping	month		NA	0	$0
	Clear spillway	each		NA	0	$0
	Other			NA	0	$0
				NA		
C	OBJECTIVE: ONGOING WATER TREATMENT			NA		
				NA		
				NA		
				NA		
				NA		
				NA		
				NA		
				NA		
				NA		
	Operate treatment plant	m3		NA	0	$0
	Subtotal					$51,000

Note: The cost of water treatment can vary widely depending on the nature of the influent and the effluent objectives. The size of a water treatment plant depends on the peak inflow rate which can be many times greater than the mean. Therefore, an estimate of water treatment costs made here should be considered very rough unless chemical testing and hydraulic modelling has been conducted.

RECLAMATION COSTS FOR ULU MINESITE (present condition) 98-Aug-26 reclam123

Activity	Quantity	units	No. men	Total hrs	Rate/ hr	Cost men	Equip.	hrs	Rate/ hr	Cost eqpt	Supplies	Cost	Total Cost	Cost/ activity
Cap Vent Raise	11.5	m^3	3	44	$36.80	$4,858	Zoom boom	22	$28.96	$637	concrete	$11,045	$16,540	$16,540
Dismantle 350,000 gal fuel tanks	2	ea	5	154		$100,000	Badger crane	92	$225.00	$20,790			$120,790	
			2	154	$36.80	$11,334	zoom boom	116	$28.96	$3,345			$14,679	$135,469
Dismantle Weatherhaven camp			2	165	$54.55	$18,000	Badger crane	11	$225.00	$2,475	Trav expens.	$2,000	$22,475	
			9	165	$30.00	$44,550	Flat deck	50	$17.45	$864			$45,414	$67,889
Dismantle Ulu trailers, etc.			12	330	$30.00	$118,800							$118,800	
Remove fence - powder mags			2	10	$30.00	$600	CAT966	10	$39.00	$390			$990	
Labor crew			5	165	$30.00	$24,750							$24,750	
Catering			3	660	$22/md	$66,000	incl food						$66,000	$210,540
Fly fuel to Lupin	600000	litres				110 trips	HS-748		$1400/trip	$154,000			$154,000	
			2	154	$30.00	$9,240	Fuel Hand - Ulu	154	$25.00	$3,850			$13,090	
			2	154	$30.00	$9,240	Fuel Hand - Lupin	154	$25.00	$3,850			$13,090	$180,180
Winter road: Lupin to Camp 2														
Open winter road			8	187	$30.00	$44,880	Plow Truck	187	$80.00	$14,960			$59,840	
Camp 2 operation			3	660	$30.00	$59,400	Grader	187	$50.00	$9,350	Catering	$15,840	$84,590	
Maintain winter road			4	704	$30.00	$84,480	Grader	240	$50.00	$12,000			$96,480	
							Plow Truck	240	$80.00	$19,200			$19,200	$260,110
Freight Haul - Camp 2 to Lupin														
Freight transfer crew Camp 2			4	330	$30.00	$39,600	Forklift	56	$30.00	$1,680			$41,280	
Camp 2 mtce			2	495	$36.80	$36,432	FEL	56	$35.00	$1,960			$38,392	
Freight haul			4	154	$30.00	$18,480	Flatbeds	154	$20.00	$3,080			$21,560	
Freight receiving crew Lupin			2	330	$30.00	$19,800	Forklift	56	$30.00	$1,680			$21,480	$122,712
Freight Haul - Ulu to Camp 2						5 trips	Nodwell	168	$275.00	$46,200	mob/demob	$25,000	$71,200	
						76 trips	Commander	456	$90.00	$41,040			$41,040	
							Helicopter	14	$600.00	$8,400	stand-by	$2,500	$10,900	$123,140
Freight flights - Ulu to Lupin						5 trips	DC-4		$3800/trip	$19,000	mob/demob	$7,500	$26,500	
						30 trips	HS-748		$1400/trip	$42,000	mob/demob	$8,500	$50,500	
						18 trips	Twin Otter		$1100/trip	$19,800	mob/demob	$22,500	$42,300	$119,300

RECLAMATION COSTS FOR ULU MINESITE (present condition) 98-Aug-26 reclam123

Activity	Quantity	units	No. men	Total hrs	Rate/ hr	Cost men	Equip.	hrs	Rate/ hr	Cost eqpt	Supplies	Cost	Total Cost	Cost/ activity
Uncover portal - dig frozen muck	400	m^3	1	11	$36.80	$405	CAT966	11	$39.00	$429			$834	
blast			1	11	$40.00	$440					explosives	$1,000	$1,440	$2,274
Block portal with waste (final)	800	m^3	1	11	$36.80	$405	CAT966	11	$39.00	$429			$834	$834
Remove ore from pad to portal	1222	m^3	1	18	$36.80	$662	CAT966	18	$39.00	$702			$1,364	
	1222	m^3	1	18	$36.80	$662	CAT769	18	$48.50	$873			$1,535	$2,900
Grade sides of ore pad to 30deg	800	m^3	1	11	$36.80	$405	D8N	11	$56.00	$616			$1,021	$1,021
Grade sides of camp pad to 30deg	400	m^3	1	6	$36.80	$221	D8N	6	$56.00	$336			$557	$557
Grade road edges to 30deg slope	12500	m^3	1	22	$36.80	$810	D8N	22	$56.00	$1,232			$2,042	$2,042
Grade airstrip edges to 30deg slope	400	m^3	1	4	$36.80	$147	D8N	4	$56.00	$224			$371	$371
Grade sides of portal pad to 30deg	400	m^3	1	4	$36.80	$147	D8N	4	$56.00	$224			$371	$371
Tram ore underground	1222	m^3	1	16	$40.00	$640	ST-7.5	16	$70.23	$1,124			$1,764	$1,764
Dig out Camp 3 tank farm	617	m^3	1	22	$36.80	$810	CAT966	22	$39.00	$858			$1,668	
Haul to portal			1	22	$36.80	$810	CAT769	22	$48.50	$1,067			$1,877	
Haul u/g			2	14	$40.00	$1,120	ST-7.5	14	$70.23	$983			$2,103	$5,647
Dig out Ulu tank farm	457	m^3	1	5	$36.80	$184	CAT966	5	$39.00	$195			$379	
Haul to portal			1	5	$36.80	$184	CAT769	5	$48.50	$243			$427	
Haul u/g			2	10	$40.00	$800	ST-7.5	10	$70.23	$702			$1,502	$2,308
Scarify														
Ulu Camp	26000	m^2	1	11	$36.80	$405	D8N	11	$56.00	$616			$1,021	
Portal pad	8000	m^2	1	4	$36.80	$147	D8N	4	$56.00	$224			$371	
Ore pad	19000	m^2	1	11	$36.80	$405	D8N	11	$56.00	$616			$1,021	
Roads	140000	m^2	1	55	$36.80	$2,024	D8N	55	$56.00	$3,080			$5,104	
Airstrip	23000	m^2	1	11	$36.80	$405	D8N	11	$56.00	$616			$1,021	$8,538
Remove road culverts	6	ea	1	20	$36.80	$736	backhoe	20	$15.81	$316			$1,052	
			1	20	$36.80	$736	D8N	20	$56.00	$1,120			$1,856	$2,908
TOTALS				342		$724,153				$447,376		$95,885	$1,267,413	$1,267,413