

Appendix F

2004 Budget

SUMMARY OF COSTS**Capital Costs**

COMPONENT TYPE	COMPONENT NAME	TOTAL COST
OPEN PITS & ROCK DUMPS	All Pits & Dumps	\$1,282,569
UNDERGROUND MINE	Main U/G & Satellite Areas	\$105,829
TAILINGS	West Twin Disposal Area	\$4,704,653
LANDFILL AND MILL AREA	Landfill and Mill Area	\$625,532
CHEMICALS AND SOIL MANAGEMENT	All Areas	\$537,568
WATER MANAGEMENT	All Areas	\$20,448
MOBILIZATION/DEMOBILIZATION	All Areas	\$771,908
MONITORING AND MAINTENANCE	All Areas	\$120,000
POST-CLOSURE SITE MAINTENANCE		\$355,660
	Annual post-closure cost	\$77,660
	Discount %	#Years
	0.03	5
SUBTOTAL		\$8,524,166
PROJECT MANAGEMENT	3 % of subtotal	\$255,725
ENGINEERING	3 % of subtotal	\$255,725
CONTINGENCY	10 % of subtotal	\$852,417
GRAND TOTAL - CAPITAL COSTS		\$9,888,033

1

Open Pits & Rock Dumps: *All Pits & Dumps***Pit # 1**

ACTIVITY/MATERIAL		UNITS	QUANTITY	COST CODE	UNIT COST	COST
A OBJECTIVE: BACKFILL PITS						
Backfill West Open Pit with waste rock and/or demolition debris	m3	21661	WB3L	5.58		\$120,868
Backfill East Open Pit with waste rock and/or demolition debris	m3	31680	WB3L	5.58		\$176,774
Backfill East Trench with waste rock	m3	4500	WB3L	5.58		\$25,110
Backfill Oceanview Open Pit with waste rock and/or demolition debris	m3	5000	WB3L	5.58		\$27,900
Relocate residual waste rock at Area 14	m3	1440	WB3L	5.58		\$8,035
B OBJECTIVE: COVER/CONTOUR SLOPES						
Shale cover West Open Pit area(1 .95m thick)	m3	20000	RB4L	5.58		\$111,601
Shale cover East Open Pit area(1 .95m thick)	m3	60000	RB4L	5.58		\$334,802
Shale cover Area 14 waste rock pile(1 .95m thick)	m3	3500	RB4L	5.58		\$19,530
Shale cover Oceanview Pit(1 .95m thick)	m3	30000	RB4L	5.58		\$167,401
Shale cover Oceanview portal site(1 .95m thick)	m3	5400	RB4L	5.58		\$30,132
Shale cover East Trench(1 .95m thick)	m3	2500	RB4L	5.58		\$13,950
Gravel & sand armour West Open Pit area (0.25 m thick)	m3	2500	SB4L	3.90		\$9,750
Gravel & sand armour East Open Pit Area(0.25 m thick)	m3	8500	SB4L	3.90		\$33,150
Gravel & sand armour Area 14 waste rock pile(0.25 m thick)	m3	1400	SB4L	3.90		\$5,460
Gravel & sand armour Oceanview Pit(0.25 m thick)	m3	4250	SB4L	3.90		\$16,575
Gravel & sand armour Oceanview portal site(0.25 m thick)	m3	750	SB4L	3.90		\$2,925
Gravel & sand armour East Trench(0.25 m thick)	m3	450	SB4L	3.90		\$1,755
Contour covered areas	m3	17000	DCL	0.90		\$15,300
C OBJECTIVE: CONTOUR QUARRY AREAS						
Road quarry	m3	1500	DQL	0.90		\$1,350
Landfill quarry	m3	15000	DQL	0.90		\$13,500
Shale hill quarry	m3	1500	DQL	0.90		\$1,350
Mount Fuji quarry	m3	40000	DQL	0.90		\$36,000
Area 14 quarry	m3	1500	DQL	0.90		\$1,350
East twin quarry	m3	85000	DQL	0.90		\$76,500
West Twin Quarry	m3	35000	DQL	0.90		\$31,500
Subtotal						\$1,282,569

COMMENTS:

1 Underground Mine Name *Main U/G & Satelite Areas* UG Mine # **1**

ACTIVITY/MATERIAL		UNITS	QUANTITY	COST CODE	UNIT COST	COST
A	OBJECTIVE: CONTROL ACCESS					
.	Remove support culverts at portals	each	10	SCL	1000	\$10,000
.	Bury portals with waste rock	m3	7300	WB4L	6.58	\$48,034
.	Cover buried portals with other overburden	m3	3000	SB4L	3.90	\$11,700
.	Cover buried portals with fines	m3	2400	FC4L	8.8	\$21,120
.	Seal raises	each	2	SRL	2400	\$4,800
.	Seal mine entrances	each	11	PORL	925	\$10,175
Subtotal						\$105,829

COMMENTS:

1 **Tailings Impoundment Name: West Twin Disposal Area Impoundment # 1**

ACTIVITY/MATERIAL		UNITS	QUANTITY	COST CODE	UNIT COST	COST
A OBJECTIVE: COVER TAILINGS						
Shale cover on Surface Cell and crest of West Twin Dike (1 m thick)	m3	400000	RB3L	5.580		\$2,232,011
Shale cover on downstream face of West Twin Dike (1 m thick)	m3	5000	RB3L	5.580		\$27,900
Shale cover on tailings at the toe of West Twin Dike (1 m thick)	m3	40000	RB3L	5.580		\$223,201
Shale cover on transition zone tailings at toe of West Twin Dike (1 m thick)	m3	2500	RB3L	5.580		\$13,950
Shale cover on Test Cell tailings and Test Cell Dike (1m thick)	m3	151000	RB3L	5.580		\$842,584
Shale cover on transition zone tailings at toe of Test Cell Dike (1 m thick)	m3	5000	RB3L	5.580		\$27,900
Sand and Gravel on Surface Cell and crest of West Twin Dike (0.25 m thick)	m3	95000	SB3L	3.900		\$370,503
Sand and Gravel on downstream face of West Twin Dike (0.25 m thick)	m3	11000	SB3L	3.900		\$42,900
Sand and Gravel on tailings at the toe of West Twin Dike (0.25 m thick)	m3	9000	SB3L	3.900		\$35,100
Sand and Gravel on Test Cell tailings and Test Cell Dike (0.25m thick)	m3	27500	SB3L	3.900		\$107,251
B OBJECTIVE: STABILIZE WEST TWIN DYKE						
Breach Test Cell area berm	m3	1500	DDL	0.8		\$1,200
C OBJECTIVE: FLOOD RESERVOIR TAILINGS						
Recontour cover to allow 1 m water cover	m3	2000	DTL	0.8		\$1,600
D OBJECTIVE: UPGRADE SPILLWAY						
Excavate channel in waste rock	m3	12050	RC1L	20		\$241,000
Excavate channel in overburden	m3	33350	SC3L	5.58		\$186,093
Gravel & sand channel armour	m3	3550	SC3L	5.58		\$19,809
Concrete	m3	48	CSFL	318		\$15,264
Rip rap	m3	1700	WB3L	5.58		\$9,486
E OBJECTIVE: UPGRADE DECANT SYSTEM						
Remove existing decant box	each	1	DSRL	5000		\$5,000
Excavate overburden and FSB to weir and channel	m3	1300	EOBL	8		\$10,400
Excavate and scale top of bedrock	m3	10	ESBL	300		\$3,000
Grout bedrock below weir	m3	34	GBWL	300		\$10,200
Weir concrete for plinth (structural)	m3	4	WCSL	1000		\$4,000
Weir concrete for plinth (mass pour)	m3	10	WCML	500		\$5,000
Rip rap	m3	300	RRL	30		\$9,000
Erosion and bedding material	m3	300	EBML	30		\$9,000
F OBJECTIVE: REMOVE TAILINGS DISCHARGE						
Remove tailings pipeline (mill to dam)	m	4000	PPLL	2		\$8,000
Remove reclaim water pipeline	m	3150	PPSL	1		\$3,150
Drain polishing pond	m3	15000	DDL	0.8		\$12,000
Excavate polishing pond	m3	13125	FC3L	8		\$105,000
Excavate catchment pond	m3	9375	FC4L	8.8		\$82,500
Excavate retention pond	m3	3750	FC4L	8.8		\$33,000
Breach polishing, catchment & retention ponds	m3	4500	DDL	0.8		\$3,600
Restore drainage	m3	4500	DDRL	0.9		\$4,050
Subtotal						\$4,704,653

COMMENTS:

1	Landfill/Mill Area Name: _____	Bldg / Equip #: _____	1		
	ACTIVITY/MATERIAL	UNITS	QUANTITY	COST CODE	UNIT COST COST
A	OBJECTIVE: DISMANTLE, DECONTAMINATE & DISPOSE INDUSTRIAL COMPLEX				
.	Relocate demolition debris w/g	m3	31944	BRW1L	5 \$159,720
B	OBJECTIVE: LANDFILL				
.	Place shale cover (1.95 m thick)	m3	50000	RB4L	5.58 \$279,001
.	Gravel & sand armour (o.25 m thick)	m3	17500	SB4L	3.90 \$68,250
.	Install thermocouples	each	0	#N/A	0.00 \$0
C	OBJECTIVE: MILL AREA				
.	Grade & contour all areas mentioned above	m3	0	#N/A	0.00 \$0
.	Shale cover over contaminated areas	m3	19500	RB4L	5.58 \$108,811
.	Gravel & sand armour (o.25 m thick)	m3	2500	SB4L	3.90 \$9,750
.	Remove liners & place U/G	m2	0	#N/A	0 \$0
.	Break basement slabs	m2	0	#N/A	0 \$0
D	OBJECTIVE: RECLAIM ROADS				
.	Scarify and install water breaks	km	0	#N/A	0 \$0
.	Remove culverts	each	0	#N/A	0 \$0
	Subtotal				\$625,532

COMMENTS:

Chemicals and Soil**1****Contamination: All Areas****1**

ACTIVITY/MATERIAL		UNITS	QUANTITY	COST CODE	UNIT COST	COST
A	LABORATORY CHEMICALS					
.	Return to suppliers	kg	1000	PCRL	0.8	\$800
B	PROCESS OR TREATMENT CHEMICALS					
.	Remove from site	pallet	10	LCRL	2000	\$20,000
C	PROCESS OR TREATMENT CHEMICALS					
.	Remove from site	lump sum	1	PCBL	16800	\$16,800
D	CONTAMINATED SOILS					
.	Excavate & dispose of contaminated soils U/Gm3		89600	SC3L	5.58	\$499,968
Subtotal						\$537,568

COMMENTS:

Numbers in black are from NUNA. Numbers in red are a best guess.

1 Water Management Project: All Areas**Project # 1**

ACTIVITY/MATERIAL		UNITS	QUANTITY	COST CODE	UNIT COST	COST
A OBJECTIVE: BREACH ADIT TREATMENT POND						
.	Excavate sediments & place U/G	m3	750	SC4L	6.58	\$4,935
.	Move all equipment U/G	m2	150	BRS1L	32	\$4,800
.	Breach dams	m3	500	DDL	0.8	\$400
.	Restore drainage	m3	750	DDRL	0.9	\$675
B OBJECTIVE: REMOVE DUMP PONDS						
.	Remove HDPE liner and place U/G	m2	2250	LRL	2.55	\$5,738
.	Breach berms	m3	1500	DDL	0.8	\$1,200
.	Restore drainage	m3	3000	DDRL	0.9	\$2,700
Subtotal						\$20,448

COMMENTS:

All these quantities are a best guess

1 Mobilization Name: <u>All Areas</u>		Mob # <u>1</u>			
ACTIVITY/MATERIAL		UNITS	QUANTITY	COST CODE	UNIT COST
					COST
A	MOBILIZE WORKERS				
.	Airfares (return trips)	each	27	AFL	3000
.	Camp accomodation	man days	2891	CHCL	61.43
					\$81,000
					\$177,590
B	MOBILIZE MISC. SUPPLIES				
.	Fuel	litre	500000	MFL	0.4638
.	Oil	litre	5731	MOL	0.4638
.	Hydraulic Oil	litre	8100	MHOL	0.6
.	Miscellaneous Sealift	allowance	370	MHEL	470
.	Truck tires	allowance	2	TTL	50000
					\$231,900
					\$2,658
					\$4,860
					\$173,900
					\$100,000
Subtotal					\$771,908
COMMENTS:					

1 Monitoring & Maintenance**Mon / Mtce # 1**

ACTIVITY/MATERIAL		QUANTITY	COST	UNIT	
		UNITS	per YEAR	CODE	COST
A	OBJECTIVE: INSPECTIONS				
.	Annual geotechnical insp. each	2	AGIL	\$15,000	\$30,000
.	Water level surveys each	0	WLSL	\$3,200	\$0
.	Water quality and flow measurements- annual each	2	WSDL	\$25,000	\$50,000
.	Water quality and flow measurement - weekly each	0	WSWL	\$250	\$0
.	Water quality and flow measurement - bi-week each	0	WSBL	\$500	\$0
.	Water quality and flow measurement - monthly each	0	WSML	\$4,775	\$0
.	Environmetnal Effects Monitoring - MMER each	1	WSAL	\$40,000	\$40,000
.	Thermistor measurement each	0	TMML	\$1,000	\$0
.	Soil quality monitoring each	0	SQML	\$10,000	\$0
.	Annual environmental report each	0	AERL	\$10,000	\$0
B	OBJECTIVE: MAINTENANCE				
.	Site Supervisor month	0	SSL	\$7,000	\$0
.	Accomodation month	0	ACCML	\$1,800	\$0
.	Repair cover damage m3	0	SC4L	\$7	\$0
.	Repair spillway damage m3	0	SC4L	\$7	\$0
.	Clear spillway each	0	CSWL	\$2,500	\$0
Subtotal					\$120,000

COMMENTS:

Monitoring costs incurred during 2 year active reclamation period

1 Post-Closure Site Maintenance

ACTIVITY/MATERIAL		UNITS	QUANTITY	COST CODE	UNIT COST	COST
A OBJECTIVE: INSPECTIONS						
.	Water quality and flow measurement - monthly	each		WSML	4775	\$0
.	Water quality and flow measurement - annually	each		1 WSAL	25000	\$25,000
.	Thermistor measurements	each		12 TMML	1000	\$12,000
.	Annual geotechnical inspection	each		1 AGIL	15000	\$15,000
.	Annual environmental report	each		1 AERL	10000	\$10,000
B OBJECTIVE: COVER MAINTAINANCE						
.	Repair erosion, settlement	m3	1000	SC4L	6.58	\$6,580
C OBJECTIVE: SPILLWAY MAINTAINANCE						
.	Repair erosion	m3	1000	SC4L	6.58	\$6,580
.	Clear spillway	each	1	CSWL	2500	\$2,500
Subtotal, Annual post-closure costs						\$77,660
Discount rate for calculation of net present value of post-closure cost, %				3.00%		
Number of years of post-closure activity				5 years		
Present Value of payment stream						\$355,660

COMMENTS:

Unit Cost Table

ITEM	Detail	COST CODE	UNITS	LOW \$	HIGH \$	SPECIFIED \$
1	Excavate Shale, Bulk					
	drill, blast, load, short haul ($<2000\text{m}$), dump	RB1	m3	5.58003	#N/A	#N/A
	RB1 + long haul, up to 4000	RB2	m3	5.58003	#N/A	#N/A
	RB1 + spread and compact	RB3	m3	5.58003	#N/A	#N/A
	RB2 + spread and compact	RB4	m3	5.58003	#N/A	#N/A
	RB3 + small areas	RB5	m3	5.58003	#N/A	#N/A
2	Excavate In-Situ Rock, Controlled					
	drill, blast, load, short haul ($<2000\text{m}$), dump	RC1	m3	20	#N/A	#N/A
3	Excavate Gravel, Sand & Overburden, Bulk					
	excavate, load, short haul ($<2000\text{m}$), dump	SB1	m3	3.90003	#N/A	#N/A
	SB1 + long haul, up to 4000	SB2	m3	3.90003	#N/A	#N/A
	SB1 + spread and compact	SB3	m3	3.90003	#N/A	#N/A
	SB2 + spread and compact	SB4	m3	3.90003	#N/A	#N/A
4	Excavate Gravel, Sand & Overburden, Controlled					
	excavate, load, short haul ($<2000\text{ m}$), dump	SC1	m3	3.58	#N/A	#N/A
	SC1 + long haul, up to 4000	SC2	m3	4.58	#N/A	#N/A
	SC1 + spread and compact	SC3	m3	5.58	#N/A	#N/A
	SC2 + spread and compact	SC4	m3	6.58	#N/A	#N/A
5	Excavate Waste Rock, Bulk					
	excavate, load, short haul ($<2000\text{ m}$), dump	WB1	m3	3.58	#N/A	#N/A
	WB1 + long haul, up to 4000 m	WB2	m3	4.58	#N/A	#N/A
	WB1 + spread and compact	WB3	m3	5.58	#N/A	#N/A
	WB2 + Specified activity	WB4	m3	6.58	#N/A	#N/A
6	Shaft, Raise & Portal Closures					
	Shaft & Raises	SR	each	2400	#N/A	#N/A
	Remove support culverts	SC	each	1000	#N/A	#N/A
	Portals	POR	each	925	#N/A	#N/A
7	Concrete work					
	Small pour, no forms	CS	m3	270	#N/A	#N/A
	Large pour, no forms	CL	m3	212	#N/A	#N/A
	Small pour, Formed	CSF	m3	318	#N/A	#N/A
	Large pour, Formed	CLF	m3	265	#N/A	#N/A
8	Excavate Fines & Tailings, Bulk					
	excavate, load, short haul ($<2000\text{m}$), dump	FB1	m3	3.58	#N/A	#N/A
	FB1 + long haul, up to 4000 m	FB2	m3	4.58	#N/A	#N/A
	FB1 + spread and compact	FB3	m3	5.58	#N/A	#N/A
	FB2 + spread and compact	FB4	m3	6.58	#N/A	#N/A
9	Excavate Fines & Tailings, Controlled					
	excavate, load, short haul ($<2000\text{m}$), dump	FC1	m3	6.4	#N/A	#N/A
	FC1 + long haul, up to 4000	FC2	m3	7.2	#N/A	#N/A
	FC1 + spread and compact	FC3	m3	8	#N/A	#N/A
	FC2 + spread and compact	FC4	m3	8.8	#N/A	#N/A
10	Pipes					
	Small, < 6 inch diameter	PPS	m	1	#N/A	#N/A
	Large, > 6 inch diameter	PPL	m	2	#N/A	#N/A
11	Dozing					
	doze & recontour tailings	DT	m3	0.8	#N/A	#N/A
	doze & recontour quarry sites	DQ	m3	0.9	#N/A	#N/A
	doze & recontour covers/reclaim	DC	m3	0.9	#N/A	#N/A
	Breach dams	DD	m3	0.8	#N/A	#N/A
	Re-establish drainage	DDR	m3	0.9	#N/A	#N/A
12	Demolition & Disposal					
	Misc demolition & disposal	BRW1	m3	5	#N/A	#N/A
	Wood - burn	BRW2	m2	5	#N/A	#N/A
	Steel - teardown	BRS1	m2	32	#N/A	#N/A
	Steel - salvage	BRS2	m2	50	#N/A	#N/A

Unit Cost Table

ITEM	Detail	COST CODE	UNITS	LOW \$	HIGH \$	SPECIFIED \$
13	Thermistor Measurements	TMM	each	1000	#N/A	#N/A
14	Mobilization					
	mobilize heavy equipment	MHE	ton	470	940	#N/A
	Fuel	MF	litre	0.4638	#N/A	#N/A
	Oil	MO	litre	0.4638	#N/A	#N/A
	Hydraulic fuel	MHO	litre	0.6000	#N/A	#N/A
	Airfares (return trips)	AF	trip	3000	#N/A	#N/A
	Camp housing & Catering	CHC	manday	61.4286	#N/A	#N/A
	Minor tools & equipment	MTE	allowan	25000	#N/A	#N/A
	Truck tires	TT	allowan	50000	#N/A	#N/A
15	Laboratory Chemicals					
	Remove from site	LCR	pallet	2000	#N/A	#N/A
16	Oil					
	Remove from site	OR	litre	0.8	#N/A	#N/A
17	Process Chemicals					
	Remove from site	PCR	kg	0.8	#N/A	#N/A
18	Explosives					
	Remove from site	ER	kg	0.8	#N/A	#N/A
19	Contaminated Soils					
	Remediate on site	CSR	m3	35	#N/A	#N/A
	Soil quality monitoring	SQM	each	10000	#N/A	#N/A
	Hazmat testing	HT	each	20000	#N/A	#N/A
	Hazmat drilling	HD	each	4000	#N/A	#N/A
20	Upgrade Decant System					
	Remove existing decant box	DSR	each	5000	#N/A	#N/A
	Excavate overburden and FSB to EOB		m3	8	#N/A	#N/A
	Excavate and scale top of bedrock	ESB	m3	300	#N/A	#N/A
	Grout bedrock below weir	GBW	m3	300	#N/A	#N/A
	Weir concrete for plinth (structure)	WCS	m3	1000	#N/A	#N/A
	Weir concrete for plinth (mass pour)	WCM	m3	500	#N/A	#N/A
	Rip rap	RR	m3	30	#N/A	#N/A
	Erosion and bedding material	EBM	m3	30	#N/A	#N/A
21	Other - Removal					
	HDPE liner removal	LR	m2	2.55	#N/A	#N/A
	PCB Removal (MRR Quote)	PCB	lump su	16800	#N/A	#N/A
	Concrete slab breakup	CSB	m2	5	#N/A	#N/A
	Remove road culverts	RRC	each	500	#N/A	#N/A
	Remove stop logs	RSL	each	100	#N/A	#N/A
22	ACCoModation	ACCM	month	1800	#N/A	#N/A
23	Install Thermocouples	ITC	each	4000	#N/A	#N/A
24	Water Level Surveys	WLS	each	3200	#N/A	#N/A
25	Annual Geotechnical Inspection	AGI	each	15000	#N/A	#N/A
26	Water Sampling					
	Daily sampling	WSD	each	100	#N/A	#N/A
	Weekly sampling	WSW	each	250	#N/A	#N/A
	Bi-Weekly Sampling	WSB	each	500	#N/A	#N/A
	Monthly Sampling	WSM	each	4775	#N/A	#N/A
	Annual Sampling	WSA	each	8000	#N/A	#N/A
27	Annual Environmental Report	AER	each	10000	#N/A	#N/A
28	Site Supervisor	SS	pers/mc	7000	#N/A	#N/A
29	Clear Spillway	CSW	each	2500	#N/A	#N/A
30	Scarify roads/install water breaks	SCFY	km	3215	#N/A	#N/A

water treatment chemicals:

ferric sulphate	ferric	kg	0.61
ferrous sulphate	ferrous	kg	0.4
lime	lime	kg	0.27
hydrogen peroxide, 50%	hperox	kg	1.3
Sodium Metabisulfate	Nametab	kg	0.9
Caustic soda, 50%	caustic	kg	0.56
Sulfuric acid, 93%	sulfuric	kg	0.24
flocculant	flocc	kg	4.9
copper sulphate	copper	kg	
typical shipping, to Whitehorse or Yellowknife		kg	0.065