Appendix 6: Reclamation Liability Estimate

SUMMARY OF COSTS

CAPITAL COSTS

COMPONENT TYPE	COMPONENT NAME	TOTAL COST	LAND LIABILITY	WATER LIABILITY
OPEN PIT	0	$0	$0	$0
UNDERGROUND MINE	0	$413,921	$0	$413,921
TAILINGS	0	$2,625,345	$0	$2,625,345
ROCK PILE	0	$0	$0	$0
BUILDINGS AND EQUIPMENT	0	$6,046,303	$0	$6,046,303
CHEMICALS AND SOIL MANAGEMENT		$2,417,469	$0	$2,417,469
WATER MANAGEMENT		$0	$0	$0
POST-CLOSUREMONITORING AND MAINTENANCE		$1,395,753	$0	$1,395,753
	SUBTOTAL	**$12,898,791**	**$0**	**$12,898,791**
		PERCENTAGES	**0%**	**100%**
MOBILIZATION/DEMOBILIZATION		$6,018,646	0	6,018,646
PROJECT MANAGEMENT	4%	$515,952	$0	$515,952
Bonding	0%	$0	$0	$0
Taxes (GST on supplies) - est.	allowance	$0	$0	$0
Insurance	0%	$0	$0	$0
ENGINEERING	4%	$515,952	$0	$515,952
CONTINGENCY	10%	$1,289,879	$0	$1,289,879
Market Price Factor Adjustment	0%	$0	$0	$0
GRAND TOTAL - CAPITAL COSTS		**$21,239,219**	**$0**	**$21,239,219**

Underground Mine Name **UG Mine # *1***

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ACTIVITY/MATERIAL	Unit	Qty	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
OBJECTIVE: CONTROL ACCESS								
Cap shaft - 5	each	5	SRS	82784	$413,921		$0	$413,921
				Subtotal	$413,921	0%	$0	$413,921
						Pct Land	Total Land	Total Water

COMMENTS:

Tailings Impoundment Name: **Pond # 1**

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
OBJECTIVE: COVER TAILINGS			#N/A					
Soil cover	m3	375000	SB2S	7.00	$2,625,345		$0	$2,625,345
				Subtotal	$2,625,345	0%	$0	$2,625,345
						Pct Land	Total Land	Total Water

Building / Equip Name: **Bldg / Equip #: 1**

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
OBJECTIVE: REMOVE BUILDINGS - MOTHBALL BUILDINGS			#N/A					
Sleepers and Offices	m2	7329	BRS1S	139.09	$1,019,375		$0	$1,019,375
Hoist Room and Travel Ways	m2	463	BRS1S	139.09	$64,398		$0	$64,398
Shaft House	m2	1253	BRS1S	139.09	$174,277		$0	$174,277
Warehouse	m2	4671	BRS1S	139.09	$649,680		$0	$649,680
Mill	m2	2864	BRS1S	139.09	$398,348		$0	$398,348
Powerhouse	m2	1645	BRS1S	139.09	$228,800		$0	$228,800
Headframe	m2	413	BRS1S	139.09	$57,443		$0	$57,443
Airlock Building and Freshair Intake	m2	366	BRS1S	139.09	$50,906		$0	$50,906
Pastefill Plant	m2	316	BRS1S	139.09	$43,952		$0	$43,952
Cold Storage 2 buildings	m2	1855	BRS1S	139.09	$258,008		$0	$258,008
Surface Mobile Shop	m2	1008	BRS1S	139.09	$140,201		$0	$140,201
Carpenter Shop	m2	482	BRS1S	139.09	$67,040		$0	$67,040
As Treatment Plant Building	m2	177	BRS1S	139.09	$24,619		$0	$24,619
Pumphouse	m2	74	BRS1S	139.09	$10,293		$0	$10,293
Explosives Storage	m2	412	BRS1S	139.09	$57,304		$0	$57,304
Fire house	m2	31	BRS1S	139.09	$4,312		$0	$4,312
Emergency Power House	m2	117	BRS1S	139.09	$16,273		$0	$16,273
Weather Station and Storage Buildings	m2	566	BRS1S	139.09	$78,724		$0	$78,724
Shop	m2	379	BRS1S	139.09	$52,714		$0	$52,714
Batch Plant	m2	118	BRS1S	139.09	$16,412		$0	$16,412
ATV Building	m2	172	BRS1S	139.09	$23,923		$0	$23,923
OBJECTIVE:REMOVE TANKS /PIPES								
3 - 360,000 gallon tanks	m3	4098	BRS2S	24.658	$101,050		$0	$101,050
7 - 350,000 gallon tanks	m3	9275	BRS2S	24.658	$228,706		$0	$228,706
3 - 187,000 gallon tanks	m3	2124	BRS2S	24.658	$52,374		$0	$52,374
6- 14,000 gallon tanks	m3	318	BRS2S	24.658	$7,841		$0	$7,841
11 - 20,000 gallon tank	m3	825	BRS2S	24.658	$20,343		$0	$20,343
2- 5,000 gallon tanks	m3	19	BRS2S	24.658	$469		$0	$469
Piping	m	1000	PPLS	55.409	$55,409		$0	$55,409
OBJECTIVE: LANDFILL FOR DEMOLITION WASTE			#N/A					
Isolate Buildings (waste,water,glycol,sewer)	m2	24562	BDCS	12.21	$299,836		$0	$299,836
Bone Yard Clean Up		1	#N/A	283494	$283,494		$0	$283,494
Operation of Landfill		1	#N/A	295065	$295,065		$0	$295,065
OBJECTIVE: GRADE AND CONTOUR			#N/A					
Grade/Contour Entire Mine Site Area	m2	230000	SB2L	4.4721	$1,028,573		$0	$1,028,573
Concrete Slab Removal	m2	25000	BRCS	7.0342	$175,854		$0	$175,854
				Subtotal	$6,046,303	0%	$0	$6,046,303
						Pct Land	Total Land	Total Water

1 Chemicals and Soil Contamination:

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water 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.

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ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
CONTAMINATED SOILS			#N/A					
Type 1, hydrocarbon	m3	40000	CSRS	58.156	$2,326,255		$0	$2,326,255
Type 3, metals	m3	2000	CSOSS	5.5387	$11,077		$0	$11,077
Other contaminants	m3	800	CSOSS	5.5387	$4,431		$0	$4,431
Haz. Mat. testing & assessment								
Technician and analyses	each	1	#N/A	0	$37,853		$0	$37,853
Drilling	each	1	#N/A	0	$21,630		$0	$21,630
Report	each	1	#N/A	0	$16,223		$0	$16,223
Subtotal					$2,417,469	0%	$0	$2,417,469
						Pct Land	Total Land	Total Water

1 Mobilization:

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	MOBILIZE HEAVY EQUIPMENT								
	Equipment to regional centre								
	Mobilization - ICE ROAD	ea	1	MHER1S	2006828.741	$2,006,829		$0	$2,006,829
	Demobilization - ICE ROAD	ea	1	MHEA1S	802892.6682	$802,893		$0	$802,893
D	MOBILIZE MISC. SUPPLIES			#N/A					
.	Fuel	litre	2790369	#N/A	1.15	$3,208,924		$0	$3,208,924
					Subtotal	$6,018,646	0%	$0	$6,018,646
							Pct Land	Total Land	Total Water

1 Post-Closure Monitoring & Maintenance:

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	OBJECTIVE: MONITORING & INSPECTIONS								
	Annual geotechnical insp.	each	5	VIS	$22,155	$110,774		$0	$110,774
	Monitoring years 1-5	year	3	SIS	$387,709	$1,163,128		$0	$1,163,128
	EEM	each	1	RPTS	$121,851	$121,851		$0	$121,851
	Subtotal, Annual post-closure costs					$1,395,753		$0	$1,395,753
	Discount rate for calculation of net present value of post-clos			0.00%					
	Number of years of post-closure activity				1 years				
	Present Value of payment stream					$1,395,753	$0	$0	$1,395,753
							Pct Land	Total Land	Total Water

Unit Cost Table

for additional construciton cost data check the associations below, or use the Estimator Worksheet

Alberta Road Builders & Heavy Construction Association
BC Road Builders Blue Book at : www.roadbuilders.bc.ca

Specified unit rates used fo this cost estimate were updated by an average of 1.72% per year from the 2006 baseline. The inflation rate was calculated based on the Consumer Price Index compiled by the Bank of Canada (http://www.bankofcanada.ca/rates/related/inflation-calculator/#)

Year of update	2012
Yearly average inflation rate	1.7%

ITEM	Detail	COST CODE	UNITS	LOW $	HIGH $	SPECIFIED $	
excavate Soil, Bulk							
	SB1 + long haul, up to 1500 m	SB2	m3	$4.47	$6.71	$7.00	LOW cost: excavation of loose soil, 1.5 km haul, high volume. Pro-rated from Actual Cost Incured in 2005
	SB1 + Specified activity	SBS	m3	$2.60	$7.17	$12.06	LOW cost: rehandle waste rock dump into pit, >500,000 m3, 2 km haul
	Soil, tailings	SBT	m3	$1.25	$3.40	$14.28	LOW cost: doze frost heaves HIGH cost: contour - wet or frozen, Specialized - haul/place wet infill
Shaft, Raise & Portal Closures							
	Shaft & Raises	SR	m2	$595.52	$1,966.36	$82,784.19	LOW cost: pre-cast concrete slabs, little site prep. HIGH cost: for hand construction, remote site. Pro-rated from HAZCO Quote 2005
	Portals	POR	m3	$0.00	$230.34	$1,101.60	HIGH cost: for excavate & backfill collapsed portal SPECIFIED cost: installed pressure plug
PiPes							
	Small, < 6 inch diameter	PPS	m	$0.56	$5.62	#N/A	LOW cost: pipe removal, HIGH cost: supply new pipe SPECIFIED: small, heat traced & insulated pipe
	Large, > 6 inch diameter	PPL	m	$1.12	$202.25	$55.41	LOW cost: pipe removal, HIGH cost: supply 24" 100 psi HDPE pipe, FOB Edm.
	Fuel Contaminated	PPF	m	$1.08	$194.67	$50.02	LOW, HIGH, SPECIFIED: 2005 Quote not located
							add shipping & installation
excavate Rip Rap							
	drill, blast, load short haul (<500 m) dump and spread	RR1	m3	$12.30	$18.37	#N/A	
	RR1 + long haul	RR2	m3	$12.47	$19.05	#N/A	HIGH cost: quarry & place rip rap in channel
	excavate rock from waste dump, short haul, spread	RR3	m3	$4.72	$6.49	#N/A	LOW cost: removal of 18 in minus from dump, long haul and spread
	RR3 + long haul	RR4	m3	$5.26	$7.02	#N/A	
	specified rip rap source	RR5	m3	#N/A	#N/A	#N/A	
Buildings - Remove							
	Concrete	BRC	m	$37.08	$55.62	$7.03	Pro-rated from HAZCO Quote 2005
	Steel - teardown	BRS1	m2	$39.55	$59.33	$139.09	Pro-rated from HAZCO Quote 2005
	Steel - salvage	BRS2	m2	$61.80	$92.70	$24.66	Pro-rated from HAZCO Quote 2005
Contaminated Soils							
	Remediate on site	CSR	m3	$43.26	$134.84	$58.16	LOW cost: bio-remediate on-site. HIGH cost: ship off-site to landfil as haz. Waste. SPECIFIED: from revision 5.1
	Dispose off-site	CSOS	m3			$5.54	

Unit Cost Table
for additional construciton cost data check the associations below, or use the Estimator Worksheet

Alberta Road Builders & Heavy Construction Association

Specified unit rates used fo this cost estimate were updated by an average of 1.72% per year from the 2006 baseline. The inflation rate was calculated based on

environmental investigation	CSEI	each	$2,080.80	$0.00		
consolidate & cover	Use cost code items		$0.00	$0.00	$0.00	
cover in place	Use cost code items		$0.00	$0.00	$0.00	
Mobilize Heavy Equipment						
Mobilize	MHER1	each	$3.04	$9.11	$2,006,828.74	LOW, HIGH, SPECIFIED: Pro-rated from HAZCO Quote 2005
Demobilize	MHEA1	each	#N/A	#N/A	$802,892.67	LOW, HIGH, SPECIFIED: Pro-rated from HAZCO Quote 2005
Road access	MHER	$/km	$3.16	$9.46	$2.26	SPECIFIED cost: $/tonne/km in cargo plane
Air access	MHEA	each	#N/A	#N/A	$1,514.70	SPECIFIED cost: helicopter cost, $/hr of operation
Winter Road	WR	km	$1,483.19	$2,943.92	$1,890.06	Speicalized winter road to 40,000 kg capactiy
Geotechnical Inspection	VI	each	$3,955.18	$7,977.79	$22,154.81	Pro-rated From MMG Quote 2010 reclaim estimate
Site Monitoring	SI	each	#N/A	#N/A	$387,709.24	Pro-rated From MMG Quote 2010 reclaim estimate
Environmental Effects Monitoring	RPT	each	#N/A	########	$121,851.48	Pro-rated From MMG Quote 2010 reclaim estimate
SCariFY road and	SCFY	km	$3,960.80	$5,561.98	$6,028.83	
install water breaks					$0.00	