



APPENDIX G. DISCOUNTED CASH FLOW MODEL



VHMS Project

Assumptions

Dimension

Strike length	m	800
Width	m	300
Thickness	m	6.01
SG		3.47
Dip angle	deg	80

Geological Grades

Zn geol grade	%	4.09%
Cd geol grade	%	0.035%
Cu geol grade	%	0.49%
Pb geol grade	%	0.00%
Ag geol grade	g/t	20
Ag geol grade	oz/t	0.64
Au geol grade	g/t	0.50
Au geol grade	oz/t	0.016

Mineralogy

Zn in Sphalerite	%	59.11%
S in Sphalerite	%	33.57%
Fe in Sphalerite	%	7.00%
Mn in Sphalerite	%	0.32%
Total Sphalerite		100.00%
Cu in Chalcopyrite	%	34.50%
Fe in Chalcopyrite	%	30.50%
S in Chalcopyrite	%	35.00%
Total Chalcopyrite		100.00%
Pb in Galena	%	55.00%
S in Galena	%	45.00%
Total Galena		100.00%

Mining

Life of mine	year	10
Year of first commercial production		2
Year of last commercial production		11
Mining dilution	%	5%
Mining recovery	%	90%

Processing

Zn Recovery (in Zn concentrate)	%	90%
Cd Recovery (in Zn concentrate)	%	40%
Ag Recovery (in Zn concentrate)	%	0%
Cu Recovery (in Cu concentrate)	%	90%
Pb Recovery (in Cu concentrate)	%	0%
Ag Recovery (in Cu concentrate)	%	25%
Au Recovery (in Cu concentrate)	%	0%
Ag in tailings	%	75%

Transport of Concentrate to Smelter

km	800
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Tax & Royalty

Tax Rate	%	30%
Royalty (on NSR)	%	0.50%

Conversion Factors

1 lb =	0.4536 kg
1 kg =	2.2046 lb
1 t =	2204.6 lb
1 oz =	31.1 g
1 kg =	32.15 oz
1 t =	32154 oz



VHMS Project

Resources & Reserves

In situ Resources

Volume	m3	1,442,400
Tonnage	t	5,005,128

In situ Metal

Zn	t	204,710
Cd	t	1,752
Cu	t	24,525
Pb	t	-
Ag	oz	3,218,732
Ag	kg	100,102.56
Au	oz	80,468
Au	kg	2,502.56

Recoverable Reserves

Volume	m3	1,298,160
Tonnage	t	4,504,615

Diluted Run of Mine Reserves

Volume	m3	1,370,280
Tonnage	t	4,754,872

Saleable Metal

Zn	t	165,815
Cd	t	666
Cu	t	19,865
Pb	t	-
Ag	oz	724,215
Ag	kg	22,523.08
Au	oz	
Au	kg	

VHMS Project

All Equity Cash Flow

Production Year		1	2	3	4	5	6	7	8	9	10	11
Item	Unit	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
		FALSE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
Metal Revenue												
Zinc Revenue	\$	82,136,559	-	8,213,656	8,213,656	8,213,656	8,213,656	8,213,656	8,213,656	8,213,656	8,213,656	8,213,656
Copper Revenue	\$	19,704,857	-	1,970,486	1,970,486	1,970,486	1,970,486	1,970,486	1,970,486	1,970,486	1,970,486	1,970,486
Total	\$	101,841,416	-	10,184,142	10,184,142	10,184,142	10,184,142	10,184,142	10,184,142	10,184,142	10,184,142	10,184,142
OPEX												
Mining	\$	(88,542,716)	-	(8,854,272)	(8,854,272)	(8,854,272)	(8,854,272)	(8,854,272)	(8,854,272)	(8,854,272)	(8,854,272)	(8,854,272)
Processing	\$	(50,287,722)	-	(5,028,772)	(5,028,772)	(5,028,772)	(5,028,772)	(5,028,772)	(5,028,772)	(5,028,772)	(5,028,772)	(5,028,772)
Rehabilitation	\$	(6,941,522)	-	(694,152)	(694,152)	(694,152)	(694,152)	(694,152)	(694,152)	(694,152)	(694,152)	(694,152)
Transport	\$	(1,508,483)	-	(150,848)	(150,848)	(150,848)	(150,848)	(150,848)	(150,848)	(150,848)	(150,848)	(150,848)
Marketing	\$	(509,207)	-	(50,921)	(50,921)	(50,921)	(50,921)	(50,921)	(50,921)	(50,921)	(50,921)	(50,921)
Total	\$	(147,789,650)	-	(14,778,965)	(14,778,965)	(14,778,965)	(14,778,965)	(14,778,965)	(14,778,965)	(14,778,965)	(14,778,965)	(14,778,965)
	\$/lb Zn	(0.7754)	-	(0.7754)	(0.7754)	(0.7754)	(0.7754)	(0.7754)	(0.7754)	(0.7754)	(0.7754)	(0.7754)
Tax & Royalty												
Royalties	\$	(509,207)	-	(50,921)	(50,921)	(50,921)	(50,921)	(50,921)	(50,921)	(50,921)	(50,921)	(50,921)
Tax paid	\$	-	-	-	-	-	-	-	-	-	-	-
Total	\$	(509,207)	-	(50,921)	(50,921)	(50,921)	(50,921)	(50,921)	(50,921)	(50,921)	(50,921)	(50,921)
CAPEX												
Mining	\$	(17,700,000)	(17,700,000)	-	-	-	-	-	-	-	-	-
Processing	\$	(17,600,000)	(17,600,000)	-	-	-	-	-	-	-	-	-
Mine Infrastructure	\$	(2,824,000)	(2,824,000)	-	-	-	-	-	-	-	-	-
Rehabilitation	\$	(1,765,000)	(1,765,000)	-	-	-	-	-	-	-	-	-
Working Capital	\$	-	-	(2,216,845)	(2,216,845)	(2,216,845)	(2,216,845)	(2,216,845)	(2,216,845)	(2,216,845)	(2,216,845)	(2,216,845)
Working Capital Increment	\$	-	-	(2,216,845)	(2,216,845)	(2,216,845)	(2,216,845)	(2,216,845)	(2,216,845)	(2,216,845)	(2,216,845)	(2,216,845)
Total	\$	(39,889,000)	(39,889,000)	(2,216,845)	-	-	-	-	-	-	-	-
\$/ROM annum	\$/t	(8.43)	-	-	-	-	-	-	-	-	-	-
Total Cash Flow to Equity												
Revenue	\$	101,841,416	-	10,184,142	10,184,142	10,184,142	10,184,142	10,184,142	10,184,142	10,184,142	10,184,142	10,184,142
OPEX	\$	(147,789,650)	-	(14,778,965)	(14,778,965)	(14,778,965)	(14,778,965)	(14,778,965)	(14,778,965)	(14,778,965)	(14,778,965)	(14,778,965)
Tax & Royalty	\$	(509,207)	-	(50,921)	(50,921)	(50,921)	(50,921)	(50,921)	(50,921)	(50,921)	(50,921)	(50,921)
CAPEX	\$	(39,889,000)	(39,889,000)	(2,216,845)	-	-	-	-	-	-	-	-
Total	\$	(86,346,441)	(39,889,000)	(6,862,589)	(4,645,744)	(4,645,744)	(4,645,744)	(4,645,744)	(4,645,744)	(4,645,744)	(4,645,744)	(4,645,744)
Income	\$/t	(18.26)	-	-	-	-	-	-	-	-	-	-

NPV @	5.00%	-\$72,930,802
		R -729,308,018
NPV @	8.00%	-\$66,818,693
		R -668,186,929
NPV @	12.00%	-\$60,250,470
		R -602,504,697
NPV @	15.00%	-\$56,222,704
		R -562,227,044
NPV @	#DIV/0!	#DIV/0!
		#DIV/0!
IRR	%	#DIV/0!

APPENDIX H. MONTE CARLO RISK ANALYSIS



Calculated for a Zn Price of US\$950/t

Cashflow Tool

	DATA	Unit	STD	Scenario's 1 - 100	
Mineral Resource	5,005,128	tons	5.00E+06	10,420,140	7,040,463
Insitu Grade					
Zn (%)	5	%	2	5.30	1.36
Pb (%)	0.0001	%	0	0.00	0.00
Ag (g/t)	0.0001	%	0	0.00	0.00
Au (g/t)		%	0	0.00	0.00
Cu (%)	0	%	0	0.00	0.00
Ore Recovery	90	%	1	89.06	90.97
Dilution at specified recovery	5	%	1	5.71	4.31

ROM Reserve	4,504,615	tons		9,874,363	6,707,906
ROM-Plant Feed Grade					
Zn (%)	4.76			5.01	1.30
Pb (%)	0.00			0.00	0.00
Ag (g/t)	0.00			0.00	0.00
Au (g/t)	0.00			0.00	0.00
Cu (%)	0.00			0.00	0.00
ROM Production	468,480	tons		468480.00	468480.00
Planned	468,480		0	468480.00	468480.00
Additional	0.00			0.00	0.00
Tons Milled	468,480	tons		468480.00	468480.00
From ROM Production	468,480			468480.00	468480.00
Additional	0.00			0.00	0.00
LOM (years) - Rom Reserves	9.62	years		21.08	14.32
LOM (years) - Milled Tons	9.62	years		21.08	14.32

Plant Variables					
Zn Recovery	90	%	1	90.53	90.81
Zn Concentrate Grade	54	%	0.5	53.39	53.35
Pb Recovery	0.1	%	0	0.10	0.10
Pb Concentrate Grade	0.1	%	0	0.10	0.10
Ag Recovery (to PbC)	40	%	0	40.00	40.00
Au Recovery (to PbC)	0.001	%	0	0.00	0.00
Cu recovery (to PbC)	0.001	%	0	0.00	0.00
Zn Concentrate Production					
Dry tons Zn Concentrate	37180.95	tons		39809.15	10387.37
Zn grade	54.00			53.39	53.35
Moisture	5.00	%	2	3.28	6.34
Wet tons Zn Concentrate	39040.00	tons		41114.91	11046.19
Pb Concentrate Production					
Dry tons Pb Concentrate	0.45	tons		0.44	0.45
Pb grade	0.10	%		0.10	0.10
Ag in Pb concentrate	40.00	g/t		40.00	40.00
Au in Pb concentrate	0.00	g/t		0.00	0.00
Cu in Pb concentrate	0.00	%		0.00	0.00
Moisture	8.00	%	0	8.00	8.00
Wet tons Pb Concentrate	0.48	tons		0.48	0.49



Calculated for a Zn Price of US\$1100/t

Cashflow Tool

	DATA	Unit	STD	Scenario's 1 - 100	
Mineral Resource	5,005,128	tons	5.00E+06	5,254,010	5,796,757
Insitu Grade					
Zn (%)	5	%	2	3.12	5.52
Pb (%)	0.0001	%	0	0.00	0.00
Ag (g/t)	0.0001	%	0	0.00	0.00
Au (g/t)		%	0	0.00	0.00
Cu (%)	0	%	0	0.00	0.00
Ore Recovery	90	%	1	89.86	89.57
Dilution at specified recovery	5	%	1	4.44	3.72

ROM Reserve	4,504,615	tons		4,954,527	5,407,429
ROM-Plant Feed Grade					
Zn (%)	4.76			2.99	5.32
Pb (%)	0.00			0.00	0.00
Ag (g/t)	0.00			0.00	0.00
Au (g/t)	0.00			0.00	0.00
Cu (%)	0.00			0.00	0.00
ROM Production	468,480	tons		468480.00	468480.00
Planned	468,480		0	468480.00	468480.00
Additional	0.00			0.00	0.00
Tons Milled	468,480	tons		468480.00	468480.00
From ROM Production	468,480			468480.00	468480.00
Additional	0.00			0.00	0.00
LOM (years) - Rom Reserves	9.62	years		10.58	11.54
LOM (years) - Milled Tons	9.62	years		10.58	11.54

Plant Variables					
Zn Recovery	90	%	1	89.70	88.47
Zn Concentrate Grade	54	%	0.5	53.65	53.02
Pb Recovery	0.1	%	0	0.10	0.10
Pb Concentrate Grade	0.1	%	0	0.10	0.10
Ag Recovery (to PbC)	40	%	0	40.00	40.00
Au Recovery (to PbC)	0.001	%	0	0.00	0.00
Cu recovery (to PbC)	0.001	%	0	0.00	0.00
Zn Concentrate Production					
Dry tons Zn Concentrate	37180.95	tons		23405.99	41599.10
Zn grade	54.00			53.65	53.02
Moisture	5.00	%	2	5.62	2.93
Wet tons Zn Concentrate	39040.00	tons		24721.74	42816.26
Pb Concentrate Production					
Dry tons Pb Concentrate	0.45	tons		0.45	0.45
Pb grade	0.10	%		0.10	0.10
Ag in Pb concentrate	40.00	g/t		40.00	40.00
Au in Pb concentrate	0.00	g/t		0.00	0.00
Cu in Pb concentrate	0.00	%		0.00	0.00
Moisture	8.00	%	0	8.00	8.00
Wet tons Pb Concentrate	0.48	tons		0.48	0.49



Metal Prices					
Zn Price (US \$/t)	1100		100	1179.16	1063.78
Pb Price (US \$/t)	0		0	0.00	0.00
Ag Price (US \$/oz)	0		0	0.00	0.00
Au Price (US \$/oz)	0		0	0.00	0.00
Cu Price (US\$ ton)	0		0	0.00	0.00
Exchange Rate	10		2	11.33	8.15

On Mine Costs					
Total Mining Cost	87699456			87699456	87699456
Total Mining Cost/ ton ROM	187.2			187.2	187.2
Development and Silling	0	0	0	0.00	0.00
Longhole Drilling -Simba	0	0	0	0.00	0.00
DTH Drilling	0	0	0	0.00	0.00
Benching Costs - including Simba	0			0	0
Mining Cost -Other	87699456			87699456	87699456
Total Milling Cost	49799424			49799424	49799424
Total Maintanance Cost	0			0	0
Total Administrative Cost	0			0	0
Total On Mine Cost	137,498,880			137498880	137498880
Total On Mine Cost/ton milled	293.5			293.5	293.5

Off-mine Costs					
Transport of Zn Concentrate (R)	1952000			1583463	2277551
Transport of Pb Concentrate (R)	0			0	0
TC for Zn Concentrate (Rand)	76908800			70655340	73123363
TC for Pb Concentrate (Rand)	0			0	0
TC for Ag (Rand)	0			0	0
TC for Au (Rand)	0			0	0
TC for Cu (Rand)	0			0	0
Total Off-mine Cost	78,860,800			72238803	75400914
Total Off-mine Cost/ton milled	168			154	161

Smelter Returns					
Zn Revenue (Rand)	187726629			180952214	168891157
Zn Revenue (R/ton milled)	401			386	361
Pb Revenue (Rand)	0			0	0
Pb Revenue (Rand/ton)	0			0	0
Ag Revenue (Rand)	0			0	0
Ag Revenue (Rand/ton)	0			0	0
Au Revenue (Rand)	0			0	0
Au Revenue (Rand/ton)	0			0	0
Cu Revenue (Rand)	0			0	0
Cu Revenue (Rand/ton)	0			0	0
Total Smelter Returns Rand	187,726,629			180952214	168891157
Total Smelter Returns R/ton milled	401			386	361

Turnover	18.77	\$ m		180.95	168.89
Total Revenue/ton milled	40	\$/t		386	361
Cost of Sales	22	\$ m		210	213
Total Cost/ton milled	46	\$/t		448	454
Operating Income EBIT	-2.86	\$ m		-28.79	-44.01
Operating Income/ton Milled EBIT/ton mil	-6.11	\$/t		-61	-94