APPENDIX G

MINING DETAILS

Appendix G

i) Production Schedule – 32,000 tons per day with 5 million ton stockpile limit

32,000 Ton per Day production schedule

Mill		Total	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Total
deeFili M	Total	**TOTAL ORE TONS**	-	**8,760,000**	**11,670,000**	**11,670,000**	**11,670,000**	**11,670,000**	**11,670,000**	**11,670,000**	**11,670,000**	**11,670,000**	**11,670,000**	**11,670,000**	**11,670,000**	**11,670,000**	**11,670,000**	**11,670,000**	**11,670,000**	**11,670,000**	**11,670,000**	**11,670,000**	**5,158,516**	**223,978,516**
		DCu%	-	**0.31**	**0.32**	**0.31**	**0.31**	**0.30**	**0.29**	**0.28**	**0.28**	**0.31**	**0.32**	**0.29**	**0.28**	**0.27**	**0.26**	**0.24**	**0.21**	**0.23**	**0.28**	**0.28**	**0.29**	**0.28**
		DNi%	-	**0.09**	**0.10**	**0.09**	**0.09**	**0.09**	**0.08**	**0.08**	**0.08**	**0.08**	**0.08**	**0.08**	**0.08**	**0.08**	**0.08**	**0.07**	**0.07**	**0.07**	**0.08**	**0.08**	**0.08**	**0.08**
		DPt	-	**76.1**	**77.8**	**70.5**	**71.9**	**73.7**	**78.8**	**79.4**	**95.5**	**102.0**	**97.8**	**77.6**	**69.0**	**69.5**	**69.0**	**62.9**	**65.1**	**60.0**	**65.2**	**70.4**	**62.8**	**75.1**
		DPd	-	**307.7**	**314.4**	**284.7**	**296.1**	**291.9**	**290.1**	**275.2**	**281.6**	**298.7**	**282.2**	**241.7**	**229.4**	**237.1**	**227.8**	**201.9**	**242.7**	**222.3**	**257.0**	**262.0**	**246.9**	**264.5**
		DAu	-	**36.1**	**39.7**	**39.2**	**38.0**	**38.1**	**39.5**	**39.2**	**46.5**	**48.0**	**43.8**	**37.4**	**34.2**	**35.8**	**34.9**	**30.4**	**32.6**	**32.1**	**34.6**	**37.0**	**32.1**	**37.6**
		DCo	-	**68.8**	**78.4**	**78.5**	**74.0**	**71.5**	**71.4**	**70.2**	**72.0**	**74.1**	**75.6**	**78.2**	**78.4**	**75.7**	**73.3**	**73.6**	**69.2**	**67.8**	**68.3**	**73.2**	**70.6**	**73.3**
	From Mine	**H Grade ($7+)**	-	6,460,000	9,570,000	8,020,000	7,270,000	6,570,000	6,870,000	5,836,602	6,155,354	7,161,426	6,837,314	5,994,652	5,600,649	5,293,787	5,006,692	4,147,849	3,313,355	3,778,332	5,923,205	5,589,443	1,797,262	117,195,922
		DCu%	-	0.36	0.35	0.37	0.38	0.38	0.36	0.37	0.37	0.38	0.41	0.39	0.38	0.38	0.38	0.34	0.29	0.34	0.36	0.38	0.49	0.37
		DNi%	-	0.10	0.11	0.11	0.11	0.11	0.10	0.10	0.09	0.09	0.10	0.10	0.11	0.11	0.10	0.09	0.09	0.09	0.09	0.11	0.12	0.10
		DPt	-	87.70	84.96	82.94	89.54	92.58	94.26	101.20	119.70	121.80	125.44	104.77	90.74	86.72	80.33	78.21	97.64	87.65	85.99	90.10	101.82	95.41
		DPd	-	356.96	343.11	333.88	365.89	378.11	355.28	357.91	351.49	358.20	364.71	335.24	311.98	324.16	301.01	265.96	391.24	358.55	353.02	354.05	375.37	346.79
		DAu	-	41.12	43.08	45.76	46.08	47.66	46.96	49.12	57.52	56.72	54.71	48.53	43.75	46.62	44.89	38.59	51.45	48.83	44.35	46.52	49.10	47.53
		DCo	-	70.84	81.08	83.35	78.51	75.72	75.48	75.25	76.34	77.98	81.14	86.87	88.07	84.57	81.33	83.50	75.33	70.87	71.73	79.68	81.55	79.02
		L Grade($0-$7)	-	2,300,000	2,100,000	3,650,000	4,400,000	5,100,000	4,800,000	4,228,095	4,825,123	4,508,574	4,832,686	5,675,348	6,069,351	6,376,213	6,663,308	7,522,151	8,356,645	7,891,668	5,746,795	5,768,097	920,791	101,734,845
		DCu%	-	0.19	0.19	0.19	0.19	0.19	0.18	0.19	0.19	0.19	0.20	0.19	0.19	0.18	0.18	0.18	0.18	0.18	0.20	0.19	0.19	0.19
		DNi%	-	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		DPt	-	43.5	45.2	43.1	42.7	49.4	56.7	60.4	71.0	70.4	58.6	48.8	48.9	55.2	60.4	54.4	52.3	46.7	43.8	52.5	50.6	53.2
		DPd	-	169.2	183.6	176.7	180.8	180.8	196.9	197.8	207.2	204.3	165.6	143.0	153.2	164.9	172.7	166.5	183.8	157.1	158.1	177.4	169.7	174.0
		DAu	-	21.9	24.5	24.7	24.6	25.8	28.7	30.2	35.2	34.1	28.3	25.5	25.3	26.7	27.4	25.8	25.1	24.1	24.6	28.2	28.3	26.9
		DCo	-	63.0	66.2	67.8	66.5	66.1	65.6	64.5	67.2	68.0	67.8	69.1	69.5	68.3	67.2	68.1	66.7	66.4	64.7	67.2	67.0	67.0
	di pkcd S mr F	**H Grade ($7+)**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		DCu%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		DNi%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		DPt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		DPd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		DAu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		DCo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		L Grade($0-$7)	-	-	-	-	-	-	-	1,605,303	689,523	-	-	-	-	-	-	-	-	-	-	312,460	2,440,463	5,047,749
		DCu%	-	-	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	-	-	-	-	0.19	0.19	0.19
		DNi%	-	-	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	-	-	-	-	0.06	0.06	0.06
		DPt	-	-	50.40	50.40	50.40	50.40	50.40	50.40	50.40	50.40	50.40	50.40	50.40	50.40	50.40	-	-	-	-	50.40	38.59	44.69
		DPd	-	-	178.40	178.40	178.40	178.40	178.40	178.40	178.40	178.40	178.40	178.40	178.40	178.40	178.40	-	-	-	-	178.40	181.49	179.89
		DAu	-	-	26.66	26.66	26.66	26.66	26.66	26.66	26.66	26.66	26.66	26.66	26.66	26.66	26.66	-	-	-	-	26.66	21.01	23.93
		DCo	-	-	67.21	67.21	67.21	67.21	67.21	67.21	67.21	67.21	67.21	67.21	67.21	67.21	67.21	-	-	-	-	67.21	63.84	65.58

Pit		Total	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Total
nat cudar Peri M	Open Pit Ore	**H Grade ($7+)**	-	6,460,000	9,570,000	8,020,000	7,270,000	6,570,000	6,870,000	5,836,602	6,155,354	7,161,426	6,837,314	5,994,652	5,600,649	5,293,787	5,006,692	4,147,849	3,313,355	3,778,332	5,923,205	5,589,443	1,797,262	117,195,922
		DCu%	-	0.36	0.35	0.37	0.38	0.38	0.36	0.37	0.37	0.38	0.41	0.39	0.38	0.38	0.38	0.34	0.29	0.34	0.36	0.38	0.49	0.37
		DNi%	-	0.10	0.11	0.11	0.11	0.11	0.10	0.10	0.09	0.09	0.10	0.10	0.11	0.11	0.10	0.09	0.09	0.09	0.09	0.11	0.12	0.10
		DPt	-	87.70	84.96	82.94	89.54	92.58	94.26	101.20	119.70	121.80	125.44	104.77	90.74	86.72	80.33	78.21	97.64	87.65	85.99	90.10	101.82	95.41
		DPd	-	356.96	343.11	333.88	365.89	378.11	355.28	357.91	351.49	358.20	364.71	335.24	311.98	324.16	301.01	265.96	391.24	358.55	353.02	354.05	375.37	346.79
		DAu	-	41.12	43.08	45.76	46.08	47.66	46.96	49.12	57.52	56.72	54.71	48.53	43.75	46.62	44.89	38.59	51.45	48.83	44.35	46.52	49.10	47.53
		DCo	-	70.84	81.08	83.35	78.51	75.72	75.48	75.25	76.34	77.98	81.14	86.87	88.07	84.57	81.33	83.50	75.33	70.87	71.73	79.68	81.55	79.02
		L Grade($0-$7)	-	3,433,661	5,644,941	4,004,076	4,405,682	5,108,081	4,801,308	4,228,095	4,825,123	4,508,574	4,832,686	5,675,348	6,069,351	6,376,213	6,663,308	7,522,151	8,356,645	7,891,668	5,746,795	5,768,097	920,791	106,782,693
		DCu%	-	0.19	0.19	0.19	0.19	0.19	0.18	0.19	0.19	0.19	0.20	0.19	0.19	0.18	0.18	0.18	0.18	0.18	0.20	0.19	0.19	0.19
		DNi%	-	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.07	0.06
		DPt	-	43.46	45.23	43.10	42.74	49.36	56.72	60.43	71.03	70.44	58.60	48.83	48.86	55.24	60.44	54.41	52.26	46.73	43.84	52.45	50.55	52.76
		DPd	-	169.16	183.63	176.72	180.84	180.62	196.90	197.76	207.20	204.29	165.58	142.99	153.24	164.86	172.71	166.53	183.84	157.06	158.10	177.41	169.67	174.26
		DAu	-	21.87	24.51	24.68	24.59	25.85	28.71	30.23	35.21	34.09	28.34	25.54	25.29	26.73	27.43	25.83	25.13	24.10	24.57	28.25	28.35	26.74
		DCo	-	62.98	66.18	67.84	66.54	66.11	65.57	64.46	67.22	68.03	67.85	69.10	69.55	68.32	67.24	68.08	66.74	66.40	64.67	67.20	67.00	66.97
		TOTAL ORE TONS	-	9,893,661	15,214,941	12,024,076	11,675,682	11,678,081	11,671,308	10,064,697	10,980,477	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,357,540	2,718,053	223,978,516
		DCu%	-	0.30	0.29	0.31	0.31	0.30	0.29	0.29	0.29	0.31	0.32	0.29	0.28	0.27	0.26	0.24	0.21	0.23	0.28	0.29	0.38	0.28
		DNi%	-	0.09	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.08	0.08	0.10	0.08
		DPt	-	72.35	70.22	69.67	71.88	73.67	78.82	84.07	98.31	101.96	97.76	77.57	68.96	69.52	68.97	62.87	65.14	59.98	65.24	70.98	84.45	75.07
		DPd	-	291.8	283.9	281.5	296.1	291.8	290.1	290.6	288.1	298.7	282.2	241.7	229.4	237.1	227.8	201.9	242.7	222.3	257.0	264.3	305.7	264.54
		DAu	-	34.4	36.2	38.7	38.0	38.1	39.5	41.2	47.7	48.0	43.8	37.4	34.2	35.8	34.9	30.4	32.6	32.1	34.6	37.2	42.1	37.62
		DCo	-	68.1	75.6	78.2	74.0	71.5	71.4	70.7	72.3	74.1	75.6	78.2	78.4	75.7	73.3	73.6	69.2	67.8	68.3	73.3	76.6	73.3
	Open Pit Waste	**TOTAL WASTE TONS**	7,798,390	34,358,854	30,910,536	27,392,028	21,937,999	16,026,100	10,014,760	6,235,791	10,054,180	9,780,793	11,670,914	11,155,353	8,179,466	13,642,431	15,550,639	15,108,746	18,264,427	20,476,500	8,973,988	5,948,008	329,883	303,809,808
		OB (tons)	2,396,530	1,473,705	-	2,908,459	1,651,583	3,038,767	20,963	-	-	-	2,366,308	9,583	-	2,842,982	-	1,806,369	4,640	-	-	-	-	18,519,888
		Cat 1 & 2 (tons)	4,493,022	26,311,661	24,707,822	20,190,199	16,151,299	10,997,538	7,641,739	4,431,733	8,588,225	6,954,264	5,424,435	5,908,258	4,105,120	6,466,493	11,021,962	9,236,794	13,372,926	13,198,380	6,497,062	4,397,206	54,557	210,150,693
		Cat 3 (tons)	548,285	4,566,904	3,697,213	2,432,855	2,821,250	1,456,729	1,831,048	1,543,633	1,459,435	2,823,835	3,878,497	5,237,512	3,794,456	3,869,501	4,521,311	3,939,405	4,872,282	7,274,727	2,465,072	1,480,001	275,326	64,789,278
		Cat 4 (tons)	360,553	2,006,584	2,505,500	1,860,515	1,313,868	533,067	521,030	260,426	6,521	2,694	1,674	-	279,891	463,455	7,366	126,179	14,578	3,393	11,854	70,801	-	10,349,949
		Total Tons	7,798,390	44,252,514	46,125,477	39,416,104	33,613,681	27,704,181	21,686,088	16,300,489	21,034,657	21,450,793	23,340,914	22,825,353	19,849,466	25,312,431	27,220,639	26,778,746	29,934,427	32,146,500	20,643,988	17,305,548	3,047,936	527,788,323
		S.R.	0.0	3.5	2.0	2.3	1.9	1.4	0.9	0.6	0.9	0.8	1.0	1.0	0.7	1.2	1.3	1.3	1.6	1.8	0.8	0.5	0.1	1.4

		Total	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Total
lli Ma t cai D	lli Ma ti P nepO	**H Grade ($7+)**	-	6,460,000	9,570,000	8,020,000	7,270,000	6,570,000	6,870,000	5,836,602	6,155,354	7,161,426	6,837,314	5,994,652	5,600,649	5,293,787	5,006,692	4,147,849	3,313,355	3,778,332	5,923,205	5,589,443	1,797,262	117,195,922
		DCu%	-	0.36	0.35	0.37	0.38	0.38	0.36	0.37	0.37	0.38	0.41	0.39	0.38	0.38	0.38	0.34	0.29	0.34	0.36	0.38	0.49	0.37
		DNi%	-	0.10	0.11	0.11	0.11	0.11	0.10	0.10	0.09	0.09	0.10	0.10	0.11	0.11	0.10	0.09	0.09	0.09	0.09	0.11	0.12	0.10
		DPt	-	87.70	84.96	82.94	89.54	92.58	94.26	101.20	119.70	121.80	125.44	104.77	90.74	86.72	80.33	78.21	97.64	87.65	85.99	90.10	101.82	95.41
		DPd	-	356.96	343.11	333.88	365.89	378.11	355.28	357.91	351.49	358.20	364.71	335.24	311.98	324.16	301.01	265.96	391.24	358.55	353.02	354.05	375.37	346.79
		DAu	-	41.12	43.08	45.76	46.08	47.66	46.96	49.12	57.52	56.72	54.71	48.53	43.75	46.62	44.89	38.59	51.45	48.83	44.35	46.52	49.10	47.53
		DCo	-	70.84	81.08	83.35	78.51	75.72	75.48	75.25	76.34	77.98	81.14	86.87	88.07	84.57	81.33	83.50	75.33	70.87	71.73	79.68	81.55	79.02
		L Grade($0-$7)		2,300,000	2,100,000	3,650,000	4,400,000	5,100,000	4,800,000	4,228,095	4,825,123	4,508,574	4,832,686	5,675,348	6,069,351	6,376,213	6,663,308	7,522,151	8,356,645	7,891,668	5,746,795	5,768,097	920,791	101,734,845
		DCu%	-	0.19	0.19	0.19	0.19	0.19	0.18	0.19	0.19	0.19	0.20	0.19	0.19	0.18	0.18	0.18	0.18	0.18	0.20	0.19	0.19	0.19
		DNi%	-	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.06
		DPt	-	43.5	45.2	43.1	42.7	49.4	56.7	60.4	71.0	70.4	58.6	48.8	48.9	55.2	60.4	54.4	52.3	46.7	43.8	52.5	50.6	53.16
		DPd	-	169.2	183.6	176.7	180.8	180.8	196.9	197.8	207.2	204.3	165.6	143.0	153.2	164.9	172.7	166.5	183.8	157.1	158.1	177.4	169.7	173.98
		DAu	-	21.9	24.5	24.7	24.6	25.8	28.7	30.2	35.2	34.1	28.3	25.5	25.3	26.7	27.4	25.8	25.1	24.1	24.6	28.2	28.3	26.88
		DCo	-	63.0	66.2	67.8	66.5	66.1	65.6	64.5	67.2	68.0	67.8	69.1	69.5	68.3	67.2	68.1	66.7	66.4	64.7	67.2	67.0	67.04
		TOTAL ORE TONS	-	8,760,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	10,064,697	10,980,477	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,357,540	2,718,053	218,930,767
		DCu%	-	0.31	0.32	0.31	0.31	0.30	0.29	0.29	0.29	0.31	0.32	0.29	0.28	0.27	0.26	0.24	0.21	0.23	0.28	0.29	0.38	0.29
		DNi%	-	0.09	0.10	0.09	0.09	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.08	0.08	0.10	0.08
		DPt	-	76.09	77.81	70.48	71.90	73.69	78.82	84.07	98.31	101.96	97.76	77.57	68.96	69.52	68.97	62.87	65.14	59.98	65.24	70.98	84.45	75.77
		DPd	-	307.7	314.4	284.7	296.1	291.9	290.1	290.6	288.1	298.7	282.2	241.7	229.4	237.1	227.8	201.9	242.7	222.3	257.0	264.3	305.7	266.49
		DAu	-	36.1	39.7	39.2	38.0	38.1	39.5	41.2	47.7	48.0	43.8	37.4	34.2	35.8	34.9	30.4	32.6	32.1	34.6	37.2	42.1	37.93
		DCo	-	68.8	78.4	78.5	74.0	71.5	71.4	70.7	72.3	74.1	75.6	78.2	78.4	75.7	73.3	73.6	69.2	67.8	68.3	73.3	76.6	73.5

		Total	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Total
di pkcd S oT	di pkcaS ti P	**H Grade ($7+)**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		DCu%	-	0.36	0.35	0.37	0.38	0.38	0.36	0.37	0.37	0.38	0.41	0.39	0.38	0.38	0.38	0.34	0.29	0.34	0.36	0.38	0.49	-
		DNi%	-	0.10	0.11	0.11	0.11	0.11	0.10	0.10	0.09	0.09	0.10	0.10	0.11	0.11	0.10	0.09	0.09	0.09	0.09	0.11	0.12	-
		DPt	-	87.70	84.96	82.94	89.54	92.58	94.26	101.20	119.70	121.80	125.44	104.77	90.74	86.72	80.33	78.21	97.64	87.65	85.99	90.10	101.82	-
		DPd	-	356.96	343.11	333.88	365.89	378.11	355.28	357.91	351.49	358.20	364.71	335.24	311.98	324.16	301.01	265.96	391.24	358.55	353.02	354.05	375.37	-
		DAu	-	41.12	43.08	45.76	46.08	47.66	46.96	49.12	57.52	56.72	54.71	48.53	43.75	46.62	44.89	38.59	51.45	48.83	44.35	46.52	49.10	-
		DCo	-	70.84	81.08	83.35	78.51	75.72	75.48	75.25	76.34	77.98	81.14	86.87	88.07	84.57	81.33	83.50	75.33	70.87	71.73	79.68	81.55	-
		L Grade($0-$7)	-	1,133,661	3,544,941	354,076	5,682	8,081	1,308	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5,047,748
		DCu%	-	0.19	0.19	0.19	0.19	0.19	0.18	0.19	0.19	0.19	0.20	0.19	0.19	0.18	0.18	0.18	0.18	0.18	0.20	0.19	0.19	0.19
		DNi%	-	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.07	0.06
		DPt	-	43.46	45.23	43.10	42.74	49.36	56.72	60.43	71.03	70.44	58.60	48.83	48.86	55.24	60.44	54.41	52.26	46.73	43.84	52.45	50.55	44.69
		DPd	-	169.16	183.63	176.72	180.84	180.82	196.90	197.76	207.20	204.29	165.58	142.99	153.24	164.86	172.71	166.53	183.84	157.06	158.10	177.41	169.67	179.89
		DAu	-	21.87	24.51	24.68	24.59	25.85	28.71	30.23	35.21	34.09	28.34	25.54	25.29	26.73	27.43	25.83	25.13	24.10	24.57	28.25	28.35	23.93
		DCo	-	62.98	66.18	67.84	66.54	66.11	65.57	64.46	67.22	68.03	67.85	69.10	69.55	68.32	67.24	68.08	66.74	66.40	64.67	67.20	67.00	65.58
		TOTAL ORE TONS	-	1,133,661	3,544,941	354,076	5,682	8,081	1,308	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5,047,748
		DCu%	-	0.19	0.19	0.19	0.19	0.19	0.18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.19
		DNi%	-	0.06	0.06	0.06	0.06	0.06	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.06
		DPt	-	43.46	45.23	43.10	42.74	49.36	56.72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44.69
		DPd	-	169.2	183.6	176.7	180.8	180.8	196.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	179.9
		DAu	-	21.9	24.5	24.7	24.6	25.8	28.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.9
		DCo	-	63.0	66.2	67.8	66.5	66.1	65.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	65.6
	l at oT	**TOTAL ORE TONS**	-	1,133,661	3,544,941	354,076	5,682	8,081	1,308	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5,047,748
		DCu%	-	0.19	0.19	0.19	0.19	0.19	0.18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.19
		DNi%	-	0.06	0.06	0.06	0.06	0.06	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.06
		DPt	-	43.46	45.23	43.10	42.74	49.36	56.72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44.69
		DPd	-	169.2	183.6	176.7	180.8	180.8	196.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	179.9
		DAu	-	21.9	24.5	24.7	24.6	25.8	28.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.9
		DCo	-	63.0	66.2	67.8	66.5	66.1	65.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	65.6

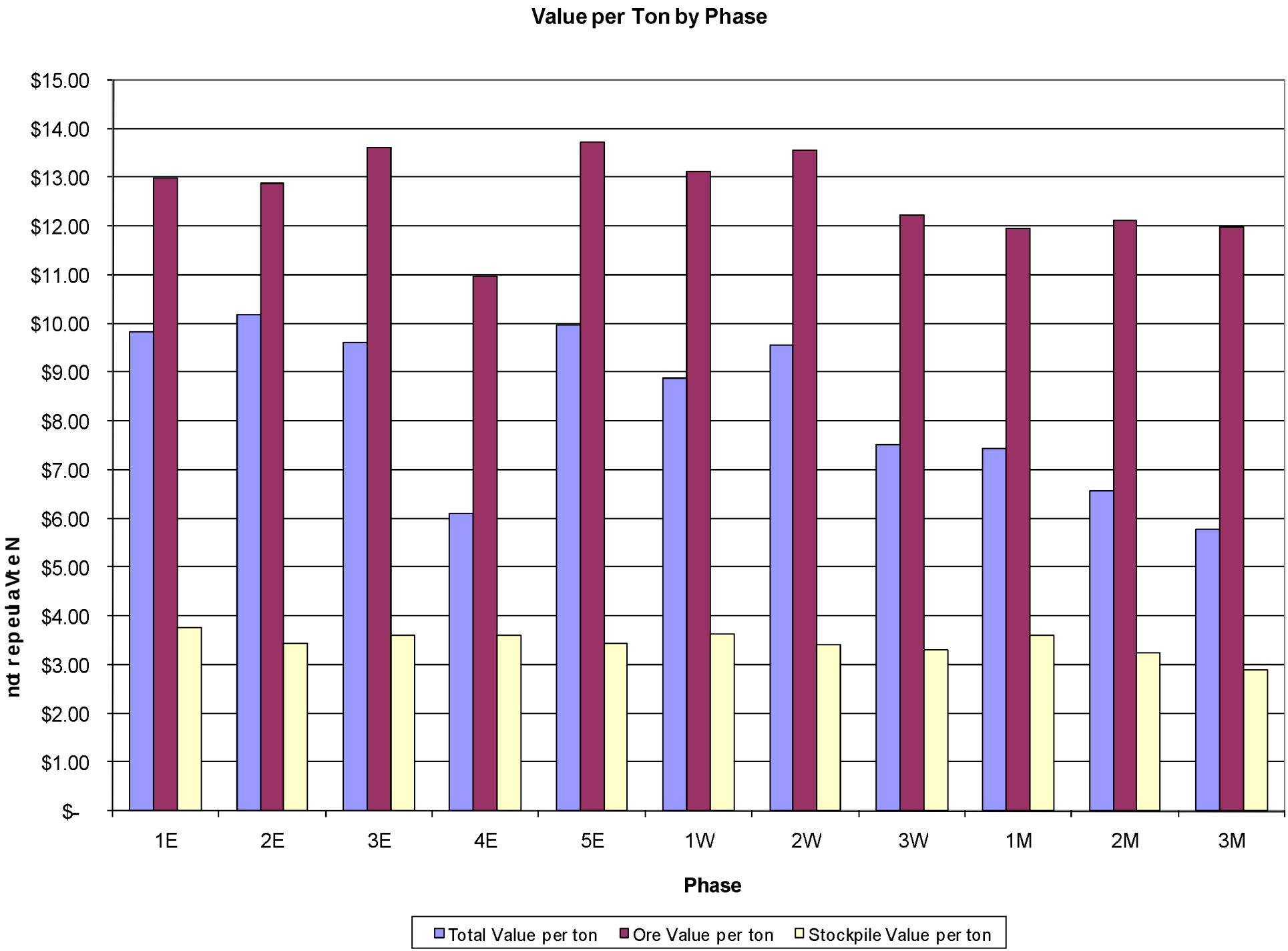
	Total	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	
From Stockpile	**TOTAL ORE TONS**	-		-	-	-	-	-	1,605,303	689,523	-	-	-	-	-	-	-	-	-	-	312,460	2,440,463	
	DCu%	-	-	-	-	-	-	-	0.19	0.19	-	-	-	-	-	-	-	-	-	-	0.19	0.19	
	DNi%	-	-	-	-	-	-	-	0.06	0.06	-	-	-	-	-	-	-	-	-	-	0.06	0.06	
	DPt	-	-	-	-	-	-	-	50.40	50.40	-	-	-	-	-	-	-	-	-	-	50.40	38.59	
	DPd	-	-	-	-	-	-	-	178.4	178.4	-	-	-	-	-	-	-	-	-	-	178.4	181.5	
	DAu	-	-	-	-	-	-	-	26.66	26.66	-	-	-	-	-	-	-	-	-	-	26.66	21.01	
	DCo	-	-	-	-	-	-	-	67.21	67.21	-	-	-	-	-	-	-	-	-	-	67.21	63.84	
	H Grade ($7+)																						
	DCu%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	DNi%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	DPt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	DPd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	DAu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	DCo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	L Grade($0-$7)								1,605,303	689,523											312,460	2,440,463	5,047,749
	DCu%	-	-	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	-	-	-	-	0.19	0.19	
	DNi%	-	-	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	-	-	-	-	0.06	0.06	
	DPt	-	-	50.40	50.40	50.40	50.40	50.40	50.40	50.40	50.40	50.40	50.40	50.40	50.40	50.40	-	-	-	-	50.40	38.59	
	DPd	-	-	178.40	178.40	178.40	178.40	178.40	178.40	178.40	178.40	178.40	178.40	178.40	178.40	178.40	-	-	-	-	178.40	181.49	
	DAu	-	-	26.66	26.66	26.66	26.66	26.66	26.66	26.66	26.66	26.66	26.66	26.66	26.66	26.66	-	-	-	-	26.66	21.01	
	DCo	-	-	67.21	67.21	67.21	67.21	67.21	67.21	67.21	67.21	67.21	67.21	67.21	67.21	67.21	-	-	-	-	67.21	63.84	
Stockpile Inventory	**TOTAL ORE TONS**	-	1,133,661	4,678,602	5,032,678	5,038,360	5,046,441	5,047,749	3,442,446	2,752,923	2,752,923	2,752,923	2,752,923	2,752,923	2,752,923	2,752,923	2,752,923	2,752,923	2,752,923	2,752,923	2,440,463	-	
	DCu%	-	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	-	
	DNi%	-	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	-	
	DPt	-	43.46	44.80	44.68	44.68	44.69	44.69	42.03	39.93	39.93	39.93	39.93	39.93	39.93	39.93	39.93	39.93	39.93	39.93	38.59	-	
	DPd	-	169.16	180.12	179.88	179.89	179.89	179.89	180.59	181.14	181.14	181.14	181.14	181.14	181.14	181.14	181.14	181.14	181.14	181.14	181.49	-	
	DAu	-	21.87	23.87	23.93	23.93	23.93	23.93	22.66	21.65	21.65	21.65	21.65	21.65	21.65	21.65	21.65	21.65	21.65	21.65	21.01	-	
	DCo	-	62.98	65.41	65.58	65.58	65.58	65.58	64.82	64.22	64.22	64.22	64.22	64.22	64.22	64.22	64.22	64.22	64.22	64.22	63.84	-	
	H Grade ($7+)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	DCu%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	DNi%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	DPt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	DPd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	DAu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	DCo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	L Grade($0-$7)	-	1,133,661	4,678,602	5,032,678	5,038,360	5,046,441	5,047,749	3,442,446	2,752,923	2,752,923	2,752,923	2,752,923	2,752,923	2,752,923	2,752,923	2,752,923	2,752,923	2,752,923	2,752,923	2,440,463	-	
	DCu%	-	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	-	
	DNi%	-	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	-	
	DPt	-	43.46	44.80	44.68	44.68	44.69	44.69	42.03	39.93	39.93	39.93	39.93	39.93	39.93	39.93	39.93	39.93	39.93	39.93	38.59	-	
	DPd	-	169.16	180.12	179.88	179.89	179.89	179.89	180.59	181.14	181.14	181.14	181.14	181.14	181.14	181.14	181.14	181.14	181.14	181.14	181.49	-	
	DAu	-	21.87	23.87	23.93	23.93	23.93	23.93	22.66	21.65	21.65	21.65	21.65	21.65	21.65	21.65	21.65	21.65	21.65	21.65	21.01	-	
	DCo	-	62.98	65.41	65.58	65.58	65.58	65.58	64.82	64.22	64.22	64.22	64.22	64.22	64.22	64.22	64.22	64.22	64.22	64.22	63.84	-	

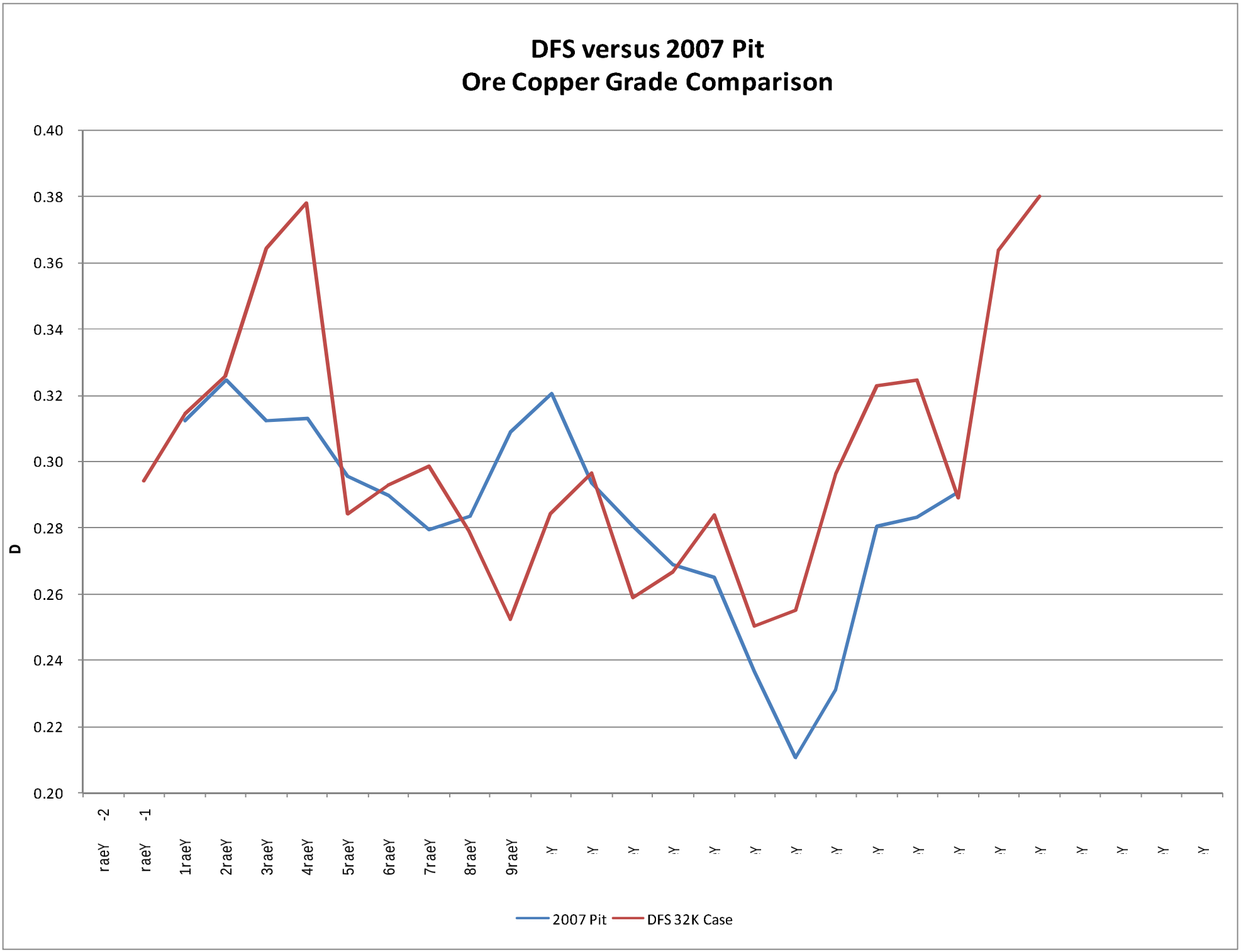
Cut Summary

Report File	Total	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Total
E1 esahP	**H Grade ($7+)**	-	3,568,128	2,691,731	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6,259,859
	DCu%	-	0.37	0.36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.363
	DN%	-	0.10	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.105
	DPt	-	84.77	87.72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	86.03
	DPd	-	344.46	331.95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	339.08
	DAu	-	41.78	43.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42.37
	DCo	-	69.60	78.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	73.42
	L Grade($0-$7)	-	1,782,677	1,451,633	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,234,310
	DCu%	-	0.19	0.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.20
	DN%	-	0.06	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.06
	DPt	-	46.88	49.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48.27
	DPd	-	175.98	201.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	187.22
	DAu	-	22.53	25.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.86
	DCo	-	61.10	59.53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60.39
	TOTAL ORE TONS	-	5,350,805	4,143,364	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9,494,169
	OB (tons)	1,087,424	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,087,424
	Cat 1 & 2 (tons)	1,731,282	1,648,021	117,488	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,496,791
	Cat 3 (tons)	183,387	320,388	298,009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	801,784
	Cat 4 (tons)	340,282	1,408,397	1,282,992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,031,671
	TOTAL WASTE TONS	3,342,375	3,376,806	1,698,489	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8,417,670
	Total Tons	3,342,375	8,727,611	5,841,853	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17,911,839
	S.R.	-	0.6	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9
E2 esahP	**H Grade ($7+)**	-	2,571,034	4,126,222	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6,697,256
	DCu%	-	0.35	0.36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.354
	DN%	-	0.10	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.105
	DPt	-	91.23	85.85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	87.91
	DPd	-	380.41	365.46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	371.20
	DAu	-	41.27	43.41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42.59
	DCo	-	71.69	82.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	78.04
	L Grade($0-$7)	-	886,206	1,783,645	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,669,850
	DCu%	-	0.18	0.19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.06
	DN%	-	0.06	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.02
	DPt	-	48.02	44.59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.80
	DPd	-	213.77	178.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	59.12
	DAu	-	23.60	25.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.31
	DCo	-	61.73	67.79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22.50
	Total Ore Tonnes	-	3,457,240	5,909,867	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9,367,106
	OB (tons)	1,133,259	200,447	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,333,706
	Cat 1 & 2 (tons)	1,270,506	2,653,176	1,740,459	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5,664,141
	Cat 3 (tons)	110,679	469,298	834,123	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,414,100
	Cat 4 (tons)	1,029	70,768	218,603	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	290,399
	TOTAL WASTE TONS	2,515,473	3,393,689	2,793,184	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8,702,346
	Total Tonnes	2,515,473	6,850,929	8,703,051	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18,069,452
	S.R.	-	1.0	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.9
E3 esahP	**H Grade ($7+)**	-	303,798	2,749,677	7,421,916	6,229,342	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16,704,733
	DCu%	-	0.30	0.35	0.37	0.39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.374
	DN%	-	0.09	0.10	0.11	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.109
	DPt	-	95.49	80.91	79.83	86.75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	82.874
	DPd	-	321.37	320.41	330.02	364.18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	341.019
	DAu	-	33.36	42.53	44.78	45.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44.461
	DCo	-	76.64	82.25	84.47	79.96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	82.282
	L Grade($0-$7)	-	267,275	2,289,883	3,769,694	4,064,613	701,103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11,092,569
	DCu%	-	0.18	0.18	0.19	0.20	0.20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.18
	DN%	-	0.06	0.06	0.06	0.06	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.06
	DPt	-	40.98	44.25	42.18	41.39	34.95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36.65
	DPd	-	164.27	185.33	175.12	179.45	162.40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	161.11
	DAu	-	20.91	23.95	24.13	23.93	20.17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21.08
	DCo	-	72.77	68.22	67.90	66.80	69.79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	63.94
	Total Ore Tonnes	-	571,073	5,039,560	11,191,611	10,293,955	701,103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27,797,302
	OB (tons)	175,847	326,572	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	502,419
	Cat 1 & 2 (tons)	1,491,234	12,463,856	11,987,219	6,680,796	575,969	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33,199,074
	Cat 3 (tons)	254,219	1,155,510	1,130,704	1,411,914	617,145	48,152	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,617,643
	Cat 4 (tons)	19,243	522,968	1,003,517	1,860,515	1,187,552	104,841	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,698,635
	TOTAL WASTE TONS	1,940,542	14,468,906	14,121,440	9,953,225	2,380,666	152,992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43,017,771
	Total Tonnes	1,940,542	15,039,979	19,161,000	21,144,835	12,674,621	854,095	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70,815,073
	S.R.	-	25.3	2.8	0.9	0.2	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5
E4 esahP	**H Grade ($7+)**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	131,256	2,028,291	686,167	-	892,868	303,921	4,042,524
	DCu%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.26	0.29	0.28	-	0.27	0.34	0.28
	DN%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.08	0.09	0.10	-	0.10	0.12	0.09
	DPt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	96.26	99.92	99.96	-	90.58	80.60	96.29
	DPd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	441.98	470.12	484.06	-	323.30	241.56	421.96
	DAu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	49.79	57.05	51.72	-	42.37	41.07	51.46
	DCo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	67.54	70.62	76.43	-	88.72	124.22	79.53
	L Grade($0-$7)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	580,761	3,175,783	1,534,713	-	2,509,572	112,909	7,913,738
	DCu%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.17	0.18	0.18	-	0.18	0.18	0.18
	DN%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.06	0.06	0.06	-	0.07	0.07	0.06
	DPt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	55.92	52.39	55.04	-	55.14	43.42	53.91
	DPd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	236.70	232.28	200.87	-	170.26	129.19	205.37
	DAu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28.76	25.36	26.87	-	26.15	20.54	26.08
	DCo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	66.28	65.41	67.13	-	70.85	89.18	67.87
	Total Ore Tonnes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	712,017	5,204,074	2,220,900	-	3,402,440	416,830	11,956,262
	OB (tons)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,806,369	4,640	-	-	-	-	1,811,009
	Cat 1 & 2 (tons)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,100,998	8,290,260	1,558,245	-	1,139,291	2,232	14,090,426
	Cat 3 (tons)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	196,315	1,699,675	511,588	-	180,658	2,156	2,590,592
	Cat 4 (tons)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOTAL WASTE TONS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5,103,082	9,994,575	2,069,833	-	1,320,149	4,388	18,492,027
	Total Tonnes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5,815,100	15,198,649	4,290,733	-	4,722,589	421,216	30,448,289
	S.R.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.2	1.9	0.9	-	0.4	0.0	1.5

	Report File	Total	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Total
E5 esahP		**H Grade ($7+)**	-	17,040	2,370	116,889	494,392	5,506,027	4,454,796	2,500,772	-	-	-	-	-	-	-	-	-	-	-	-	-	13,094,286
		DCu%	-	0.32	0.32	0.31	0.34	0.39	0.38	0.40	-	-	-	-	-	-	-	-	-	-	-	-	-	0.39
		DNi%	-	0.08	0.08	0.09	0.10	0.11	0.11	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	0.11
		DPt	-	31.29	86.88	86.95	88.84	85.50	79.78	85.51	-	-	-	-	-	-	-	-	-	-	-	-	-	83.63
		DPd	-	71.86	412.90	378.71	385.87	377.91	350.62	382.35	-	-	-	-	-	-	-	-	-	-	-	-	-	369.39
		DAu	-	17.66	48.28	43.86	39.37	45.23	40.77	41.25	-	-	-	-	-	-	-	-	-	-	-	-	-	42.68
		DCo	-	100.37	70.31	73.96	67.81	76.80	76.44	75.51	-	-	-	-	-	-	-	-	-	-	-	-	-	76.10
		L Grade($0-$7)	-	497,503	119,780	151,799	188,856	2,938,451	2,414,871	1,175,197	-	-	-	-	-	-	-	-	-	-	-	-	-	7,486,457
		DCu%	-	0.17	0.18	0.14	0.18	0.19	0.20	0.21	-	-	-	-	-	-	-	-	-	-	-	-	-	0.19
		DNi%	-	0.05	0.06	0.06	0.06	0.06	0.06	0.06	-	-	-	-	-	-	-	-	-	-	-	-	-	0.06
		DPt	-	24.46	15.77	48.76	48.36	41.43	41.30	39.44	-	-	-	-	-	-	-	-	-	-	-	-	-	39.86
		DPd	-	67.85	22.47	192.90	182.27	168.49	177.65	189.58	-	-	-	-	-	-	-	-	-	-	-	-	-	166.58
		DAu	-	16.97	15.19	31.07	28.69	22.10	22.68	21.51	-	-	-	-	-	-	-	-	-	-	-	-	-	22.09
		DCo	-	66.70	84.01	68.16	62.26	66.28	65.66	59.01	-	-	-	-	-	-	-	-	-	-	-	-	-	65.19
		Total Ore Tonnes	-	514,543	122,150	270,688	683,248	8,444,478	6,869,667	3,675,969	-	-	-	-	-	-	-	-	-	-	-	-	-	20,580,743
		OB (tons)	-	946,686	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	946,686
		Cat 1 & 2 (tons)	-	9,546,608	10,862,656	13,076,946	13,968,627	4,044,449	1,199,326	56,786	-	-	-	-	-	-	-	-	-	-	-	-	-	52,755,398
		Cat 3 (tons)	-	2,621,708	1,434,378	821,175	1,737,610	744,581	1,002,599	120,965	-	-	-	-	-	-	-	-	-	-	-	-	-	8,483,016
		Cat 4 (tons)	-	4,451	389	-	126,316	428,226	521,030	260,426	-	-	-	-	-	-	-	-	-	-	-	-	-	1,340,838
		TOTAL WASTE TONS	-	13,119,452	12,297,423	13,898,121	15,832,553	5,217,257	2,722,955	438,177	-	-	-	-	-	-	-	-	-	-	-	-	-	63,525,938
		Total Tonnes	-	13,633,995	12,419,573	14,168,809	16,515,801	13,661,735	9,592,622	4,114,146	-	-	-	-	-	-	-	-	-	-	-	-	-	84,106,681
		S.R.	-	25.5	100.7	51.3	23.2	0.6	0.4	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	3.1
V1 esahP		**H Grade ($7+)**	-	-	-	479,195	546,266	864,951	2,227,995	3,213,920	4,804,028	3,448,701	2,458,422	1,843,878	403,647	-	-	-	-	-	-	-	-	20,291,004
		DCu%	-	-	-	0.32	0.33	0.33	0.34	0.34	0.39	0.39	0.44	0.46	0.43	-	-	-	-	-	-	-	-	0.38
		DNi%	-	-	-	0.08	0.08	0.08	0.09	0.09	0.10	0.10	0.11	0.12	0.10	-	-	-	-	-	-	-	-	0.10
		DPt	-	-	-	130.04	122.02	118.64	116.73	112.36	116.83	105.89	94.85	94.83	68.55	-	-	-	-	-	-	-	-	109.16
		DPd	-	-	-	382.60	367.38	360.99	356.73	340.11	348.24	334.55	334.01	340.03	243.67	-	-	-	-	-	-	-	-	342.88
		DAu	-	-	-	61.39	59.04	58.10	57.72	55.11	58.32	54.01	47.57	46.82	39.70	-	-	-	-	-	-	-	-	54.56
		DCo	-	-	-	68.29	71.65	72.99	74.74	75.27	78.08	82.02	91.18	95.81	92.79	-	-	-	-	-	-	-	-	80.81
		L Grade($0-$7)	-	-	-	82,582	152,212	1,239,122	1,724,897	2,864,303	4,098,107	3,189,895	1,699,361	1,174,912	244,641	-	-	-	-	-	-	-	-	16,470,031
		DCu%	-	-	-	0.19	0.19	0.18	0.18	0.19	0.19	0.19	0.19	0.19	0.19	-	-	-	-	-	-	-	-	0.19
		DNi%	-	-	-	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	-	-	-	-	-	-	-	-	0.06
		DPt	-	-	-	74.85	71.73	69.10	66.37	66.12	67.38	61.81	49.21	42.86	39.35	-	-	-	-	-	-	-	-	62.14
		DPd	-	-	-	220.09	216.13	207.67	199.24	196.91	196.78	176.15	137.54	124.83	95.09	-	-	-	-	-	-	-	-	181.42
		DAu	-	-	-	37.91	36.93	35.21	33.63	33.17	34.44	31.33	23.88	22.09	16.15	-	-	-	-	-	-	-	-	31.39
		DCo	-	-	-	64.52	64.92	65.64	66.38	67.16	68.08	69.34	71.12	77.68	75.84	-	-	-	-	-	-	-	-	68.87
		Total Ore Tonnes	-	-	-	561,777	698,479	2,104,073	3,952,892	6,078,223	8,902,135	6,638,596	4,157,783	3,018,790	648,288	-	-	-	-	-	-	-	-	36,761,035
		OB (tons)	-	-	-	2,908,459	1,651,583	149,103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,709,144
		Cat 1 & 2 (tons)	-	-	-	432,458	1,606,703	1,177,822	3,185,709	3,727,061	1,846,861	2,339,684	1,270,367	134,545	-	-	-	-	-	-	-	-	-	15,721,208
		Cat 3 (tons)	-	-	-	199,766	466,496	277,613	659,240	1,385,915	972,882	1,348,102	1,073,740	284,267	20,661	-	-	-	-	-	-	-	-	6,688,681
		Cat 4 (tons)	-	-	-	-	-	-	-	-	6,521	1,755	-	-	-	-	-	-	-	-	-	-	-	8,276
		TOTAL WASTE TONS	-	-	-	3,540,683	3,724,781	1,604,538	3,844,949	5,112,976	2,826,263	3,689,541	2,344,107	418,812	20,661	-	-	-	-	-	-	-	-	27,127,309
		Total Tonnes	-	-	-	4,102,459	4,423,260	3,708,610	7,797,840	11,191,199	11,728,398	10,328,136	6,501,890	3,437,602	668,949	-	-	-	-	-	-	-	-	63,888,344
		S.R.	-	-	-	6.3	5.3	0.8	1.0	0.8	0.3	0.6	0.6	0.1	0.0	-	-	-	-	-	-	-	-	0.7
V2 esahP		**H Grade ($7+)**	-	-	-	-	-	199,022	187,209	121,910	1,351,326	3,712,725	3,945,876	3,200,224	3,147,768	1,928,810	2,154,406	455,837	-	-	-	-	-	20,405,111
		DCu%	-	-	-	-	-	0.29	0.24	0.29	0.30	0.37	0.40	0.38	0.41	0.44	0.43	0.38	-	-	-	-	-	0.39
		DNi%	-	-	-	-	-	0.07	0.07	0.08	0.08	0.09	0.09	0.10	0.11	0.11	0.11	0.10	-	-	-	-	-	0.10
		DPt	-	-	-	-	-	174.95	171.61	128.70	129.90	136.59	149.47	118.93	101.17	85.79	76.86	66.92	-	-	-	-	-	118.39
		DPd	-	-	-	-	-	457.95	448.74	325.77	363.06	380.17	369.91	347.56	339.57	319.57	288.76	225.50	-	-	-	-	-	351.77
		DAu	-	-	-	-	-	69.33	66.23	52.66	54.70	59.23	60.96	51.70	47.91	44.51	43.84	42.54	-	-	-	-	-	53.07
		DCo	-	-	-	-	-	57.76	61.67	69.21	70.14	74.22	75.87	84.51	90.48	90.40	87.16	85.89	-	-	-	-	-	81.24
		L Grade($0-$7)	-	-	-	-	-	229,406	661,540	188,595	727,016	1,318,679	2,023,739	3,193,608	2,540,832	1,313,757	693,126	330,308	-	-	-	-	-	13,220,605
		DCu%	-	-	-	-	-	0.16	0.12	0.14	0.17	0.19	0.21	0.18	0.17	0.18	0.23	0.22	-	-	-	-	-	0.18
		DNi%	-	-	-	-	-	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.07	0.06	-	-	-	-	-	0.06
		DPt	-	-	-	-	-	88.33	87.88	104.94	91.61	91.31	71.12	51.56	49.37	47.78	30.25	27.46	-	-	-	-	-	61.42
		DPd	-	-	-	-	-	249.92	261.03	261.64	265.94	272.38	189.69	141.46	142.09	134.22	101.32	96.02	-	-	-	-	-	174.49
		DAu	-	-	-	-	-	40.56	37.86	39.83	39.51	40.76	33.85	27.39	27.57	23.13	19.33	18.08	-	-	-	-	-	30.26
		DCo	-	-	-	-	-	55.38	63.10	57.31	62.36	64.86	66.21	66.22	71.25	76.36	75.86	72.15	-	-	-	-	-	68.03
		Total Ore Tonnes	-	-	-	-	-	428,428	848,749	310,505	2,078,342	5,031,404	5,969,615	6,393,832	5,688,599	3,242,567	2,847,531	786,144	-	-	-	-	-	33,625,716
		OB (tons)	-	-	-	-	-	2,889,664	20,963	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,910,627
		Cat 1 & 2 (tons)	-	-	-	-	-	5,775,267	3,256,704	647,886	6,741,364	4,614,580	1,769,802	4,304,431	1,458,420	261,647	260,733	15,110	-	-	-	-	-	29,105,942
		Cat 3 (tons)	-	-	-	-	-	386,383	169,210	36,753	486,553	1,475,733	1,969,978	4,556,372	3,160,300	1,014,741	222,047	41,493	-	-	-	-	-	13,519,563
		Cat 4 (tons)	-	-	-	-	-	-	-	-	-	939	-	-	279,891	407,852	5,410	-	-	-	-	-	-	694,092
		TOTAL WASTE TONS	-	-	-	-	-	9,051,314	3,446,877	684,639	7,227,917	6,091,252	3,739,780	8,860,803	4,898,610	1,684,240	488,190	56,603	-	-	-	-	-	46,230,224
		Total Tonnes	-	-	-	-	-	9,479,741	4,295,626	995,144	9,306,259	11,122,656	9,709,395	15,254,634	10,587,210	4,926,807	3,335,721	842,747	-	-	-	-	-	79,855,940
		S.R.	-	-	-	-	-	21.1	4.1	2.2	3.5	1.2	0.6	1.4	0.9	0.5	0.2	0.1	-	-	-	-	-	1.4

	Report File	Total	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Total
M1 esahP		**H Grade ($7+)**	-	-	-	-	-	-	-	-	-	-	433,016	950,550	2,049,234	3,133,842	1,899,394	1,770,459	-	-	-	-	-	10,236,495
		DCu%	-	-	-	-	-	-	-	-	-	-	0.31	0.31	0.33	0.34	0.37	0.39	-	-	-	-	-	0.24
		DNi%	-	-	-	-	-	-	-	-	-	-	0.09	0.10	0.10	0.11	0.10	0.10	-	-	-	-	-	0.07
		DPt	-	-	-	-	-	-	-	-	-	-	80.07	76.37	79.08	86.47	87.20	79.46	-	-	-	-	-	58.82
		DPd	-	-	-	-	-	-	-	-	-	-	309.39	284.48	283.06	330.26	334.34	287.69	-	-	-	-	-	221.06
		DAu	-	-	-	-	-	-	-	-	-	-	38.38	37.32	38.17	47.71	47.90	36.43	-	-	-	-	-	29.54
		DCo	-	-	-	-	-	-	-	-	-	-	72.10	77.46	83.45	81.95	76.41	80.04	-	-	-	-	-	56.57
		L Grade($0-$7)	-	-	-	-	-	-	-	-	-	-	1,109,586	1,306,828	3,283,878	3,370,942	1,906,340	1,107,807	-	-	-	-	-	12,085,382
		DCu%	-	-	-	-	-	-	-	-	-	-	0.19	0.20	0.20	0.19	0.19	0.20	-	-	-	-	-	0.16
		DNi%	-	-	-	-	-	-	-	-	-	-	0.06	0.07	0.06	0.06	0.06	0.06	-	-	-	-	-	0.05
		DPt	-	-	-	-	-	-	-	-	-	-	50.15	47.53	49.17	49.42	45.57	47.24	-	-	-	-	-	37.09
		DPd	-	-	-	-	-	-	-	-	-	-	164.56	163.05	166.20	167.84	170.43	158.85	-	-	-	-	-	126.10
		DAu	-	-	-	-	-	-	-	-	-	-	25.09	24.14	24.22	26.50	26.11	21.80	-	-	-	-	-	18.87
		DCo	-	-	-	-	-	-	-	-	-	-	65.83	68.44	67.76	66.06	64.25	68.93	-	-	-	-	-	51.29
		TOTAL ORE TONS	-	-	-	-	-	-	-	-	-	-	1,542,602	2,257,378	5,333,113	6,504,784	3,805,734	2,878,266	-	-	-	-	-	22,321,877
		OB (tons)	-	-	-	-	-	-	-	-	-	-	2,366,308	9,583	-	-	-	-	-	-	-	-	-	2,375,891
		Cat 1 & 2 (tons)	-	-	-	-	-	-	-	-	-	-	2,384,266	1,469,282	2,646,700	2,378,271	464,634	8,015	-	-	-	-	-	9,351,168
		Cat 3 (tons)	-	-	-	-	-	-	-	-	-	-	834,779	396,874	613,495	1,320,520	517,418	316,128	-	-	-	-	-	3,999,213
		Cat 4 (tons)	-	-	-	-	-	-	-	-	-	-	1,674	-	-	55,603	-	-	-	-	-	-	-	57,277
		TOTAL WASTE TONS	-	-	-	-	-	-	-	-	-	-	5,587,027	1,875,738	3,260,195	3,754,394	982,052	324,143	-	-	-	-	-	15,783,549
		Total Tonnes	-	-	-	-	-	-	-	-	-	-	7,129,629	4,133,116	8,593,308	10,259,178	4,787,786	3,202,409	-	-	-	-	-	38,105,426
		S.R.	-	-	-	-	-	-	-	-	-	-	3.6	0.8	0.6	0.6	0.3	0.1	-	-	-	-	-	0.7
M2 esahP		**H Grade ($7+)**	-	-	-	-	-	-	-	-	-	-	-	-	-	231,135	952,893	1,790,297	1,285,064	3,092,144	5,923,205	4,696,575	1,493,341	19,464,654
		DCu%	-	-	-	-	-	-	-	-	-	-	-	-	-	0.26	0.28	0.29	0.30	0.35	0.36	0.41	0.52	0.06
		DNi%	-	-	-	-	-	-	-	-	-	-	-	-	-	0.08	0.09	0.09	0.09	0.09	0.09	0.11	0.12	0.02
		DPt	-	-	-	-	-	-	-	-	-	-	-	-	-	97.90	74.48	78.52	94.03	84.91	85.99	90.01	106.14	18.87
		DPd	-	-	-	-	-	-	-	-	-	-	-	-	-	279.71	262.27	241.86	266.73	330.70	353.02	359.90	402.60	59.53
		DAu	-	-	-	-	-	-	-	-	-	-	-	-	-	49.52	41.23	38.90	42.61	48.18	44.35	47.31	50.74	9.90
		DCo	-	-	-	-	-	-	-	-	-	-	-	-	-	71.48	77.96	87.47	82.75	69.63	71.73	77.96	72.87	16.94
		L Grade($0-$7)	-	-	-	-	-	-	-	-	-	-	-	-	-	1,691,514	4,063,842	5,503,276	5,180,862	6,356,956	5,746,795	3,258,525	807,882	32,609,651
		DCu%	-	-	-	-	-	-	-	-	-	-	-	-	-	0.16	0.17	0.17	0.18	0.18	0.20	0.20	0.19	0.03
		DNi%	-	-	-	-	-	-	-	-	-	-	-	-	-	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.01
		DPt	-	-	-	-	-	-	-	-	-	-	-	-	-	72.65	72.56	57.30	52.18	44.73	43.84	50.39	51.55	12.46
		DPd	-	-	-	-	-	-	-	-	-	-	-	-	-	182.70	185.95	164.90	154.15	146.49	158.10	182.92	175.33	32.02
		DAu	-	-	-	-	-	-	-	-	-	-	-	-	-	29.99	29.42	26.80	25.00	23.43	24.57	29.86	29.44	5.19
		DCo	-	-	-	-	-	-	-	-	-	-	-	-	-	66.58	67.17	67.86	67.56	66.22	64.67	64.39	63.90	11.83
		TOTAL ORE TONS	-	-	-	-	-	-	-	-	-	-	-	-	-	1,922,649	5,016,735	7,293,573	6,465,926	9,449,100	11,670,000	7,955,100	2,301,223	52,074,305
		OB (tons)	-	-	-	-	-	-	-	-	-	-	-	-	-	2,842,982	-	-	-	-	-	-	-	2,842,982
		Cat 1 & 2 (tons)	-	-	-	-	-	-	-	-	-	-	-	-	-	3,826,575	10,296,595	6,113,271	5,082,666	11,640,135	6,497,062	3,257,915	52,325	46,766,545
		Cat 3 (tons)	-	-	-	-	-	-	-	-	-	-	-	-	-	1,534,240	3,781,846	3,385,468	3,172,608	6,763,139	2,465,072	1,299,143	273,170	22,674,686
		Cat 4 (tons)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,956	126,179	14,578	3,393	11,854	70,801	-	228,761
		TOTAL WASTE TONS	-	-	-	-	-	-	-	-	-	-	-	-	-	8,203,797	14,080,397	9,624,918	8,269,852	18,406,668	8,973,988	4,627,859	325,495	72,512,974
		Total Tonnes	-	-	-	-	-	-	-	-	-	-	-	-	-	10,126,446	19,097,132	16,918,491	14,735,777	27,855,767	20,643,988	12,582,959	2,626,718	124,587,279
		S.R.	-	-	-	-	-	-	-	-	-	-	-	-	-	4.3	2.8	1.3	1.3	1.9	0.8	0.6	0.1	1.4


Value per Ton by Phase
$15.00
$14.00
$13.00
$12.00
$11.00
$10.00
$9.00
$8.00
$7.00
$6.00
$5.00
$4.00
$3.00
$2.00
$1.00
$-
1E
2E
3E
4E
5E
1W
2W
3W
1M
2M
3M
Phase
Total Value per ton
Ore Value per ton
Stockpile Value per ton


DFS versus 2007 Pit
Ore Copper Grade Comparison
0.40
0.38
0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
D
-2
-1
raeY
raeY
1raeY
2raeY
3raeY
4raeY
5raeY
6raeY
7raeY
8raeY
9raeY
2007 Pit
DFS 32K Case

Appendix G

ii) Waste Stockpile Detail

Tonnage

		Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	
Open Pit Waste	**TOTAL WASTE TONS**	-	7,798,390	34,358,854	30,910,536	27,392,028	21,937,999	16,026,100	10,014,780	6,236,791	10,054,180	9,780,793	11,670,914	11,155,353	8,179,466	13,642,431	15,550,639	15,108,746	18,264,427	20,476,500	8,973,988	5,948,008	329,883	303,809,808
	OB (tons)	-	2,396,530	1,473,705	-	2,908,459	1,651,583	3,038,767	20,963	-	-	-	2,366,308	9,583	-	2,842,982	-	1,806,369	4,640	-	-	-	-	18,519,888
	Cat 1 & 2 (tons)	-	4,493,022	26,311,661	24,707,822	20,190,199	16,151,299	10,997,538	7,641,739	4,431,733	8,588,225	6,954,264	5,424,435	5,908,258	4,105,120	6,466,493	11,021,962	9,236,794	13,372,926	13,198,380	6,497,062	4,397,206	54,557	210,150,693
	Cat 3 (tons)	-	548,285	4,566,904	3,697,213	2,432,855	2,921,250	1,456,729	1,831,048	1,543,633	1,459,435	2,823,835	3,878,497	5,237,512	3,794,456	3,869,501	4,521,311	3,939,405	4,872,282	7,274,727	2,465,072	1,480,001	275,326	64,789,278
	Cat 4 (tons)	-	360,553	2,006,584	2,505,500	1,860,515	1,313,868	533,067	521,030	260,426	6,521	2,694	1,674	-	279,891	463,455	7,366	126,179	14,578	3,393	11,854	70,801	-	10,349,949
Stockpile	To Stockpile (tons)	-	-	1,133,661	3,544,941	354,076	5,682	8,081	1,308	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	From Stockpile (tons)	-	-	-	-	-	-	-	-	1,605,303	689,523	-	-	-	-	-	-	-	-	-	-	312,460	2,440,463	
	Stockpile (tons)	-	-	1,133,661	4,678,602	5,032,678	5,038,360	5,046,441	5,047,749	3,442,446	2,752,923	2,752,923	2,752,923	2,752,923	2,752,923	2,752,923	2,752,923	2,752,923	2,752,923	2,752,923	2,752,923	2,440,463	-	

Bank Volume (yd3)

Tonnage Factor (ft3/ton) = 10.8559

		Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	
Open Pit Waste	**TOTAL WASTE TONS**	-	3,135,502	13,814,677	12,428,211	11,013,523	8,820,620	6,443,620	4,026,646	2,507,227	4,042,488	3,932,567	4,692,529	4,485,237	3,288,721	5,485,217	6,252,451	6,074,779	7,343,585	8,232,994	3,608,175	2,391,518	132,636	122,152,922
	OB	-	963,574	592,533	-	1,169,405	664,052	1,221,798	8,429	-	-	-	951,422	3,853	-	1,143,079	-	726,287	1,866	-	-	-	-	7,446,298
	Cat 1 & 2	-	1,806,511	10,579,139	9,934,283	8,117,881	6,493,959	4,421,784	3,072,517	1,781,868	3,453,071	2,796,103	2,181,005	2,375,535	1,650,547	2,599,985	4,431,604	3,713,841	5,376,857	5,306,678	2,612,276	1,767,986	21,936	84,495,367
	Cat 3	-	220,449	1,836,217	1,486,540	978,179	1,134,341	585,708	736,210	620,649	586,795	1,135,380	1,559,429	2,105,848	1,525,638	1,555,812	1,817,885	1,583,918	1,959,000	2,924,952	991,132	595,065	110,700	26,049,849
	Cat 4	-	144,968	806,788	1,007,387	748,058	528,267	214,330	209,491	104,710	2,622	1,083	673	-	112,536	186,342	2,962	50,733	5,861	1,364	4,766	28,467	-	4,161,408
Stockpile	To Stockpile	-	-	455,811	1,425,316	142,363	2,284	3,249	526	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	From Stockpile	-	-	-	-	-	-	-	-	645,445	277,237	-	-	-	-	-	-	-	-	-	-	125,631	981,238	
	Stockpile	-	-	455,811	1,881,127	2,023,491	2,025,775	2,029,024	2,029,550	1,384,106	1,106,869	1,106,869	1,106,869	1,106,869	1,106,869	1,106,869	1,106,869	1,106,869	1,106,869	1,106,869	1,106,869	981,238	-	

Loose Volume (yd3)

Swell = 30%

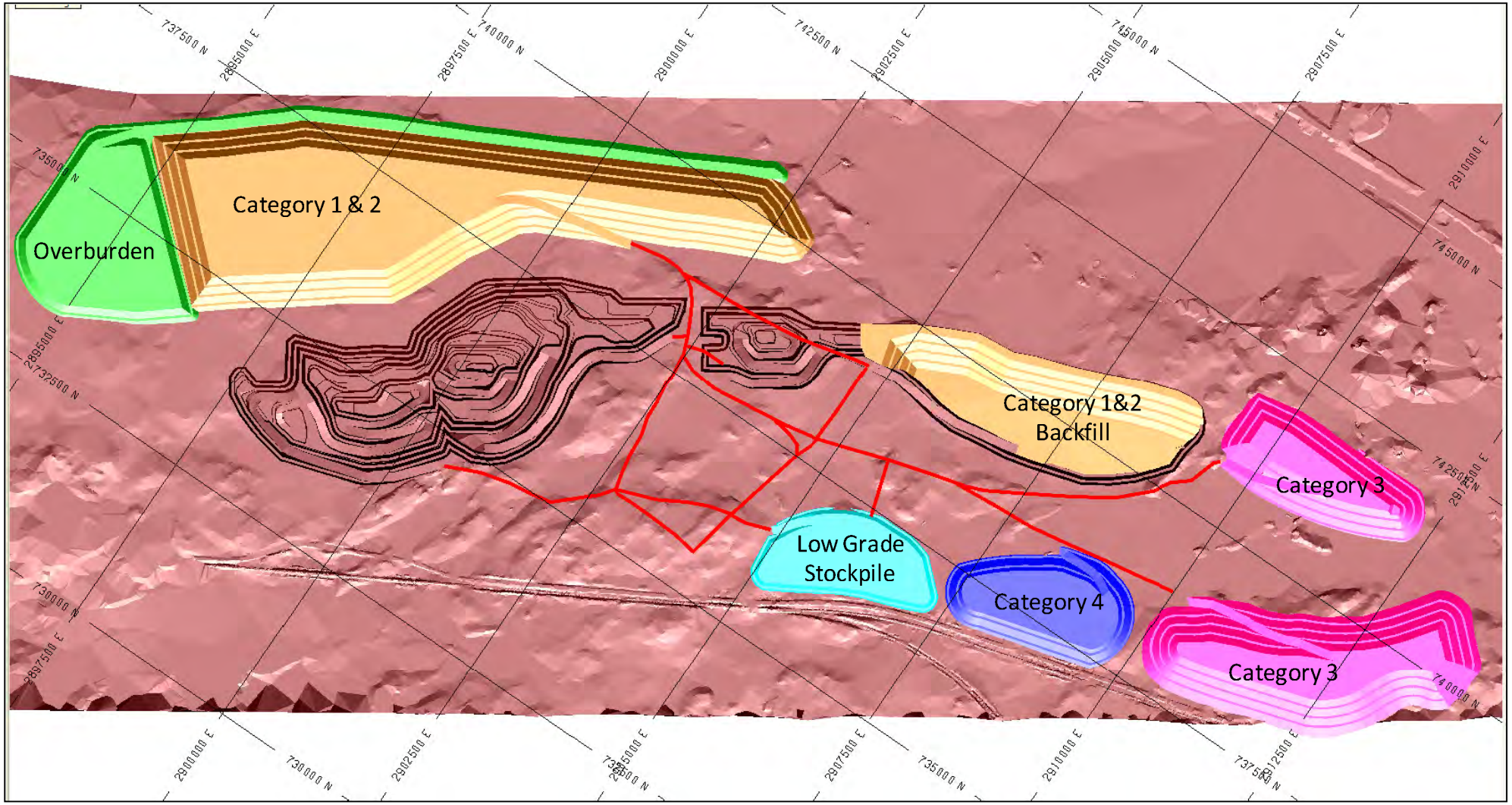
			Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	
Open Pit Waste	**TOTAL WASTE TONS**		-	4,076,152	17,959,080	16,156,674	14,317,580	11,466,805	8,376,706	5,234,640	3,259,395	5,255,234	5,112,337	6,100,287	5,830,808	4,275,337	7,130,782	8,128,187	7,897,213	9,546,660	10,702,892	4,690,627	3,108,973	172,427	158,798,799
	OB		-	1,252,646	770,293	-	1,520,227	863,268	1,588,337	10,957	-	-	-	1,236,849	5,009	-	1,486,002	-	944,174	2,425	-	-	-	-	9,680,188
	Cat 1 & 2		-	2,348,464	13,752,881	12,914,568	10,553,245	8,442,146	5,748,319	3,994,272	2,316,429	4,488,992	3,634,934	2,835,306	3,088,196	2,145,711	3,379,981	5,761,086	4,827,994	6,989,915	6,898,681	3,395,959	2,298,382	28,516	109,843,977
	Cat 3		-	286,584	2,387,082	1,932,502	1,271,633	1,474,643	761,420	957,073	806,844	762,834	1,475,994	2,027,257	2,737,603	1,983,330	2,022,555	2,363,251	2,059,093	2,546,700	3,802,438	1,288,472	773,584	143,911	33,864,804
	Cat 4		-	188,458	1,048,824	1,309,604	972,475	686,748	278,630	272,338	136,122	3,408	1,408	875	-	146,297	242,244	3,850	65,952	7,620	1,773	6,196	37,007	-	5,409,830
Stockpile	To Stockpile		-	-	592,555	1,852,910	185,072	2,970	4,224	684	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	From Stockpile		-	-	-	-	-	-	-	-	839,078	360,408	-	-	-	-	-	-	-	-	-	-	163,320	1,275,609	
	Stockpile		-	-	592,555	2,445,465	2,630,538	2,633,508	2,637,732	2,638,415	1,799,337	1,438,929	1,438,929	1,438,929	1,438,929	1,438,929	1,438,929	1,438,929	1,438,929	1,438,929	1,438,929	1,438,929	1,275,609	-	
BO	Finger Dyke - 1640 down	4,326,378		1,252,646	770,293	-	1,520,227	783,212				-	-	-	-	-	-	-	-	-	-	-	-	-	4,326,378
	South End - 1640 up	5,353,810		-	-	-	-	80,056	1,588,337	10,957	-	-	-	1,236,849	5,009	-	1,486,002	-	944,174	2,425	-	-	-	-	5,353,810
	Total Overburden			1,252,646	770,293	-	1,520,227	863,268	1,588,337	10,957	-	-	-	1,236,849	5,009	-	1,486,002	-	944,174	2,425	-	-	-	-	9,680,188
2 &1 to C	East Backfill	48,651,404										3,366,744	3,634,934	2,835,306	3,088,196	2,145,711	3,379,981	5,761,086	4,827,994	6,989,915	6,898,681	3,395,959	2,298,382	28,516	48,651,404
	Level											1060	1120	1160	1200	1220	1260	1300	1340	1400	1460	1520	1580	1580	
	North Stockpile	61,192,573		2,348,464	13,752,881	12,914,568	10,553,245	8,442,146	5,748,319	3,994,272	2,316,429	1,122,248	-	-	-	-	-	-	-	-	-	-	-	-	61,192,573
	1640 - down	14,483,310		2,348,464	12,134,846																				
	1640 - 1680	19,447,728			1,618,035	12,914,568	4,915,124																		
	1680 - 1720	15,518,437					5,638,121	8,442,146	1,438,170																
	1720 - 1760	11,743,098							4,310,149	3,994,272	2,316,429	1,122,248													
	Total Cat 1 & 2			2,348,464	13,752,881	12,914,568	10,553,245	8,442,146	5,748,319	3,994,272	2,316,429	4,488,992	3,634,934	2,835,306	3,088,196	2,145,711	3,379,981	5,761,086	4,827,994	6,989,915	6,898,681	3,395,959	2,298,382	28,516	109,843,977
3 to C	South East Pile	25,406,743		286,584	2,387,082	1,932,502	1,271,633	1,474,643	761,420	957,073	806,844	762,834	1,475,994	2,027,257	2,737,603	1,983,330	2,022,555	2,363,251	2,059,093	97,044	-	-	-	-	
	1640 - down	10,077,613		286,584	2,387,082	1,932,502	1,271,633	1,474,643	761,420	957,073	806,844	199,832													
	1640 - 1680	7,037,894										563,002	1,475,994	2,027,257	2,737,603	234,037									
	1680 - 1720	5,057,994														1,749,292	2,022,555	1,286,146							
	1720 - 1760	3,233,242																1,077,105	2,059,093	97,044					
	North Stockpile	8,458,061		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,449,656	3,802,438	1,288,472	773,584	143,911	8,458,061
	1640 - down	4,017,617																		2,449,656	1,567,961				
	1640 - 1680	2,710,025																			2,234,477	475,548			
	1680 - 1720	1,519,422																				812,924	773,584	143,911	
	1720 - 1760																								
	Total Cat 3			286,584	2,387,082	1,932,502	1,271,633	1,474,643	761,420	957,073	806,844	762,834	1,475,994	2,027,257	2,737,603	1,983,330	2,022,555	2,363,251	2,059,093	2,546,700	3,802,438	1,288,472	773,584	143,911	8,458,061
C	South East Pile	4,757,076		188,458	1,048,824	1,309,604	972,475	686,748	278,630	272,338															
	1640 - down	4,565,591		188,458	1,048,824	1,309,604	972,475	686,748	278,630	80,853															
	1640 - 1660	1,300,060								191,485	136,122	3,408	1,408	875	-	146,297	242,244	3,850	65,952	7,620	1,773	6,196	37,007	-	
	Total Cat 4																								

East Pit Backfill Bottom up configuration

BENCH TOE	Loose (YDS)	3,366,744 Year 8	3,634,934 Year 9	2,835,306 Year 10	3,088,196 Year 11	2,145,711 Year 12	3,379,981 Year 13	5,761,086 Year 14	4,827,994 Year 15	6,989,915 Year 16	6,898,681 Year 17	3,395,959 Year 18	2,298,382 Year 19	28,516 Year 20	- Year 21
======															
1600													-		
1580	283,296												283,296		
1560	671,110												671,110		
1540	861,444												861,444		
1520	1,047,629											1,028,754	18,875		
1500	1,073,517											1,073,517			
1480	1,247,221											1,247,221			
1460	1,414,110										1,367,643	46,467			
1440	1,575,591										1,575,591				
1420	2,204,831										2,204,831				
1400	3,149,071									1,398,455	1,750,616				
1380	3,059,627									3,059,627					
1360	2,837,701								305,868	2,531,833					
1340	2,729,997								2,729,997						
1320	2,643,534							851,405	1,792,129						
1300	2,332,998							2,332,998							
1280	2,249,090							2,249,090							
1260	2,166,294						1,838,701	327,593							
1240	2,049,016					507,736	1,541,280								
1220	1,966,980				329,005	1,637,975									
1200	1,677,887				1,677,887										
1180	1,461,221			379,917	1,081,304										
1160	1,353,888			1,353,888											
1140	1,282,036		180,535	1,101,501											
1120	1,209,740		1,209,740												
1100	955,703		955,703												
1080	886,610		886,610												
1060	819,129	416,783	402,346												
1040	684,314	684,314													
1020	628,962	628,962													
1000	404,407	404,407													
980	359,648	359,648													
960	299,500	299,500													
940	259,278	259,278													
920	218,222	218,222													
900	95,630	95,630													

TOTAL	48,159,232	3,366,744	3,634,934	2,835,306	3,088,196	2,145,711	3,379,981	5,761,086	4,827,994	6,989,915	6,898,681	3,395,959	1,834,725	-	-

Note that there is a slight difference between the dump volume and the actual volume
This was only due to the detailed design and sufficient space exists to accommodate the material
In fact, there is a shortage of material to be placed in the pit.


Overburden
Category 1 & 2
Category 1&2
Backfill
Category 3
Low Grade
Stockpile
Category 4
Category 3

Appendix G

iii) Drill Bit Size Determination

PolyMet

NorthMet Mine

Blasthole Size Tradeoff

Assumptions:

Drill		Pit Viper 351		Pit Viper 271	
		Electric	Diesel	Electric	Diesel
Base Cost (less drill consumables)	$/hr	$ 152.08	$ 237.80	$ 92.35	$ 129.50
Maximum Single Pass Depth	feet	65	65	55	55
Material		Waste	Waste	Waste	Waste
Explosive Cost	$/lb	$ 0.205	$ 0.205	$ 0.205	$ 0.205
Tonnage Blasted	tons	25,000,000	25,000,000	25,000,000	25,000,000

Cost Per Ton

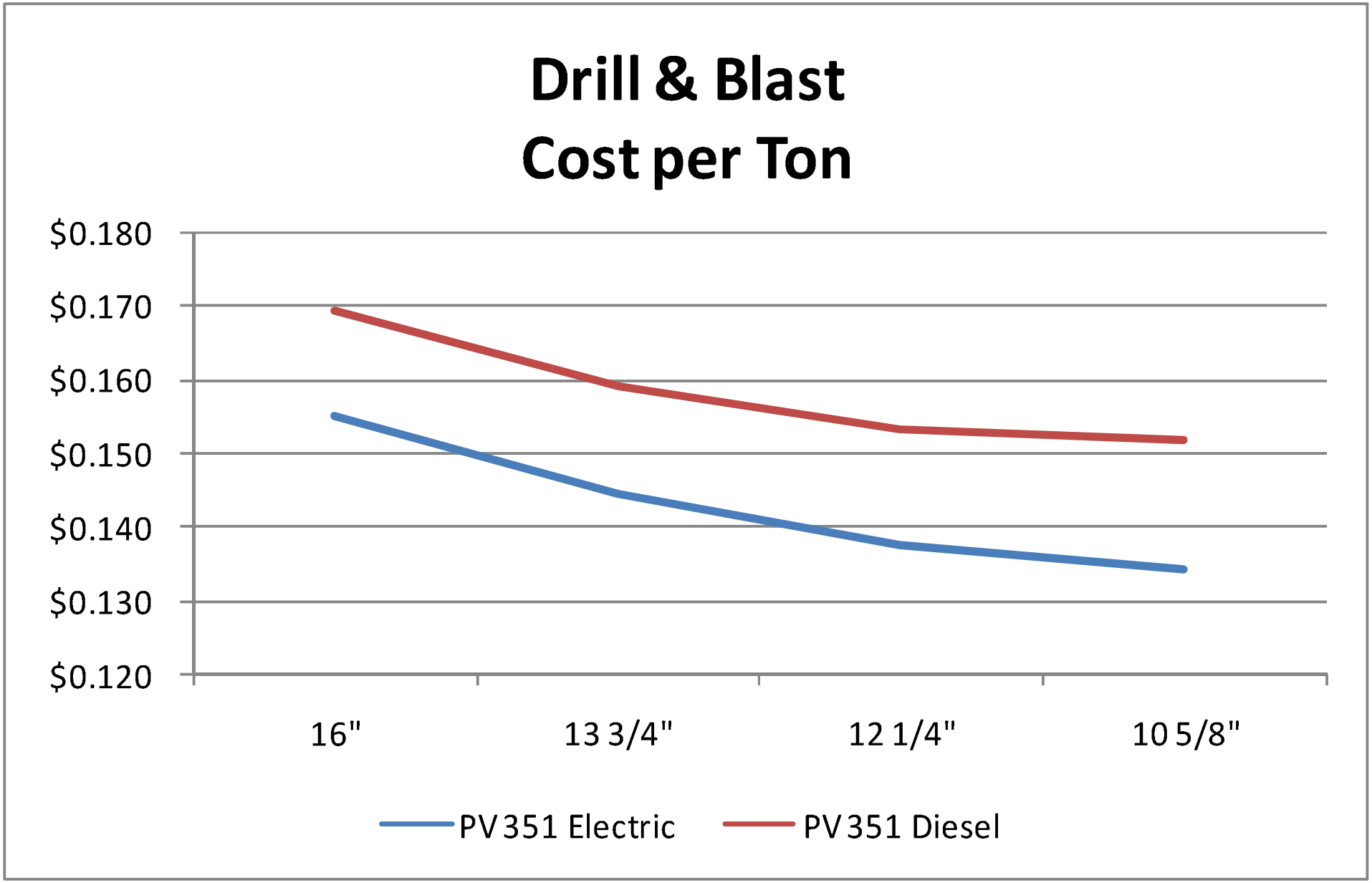
Pit Viper - 351 (Lower Bit Size)

	inches	16"	13 3/4"	12 1/4"	10 5/8"
Electric	$/ton	$ 0.155	$ 0.144	$ 0.138	$ 0.134
Diesel	$/ton	$ 0.169	$ 0.159	$ 0.153	$ 0.152

Pit Viper - 371 (Upper Bit Size)

inches	16"	13 3/4"	12 1/4"	10 5/8"
$/ton	$ -	$ -	$ -	$ 0.122
$/ton	$ -	$ -	$ -	$ 0.129

The Pit Viper 351 is capable of drilling a 16” diameter hole if conditions require this. The Pit Viper 271 is not able to drill that size of hole. Phelps Dodge Morenci indicated that anything smaller than the 12 ¼” hole for the PV 351 is too small. So while a cost was developed, practically it is not the correct size.


Drill & Blast
Cost per Ton
$0.180
$0.170
$0.160
$0.150
$0.140
$0.130
$0.120
16"
13 3/4"
12 1/4"
10 5/8"
PV 351 Electric
PV 351 Diesel

PolyMet
NorthMet Mine

Blasthole Size Tradeoff

Assumptions:

Drill		Pit Viper 351 - electric		Pit Viper 271 - electric
Base Cost (less drill consumables)	$/hr	$ 152.08	$/hr	$ 92.35
Maximum Single Pass Depth	feet	65	feet	55
Material		Waste		Waste
Explosive Cost	$/lb	$ 0.205		$ 0.205
Tonnage Blasted	tons	25,000,000		25,000,000

Drilling					Lower Bit Size					Upper Bit Size
Bit Size	inches	**16"**	**13 3/4"**	**12 1/4"**	**10 5/8"**	inches	**16"**	**13 3/4"**	**12 1/4"**	**10 5/8"**
Drill Production Rate	feet/hr	60.6	66.6	69.5	72.5	feet/hr	n/a	n/a	n/a	72.5
Drill Base Cost (less consumables)	$/foot	$ 2.51	$ 2.28	$ 2.19	$ 2.10	$/foot				$ 1.27
	$/hr	$ 152.08	$ 152.08	$ 152.08	$ 152.08	$/hr				$ 92.35
Drill Consumable Cost	$/foot	$ 1.71	$ 1.44	$ 1.24	$ 1.12	$/foot				$ 1.12
	$/hr	$ 103.41	$ 95.66	$ 86.29	$ 81.41	$/hr				$ 81.41
Total Drill Cost	$/foot	$ 4.22	$ 3.72	$ 3.43	$ 3.22	$/foot				$ 2.40
	$/hr	$ 255.49	$ 247.74	$ 238.37	$ 233.49	$/hr				$ 173.76
Blasting										
Bench Height	feet	40	40	40	40	feet	40	40	40	40
Burden	feet	33.1	30.8	29.2	26.9	feet	33.1	30.8	29.2	26.9
Spacing	feet	38.1	35.4	33.5	30.8	feet	38.1	35.4	33.5	30.8
Sub-drill	feet	6.6	6.2	5.9	5.2	feet	6.6	6.2	5.9	5.2
Total Blasthole Length	feet	46.6	46.2	45.9	45.2	feet	46.6	46.2	45.9	45.2
Tons Rock per Hole	tons/hole	4,617	4,000	3,577	3,037	tons/hole	4,617	4,000	3,577	3,037
Explosive Weight	lbs/hole	2,532	1,976	1,632	1,277	lbs/hole	2,532	1,976	1,632	1,277
Powder Factor	lbs/ton	0.55	0.49	0.46	0.42	lbs/ton	0.55	0.49	0.46	0.42
Rock Size at 95% Passing	feet	3.61	3.61	3.61	3.61	feet	3.61	3.61	3.61	3.61
Blastholes Required	holes	5,415	6,250	6,989	8,232	holes	-	-	-	8,232
Drilling Required	feet	252,328	288,750	320,800	372,078	feet	-	-	-	372,078
Drilling Hours Required	hours	4,164	4,336	4,616	5,132	hours	-	-	-	5,132
Explosives Required	lbs	13,710,201	12,350,000	11,406,206	10,512,018	lbs	-	-	-	10,512,018
Drilling Cost	$	$ 1,063,804	$ 1,074,096	$ 1,100,269	$ 1,198,275	$	$ -	$ -	$ -	$ 891,734
Explosive Cost	$	$ 2,810,591	$ 2,531,750	$ 2,338,272	$ 2,154,964	$	$ -	$ -	$ -	$ 2,154,964
Total Cost	$	$ 3,874,395	$ 3,605,846	$ 3,438,541	$ 3,353,238	$	$ -	$ -	$ -	$ 3,046,698
Cost per Ton	$/ton	$ 0.155	$ 0.144	$ 0.138	$ 0.134	$/ton	$ -	$ -	$ -	$ 0.122

PolyMet
NorthMet Mine

Blasthole Size Tradeoff

Assumptions:

Drill		Pit Viper 351 - diesel		Pit Viper 271 - diesel
Base Cost (less drill consumables)	$/hr	$ 237.80	$/hr	$ 129.50
Maximum Single Pass Depth	feet	65	feet	55
Material		Waste		Waste
Explosive Cost	$/lb	$ 0.205	$/lb	$ 0.205
Tonnage Blasted	tons	25,000,000	tons	25,000,000

Drilling					Lower Bit Size							Upper Bit Size
Bit Size	inches	**16"**	**13 3/4"**	**12 1/4"**	**10 5/8"**	inches	**16"**	**13 3/4"**	**12 1/4"**	**10 5/8"**
Drill Production Rate	feet/hr	60.6	66.6	69.5	72.5	feet/hr	n/a	n/a	n/a	72.5
Drill Base Cost (less consumables)	$/foot	$ 3.92	$ 3.57	$ 3.42	$ 3.28	$/foot				$ 1.79
	$/hr	$ 237.80	$ 237.80	$ 237.80	$ 237.80	$/hr				$ 129.50
Drill Consumable Cost	$/foot	$ 1.71	$ 1.44	$ 1.24	$ 1.12	$/foot				$ 1.12
	$/hr	$ 103.41	$ 95.66	$ 86.29	$ 81.41	$/hr				$ 81.41
Total Drill Cost	$/foot	$ 5.63	$ 5.01	$ 4.66	$ 4.40	$/foot				$ 2.91
	$/hr	$ 341.21	$ 333.46	$ 324.09	$ 319.21	$/hr				$ 210.91
Blasting										
Bench Height	feet	40	40	40	40	feet	40	40	40	40
Burden	feet	33.1	30.8	29.2	26.9	feet	33.1	30.8	29.2	26.9
Spacing	feet	38.1	35.4	33.5	30.8	feet	38.1	35.4	33.5	30.8
Sub-drill	feet	6.6	6.2	5.9	5.2	feet	6.6	6.2	5.9	5.2
Total Blasthole Length	feet	46.6	46.2	45.9	45.2	feet	46.6	46.2	45.9	45.2
Tons Rock per Hole	tons/hole	4,617	4,000	3,577	3,037	tons/hole	4,617	4,000	3,577	3,037
Explosive Weight	lbs/hole	2,532	1,976	1,632	1,277	lbs/hole	2,532	1,976	1,632	1,277
Powder Factor	lbs/ton	0.55	0.49	0.46	0.42	lbs/ton	0.55	0.49	0.46	0.42
Rock Size at 95% Passing	feet	3.61	3.61	3.61	3.61	feet	3.61	3.61	3.61	3.61
Blastholes Required	holes	5,415	6,250	6,989	8,232	holes	-	-	-	8,232
Drilling Required	feet	252,328	288,750	320,800	372,078	feet	-	-	-	372,078
Drilling Hours Required	hours	4,164	4,336	4,616	5,132	hours	-	-	-	5,132
Explosives Required	lbs	13,710,201	12,350,000	11,406,206	10,512,018	lbs	-	-	-	10,512,018
Drilling Cost	$	$ 1,420,728	$ 1,445,743	$ 1,495,937	$ 1,638,199	$	$ -	$ -	$ -	$ 1,082,392
Explosive Cost	$	$ 2,810,591	$ 2,531,750	$ 2,338,272	$ 2,154,964	$	$ -	$ -	$ -	$ 2,154,964
Total Cost	$	$ 4,231,319	$ 3,977,493	$ 3,834,210	$ 3,793,163	$	$ -	$ -	$ -	$ 3,237,355
Cost per Ton	$/ton	$ 0.169	$ 0.159	$ 0.153	$ 0.152	$/ton	$ -	$ -	$ -	$ 0.129

Appendix G

iv) Fragmentation Study

Polymet Mining Corporation
NorthMet Project

Project Title	PolyMet Mining Corporation NorthMet Project
Rock Type 1	Ore
Rock Type 2	Waste

		Geomechanical Properties							
Geological Unit	**Mineralization Unit**	**UCS (MPA)**	**Young's Modulus (GPA)**	**RQD**	**FF (fractures/m)**	**FF (fractures/ft)**	**Fracture Spacing (m)**	**Fracture Spacing (ft)**	**SG**
Unit 7	Hanging Wall	90	55	95	0.18	0.6	0.5	1.7	2.95
Unit 6	Hanging Wall	107	80	97	0.18	0.6	0.5	1.7	2.90
Unit 5	Hanging Wall	101	80	95	0.21	0.7	0.4	1.4	2.90
Unit 4	Hanging Wall	120	67	89	0.64	2.1	0.2	0.5	2.91
Unit 3	Hanging Wall	119	87	97	0.24	0.8	0.4	1.2	2.93
Unit 2	Ore	102	88	91	0.27	0.9	0.3	1.1	2.99
Unit 1	FW and Ore	120	84	96	0.18	0.6	0.5	1.7	2.98
VF	Footwall	109	57	79	0.58	1.9	0.2	0.5	2.79
Average Parameters for Waste Units 3-7	Hanging Wall	106	77	95	0.30	1.0	0.3	1.0	2.93
Average Parameters for Ore Unit 1-2	FW and Ore	118	84	92	0.23	0.75	0.4	1.3	2.93

Design Parameters		**Meters**	**Feet**
Bench Height	Ore	12.2	40
Bench Height	Waste	12.2	40
Block Size	50x50x20 (x,y,z)		
Required Fragmentation	95% passing at 3.5 ft (1.1 m)		
Annual Production Rate	32,000 ton ore		

Explosive Parameters		
Explosive Type	70/30	
Explosive Density (g/cc)	1.25	
Target Powder Factor (kg/tonne)		
Velocity of Discharge (m/s)	4,100	
Velocity of Discharge (ft/s)	13,451	
RWS (%ANFO)	91%	RWS (AWS of Explosive / AWS ANFO)
Explosive Energy (AWS) (j/g)	3,200	
Explosive Energy (AWS) (j/g) ANFO	3,500	

Hole Diameters Anticipated	**(mm)**	**(Inches)**
Option 1	270	10 5/8
Option 2	311	12 1/4
Option 3	349	13 3/4
Option 4	406	16

	Fragmentation Target Parameters	**(Meters)**	**(Feet)**
	Oversize	1.07	3.51
	Target	0.30	1.00
ORE	Undersize	0.20	0.66
	Oversize	1.07	3.51
	Target	0.30	1.00
WASTE	Undersize	0.20	0.66

Pattern Design	
Staggered or Squared	1.1

Enter (1.1 for a Staggered Pattern or 1.0 for a Square Pattern)

PolyMet Mining Corporation NorthMet Project

			Option 1		Option 2		Option 3		Option 4	
			Waste / Ore		Waste / Ore		Waste / Ore		Waste / Ore	
Explosive Type			70/30	70/30	70/30	70/30	70/30	70/30	70/30	70/30
			Ore	Waste	Ore	Waste	Ore	Waste	Ore	Waste
Rock Density	g/cc		2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93
Bench Height	m		12	12	12	12	12	12	12	12
Explosive Diameter	mm		270	270	311	311	349	349	406	406
	inches		10 5/8	10 5/8	12 1/4	12 1/4	13 3/4	13 3/4	16	16
Explosive Density	g/cc		1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Explosive Energy AWS	j/g		3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200
Burden	m	B	6.8	8.2	7.5	8.9	8.0	9.4	8.5	10.1
Burden Stiffness (2.0<BS<3.5)			1.8	1.5	1.6	1.4	1.5	1.3	1.4	1.2
Spacing (=1.15*B)	m	S	7.8	9.4	8.6	10.2	9.2	10.8	9.8	11.6
Stemming Length (=0.7B)	m		4.8	5.7	5.3	6.2	5.6	6.6	6.0	7.1
Energy Distribution	%		61%	53%	57%	49%	54%	46%	51%	42%
Sub-Drill (Burden * 0.2)	m		1.4	1.6	1.5	1.8	1.6	1.9	1.7	2.0
Blasthole Length	m		13.6	13.8	13.7	14.0	13.8	14.1	13.9	14.2
Explosive Length	m		8.8	8.1	8.4	7.8	8.2	7.5	7.9	7.1
Explosive Loading Density	kg/m		71.53	71.53	94.91	94.91	119.52	119.52	161.75	161.75
Explosive Weight	kg/hole		629.5	579.4	797.2	740.3	980.1	896.4	1,277.8	1,148.4
Explosive Energy	kJ/hole		2,014,400	1,854,080	2,551,040	2,368,960	3,136,320	2,868,480	4,088,960	3,674,880
Volume Shot	bcm/hole		647	940	787	1,108	898	1,239	1,016	1,429
Mass Shot	t/hole		1,896	2,754	2,306	3,246	2,631	3,630	2,977	4,187
Powder Factor	kg/bcm		0.97	0.62	1.01	0.67	1.09	0.72	1.26	0.80
Powder Factor	kg/t		0.33	0.21	0.35	0.23	0.37	0.25	0.43	0.27
Energy Factor	kJ/t		1,062	673	1,106	730	1,192	790	1,374	878

Comments

Kuz Ram Model #	1	2	5	6	9	10	13	14

			Option 1		Option 2		Option 3		Option 4	
			Waste / Ore		Waste / Ore		Waste / Ore		Waste / Ore	
Explosive Type			70/30	70/30	70/30	70/30	70/30	70/30	70/30	70/30
			Ore	Waste	Ore	Waste	Ore	Waste	Ore	Waste
Rock Density	lb/ft^3		183	183	183	183	183	183	183	183
Bench Height	ft		40	40	40	40	40	40	40	40
Explosive Diameter	inches		10 5/8	10 5/8	12 1/4	12 1/4	13 3/4	13 3/4	16	16
Explosive Density	lb/ft^3		78	78	78	78	78	78	78	78
Explosive Energy AWS	BTU/lb		1,377	1,377	1,377	1,377	1,377	1,377	1,377	1,377
Burden	ft	B	22.3	26.9	24.6	29.2	26.2	30.8	27.9	33.1
Burden Stiffness (2.0<BS<3.5)			5.9	4.9	5.2	4.6	4.9	4.3	4.6	3.9
Spacing (=1.15*B)	ft	S	25.6	30.8	28.2	33.5	30.2	35.4	32.2	38.1
Stemming Length (=0.7B)	ft		15.7	18.7	17.4	20.3	18.4	21.7	19.7	23.3
Energy Distribution	%		61%	53%	57%	49%	54%	46%	51%	42%
Sub-Drill (Burden * 0.25)	ft		4.6	5.2	4.9	5.9	5.2	6.2	5.6	6.6
Blasthole Length	ft		44.6	45.3	44.9	45.9	45.3	46.3	45.6	46.6
Explosive Length	ft		28.9	26.6	27.6	25.6	26.9	24.6	25.9	23.3
Explosive Loading Density	lb/ft		48	48	64	64	80	80	109	109
Explosive Weight	lb/hole		1,388	1,277	1,758	1,632	2,161	1,976	2,817	2,532
Explosive Energy	BTU/hole		1,910,501	1,758,520	2,419,720	2,246,952	2,974,644	2,720,654	3,878,408	3,485,652
Volume Shot	bcf/hole		22,852	33,209	27,789	39,112	31,710	43,739	35,889	50,477
Mass Shot	t/hole		2,090	3,037	2,542	3,577	2,900	4,000	3,282	4,617
Powder Factor	lb/bcf		0.06	0.04	0.06	0.04	0.07	0.05	0.08	0.05
Powder Factor	lb/t		0.66	0.42	0.69	0.46	0.75	0.49	0.86	0.55
Energy Factor	BTU/ton		914	579	952	628	1,026	680	1,182	755

Comments

Kuz Ram Model #	1	2	5	6	9	10	13	14

PolyMet Mining Corporation NorthMet Project

Golder Blast Design										
Design	Type	Bench (ft)	Hole (inches)	Explosive (ANFO/Emul)	Burden (ft)	Spacing (ft)	Sub-drill (ft)	Collar (ft)	Charge Length (ft)	PF (lb/ton)
1	Ore	25	9 7/8	70/30	23	26	5	17	13	0.40
2	Ore	25	9 7/8	70/30	21	24	5	17	13	0.47
3	Ore	25	9 7/8	ANFO	19	21.4	5	17	13	0.40
4	Waste	50	9 7/8	70/30	32	34	6	19	37	0.31
5	Waste	50	10 5/8	70/30	32	36	6	20	36	0.33
6	Waste	50	12 1/4	70/30	34	38	6	23	33	0.36

Wardrop Updated											
Design	Type	Bench (m)	Hole (mm)	Explosive (ANFO/Emul)	Burden (m)	Spacing (m)	Sub-drill (m)	Collar (m)	Charge Length (m)	PF (kg/ton)	Kuz Ram #
1	Ore	12	270	70/30	6.8	7.8	1.4	4.8	8.8	0.33	1
	Waste	12	270	70/30	8.2	9.4	1.6	5.7	8.1	0.21	2
Not used	Ore	12	270	70/30	8.0	9.2	1.6	5.6	8.2	0.22	3
Not used	Waste	12	270	70/30	8.0	9.2	1.6	5.6	8.2	0.22	4
2	Ore	12	311	70/30	7.5	8.6	1.5	5.3	8.4	0.35	5
	Waste	12	311	70/30	8.9	10.2	1.8	6.2	7.8	0.23	6
Not used	Ore	12	311	70/30	9.0	10.4	1.8	6.3	7.7	0.22	7
Not used	Waste	12	311	70/30	9.0	10.4	1.8	6.3	7.7	0.22	8
3	Ore	12	349	70/30	8	9.2	1.6	5.6	8.2	0.37	9
	Waste	12	349	70/30	9.4	10.8	1.9	6.6	7.5	0.25	10
Not used	Ore	12	349	70/30	10.0	11.5	2.0	7.0	7.2	0.21	11
Not used	Waste	12	349	70/30	10.0	11.5	2.0	7.0	7.2	0.21	12
4	Ore	12	406	70/30	8.5	9.8	1.7	6.0	7.9	0.43	13
	Waste	12	406	70/30	10.1	11.6	2	7.1	7.1	0.27	14
Not used	Ore	12	406	70/30	11	12.7	2.2	7.7	6.7	0.22	15
Not used	Waste	12	406	70/30	11	12.7	2.2	7.7	6.7	0.22	16

Wardrop Updated (No Timing) Imperial										
Design	Type	Bench (ft)	Hole (inches)	Explosive (ANFO/Emul)	Burden (ft)	Spacing (ft)	Sub-drill (ft)	Collar (ft)	Charge Length (ft)	PF (lb/ton)
1	Ore	40	10 5/8	70/30	22	26	5	16	29	0.66
	Waste	40	10 5/8	70/30	27	31	5	19	27	0.42
	Ore	40	10 5/8	70/30	26	30	5	18	27	0.44
	Waste	40	10 5/8	70/30	26	30	5	18	27	0.44
2	Ore	40	12 1/4	70/30	25	28	5	17	28	0.69
	Waste	40	12 1/4	70/30	29	33	6	20	26	0.45
	Ore	40	12 1/4	70/30	30	34	6	21	25	0.43
	Waste	40	12 1/4	70/30	30	34	6	21	25	0.43
3	Ore	40	13 3/4	70/30	26	30	5	18	27	0.74
	Waste	40	13 3/4	70/30	31	35	6	22	25	0.49
	Ore	40	13 3/4	70/30	33	38	7	23	24	0.42
	Waste	40	13 3/4	70/30	33	38	7	23	24	0.42
4	Ore	40	16	70/30	28	32	6	20	26	0.86
	Waste	40	16	70/30	33	38	7	23	23	0.55
	Ore	40	16	70/30	36	42	7	25	22	0.43
	Waste	40	16	70/30	36	42	7	25	22	0.43

KUZ-RAM FRAGMENTATION ANALYSIS

Project: PolyMet Mining Corporation NorthMet Project
Rock Type Ore

Intact Rock Properties	
Rock Factor	
Rock Type	Ore
Rock Specific Gravity	2.93 SG
Elastic Modulus	84 GPa
UCS	118 MPa

Jointing	
Spacing	0.40 m
Dip	0 deg
Dip Direction	0 deg
In-situ block	0.40 m

Explosives	
Density	1.25 SG
RWS	91% (% ANFO)
Nominal VOD	4,100 m/s
Effective VOD	4,100 m/s
Explosive Strength	0.91428571

Pattern Design	
Staggered or square	1.1
Hole Diameter	311 mm
Charge Length	8.4 m
Burden	7.5 m
Spacing	9 m
Drill Accuracy SD	0.1 m
Bench Height	12.2 m
Face Dip Direction	0 deg
Powder Factor	0.35 kg/tonne
Charge Density	1.01 kg/m^3
Charge Weight per hole	797.63 kg/hole

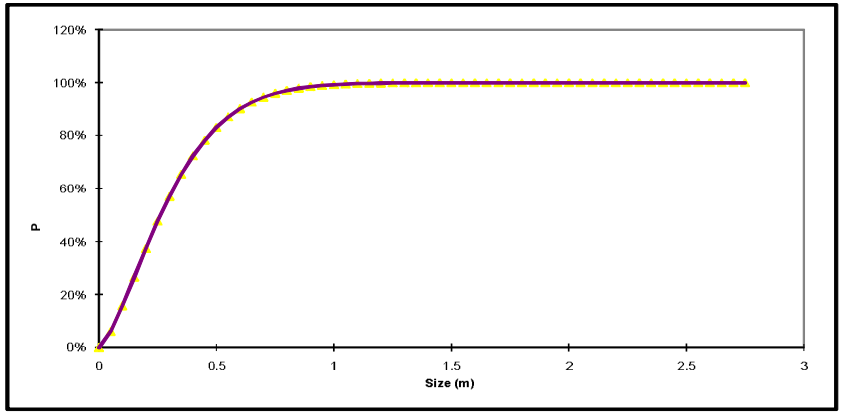
Fragmentation Target Parameters	
Oversize	1.07 m
Optimum	0.30 m
Undersize	0.20 m

Blastability Index	7.51
Average Size of Material	26 cm
Uniformity Exponent	1.46
Characteristic Size	0.34 m

Notes

Square pattern = 1, staggered pattern = 1.1

Predicted Fragmentation	
Percent Oversize	0.5% m
Percent In Range	62.1% m
Percent Undersize	37.4% m



Percent Passing	Size (m)	Size (feet)
0.0%	0	0.00
6.0%	0.05	0.16
15.7%	0.10	0.33
26.5%	0.15	0.49
37.4%	0.20	0.66
47.7%	0.25	0.82
57.1%	0.30	0.98
65.3%	0.35	1.15
72.3%	0.40	1.31
78.2%	0.45	1.48
83.1%	0.50	1.64
87.0%	0.55	1.80
90.2%	0.60	1.97
92.6%	0.65	2.13
94.5%	0.70	2.30
96.0%	0.75	2.46
97.1%	0.80	2.62
97.9%	0.85	2.79
98.5%	0.90	2.95
98.9%	0.95	3.12
99.2%	1.00	3.28
99.5%	1.05	3.44
99.6%	1.10	3.61
99.7%	1.15	3.77
99.8%	1.20	3.94
99.9%	1.25	4.10
99.9%	1.30	4.27
99.9%	1.35	4.43
100.0%	1.40	4.59
100.0%	1.45	4.76
100.0%	1.50	4.92
100.0%	1.55	5.09
100.0%	1.60	5.25
100.0%	1.65	5.41
100.0%	1.70	5.58
100.0%	1.75	5.74
100.0%	1.80	5.91
100.0%	1.85	6.07
100.0%	1.90	6.23
100.0%	1.95	6.40
100.0%	2.00	6.56
100.0%	2.05	6.73
100.0%	2.10	6.89
100.0%	2.15	7.05
100.0%	2.20	7.22
100.0%	2.25	7.38
100.0%	2.30	7.55
100.0%	2.35	7.71
100.0%	2.40	7.87
100.0%	2.45	8.04
100.0%	2.50	8.20
100.0%	2.55	8.37
100.0%	2.60	8.53
100.0%	2.65	8.69
100.0%	2.70	8.86
100.0%	2.75	9.02

KUZ-RAM FRAGMENTATION ANALYSIS

Project: PolyMet Mining Corporation NorthMet Project
Rock Type Waste

Intact Rock Properties	
Rock Factor	
Rock Type	Waste
Rock Specific Gravity	2.93 SG
Elastic Modulus	77 GPa
UCS	106 MPa

Jointing	
Spacing	0.30 m
Dip	0 deg
Dip Direction	0 deg
In-situ block	0.30 m

Explosives	
Density	1.25 SG
RWS	91% (% ANFO)
Nominal VOD	4,100 m/s
Effective VOD	4,100 m/s
Explosive Strength	0.91428571

Pattern Design	
Staggered or square	1.1
Hole Diameter	311 mm
Charge Length	7.8 m
Burden	8.9 m
Spacing	10 m
Drill Accuracy SD	0.1 m
Bench Height	12 m
Face Dip Direction	0 deg
Powder Factor	0.23 kg/tonne
Charge Density	0.67 kg/m^3
Charge Weight per hole	740.65 kg/hole

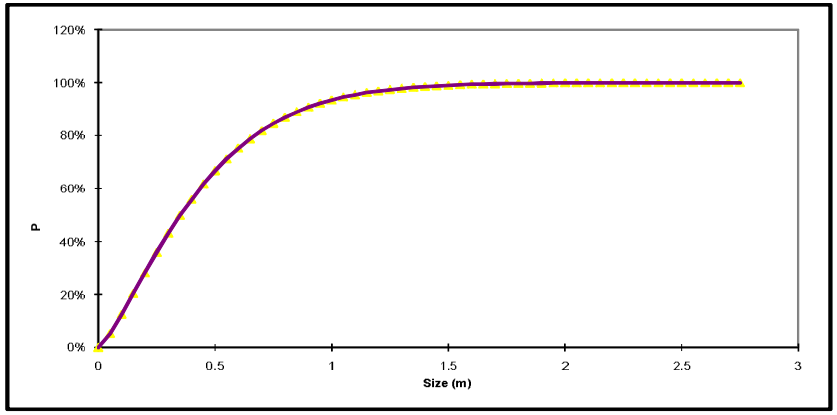
Fragmentation Target Parameters	
Oversize	1.07 m
Optimum	0.30 m
Undersize	0.20 m

Blastability Index	7.32
Average Size of Material	35 cm
Uniformity Exponent	1.31
Characteristic Size	0.46 m

Notes

Square pattern = 1, staggered pattern = 1.1

Predicted Fragmentation	
Percent Oversize	5.1% m
Percent In Range	66.7% m
Percent Undersize	28.2% m



Percent Passing	Size (m)	Size (feet)
0.0%	0	0.00
5.3%	0.05	0.16
12.5%	0.10	0.33
20.4%	0.15	0.49
28.2%	0.20	0.66
35.9%	0.25	0.82
43.1%	0.30	0.98
49.8%	0.35	1.15
56.0%	0.40	1.31
61.7%	0.45	1.48
66.7%	0.50	1.64
71.2%	0.55	1.80
75.3%	0.60	1.97
78.8%	0.65	2.13
81.9%	0.70	2.30
84.6%	0.75	2.46
86.9%	0.80	2.62
89.0%	0.85	2.79
90.7%	0.90	2.95
92.2%	0.95	3.12
93.4%	1.00	3.28
94.5%	1.05	3.44
95.4%	1.10	3.61
96.2%	1.15	3.77
96.9%	1.20	3.94
97.4%	1.25	4.10
97.9%	1.30	4.27
98.2%	1.35	4.43
98.5%	1.40	4.59
98.8%	1.45	4.76
99.0%	1.50	4.92
99.2%	1.55	5.09
99.4%	1.60	5.25
99.5%	1.65	5.41
99.6%	1.70	5.58
99.7%	1.75	5.74
99.7%	1.80	5.91
99.8%	1.85	6.07
99.8%	1.90	6.23
99.9%	1.95	6.40
99.9%	2.00	6.56
99.9%	2.05	6.73
99.9%	2.10	6.89
99.9%	2.15	7.05
100.0%	2.20	7.22
100.0%	2.25	7.38
100.0%	2.30	7.55
100.0%	2.35	7.71
100.0%	2.40	7.87
100.0%	2.45	8.04
100.0%	2.50	8.20
100.0%	2.55	8.37
100.0%	2.60	8.53
100.0%	2.65	8.69
100.0%	2.70	8.86
100.0%	2.75	9.02

Appendix G

v) Loading Production Estimate

Loading Parameters & Truck Match Calculation			PC 4000	PC 4000	PC 5500	PC 5500
			3	4	3	4
NorthMet		Bucket Size - m³ >	21.0m³	21.0m³	24.0m³	24.0m³
			Cat 789	Cat 793	Cat 789	Cat 793
		Truck Capacity - m³ >	105.0	129.0	105.0	129.0
		Truck Capacity - wmt >	185.0	218.0	185.0	218.0
Schedule Data						
	Calendar Days	days/yr	365	365	365	365
	Scheduled Shutdown	days/yr				
	Unscheduled Days Down - weather	days/yr				
	Mine Work Days	days/yr	365	365	365	365
	Work Days / Week	days/yr	7	7	7	7
	Shifts / Day	shifts/day	2	2	2	2
	Shifts / Week	shifts/week	14	14	14	14
	Scheduled Weeks / Year	weeks/yr	52	52	52	52
	Shifts / Year	shifts/yr	730	730	730	730
	Scheduled Hours / Shift	hrs/shift	12	12	12	12
	Scheduled Hours / Year	hrs/year	8,760	8,760	8,760	8,760
(T)	**Total Theoretical**	hrs/year	8,760	8,760	8,760	8,760
(SU)	Mine Scheduled & Unscheduled Shutdown	hrs/year				
Standby	Lunch Break	hrs/shift	0.75	0.75	0.75	0.75
	Shift Start / Shutdown	hrs/shift	0.50	0.50	0.50	0.50
	Miscellaneous Breaks	hrs/shift	0.50	0.50	0.50	0.50
	Misc - Clean-up	hrs/shift				
	Miscellaneous - Blasting & Moves	hrs/shift	0.10	0.10	0.10	0.10
	Total Standby	hrs/shift	1.9	1.9	1.9	1.9
(S)	**Total Standby**	hrs/year	1,351	1,351	1,351	1,351
	Available Working Hours	hrs/day	20.3	20.3	20.3	20.3
	Available Working Hours	hrs/year	7,410	7,410	7,410	7,410
Annual Hours						
(T)	Total Theoretical	hrs/year	8,760	8,760	8,760	8,760
(SU)	Mine Scheduled & Unscheduled Shutdown	hrs/year				
(S)	Total Standby	hrs/year	1,351	1,351	1,351	1,351
(W)+(R)	Work + Repair = (T-S-SU)	hrs/year	7,410	7,410	7,410	7,410
(W)	Work = MA x (T-S-SU)	hrs/year	6,289	6,289	6,289	6,289
Mechanical Availability						
	Scheduled Downtime	shifts/yr	52	52	52	52
	Scheduled Downtime	hrs/year	624	624	624	624
	Scheduled Downtime		7.1%	7.1%	7.1%	7.1%
	Unscheduled Downtime		8.0%	8.0%	8.0%	8.0%
	Total Downtime		15.1%	15.1%	15.1%	15.1%
	Shifts Available for Scheduling	shifts	678	678	678	678
(MA)	Mechanical Availability		**84.9%**	**84.9%**	**84.9%**	**84.9%**
(PA)	Physical Availability = (W+S)/T		87.2%	87.2%	87.2%	87.2%
(UA)	Use of Availability = W/(W+S)		82.3%	82.3%	82.3%	82.3%
(EU)	Effective Utilization = PA x UA		71.8%	71.8%	71.8%	71.8%
Annual Production						
(WH)	Work Hours / Year	hrs/year	6,289	6,289	6,289	6,289
	Operating Efficiency - operation based		83.3%	83.3%	83.3%	83.3%
(PH)	Production Hours / Year	hrs/year	5,239	5,239	5,239	5,239
(BC)	Bucket Capacity (heaped)	m^3	21.00	21.00	24.00	24.00
(MW)	Material Weight	kg/bcm dry	2,940	2,940	2,940	2,940
(BF)	Bulk Factor		1.50	1.50	1.50	1.50
(MW1)	Material Weight = MW / BF	kg/lcm dry	1,960.0	1,960.0	1,960.0	1,960.0
(M)	Moisture		3.00%	3.00%	3.00%	3.00%
(FF)	Fill Factor	%	95%	95%	90%	90%
(EBC)	Effective Bucket Capacity = FF x BC	m^3	19.95	19.95	21.60	21.60
(MW2)	Material Weight = MW / (1-M)	wmt/lcm	2.02	2.02	2.02	2.02
	Material Weight = MW2 x (1-M)	dmt/lcm	1.96	1.96	1.96	1.96
(TP)	Tonnes/Pass	wmt	40.31	40.31	43.65	43.65
(TC1)	Truck Size Capacity	m³ heaped	105.0	129.0	105.0	129.0
(TC2)	Truck Size Capacity	wmt	185.0	218.0	185.0	218.0
(TPV)	Theoretical Passes = TC1/ EBC by Vol	passes	5.26	6.47	4.86	5.97
(TPT)	Theoretical Passes = TC2 / TP by Wght	passes	4.59	5.41	4.24	4.99
(AP)	Actual Passes = ROUND TPT	passes	5.0	6.0	5.0	5.0
(TL)	Truck Load - Volume = AP x EBC	m^3	99.8	119.7	108.0	108.0
(TLS)	Truck Load for Simulation = AP x TP	wmt	185.0	218.0	185.0	218.0
(TLP)	Truck Load for Productivity	dmt	179.5	211.5	179.5	211.5
(TCU)	**Truck Capacity Utilized = TLS / TC2**	**by wt**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
	Truck Capacity Utilized = TL / TC1	**by vol**	**95.0%**	**92.8%**	**102.9%**	**83.7%**
	First Bucket Cycle Time	sec	30	30	33	33
(AC)	Subsequent Bucket Cycle Time	sec	30	30	33	33
(ST)	Truck Spot Time	sec	42	42	42	42
(LT)	Load Time per Truck = AP x AC + ST	sec	192.0	222.0	207.0	207.0
	ALTITUDE ADJUSTMENT		100.0%	100.0%	100.0%	100.0%
(LT)	Load Time per Truck = AP x AC + ST	min	3.20	3.70	3.45	3.45
(MP)	Maximum Productivity = 60 / LT	trks/hr	18.8	16.2	17.4	17.4
	Conversion = MP x TLP/ MW	bcm/hr	1,144.5	1,166.4	1,061.5	1,250.9
		lcm/hr	1,716.7	1,749.5	1,592.3	1,876.3
(TPHM)	Maximum Theoretical Production	dry t/hr	3,364.7	3,429.1	3,120.9	3,677.6
(SS)	Scheduled Shifts / Year (from above)	shifts/yr	678	678	678	678
(PH)	Production Hours / Year (from above)	hrs	5,239	5,239	5,239	5,239
(TA)	Truck Availability to Shovel	%	80.0%	80.0%	80.0%	80.0%
	ALTITUDE ADJUSTMENT FOR OPERATOR		100.0%	100.0%	100.0%	100.0%
(TPHA)	Production Adjusted = TPHM x TA	t/hr	2,692	2,743	2,497	2,942
(RP)	Real Production = TPHA x PH	dry t/year	14,102,078	14,371,965	13,080,189	15,413,411
	Production / Scheduled Shift = RP / SS	dry t/shift	20,800	21,198	19,292	22,734
	Production / Scheduled Work Hours = RP / WH	dry t/hr	2,242	2,285	2,080	2,451
	Production / Scheduled Production Hrs = RP / PH	dry t/hr	**2,692**	**2,743**	**2,497**	**2,942**
	Annual Wet Tonnes	wet t/year	14,525,141	14,803,124	13,472,594	15,875,814
		wet t/hour	2,773	2,826	2,572	3,030

Loading Parameters & Truck Match Calculation			Cat 994	Cat 994
			3	4
NorthMet		Bucket Size - m³ >	16.4m³	16.4m³
			Cat 793	Cat 789
		Truck Capacity - m³ >	129.0	105.0
		Truck Capacity - wmt >	218.0	185.0
Schedule Data				
	Calendar Days	days/yr	365	365
	Scheduled Shutdown	days/yr		3
	Unscheduled Days Down - weather	days/yr		
	Mine Work Days	days/yr	365	362
	Work Days / Week	days/yr	7	7
	Shifts / Day	shifts/day	2	2
	Shifts / Week	shifts/week	14	14
	Scheduled Weeks / Year	weeks/yr	52	52
	Shifts / Year	shifts/yr	730	724
	Scheduled Hours / Shift	hrs/shift	12	12
	Scheduled Hours / Year	hrs/year	8,760	8,688
(T)	**Total Theoretical**	hrs/year	8,760	8,760
(SU)	Mine Scheduled & Unscheduled Shutdown	hrs/year	0	72
Standby	Lunch Break	hrs/shift	0.75	0.75
	Shift Start / Shutdown	hrs/shift	0.50	0.50
	Miscellaneous Breaks	hrs/shift	0.50	0.50
	Misc - Clean-up	hrs/shift	0.00	0.00
	Miscellaneous - Blasting & Moves	hrs/shift	0.10	0.10
	Total Standby	hrs/shift	1.9	1.9
(S)	**Total Standby**	hrs/year	1,351	1,339
	Available Working Hours	hrs/day	20.3	20.3
	Available Working Hours	hrs/year	7,410	7,349
Annual Hours				
(T)	Total Theoretical	hrs/year	8,760	8,760
(SU)	Mine Scheduled & Unscheduled Shutdown	hrs/year	0	72
(S)	Total Standby	hrs/year	1,351	1,339
(W)+(R)	Work + Repair = (T-S-SU)	hrs/year	7,410	7,349
(W)	Work = MA x (T-S-SU)	hrs/year	6,289	6,237
Mechanical Availability				
	Scheduled Downtime	shifts/yr	52	52
	Scheduled Downtime	hrs/year	624	624
	Scheduled Downtime		7.1%	7.1%
	Unscheduled Downtime		8.0%	8.0%
	Total Downtime		15.1%	15.1%
	Shifts Available for Scheduling	shifts	678	672
(MA)	Mechanical Availability		**84.9%**	**84.9%**
(PA)	Physical Availability = (W+S)/T		87.2%	86.5%
(UA)	Use of Availability = W/(W+S)		82.3%	82.3%
(EU)	Effective Utilization = PA x UA		71.8%	71.2%
Annual Production				
(WH)	Work Hours / Year	hrs/year	6,289	6,237
	Operating Efficiency - operation based		83.3%	83.3%
(PH)	Production Hours / Year	hrs/year	5,239	5,196
(BC)	Bucket Capacity (heaped)	m^3	16.40	16.40
(MW)	Material Weight	kg/bcm dry	2,940	2,940
(BF)	Bulk Factor		1.50	1.50
(MW1)	Material Weight = MW / BF	kg/lcm dry	1,960.0	1,960.0
(M)	Moisture		3.00%	3.00%
(FF)	Fill Factor	%	90%	90%
(EBC)	Effective Bucket Capacity = FF x BC	m^3	14.76	14.76
(MW2)	Material Weight = MW / (1-M)	wmt/lcm	2.02	2.02
	Material Weight = MW2 x (1-M)	dmt/lcm	1.96	1.96
(TP)	Tonnes/Pass	wmt	29.82	29.82
(TC1)	Truck Size Capacity	m³ heaped	129.0	105.0
(TC2)	Truck Size Capacity	wmt	218.0	185.0
(TPV)	Theoretical Passes = TC1/ EBC by Vol	passes	8.74	7.11
(TPT)	Theoretical Passes = TC2 / TP by Wght	passes	7.31	6.20
(AP)	Actual Passes = ROUND TPT	passes	8.0	7.0
(TL)	Truck Load - Volume = AP x EBC	m^3	118.1	103.3
(TLS)	Truck Load for Simulation = AP x TP	wmt	218.0	185.0
(TLP)	Truck Load for Productivity	dmt	211.5	179.5
(TCU)	**Truck Capacity Utilized = TLS / TC2**	**by wt**	**100.0%**	**100.0%**
	Truck Capacity Utilized = TL / TC1	**by vol**	**91.5%**	**98.4%**
	First Bucket Cycle Time	sec	40	40
(AC)	Subsequent Bucket Cycle Time	sec	40	40
(ST)	Truck Spot Time	sec	42	42
(LT)	Load Time per Truck = AP x AC + ST	sec	362.0	322.0
	ALTITUDE ADJUSTMENT		100.0%	100.0%
(LT)	Load Time per Truck = AP x AC + ST	min	6.03	5.37
(MP)	Maximum Productivity = 60 / LT	trks/hr	9.9	11.2
	Conversion = MP x TLP/ MW	bcm/hr	715.3	682.4
		lcm/hr	1,072.9	1,023.6
(TPHM)	Maximum Theoretical Production	dry t/hr	2,102.9	2,006.3
(SS)	Scheduled Shifts / Year (from above)	shifts/yr	678	672
(PH)	Production Hours / Year (from above)	hrs	5,239	5,196
(TA)	Truck Availability to Shovel	%	80.0%	80.0%
	ALTITUDE ADJUSTMENT FOR OPERATOR		100.0%	100.0%
(TPHA)	Production Adjusted = TPHM x TA	t/hr	1,682	1,605
(RP)	Real Production = TPHA x PH	dry t/year	8,813,746	8,339,677
	Production / Scheduled Shift = RP / SS	dry t/shift	13,000	12,410
	Production / Scheduled Work Hours = RP / WH	dry t/hr	1,401	1,337
	Production / Scheduled Production Hrs = RP / PH	dry t/hr	**1,682**	**1,605**
	Annual Wet Tonnes	wet t/year	9,078,159	8,589,867
		wet t/hour	1,733	1,653

Appendix G

vi) Operating Cost Development

			Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Total
M	**Ore Tons Milled**	(tons x 1000)	-	-	8,760.0	11,670.0	11,670.0	11,670.0	11,670.0	11,670.0	11,670.0	11,670.0	11,670.0	11,670.0	11,670.0	11,670.0	11,670.0	11,670.0	11,670.0	11,670.0	11,670.0	11,670.0	11,670.0	5,135.9	**223,955.9**
	Ore Tons Mined	(tons x 1000)	-	-	9,893.7	15,214.9	12,024.1	11,675.7	11,678.1	11,671.3	10,064.7	10,980.5	11,670.0	11,670.0	11,670.0	11,670.0	11,670.0	11,670.0	11,670.0	11,670.0	11,670.0	11,670.0	11,357.5	2,695.4	**223,955.9**
	Waste Tons Mined	(tons x 1000)	-	7,798.39	34,358.85	30,910.54	27,392.03	21,938.00	16,026.10	10,014.78	6,235.79	10,054.38	9,780.79	11,670.91	11,155.35	8,179.47	13,642.43	15,550.64	15,108.75	18,264.43	20,476.50	8,973.99	5,948.01	329.88	**303,809.8**
	Total Tons Mined	(tons x 1000)	-	7,798.4	44,252.5	46,125.5	39,416.1	33,613.7	27,704.2	21,686.1	16,300.5	21,034.7	21,450.8	23,340.9	22,825.4	19,849.5	25,312.4	27,220.6	26,778.7	29,934.4	32,146.5	20,644.0	17,305.5	3,025.3	**527,765.7**
O	**GENERAL MINE & ENGINEERING**																								
	Salaries & Wages	Staff	0.0	2,694.9	2,694.9	2,694.9	2,694.9	2,694.9	2,694.9	2,694.9	2,694.9	2,694.9	2,694.9	2,694.9	2,694.9	2,694.9	2,694.9	2,694.9	2,694.9	2,694.9	2,694.9	2,694.9	2,694.9	1,424.8	55,323.2
	Salaries & Wages	Labour	0.0	695.3	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2	511.3	511.3	17,471.2
	Fuel & Power	($ x 1000)																							0.0
	Dewatering	($ x 1000)		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	2,100.0
	Consumables, R&M Parts	($ x 1000)	0.0	115.0	115.0	115.0	115.0	115.0	115.0	115.0	115.0	115.0	115.0	115.0	115.0	115.0	115.0	115.0	115.0	115.0	115.0	115.0	115.0	115.0	2,415.0
	Subtotal	($ x 1000)	**0.0**	**3,605.3**	**3,785.1**	**3,785.1**	**3,785.1**	**3,785.1**	**3,785.1**	**3,785.1**	**3,785.1**	**3,785.1**	**3,785.1**	**3,785.1**	**3,785.1**	**3,785.1**	**3,785.1**	**3,785.1**	**3,785.1**	**3,785.1**	**3,785.1**	**3,785.1**	**3,421.2**	**2,151.1**	**77,309.4**
	DRILLING																								
	Salaries & Wages	($ x 1000)	0.0	263.1	517.4	517.4	517.4	517.4	344.9	689.8	344.9	344.9	344.9	344.9	344.9	344.9	344.9	517.4	344.9	344.9	353.1	304.0	213.4	107.0	7,966.4
	Fuel & Power	($ x 1000)	0.0	92.4	786.5	886.1	702.0	621.0	494.9	444.8	380.7	442.6	437.9	430.1	460.6	412.9	457.7	533.6	497.2	578.9	615.5	424.8	374.4	166.2	10,240.6
	Consumables, R&M Parts	($ x 1000)	0.0	213.0	1,816.1	2,046.1	1,621.0	1,433.6	1,142.3	1,026.7	878.5	1,021.5	1,010.8	992.9	1,063.3	953.1	1,056.4	1,232.1	1,147.9	1,336.6	1,421.2	980.8	864.1	383.5	23,641.4
	Subtotal	($ x 1000)	**0.0**	**568.5**	**3,119.9**	**3,449.6**	**2,840.4**	**2,571.9**	**1,982.1**	**2,161.2**	**1,604.1**	**1,809.0**	**1,793.6**	**1,767.9**	**1,868.8**	**1,711.0**	**1,859.0**	**2,283.0**	**1,990.0**	**2,260.4**	**2,389.8**	**1,709.6**	**1,451.8**	**656.7**	**41,848.4**
	BLASTING																								
	Salaries & Wages	($ x 1000)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Consumables & Direct Costs	($ x 1000)	0.0	1,156.6	5,474.7	6,150.4	4,995.5	4,495.9	3,727.7	3,426.4	3,037.3	3,406.6	3,378.7	3,332.4	3,515.8	3,232.1	3,503.6	3,955.7	3,737.4	4,227.5	3,849.9	2,703.4	2,399.8	1,062.4	74,769.7
	Subtotal	($ x 1000)	**0.0**	**1,156.6**	**5,474.7**	**6,150.4**	**4,995.5**	**4,495.9**	**3,727.7**	**3,426.4**	**3,037.3**	**3,406.6**	**3,378.7**	**3,332.4**	**3,515.8**	**3,232.1**	**3,503.6**	**3,955.7**	**3,737.4**	**4,227.5**	**3,849.9**	**2,703.4**	**2,399.8**	**1,062.4**	**74,769.7**
	LOADING																								
	Salaries & Wages	($ x 1000)	0.0	353.6	892.9	804.5	716.1	627.7	627.7	539.3	450.9	539.3	539.3	539.3	539.3	450.9	539.3	539.3	539.3	716.1	716.1	539.3	450.9	353.6	12,014.1
	Fuel & Power	($ x 1000)	0.0	233.5	1,195.4	1,254.6	1,103.8	941.9	791.3	598.7	496.6	599.8	592.3	682.5	629.5	548.9	722.2	748.2	751.8	1,054.3	1,248.8	571.1	484.2	247.7	15,497.2
	Consumables, R&M Parts	($ x 1000)	0.0	842.5	4,316.6	4,530.5	3,985.9	3,401.3	2,855.4	2,162.0	1,793.2	2,165.6	2,138.6	2,402.0	2,273.3	1,982.2	2,606.2	2,701.8	2,714.9	2,926.1	3,117.7	2,062.3	1,748.5	893.5	53,620.3
	Subtotal	($ x 1000)	**0.0**	**1,429.6**	**6,404.9**	**6,589.6**	**5,805.8**	**4,970.9**	**4,274.4**	**3,299.9**	**2,740.7**	**3,304.7**	**3,270.2**	**3,623.8**	**3,442.1**	**2,982.0**	**3,867.7**	**3,989.3**	**4,006.0**	**4,696.5**	**5,082.6**	**3,172.7**	**2,683.6**	**1,494.8**	**81,131.6**
	HAULING																								
	Salaries & Wages	($ x 1000)	0.0	423.7	2,287.8	2,542.0	2,626.7	2,457.2	2,033.6	1,440.5	1,101.5	1,440.5	1,609.9	1,694.6	1,779.4	1,440.5	1,694.6	1,779.4	1,609.9	1,694.6	2,203.0	1,525.2	1,271.0	677.9	35,333.4
	Fuel & Power	($ x 1000)	0.0	1,017.0	5,842.8	6,653.8	6,850.3	6,399.0	5,248.2	3,817.7	2,893.0	3,693.5	4,072.5	4,410.1	4,496.5	3,643.5	4,353.9	4,668.3	4,261.3	4,308.8	5,625.2	3,951.1	3,273.0	1,595.8	91,075.2
	Consumables, R&M Parts	($ x 1000)	0.0	1,175.2	6,751.7	7,688.9	7,916.0	7,394.5	6,064.7	4,411.7	3,343.1	4,268.1	4,706.0	5,096.2	5,196.0	4,210.3	5,031.2	5,394.6	4,924.2	4,979.1	6,500.3	4,565.8	3,782.2	1,844.0	105,243.9
	Subtotal	($ x 1000)	**0.0**	**2,615.9**	**14,882.3**	**16,884.7**	**17,393.1**	**16,250.7**	**13,346.5**	**9,669.8**	**7,337.6**	**9,402.0**	**10,388.4**	**11,200.9**	**11,471.8**	**9,294.2**	**11,079.7**	**11,842.3**	**10,795.3**	**10,982.6**	**14,328.5**	**10,042.1**	**8,326.3**	**4,117.7**	**231,652.5**
	SUPPORT																								
	Salaries & Wages	($ x 1000)	0.0	616.1	1,434.4	1,542.1	1,457.3	1,441.2	1,385.1	1,083.3	882.4	1,074.9	1,107.9	1,158.0	1,065.6	880.0	987.7	1,114.0	978.4	1,009.1	1,177.7	913.9	746.0	1,037.7	23,092.9
	Fuel & Power	($ x 1000)	0.0	1,058.1	1,949.4	2,001.4	2,004.9	1,968.6	1,866.3	1,497.1	1,236.9	1,465.2	1,550.0	1,652.1	1,666.6	1,430.9	1,646.7	1,733.0	1,560.9	1,602.8	1,842.7	1,447.3	1,255.8	1,492.0	33,928.8
	Consumables, R&M Parts	($ x 1000)	0.0	1,791.5	2,951.3	3,019.7	3,023.4	2,977.1	2,849.3	2,287.4	1,864.0	2,233.8	2,379.3	2,541.3	2,570.2	2,185.0	2,526.8	2,668.1	2,453.5	2,505.8	2,857.5	2,283.4	1,972.7	2,412.4	52,353.7
	Subtotal	($ x 1000)	**0.0**	**3,465.7**	**6,335.1**	**6,563.2**	**6,485.6**	**6,386.9**	**6,100.7**	**4,867.8**	**3,983.4**	**4,773.9**	**5,037.2**	**5,351.5**	**5,302.4**	**4,496.0**	**5,161.3**	**5,515.1**	**4,992.8**	**5,117.7**	**5,877.9**	**4,644.5**	**3,974.5**	**4,942.1**	**109,375.4**
	SUMMARY																								
	Salaries & Wages	($ x 1000)	0.0	5,046.8	8,702.5	8,976.0	8,887.6	8,613.6	7,961.4	7,323.0	6,349.8	6,969.6	7,172.1	7,306.9	7,299.2	6,686.3	7,136.6	7,520.1	7,042.6	7,334.8	8,020.0	6,852.4	5,887.4	4,112.3	151,201.2
	Fuel & Power	($ x 1000)	0.0	2,401.0	9,774.0	10,796.0	10,661.0	9,930.4	8,400.7	6,358.3	5,007.3	6,201.0	6,652.6	7,174.9	7,253.1	6,036.3	7,180.5	7,683.1	7,071.3	7,544.8	9,332.1	6,394.4	5,387.4	3,501.7	150,741.8
	Consumables	($ x 1000)	0.0	5,393.8	21,525.4	23,650.7	21,756.8	19,917.4	16,854.4	13,529.1	11,131.2	13,310.7	13,828.4	14,579.8	14,833.6	12,777.7	14,939.2	16,167.3	15,192.9	16,190.2	17,961.6	12,810.7	10,982.3	6,810.8	314,144.0
	Subtotal	($ x 1000)	**0.0**	**12,841.6**	**40,001.9**	**43,422.6**	**41,305.5**	**38,461.4**	**33,216.5**	**27,210.4**	**22,488.2**	**26,481.3**	**27,653.2**	**29,061.6**	**29,386.0**	**25,500.2**	**29,256.3**	**31,370.5**	**29,306.8**	**31,069.8**	**35,313.8**	**26,057.5**	**22,257.1**	**14,424.8**	**616,087.0**
A M C	RAIL HAULAGE AND LOADOUT	($ x 1000)	0.0	0.0	4,833.6	5,414.9	5,414.9	5,414.9	5,414.9	5,414.9	5,414.9	5,414.9	5,414.9	5,414.9	5,414.9	5,414.9	5,414.9	5,414.9	5,414.9	5,414.9	5,414.9	5,414.9	5,414.9	4,109.8	106,412.0
	SAMPLING	($ x 1000)	0.0	73.0	577.8	627.4	489.9	426.6	303.3	232.1	159.9	149.4	294.1	287.8	312.6	272.4	307.8	372.0	341.7	408.6	438.5	283.4	242.1	108.4	6,708.9
	AGGREGATE CRUSHING	($ x 1000)	0.0	237.7	240.2	242.9	235.4	231.9	225.2	221.4	217.4	216.9	224.7	224.4	225.7	223.6	225.5	229.0	227.3	231.0	232.6	224.2	221.9	214.6	4,773.5
																									0.0
	Subtotal	($ x 1000)	**0.0**	**310.8**	**5,651.6**	**6,285.1**	**6,140.2**	**6,073.5**	**5,943.5**	**5,868.4**	**5,792.3**	**5,781.2**	**5,933.7**	**5,927.1**	**5,953.2**	**5,910.9**	**5,948.2**	**6,015.9**	**5,984.0**	**6,054.5**	**6,086.0**	**5,922.5**	**5,879.0**	**4,432.8**	**117,894.4**
	TOTAL COST	($ x 1000)	**0.0**	**13,152.4**	**45,653.5**	**49,707.8**	**47,445.6**	**44,534.9**	**39,160.0**	**33,078.8**	**28,280.5**	**32,262.5**	**33,586.9**	**34,988.7**	**35,339.2**	**31,411.1**	**35,204.5**	**37,386.4**	**35,290.7**	**37,124.4**	**41,399.8**	**31,980.0**	**28,136.1**	**18,857.6**	**733,981.4**
U	**GENERAL MINE & ENGINEERING**	$/ton mined	0.00	0.46	0.09	0.08	0.10	0.11	0.14	0.17	0.23	0.18	0.18	0.16	0.17	0.19	0.15	0.14	0.14	0.13	0.12	0.18	0.20	0.71	0.15
	DRILLING	$/ton mined	0.00	0.07	0.07	0.07	0.07	0.08	0.07	0.10	0.10	0.09	0.08	0.08	0.08	0.09	0.07	0.08	0.07	0.08	0.07	0.08	0.08	0.22	0.08
	BLASTING	$/ton mined	0.00	0.15	0.12	0.13	0.13	0.13	0.13	0.16	0.19	0.16	0.16	0.14	0.15	0.16	0.14	0.15	0.14	0.14	0.12	0.13	0.14	0.35	0.14
	LOADING	$/ton mined	0.00	0.18	0.14	0.14	0.15	0.15	0.15	0.15	0.17	0.16	0.15	0.16	0.15	0.15	0.15	0.15	0.15	0.16	0.16	0.15	0.16	0.49	0.14
	HAULING	$/ton mined	0.00	0.34	0.34	0.37	0.44	0.48	0.48	0.45	0.45	0.45	0.48	0.48	0.50	0.47	0.44	0.44	0.40	0.37	0.45	0.49	0.48	1.36	0.44
	SUPPORT	$/ton mined	0.00	0.44	0.14	0.14	0.16	0.19	0.22	0.22	0.24	0.23	0.23	0.23	0.23	0.23	0.20	0.20	0.19	0.17	0.18	0.22	0.23	1.63	0.21
	RAIL HAULAGE AND LOADOUT	$/ton mined	0.00	0.00	0.11	0.12	0.14	0.16	0.20	0.25	0.33	0.26	0.25	0.23	0.24	0.27	0.21	0.20	0.20	0.18	0.17	0.26	0.31	1.36	0.20
	SAMPLING	$/ton mined	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.04	0.01
	AGGREGATE CRUSHING	$/ton mined	0.00	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.07	0.01
	Total	$/ton mined	0.00	1.69	1.03	1.08	1.20	1.32	1.41	1.53	1.73	1.53	1.57	1.50	1.55	1.58	1.39	1.37	1.32	1.24	1.29	1.55	1.63	6.23	1.39
U	**GENERAL MINE & ENGINEERING**	$/ton ore milled	0.00	0.00	0.31	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.28	0.35
	DRILLING	$/ton ore milled	0.00	0.00	0.36	0.30	0.24	0.22	0.17	0.19	0.14	0.16	0.15	0.15	0.16	0.15	0.16	0.20	0.17	0.19	0.20	0.15	0.12	0.13	0.19
	BLASTING	$/ton ore milled	0.00	0.00	0.62	0.53	0.43	0.39	0.32	0.29	0.26	0.29	0.29	0.29	0.30	0.28	0.30	0.34	0.32	0.36	0.33	0.23	0.21	0.21	0.33
	LOADING	$/ton ore milled	0.00	0.00	0.73	0.56	0.50	0.43	0.37	0.28	0.23	0.28	0.28	0.31	0.29	0.26	0.33	0.34	0.34	0.40	0.44	0.27	0.23	0.29	0.36
	HAULING	$/ton ore milled	0.00	0.00	1.70	1.45	1.49	1.39	1.14	0.83	0.63	0.81	0.89	0.96	0.98	0.80	0.95	1.01	0.93	0.94	1.23	0.86	0.71	0.80	1.03
	SUPPORT	$/ton ore milled	0.00	0.00	0.72	0.56	0.56	0.55	0.52	0.42	0.34	0.41	0.43	0.46	0.45	0.39	0.44	0.47	0.43	0.44	0.50	0.40	0.34	0.96	0.49
	RAIL HAULAGE AND LOADOUT	$/ton ore milled	0.00	0.00	0.55	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.80	0.48
	SAMPLING	$/ton ore milled	0.00	0.00	0.07	0.05	0.04	0.04	0.03	0.02	0.01	0.01	0.03	0.02	0.03	0.02	0.03	0.03	0.03	0.04	0.04	0.02	0.02	0.02	0.03
	AGGREGATE CRUSHING	$/ton ore milled	0.00	0.00	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.04	0.02
	Total	$/ton ore milled	0.00	0.00	5.21	4.26	4.07	3.82	3.36	2.83	2.42	2.76	2.88	3.00	3.03	2.69	3.02	3.20	3.02	3.18	3.55	2.74	2.41	3.67	3.28

		Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Total
Mill	Ore Tons	-	-	8,760,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	11,670,000	5,135,883	-	-	-	-	-	-	223,955,884
	DCu%	-	-	0.31	0.32	0.31	0.31	0.30	0.29	0.28	0.28	0.31	0.32	0.29	0.28	0.27	0.26	0.24	0.21	0.23	0.28	0.28	0.29	-	-	-	-	-	-	0.28
	DNi%	-	-	0.09	0.10	0.09	0.09	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.08	0.08	0.08	-	-	-	-	-	-	0.08
	DPt	-	-	76.1	77.8	70.5	71.9	73.7	78.8	79.4	95.5	102.0	97.8	77.6	69.0	69.5	69.0	62.9	65.1	60.0	65.2	70.4	62.8	-	-	-	-	-	-	75.1
	DPd	-	-	307.7	314.4	284.7	296.1	291.9	290.1	275.2	281.6	298.7	282.2	241.7	229.4	237.1	227.8	201.9	242.7	222.3	257.0	262.0	247.2	-	-	-	-	-	-	264.5
	DAu	-	-	36.1	39.7	39.2	38.0	38.1	39.5	39.2	46.5	48.0	43.8	37.4	34.2	35.8	34.9	30.4	32.6	32.1	34.6	37.0	32.1	-	-	-	-	-	-	37.6
	DCo	-	-	68.8	78.4	78.5	74.0	71.5	71.4	70.2	72.0	74.1	75.6	78.2	78.4	75.7	73.3	73.6	69.2	67.8	68.3	73.2	70.6	-	-	-	-	-	-	73.3

Railroad and Loadout

Unit Cost	$/ton	$ -	$ -	$ 0.55	$ 0.46	$ 0.46	$ 0.46	$ 0.46	$ 0.46	$ 0.46	$ 0.46	$ 0.46	$ 0.46	$ 0.46	$ 0.46	$ 0.46	$ 0.46	$ 0.46	$ 0.46	$ 0.46	$ 0.46	$ 0.80	$ -	$ -	$ -	$ -	$ -	$ -	
Cost	$	$ -	$ -	$ 4,833,617	$ 5,414,925	$ 5,414,925	$ 5,414,925	$ 5,414,925	$ 5,414,925	$ 5,414,925	$ 5,414,925	$ 5,414,925	$ 5,414,925	$ 5,414,925	$ 5,414,925	$ 5,414,925	$ 5,414,925	$ 5,414,925	$ 5,414,925	$ 5,414,925	$ 5,414,925	$ 4,109,778	$ -	$ -	$ -	$ -	$ -	$ -	$ 106,412,045
Train Lease Cost	$	$ -	$ -	$ 575,368	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 337,331	$ -	$ -	$ -	$ -	$ -	$ -	$ 14,709,699
Fuel Price 2.74	$/gallon																													
Fuel	$	$ -	$ -	$ 1,174,364	$ 1,564,540	$ 1,564,540	$ 1,564,540	$ 1,564,540	$ 1,564,540	$ 1,564,540	$ 1,564,540	$ 1,564,540	$ 1,564,540	$ 1,564,540	$ 1,564,540	$ 1,564,540	$ 1,564,540	$ 1,564,540	$ 1,564,540	$ 1,564,540	$ 1,564,540	$ 688,562	$ -	$ -	$ -	$ -	$ -	$ -	$ 30,024,646
Fuel	gallons	-	-	428,600	571,000	571,000	571,000	571,000	571,000	571,000	571,000	571,000	571,000	571,000	571,000	571,000	571,000	571,000	571,000	571,000	571,000	251,300	-	-	-	-	-	-	
Materials	$	$ -	$ -	$ 76,000	$ 76,000	$ 76,000	$ 76,000	$ 76,000	$ 76,000	$ 76,000	$ 76,000	$ 76,000	$ 76,000	$ 76,000	$ 76,000	$ 76,000	$ 76,000	$ 76,000	$ 76,000	$ 76,000	$ 76,000	$ 76,000							
Track Maintenance																														
Consumables	$	$ -	$ -	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000							
Outsourced services	$	$ -	$ -	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000							
Rolling Stock																														
Maintenance parts	$	$ -	$ -	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000							
Loading Pocket																														
Maintenance parts, lubes, consumables	$	$ -	$ -	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000	$ 36,000							
Loadout Power	$	$ -	$ -	$ 141,700	$ 141,700	$ 141,700	$ 141,700	$ 141,700	$ 141,700	$ 141,700	$ 141,700	$ 141,700	$ 141,700	$ 141,700	$ 141,700	$ 141,700	$ 141,700	$ 141,700	$ 141,700	$ 141,700	$ 141,700	$ 141,700							
Labour																														
Supervisors @	supervisors			2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2							
$ 107,680 per year	$	$ -	$ -	$ 215,360	$ 215,360	$ 215,360	$ 215,360	$ 215,360	$ 215,360	$ 215,360	$ 215,360	$ 215,360	$ 215,360	$ 215,360	$ 215,360	$ 215,360	$ 215,360	$ 215,360	$ 215,360	$ 215,360	$ 215,360	$ 215,360							
Workers - Category 4 @	employees			25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25							
$ 98,793 per year	$	$ -	$ -	$ 2,469,825	$ 2,469,825	$ 2,469,825	$ 2,469,825	$ 2,469,825	$ 2,469,825	$ 2,469,825	$ 2,469,825	$ 2,469,825	$ 2,469,825	$ 2,469,825	$ 2,469,825	$ 2,469,825	$ 2,469,825	$ 2,469,825	$ 2,469,825	$ 2,469,825	$ 2,469,825	$ 2,469,825							
Total Labour	$	$ -	$ -	$ 2,685,185	$ 2,685,185	$ 2,685,185	$ 2,685,185	$ 2,685,185	$ 2,685,185	$ 2,685,185	$ 2,685,185	$ 2,685,185	$ 2,685,185	$ 2,685,185	$ 2,685,185	$ 2,685,185	$ 2,685,185	$ 2,685,185	$ 2,685,185	$ 2,685,185	$ 2,685,185	$ 2,685,185							$ 53,703,700

Labour Breakdown	per crew	
Train Operators	1	
Loadout Operator	0	
Cleanup Loader/Truck Dump Loader	1	Runs loadout and cleanup loader after train leaves
Mechanic	0.5	
Electrician	0.5	
Service Man	0.25	
Welders	1	
General labourer	2	
Total per shift	6.25	
Total	25	

Train Lease Cost																														
Lease rate $359 per day/unit																														
Number of units required 6 number				6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6							
Annual Cost	$	$ -	$ -	$ 575,368	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 766,500	$ 337,331	$ -	$ -	$ -	$ -	$ -	$ -	

Sampling Cost

		Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Total
Unit Cost	$/sample	$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 40.00	$ 40.00	
Samples per blasthole	#	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Blastholes per year	#		1,826	14,446	15,684	12,247	10,666	7,583	5,803	3,998	3,734	7,352	7,194	7,814	6,810	7,695	9,300	8,543	10,216	10,962	7,086	6,053	2,710	167,722
Cost	$	$ -	$ 73,040	$ 577,840	$ 627,360	$ 489,880	$ 426,640	$ 303,320	$ 232,120	$ 159,920	$ 149,360	$ 294,080	$ 287,760	$ 312,560	$ 272,400	$ 307,800	$ 372,000	$ 341,720	$ 408,640	$ 438,480	$ 283,440	$ 242,120	$ 108,400	$ 6,708,880

Crushed Rock

		Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Total
Unit Cost	$/ton	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	$ 2.50	
Mobilization Cost		$ -	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	
Road Crush																														
Tons of crush per mile	tons/mile	# 3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	
Miles of road	miles	0	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20							
Tons of crush required	tons	0	73,000	73,000	73,000	73,000	73,000	73,000	73,000	73,000	73,000	73,000	73,000	73,000	73,000	73,000	73,000	73,000	73,000	73,000	73,000	73,000	73,000	0	0	0	0	0	0	
Blast hole stemming																														
Blast holes drilled	#	0	1,826	14,446	15,684	12,247	10,666	7,583	5,803	3,998	3,734	7,352	7,194	7,814	6,810	7,695	9,300	8,543	10,216	10,962	7,086	6,053	2,710	0	0	0	0	0	0	
Blasthole diameter	feet	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	
Feet of stemming/hole	feet	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	
Density of crush	tons/cubic foot	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	0.063	
Tons of stemming/hole	tons/hole	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
Tons of crush required	tons	0	1,588	12,567	13,644	10,654	9,278	6,596	5,048	3,478	3,248	6,396	6,258	6,797	5,924	6,694	8,090	7,432	8,887	9,536	6,164	5,266	2,357	0	0	0	0	0	0	
Railroad Ballast																														
Tons of ballast required	tons	0	12,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	77,500
Total tons required		0	87,088	88,067	89,144	86,154	84,778	82,096	80,548	78,978	78,748	81,896	81,758	82,297	81,424	82,194	83,590	82,932	84,387	85,036	81,664	80,766	77,857	2,500	2,500	2,500	2,500	2,500	2,500	
Cost		$ -	$ 237,721	$ 240,167	$ 242,859	$ 235,384	$ 231,946	$ 225,241	$ 221,370	$ 217,445	$ 216,871	$ 224,739	$ 224,395	$ 225,744	$ 223,560	$ 225,485	$ 228,975	$ 227,329	$ 230,967	$ 232,590	$ 224,160	$ 221,914	$ 214,644	$ 26,250	$ 26,250	$ 26,250	$ 26,250	$ 26,250	$ 26,250	$ 4,931,004

Haulage Cycle Times

East 1E

(all times in min)

bench	HG		LG		Cat 4		OB		Cat 1/2		Cat 3	
	from	to	from	to	from	to	from	to	from	to	from	to
1620	3.36	2.95	4.18	3.74	4.67	4.14	5.66	5.25	5.41	4.83	5.92	5.39
1600	3.36	2.95	4.18	3.74	4.67	4.14	5.66	5.25	5.41	4.83	5.92	5.39
1580	3.36	2.95	4.18	3.74	4.67	4.14	5.66	5.25	5.41	4.83	5.92	5.39
1560	3.42	2.84	4.50	3.92	4.73	4.03	6.35	5.71	5.53	4.77	5.98	5.28
1540	3.49	2.72	4.81	4.11	4.78	3.91	7.04	6.17	5.64	4.72	6.03	5.16
1520	3.55	2.61	5.13	4.29	4.84	3.80	7.73	6.63	5.76	4.66	6.09	5.05
1500	4.04	2.94	5.41	4.35	5.40	4.18			6.31	4.91	6.58	5.35
1480	4.53	3.26	5.70	4.41	5.97	4.55			6.85	5.17	7.07	5.65
1460	5.02	3.59	5.98	4.46	6.53	4.93			7.40	5.42	7.56	5.95
1440	5.51	3.91	6.26	4.52	7.09	5.30			7.94	5.67	8.05	6.25
1420												
1400												
1380												
1360												
1340					`							

East 2E

(all times in min)

bench	HG		LG		Cat 4		OB		Cat 1/2		Cat 3	
	from	to	from	to	from	to	from	to	from	to	from	to
1620	3.36	2.95	4.18	3.74	4.67	4.14	5.66	5.25	5.41	4.83	5.92	5.39
1600	3.36	2.95	4.18	3.74	4.67	4.14	5.66	5.25	5.41	4.83	5.92	5.39
1580	3.36	2.95	4.18	3.74	4.67	4.14	5.66	5.25	5.41	4.83	5.92	5.39
1560	3.74	3.19	4.50	3.92	5.04	4.39	6.57	5.94	5.79	5.07	6.25	5.61
1540	4.11	3.43	4.81	4.11	5.42	4.64	7.49	6.63	6.16	5.31	6.59	5.82
1520	4.49	3.67	5.13	4.29	5.79	4.89	8.40	7.32	6.54	5.55	6.92	6.04
1500	4.76	3.75	5.38	4.35	6.05	4.97			6.85	5.62	7.19	6.12
1480	5.03	3.84	5.63	4.40	6.30	5.04			7.17	5.69	7.46	6.21
1460	5.30	3.92	5.89	4.46	6.56	5.12			7.48	5.76	7.73	6.29
1440	5.56	4.00	6.14	4.51	6.82	5.20			7.79	5.82	7.99	6.37
1420	5.83	4.09	6.39	4.57	7.07	5.27			8.11	5.89	8.26	6.46
1400	6.10	4.17	6.64	4.62	7.33	5.35			8.42	5.96	8.53	6.54
1380												
1360												
1340												

East 3E

(all times in min)

bench	HG		LG		Cat 4		OB		Cat 1/2		Cat 3	
	from	to	from	to	from	to	from	to	from	to	from	to
1620	3.36	2.95	4.18	3.74	4.67	4.14	5.66	5.25	5.41	4.83	5.92	5.39
1600	3.36	2.95	4.18	3.74	4.67	4.14	5.66	5.25	5.41	4.83	5.92	5.39
1580	3.36	2.95	4.18	3.74	4.67	4.14	5.66	5.25	5.41	4.83	5.92	5.39
1560	3.49	2.90	4.22	3.61	4.76	4.08	6.61	5.93	5.54	4.78	5.98	5.30
1540	3.61	2.84	4.25	3.47	4.84	4.01	7.55	6.60	5.66	4.72	6.04	5.20
1520	3.97	3.03	4.59	3.63	5.20	4.20			6.05	4.90	6.40	5.39
1500	4.32	3.22	4.93	3.80	5.55	4.39			6.45	5.07	6.75	5.58
1480	4.68	3.41	5.27	3.96	5.91	4.58			6.84	5.25	7.11	5.77
1460	5.03	3.60	5.62	4.13	6.26	4.78			7.24	5.43	7.46	5.97
1440	5.39	3.79	5.96	4.29	6.62	4.97			7.63	5.61	7.82	6.16
1420	5.74	3.98	6.30	4.46	6.97	5.16			8.03	5.78	8.17	6.35
1400	6.10	4.17	6.64	4.62	7.33	5.35			8.42	5.96	8.53	6.54
1380	6.41	4.28	6.97	4.76	7.64	5.46			8.85	6.19	8.84	6.65
1360	6.72	4.39	7.30	4.91	7.95	5.57			9.28	6.42	9.15	6.76
1340	7.02	4.51	7.62	5.05	8.25	5.69			9.70	6.64	9.46	6.87
1320	7.33	4.62	7.95	5.20	8.56	5.80			10.13	6.87	9.77	6.98
1300	7.64	4.73	8.28	5.34	8.87	5.91			10.56	7.10	10.08	7.09
1280	7.86	4.77	8.50	5.38	9.09	5.95			10.79	7.08	10.30	7.13
1260	8.08	4.81	8.73	5.42	9.31	5.99			11.02	7.07	10.52	7.17
1240	8.31	4.85	8.95	5.46	9.53	6.03			11.25	7.05	10.74	7.21
1220	8.53	4.88	9.17	5.49	9.75	6.06			11.47	7.03	10.95	7.24
1200	8.75	4.92	9.40	5.53	9.97	6.10			11.70	7.02	11.17	7.28
1180	8.97	4.96	9.62	5.57	10.19	6.14			11.93	7.00	11.39	7.32
1160												
1140												

East 4E

(all times in min)

bench	HG		LG		Cat 4		OB		Cat 1/2		Cat 3	
	from	to	from	to	from	to	from	to	from	to	from	to
1620	2.81	2.43	2.81	2.43	4.49	3.73	6.04	3.67	6.04	3.67	6.80	5.08
1600	2.81	2.43	2.81	2.43	4.49	3.73	6.04	3.67	6.04	3.67	6.80	5.08
1580	2.81	2.43	2.81	2.43	4.49	3.73	6.04	3.67	6.04	3.67	6.80	5.08
1560	3.12	2.55	3.12	2.55	4.79	3.85	6.04	3.67	6.13	3.69	7.00	5.14
1540	3.42	2.67	3.42	2.67	5.10	3.97	6.04	3.67	6.22	3.71	7.19	5.20
1520	3.73	2.78	3.73	2.78	5.40	4.09	6.04	3.67	6.31	3.73	7.39	5.26
1500	4.03	2.90	4.03	2.90	5.71	4.21			6.41	3.76	7.59	5.33
1480	4.34	3.02	4.34	3.02	6.01	4.32			6.50	3.78	7.78	5.39
1460	4.64	3.14	4.64	3.14	6.31	4.44			6.59	3.80	7.98	5.45
1440	4.95	3.25	4.95	3.25	6.62	4.56			6.68	3.82	8.17	5.51
1420	5.25	3.37	5.25	3.37	6.92	4.68			6.77	3.84	8.37	5.57
1400	5.53	3.45	5.53	3.45	7.20	4.76			6.84	3.83	8.78	5.73
1380	5.82	3.54	5.82	3.54	7.49	4.85			6.91	3.82	9.19	5.89
1360	6.10	3.62	6.10	3.62	7.77	4.93			6.98	3.80	9.60	6.05
1340	6.38	3.71	6.38	3.71	8.05	5.02			7.05	3.79	10.01	6.22
1320	6.66	3.79	6.66	3.79	8.33	5.10			7.12	3.78	10.41	6.38
1300	6.95	3.87	6.95	3.87	8.62	5.18			7.19	3.77	10.82	6.54
1280	7.23	3.96	7.23	3.96	8.90	5.27			7.26	3.75	11.23	6.70
1260	7.51	4.04	7.51	4.04	9.18	5.35			7.33	3.74	11.64	6.86
1240												
1220												
1200												
1180												
1160												
1140												

Haulage Cycle Times

East 5E

(all times in min)

bench	HG		LG		Cat 4		OB		Cat 1/2		Cat 3	
	from	to	from	to	from	to	from	to	from	to	from	to
1620	4.11	3.34	4.75	3.97	5.34	4.51	8.05	7.10	6.16	5.22	6.62	5.74
1600	4.11	3.34	4.75	3.97	5.34	4.51	8.05	7.10	6.16	5.22	6.62	5.74
1580	4.11	3.34	4.75	3.97	5.34	4.51	8.05	7.10	6.16	5.22	6.62	5.74
1560	4.11	3.34	4.75	3.97	5.34	4.51	8.05	7.10	6.16	5.22	6.62	5.74
1540	4.11	3.34	4.75	3.97	5.34	4.51	8.05	7.10	6.16	5.22	6.62	5.74
1520	4.31	3.35	4.95	3.98	5.54	4.52			6.42	5.21	6.81	5.74
1500	4.51	3.36	5.15	3.99	5.74	4.53			6.67	5.20	6.99	5.74
1480	4.72	3.38	5.36	4.00	5.95	4.54			6.93	5.19	7.18	5.75
1460	4.92	3.39	5.56	4.01	6.15	4.55			7.18	5.18	7.36	5.75
1440	5.12	3.40	5.76	4.02	6.35	4.56			7.44	5.17	7.55	5.75
1420	5.45	3.54	6.10	4.17	6.68	4.71			7.87	5.41	7.89	5.90
1400	5.79	3.69	6.43	4.31	7.02	4.85			8.31	5.66	8.22	6.04
1380	6.12	3.83	6.77	4.46	7.35	5.00			8.74	5.90	8.56	6.19
1360	6.45	3.97	7.10	4.60	7.68	5.14			9.17	6.14	8.89	6.33
1340	6.79	4.12	7.44	4.75	8.02	5.29			9.61	6.39	9.23	6.48
1320	7.12	4.26	7.77	4.89	8.35	5.43			10.04	6.63	9.56	6.62
1300	7.48	4.42	8.12	5.05	8.71	5.59			10.41	6.71	9.91	6.78
1280	7.83	4.59	8.48	5.22	9.06	5.76			10.77	6.79	10.27	6.95
1260	8.19	4.75	8.83	5.38	9.42	5.92			11.14	6.87	10.62	7.11
1240	8.54	4.91	9.18	5.54	9.77	6.08			11.50	6.95	10.97	7.27
1220	8.78	4.98	9.44	5.61	10.03	6.15			11.76	7.02	11.23	7.34
1200	9.02	5.05	9.70	5.68	10.29	6.22			12.02	7.09	11.49	7.41
1180	9.27	5.13	9.96	5.75	10.55	6.29			12.28	7.16	11.75	7.48
1160	9.51	5.20	10.21	5.81	10.80	6.35			12.54	7.22	12.00	7.54
1140	9.75	5.27	10.47	5.88	11.06	6.42			12.80	7.29	12.26	7.61
1120	9.99	5.34	10.73	5.95	11.32	6.49			13.06	7.36	12.52	7.68
1100	10.30	5.46	11.04	6.07	11.65	6.62			13.38	7.46	12.82	7.80
1080	10.62	5.57	11.34	6.18	11.99	6.75			13.70	7.56	13.13	7.91
1060	10.93	5.69	11.65	6.30	12.32	6.88			14.02	7.66	13.43	8.03
1040	11.24	5.80	11.95	6.42	12.65	7.01			14.34	7.76	13.74	8.15
1020	11.56	5.92	12.26	6.54	12.98	7.14			14.66	7.86	14.04	8.27
1000	11.87	6.03	12.56	6.65	13.32	7.26			14.99	7.95	14.35	8.38
980	12.19	6.15	12.87	6.77	13.65	7.39			15.31	8.05	14.65	8.50
960	12.50	6.26	13.17	6.89	13.98	7.52			15.63	8.15	14.96	8.62
940	12.81	6.38	13.48	7.01	14.31	7.65			15.95	8.25	15.26	8.74
920	13.13	6.49	13.78	7.12	14.65	7.78			16.27	8.35	15.57	8.85
900	13.44	6.61	14.09	7.24	14.98	7.91			16.59	8.45	15.87	8.97

Haulage Cycle Times

East Central 1W

(all times in min)

bench	HG		LG		Cat 4		OB		Cat 1/2		Cat 3	
	from	to	from	to	from	to	from	to	from	to	from	to
1620	2.92	2.66	3.63	3.29	5.87	5.47	8.70	7.92	6.04	5.24	7.00	6.58
1600	2.92	2.66	3.63	3.29	5.87	5.47	8.70	7.92	6.04	5.24	7.00	6.58
1580	3.29	2.92	4.24	3.77	6.27	5.75	9.31	8.17	6.88	5.53	7.40	6.86
1560	3.65	3.18	4.84	4.25	6.66	6.02	9.92	8.42	7.71	5.81	7.79	7.13
1540	3.97	3.31	5.03	4.23	7.09	6.19	9.92	8.42	8.03	5.94	8.11	7.26
1520	4.29	3.44	5.23	4.21	7.51	6.36			8.35	6.07	8.43	7.39
1500	4.61	3.57	5.42	4.19	7.94	6.53			8.67	6.20	8.75	7.52
1480	4.98	3.71	5.75	4.34	8.27	6.68			10.39	6.80	9.30	7.75
1460	5.34	3.85	6.09	4.48	8.61	6.82			12.12	7.40	9.84	7.98
1440	5.71	3.99	6.42	4.63	8.94	6.97			13.84	8.00	10.39	8.21
1420	6.10	4.23	6.81	4.87	9.33	7.21			14.02	8.14	10.78	8.45
1400	6.49	4.47	7.20	5.11	9.72	7.45			14.20	8.28	11.17	8.69
1380	6.88	4.70	7.59	5.34	10.11	7.68			14.37	8.41	11.56	8.93
1360	7.27	4.94	7.98	5.58	10.50	7.92			14.55	8.55	11.95	9.17
1340	7.57	5.01	8.25	5.65	10.77	7.99			14.68	8.56	12.22	9.24
1320	7.88	5.09	8.52	5.73	11.04	8.07			14.80	8.57	12.49	9.31
1300	8.18	5.16	8.78	5.80	11.30	8.14			14.93	8.57	12.75	9.38
1280	8.48	5.23	9.05	5.87	11.57	8.21			15.05	8.58	13.02	9.45
1260	8.70	5.28	9.31	5.92	11.83	8.26			15.17	8.57	13.32	9.47
1240	8.92	5.33	9.57	5.97	12.09	8.31			15.29	8.55	13.61	9.50
1220	9.14	5.38	9.83	6.02	12.35	8.36			15.41	8.54	13.91	9.52
1200	9.36	5.43	10.09	6.06	12.60	8.40			15.52	8.53	14.20	9.54
1180	9.58	5.48	10.35	6.11	12.86	8.45			15.64	8.51	14.50	9.57
1160	9.80	5.53	10.61	6.16	13.12	8.50			15.76	8.50	14.79	9.59
1140												
1120												
1100												
1080												
1060												
1040												
1020												
1000												
980												
960												
940												
920												

East Central 2W

(all times in min)

bench	HG		LG		Cat 4		OB		Cat 1/2		Cat 3	
	from	to	from	to	from	to	from	to	from	to	from	to
1620	3.65	3.18	4.84	4.25	6.66	6.02	9.92	8.42	7.71	5.81	7.79	7.13
1600	3.65	3.18	4.84	4.25	6.66	6.02	9.92	8.42	7.71	5.81	7.79	7.13
1580	3.65	3.18	4.84	4.25	6.66	6.02	9.92	8.42	7.71	5.81	7.79	7.13
1560	3.65	3.18	4.84	4.25	6.66	6.02	9.92	8.42	7.71	5.81	7.79	7.13
1540	3.97	3.31	5.03	4.23	7.09	6.19	9.92	8.42	8.03	5.94	8.11	7.26
1520	4.29	3.44	5.23	4.21	7.51	6.36	9.92	8.42	8.35	6.07	8.43	7.39
1500	4.61	3.57	5.42	4.19	7.94	6.53			8.67	6.20	8.75	7.52
1480	4.98	3.71	5.75	4.34	8.27	6.68			10.39	6.80	9.30	7.75
1460	5.34	3.85	6.09	4.48	8.61	6.82			12.12	7.40	9.84	7.98
1440	5.71	3.99	6.42	4.63	8.94	6.97			13.84	8.00	10.39	8.21
1420	6.10	4.23	6.81	4.87	9.35	7.21			14.02	8.14	10.78	8.45
1400	6.49	4.47	7.20	5.11	9.76	7.45			14.20	8.28	11.17	8.69
1380	6.88	4.70	7.59	5.34	10.16	7.68			14.37	8.41	11.56	8.93
1360	7.27	4.94	7.98	5.58	10.57	7.92			14.55	8.55	11.95	9.17
1340	7.43	4.83	8.14	5.47	10.69	7.81			14.42	8.32	12.11	9.06
1320	7.58	4.72	8.29	5.36	10.81	7.70			14.29	8.08	12.26	8.94
1300	7.87	4.82	8.58	5.46	11.10	7.80			14.50	8.14	12.57	9.03
1280	8.16	4.92	8.87	5.56	11.39	7.90			14.70	8.21	12.88	9.11
1260	8.45	5.03	9.16	5.66	11.68	8.00			14.91	8.27	13.19	9.20
1240	8.74	5.13	9.45	5.76	11.97	8.10			15.11	8.33	13.50	9.29
1220	9.03	5.23	9.74	5.87	12.26	8.21			15.32	8.40	13.82	9.38
1200	9.32	5.33	10.03	5.97	12.54	8.31			15.52	8.46	14.13	9.46
1180	9.61	5.43	10.32	6.07	12.83	8.41			15.73	8.52	14.44	9.55
1160	9.90	5.54	10.61	6.17	13.12	8.51			15.93	8.58	14.75	9.64
1140	10.19	5.64	10.90	6.27	13.41	8.61			16.14	8.65	15.06	9.72
1120	10.48	5.74	11.19	6.37	13.70	8.71			16.34	8.71	15.37	9.81
1100	11.06	6.09	11.41	6.40	15.02	9.45			16.68	8.97	15.85	10.00
1080	11.63	6.43	11.63	6.43	16.33	10.19			17.02	9.22	16.33	10.19
1060	12.44	6.78	12.44	6.78	16.35	10.12			17.07	9.18	16.68	10.31
1040	13.25	7.13	13.25	7.13	16.37	10.04			17.13	9.13	17.03	10.43
1020	14.06	7.48	14.06	7.48	16.39	9.97			17.18	9.09	17.38	10.55
1000	14.87	7.83	14.87	7.83	16.40	9.90			17.24	9.04	17.72	10.67
980	15.68	8.18	15.68	8.18	16.42	9.83			17.29	9.00	18.07	10.79
960	16.49	8.53	16.49	8.53	16.44	9.75			17.35	8.95	18.42	10.91
940	17.30	8.88	17.30	8.88	16.46	9.68			17.40	8.91	18.77	11.03
920												

East Central 1M

(all times in min)

bench	HG		LG		Cat 4		OB		Cat 1/2		Cat 3	
	from	to	from	to	from	to	from	to	from	to	from	to
1620	3.33	2.92	3.90	3.41	5.24	4.48	7.89	6.30	9.31	5.55	6.73	5.76
1600	3.33	2.92	3.90	3.41	5.24	4.48	7.89	6.30	9.31	5.55	6.73	5.76
1580	3.33	2.92	3.90	3.41	5.24	4.48	7.89	6.30	9.31	5.55	6.73	5.76
1560	3.57	2.97	4.13	3.46	5.48	4.53	7.89	6.30	9.33	5.50	7.02	5.77
1540	3.80	3.02	4.37	3.51	5.71	4.58	7.89	6.30	9.35	5.46	7.31	5.79
1520	4.04	3.07	4.60	3.56	5.95	4.63			9.37	5.41	7.59	5.80
1500	4.27	3.12	4.83	3.61	6.18	4.68			9.39	5.36	7.88	5.81
1480	4.60	3.31	5.02	3.67	6.53	4.88			9.60	5.49	8.23	6.00
1460	4.93	3.49	5.21	3.74	6.88	5.07			9.80	5.62	8.58	6.20
1440	5.26	3.68	5.40	3.80	7.22	5.27			10.01	5.75	8.92	6.39
1420	5.59	3.86	5.59	3.86	7.57	5.46			10.21	5.88	9.27	6.58
1400	5.93	4.00	5.93	4.00	7.90	5.60			10.43	5.97	9.67	6.75
1380	6.26	4.14	6.26	4.14	8.24	5.74			10.65	6.06	10.07	6.92
1360	6.60	4.29	6.60	4.29	8.57	5.89			10.88	6.15	10.47	7.09
1340	6.93	4.43	6.93	4.43	8.91	6.03			11.10	6.24	10.87	7.26
1320	7.27	4.57	7.27	4.57	9.24	6.17			11.32	6.33	11.27	7.43
1300	7.61	4.71	7.61	4.71	9.57	6.31			11.54	6.42	11.66	7.59
1280	7.94	4.85	7.94	4.85	9.91	6.45			11.76	6.51	12.06	7.76
1260	8.28	5.00	8.28	5.00	10.24	6.60			11.99	6.60	12.46	7.93
1240	8.61	5.14	8.61	5.14	10.58	6.74			12.21	6.69	12.86	8.10
1220	8.95	5.28	8.95	5.28	10.91	6.88			12.43	6.78	13.26	8.27
1200												
1180												
1160												
1140												
1120												
1100												
1080												
1060												
1040												
1020												
1000												
980												
960												
940												
920												
900												
880												
860												
840												
820												
800												

East Central 2M

(all times in min)

bench	HG		LG		Cat 4		OB		Cat 1/2		Cat 3	
	from	to	from	to	from	to	from	to	from	to	from	to
1620	7.38	5.88	7.38	5.88	5.68	4.75	6.19	4.30	8.32	5.17	7.38	5.88
1600	7.38	5.88	7.38	5.88	5.68	4.75	6.19	4.30	8.32	5.17	7.38	5.88
1580	7.38	5.88	7.38	5.88	5.68	4.75	6.19	4.30	8.32	5.17	7.38	5.88
1560	7.38	5.88	7.38	5.88	5.68	4.75	6.19	4.30	8.32	5.17	7.38	5.88
1540	7.13	5.57	7.13	5.57	5.95	4.83	6.19	4.30	8.43	5.18	7.75	6.00
1520	6.88	5.27	6.88	5.27	6.23	4.92	6.19	4.30	8.54	5.19	8.11	6.12
1500	6.63	4.96	6.63	4.96	6.50	5.00	6.19	4.30	8.65	5.20	8.48	6.24
1480	6.37	4.66	6.37	4.66	6.77	5.08			8.77	5.21	8.84	6.36
1460	6.12	4.35	6.12	4.35	7.04	5.16			8.88	5.22	9.21	6.48
1440	5.87	4.05	5.87	4.05	7.32	5.25			8.99	5.23	9.57	6.60
1420	5.62	3.74	5.62	3.74	7.59	5.33			9.10	5.24	9.94	6.72
1400	5.94	3.86	5.94	3.86	7.91	5.46			9.25	5.29	10.21	6.84
1380	6.25	3.99	6.25	3.99	8.22	5.58			9.39	5.33	10.48	6.96
1360	6.57	4.11	6.57	4.11	8.54	5.71			9.54	5.38	10.75	7.07
1340	6.88	4.24	6.88	4.24	8.85	5.83			9.68	5.43	11.02	7.19
1320	7.20	4.36	7.20	4.36	9.17	5.96			9.83	5.48	11.29	7.31
1300	7.51	4.48	7.51	4.48	9.48	6.08			9.97	5.52	11.55	7.43
1280	7.83	4.61	7.83	4.61	9.80	6.21			10.12	5.57	11.82	7.55
1260	8.14	4.73	8.14	4.73	10.11	6.33			10.26	5.62	12.09	7.66
1240	8.46	4.86	8.46	4.86	10.43	6.46			10.41	5.66	12.36	7.78
1220	8.77	4.98	8.77	4.98	10.74	6.58			10.55	5.71	12.63	7.90
1200	9.07	5.09	9.07	5.09	11.04	6.69			10.77	5.78	12.97	8.02
1180	9.38	5.20	9.38	5.20	11.35	6.80			10.99	5.85	13.30	8.15
1160	9.68	5.31	9.68	5.31	11.65	6.91			11.20	5.92	13.64	8.27
1140	9.98	5.42	9.98	5.42	11.95	7.02			11.42	6.00	13.97	8.40
1120	10.29	5.53	10.29	5.53	12.26	7.13			11.64	6.07	14.31	8.52
1100	10.59	5.64	10.59	5.64	12.56	7.24			11.86	6.14	14.64	8.64
1080	10.89	5.75	10.89	5.75	12.86	7.35			12.08	6.21	14.98	8.77
1060	11.20	5.86	11.20	5.86	13.16	7.46			12.29	6.28	15.31	8.89
1040	11.50	5.97	11.50	5.97	13.47	7.57			12.51	6.35	15.65	9.02
1020	11.81	6.09	11.81	6.09	13.77	7.69			12.73	6.43	15.98	9.14
1000	12.11	6.20	12.11	6.20	14.07	7.80			12.95	6.50	16.32	9.26
980	12.41	6.31	12.41	6.31	14.38	7.91			13.17	6.57	16.65	9.39
960	12.72	6.42	12.72	6.42	14.68	8.02			13.38	6.64	16.99	9.51
940	13.02	6.53	13.02	6.53	14.98	8.13			13.60	6.71	17.32	9.64
920	13.32	6.64	13.32	6.64	15.29	8.24			13.82	6.78	17.66	9.76
900	13.63	6.75	13.63	6.75	15.59	8.35			14.04	6.85	17.99	9.88
880	13.93	6.86	13.93	6.86	15.89	8.46			14.26	6.93	18.33	10.01
860	14.23	6.97	14.23	6.97	16.19	8.57			14.47	7.00	18.66	10.13
840	14.54	7.08	14.54	7.08	16.50	8.68			14.69	7.07	19.00	10.26
820	14.84	7.19	14.84	7.19	16.80	8.79			14.91	7.14	19.33	10.38
800												

Major Equipment Mechanical Availability

Cat 793	
AVAILABILITY	
hours	avail
0	0.90
6,000	0.88
12,000	0.86
18,000	0.85
24,000	0.85
30,000	0.85
36,000	0.85
42,000	0.85
48,000	0.85
54,000	0.85
60,000	0.85
66,000	0.85
72,000	0.85
78,000	0.85
84,000	0.85
90,000	0.85
96,000	0.85
102,000	0.85
108,000	0.85

Komatsu 830E AC	
AVAILABILITY	
hours	avail
0	0.90
6,000	0.88
12,000	0.86
18,000	0.85
24,000	0.85
30,000	0.85
36,000	0.85
42,000	0.85
48,000	0.85
54,000	0.85
60,000	0.85
66,000	0.85
72,000	0.85
78,000	0.85
84,000	0.85
90,000	0.85
96,000	0.85
102,000	0.85
108,000	0.85

Pit Viper 351 (d)	
AVAILABILITY	
hours	avail
0	0.90
6,000	0.88
12,000	0.86
18,000	0.84
24,000	0.82
30,000	0.80
36,000	0.80
42,000	0.80
48,000	0.80
54,000	0.80
60,000	0.80
66,000	0.80
72,000	0.80
78,000	0.80
84,000	0.80
90,000	0.80
96,000	0.80
102,000	0.80
108,000	0.80

BE 59R Used (e)	
AVAILABILITY	
hours	avail
0	0.90
6,000	0.88
12,000	0.86
18,000	0.84
24,000	0.82
30,000	0.80
36,000	0.80
42,000	0.80
48,000	0.80
54,000	0.80
60,000	0.80
66,000	0.80
72,000	0.80
78,000	0.80
84,000	0.80
90,000	0.80
96,000	0.80
102,000	0.80
108,000	0.80

PC 5500E	
AVAILABILITY	
hours	avail
0	0.90
6,000	0.88
12,000	0.86
18,000	0.85
24,000	0.85
30,000	0.85
36,000	0.85
42,000	0.85
48,000	0.85
54,000	0.85
60,000	0.85
66,000	0.85
72,000	0.85
78,000	0.85
84,000	0.85
90,000	0.85
96,000	0.85
102,000	0.85
108,000	0.85

Cat 994	
AVAILABILITY	
hours	avail
0	0.90
6,000	0.88
12,000	0.86
18,000	0.84
24,000	0.84
30,000	0.84
36,000	0.84
42,000	0.84
48,000	0.84
54,000	0.84
60,000	0.84
66,000	0.84
72,000	0.84
78,000	0.84
84,000	0.84
90,000	0.84
96,000	0.84
102,000	0.84
108,000	0.84

Equipment and ManPower Calculations

Calendar Days	365
Scheduled Shutdown	
Unscheduled Days Down - weather	
Total	365
Shifts / Day	2
Scheduled Hours / Shift	12
Lunch Break	0.3
Shift Start / Shutdown	
Coffee Breaks	0.3
Miscellaneous - Blasting & Moves	
Standard Work Week	40
Weeks per year	52
number of shifts	2
Based Pay hours	2,080
Scheduled OT	9.00%
UnScheduled OT %	
OT payrate	1.5
Total Payhours	2,361
Vacation Allowance (hours)	80
Absenteeism %	1.00%
Sick time %	0.30%
Worked hours	2160

Pre-Production	months
Year -2	
Year -1	12

Equipment Cycle times	
min on dump	**1.00**
min at crusher	**1.00**

Duties and Import Taxes

Explosives Accessories	Waste		Ore		Wall Control	
	Unit Cost		Unit Cost		Unit Cost	
Boosters	$6.85	per booste	$6.85	per booste	$6.85	per booster
Downline		per metre		per metre		per metre
Trunkline	$0.51	per metre	$0.51	per metre	$0.51	per metre
Surface Delays	$3.96	per delay	$3.96	per delay	$3.96	per delay
DownHole Delays	$6.16	per delay	$6.16	per delay	$6.16	per delay
Initiation	$60.00	per blast	$60.00	per blast	$60.00	per blast
Miscellaneous including Liners	$4.00	per hole	$2.00	per hole	$2.00	per hole

Secondary Blasting & Development	
Explosives	of Primary Blast
Accessories	of Primary Blast

AN/FO to Emulsion Proportion (by volume)	Primary	Perimeter
AN/FO	0.7	0.7
Emulsion	0.3	0.3

Swell Factor	150%
Moisture	3%

General Blasting Related Costs (contract)			
Fixed Installations	number		
Explosives Magazine	1		/month
Accessories Magazine	1		/month
Pickup Trucks & Pumps & Labour	1	$49,800	/month

Explosives Type	
Ore (bulk/package)	bulk
Waste (bulk/package)	bulk

Explosives Package Costs	$/hole
Ore	$50.00
Waste	$125.00

AN/FO Fuel Calculations		
Ammonium Nitrate	$42.90	/100 kg
Fuel Price	$0.724	/litre
Fuel Density	1.25	kg/l
Fuel Price	$57.91	100 kg
Fuel Content	6.00%	by weight
Blended Price	$43.80	/100 kg
Emulsion costs	$48.40	/100 kg
Emulsion S.G.	1.25	

Est Mill Operating cost ($/t)	
Est G & A Cost (x 1000 $/year)	year
Mill Capital Estimate (year -1 $k)	-2
Other Capital Est (year -1 $k)	-1

Input data for Fuel/Power

Diesel	0.724	$/litre
Gasoline		$/litre
Electricity	0.045	$/kWh

Property Drilling Parameters		
Drilling	Bit Diameter (mm)	
Ore Drilling	311.00	
Waste Drilling	311.00	20
Bench height - Ore	**12.2**	
Bench height - Waste	12.2	
Perimeter Drilling (Yes/N	**no**	
Secondary Drilling (% of		

	STAFF	Local Salaries XXX/year	US$/year	Expatriate living Allowance	Burden	Annual Salaries $US/year
MINE MAINTENANCE						
1	Maintenance Superintendent	100,000	100,000		26%	126,400
2	Contract Manager	85,000	85,000		29%	109,990
3	Equipment Manager	80,000	80,000		31%	104,560
4	Maintenance Planner	70,000	70,000		34%	93,660
5	Clerk/Secretary	50,000	50,000		44%	71,900
MINE OPERATIONS						
1	Mine Operations Superintendent	120,000	120,000		24%	148,200
2	Mine General Foreman	85,000	85,000		29%	109,990
3	Mine Shift Foreman	80,000	80,000		31%	104,560
4	Drill and Blast Foreman	80,000	80,000		31%	104,560
5	Services Foreman	70,000	70,000		34%	93,660
6	Clerk/Secretary	50,000	50,000		44%	71,900
7	Dispatch	70,000	70,000		34%	93,660
MINE ENGINEERING						
1	Chief Engineer	100,000	100,000		26%	126,400
2	Senior Engineer	80,000	80,000		31%	104,560
3	Open Pit Planning Engineer	70,000	70,000		34%	93,660
4	Surveyor/Mining Technician	60,000	60,000		34%	80,280
5	Clerk/Secretary	50,000	50,000		44%	71,900
6						
7						
8						
9						
10						
11						
GEOLOGY						
1	Chief Geologist	100,000	100,000		26%	126,400
2	Senior Geologist	80,000	80,000		31%	104,560
3	Grade Control Geologist	70,000	70,000		34%	93,660
4	Sampling Technician	60,000	60,000		34%	80,280
5	Clerk/Secretary	50,000	50,000		44%	71,900
6						
7						
8						

	HOURLY	Local Salaries XXX/hour	$ US /hour	Burden	Annual Salaries $US/year
MINE MAINTENANCE					
1	Light Duty Mechanic	23.80	23.80	46%	81,808
2	Tire Man	23.80	23.80	46%	81,808
3	Lube Truck Driver	21.89	21.89	48%	76,638
4	Apprentice				
1	Heavy Duty Mechanic				
2	Welder				
3	Electrician	26.26	26.26	43%	88,404
MINE OPERATIONS					
1	Tool Crib Attendent				
2	Warehouse Attendent				
3	General Mine Labourer	20.25	20.25	51%	72,283
4	Trainee	20.25	20.25	51%	49,015
1	Drill Operator 1	23.80	23.80	46%	81,808
2	Drill Operator 2	23.80	23.80	46%	81,808
1	Blasters	23.80	23.80	46%	81,808
2	Blaster Helper	23.80	23.80	46%	81,808
1	PC 5500E	26.26	26.26	43%	88,404
2	Cat 994	26.26	26.26	43%	88,404
3					
4					
1	Cat 793	24.89	24.89	44%	84,732
2	Komatsu 830E AC	24.89	24.89		58,760
3					
4					
5					
1	Dozer Operator	24.89	24.89	44%	84,732
2	Grader / RT Operator	24.89	24.89	44%	84,732
3	Water Truck Driver	21.89	21.89	48%	76,638
4	Backhoe Operator	24.89	24.89	44%	84,732

			Track Dozer	Grader	Rubber Tired Dozer	Transfer Loader	Backhoe with hammer	Water/Sand Truck - 777	Tailings Dozer - D8T LGP
Schedule Data									
	Calendar Days	days/year	365	365	365	365	365	365	365
	Scheduled Shutdown	days/year	0	0	0	0	0	0	0
	Unscheduled Days Down - weather	days/year	0	0	0	0	0	0	0
	Mine Work Days	days/year	365	365	365	365	365	365	365
	Shifts / Day	shifts/day	2	2	2	2	2	2	2
	Scheduled Hours / Shift	hours/shift	12	12	12	12	12	12	12
	Scheduled Hours / Year	hours/year	8,760	8,760	8,760	8,760	8,760	8,760	8,760
(T)	**Total Theoretical**	hours/year	8,760	8,760	8,760	8,760	8,760	8,760	8,760
(SU)	Scheduled & Unscheduled Shutdown	hours/year	0	0	0	0	0	0	0
Standby									
	Lunch Break	hours/shift	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	Shift Start / Shutdown	hours/shift	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Coffee Breaks	hours/shift	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	Miscellaneous - Blasting & Moves	hours/shift	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total Standby	hours/shift	0.6	0.6	0.6	0.6	0.6	0.6	0.6
(S)	**Total Standby**	hours/year	438	438	438	438	438	438	438
	Available Working Hours	hours/day	22.8	22.8	22.8	22.8	22.8	22.8	22.8
	Available Working Hours	hours/year	8,322	8,322	8,322	8,322	8,322	8,322	8,322
Annual Hours									
(T)	Total Theoretical	hours/year	8,760	8,760	8,760	8,760	8,760	8,760	8,760
(SU)	Scheduled & Unscheduled Shutdown	hours/year	0	0	0	0	0	0	0
(S)	Total Standby	hours/year	438	438	438	438	438	438	438
(W)+(R)	Work + Repair = (T-S-SU)	hours/year	8,322	8,322	8,322	8,322	8,322	8,322	8,322
(W)	Work = MA x (T-S-SU)	hours/year	7,077	7,077	7,077	7,077	7,077	7,077	7,077
Mechanical Availability									
	Scheduled Downtime	shifts/year	26	26	26	26	26	26	26
	Scheduled Downtime	hours/year	312	312	312	312	312	312	312
	Scheduled Downtime		3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%
	Unscheduled Downtime		11.4%	11.4%	11.4%	11.4%	11.4%	11.4%	11.4%
	Total Downtime		15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
	Shifts Available for Scheduling	shifts	704	704	704	704	704	704	704
(MA)	Mechanical Availability		85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%
(PA)	Physical Availability = (W+S)/T		85.8%	85.8%	85.8%	85.8%	85.8%	85.8%	85.8%
(UA)	Use of Availability = W/(W+S)		94.2%	94.2%	94.2%	94.2%	94.2%	94.2%	94.2%
(EU)	Effective Utilization = PA x UA		80.8%	80.8%	80.8%	80.8%	80.8%	80.8%	80.8%
Annual Production									
(WH)	Work Hours / Year	hours/year	7,077	7,077	7,077	7,077	7,077	7,077	7,077
	Operating Efficiency - operation based		83.3%	83.3%	83.3%	83.3%	83.3%	83.3%	83.3%
(OH)	Operating Hours / Year	hours/year	5,895	5,895	5,895	5,895	5,895	5,895	5,895

Loading Equipment	Capital Cost	Machine Life (in hrs)	# of units	Initial year required	Fuel Type (d/g/e)	Consumption (l/hr or KW/hr)	Lube, Oil & Filters (% of	Number of tires	Size	Life	Tire Price	Under Carriage	R&M Reserve	Special Wear	Operator Eff	dipper size	Bucket Fill Factor	Average Cycle time	Truck Spot Time	Static tipping	Trk Av. To Loader
1 PC 5500E	$10,166,000	60,000	2	-1	e	1541.0	10%					$50.00	$185.00	$68.00	83.3%	24	90%	33	42	75	80%
2 Cat 994	$3,641,000	25,000	1	-1	d	170.0	10%	4	55/80 R57	4000	$84,641		$47.58	$20.20	83.3%	16.4	90%	40	42	75	80%
3					d		10%								83.3%	15	90%	33	42	75	80%
4					d		10%								83.3%	10	90%	35	42	75	80%

Trucking	Capital Cost	Machine Life (in hrs)	# of units	Initial year required	Fuel Type (d/g/e)	Consumption (l/hr or KW/hr)	Lube, Oil & Filters (% of	Number of tires	Size	Life	Tire Price	Under Carriage	R&M Reserve	Special Wear	Operator Eff	Size Capacity m3	Size Capacity (wmt)	Nominal Truck
1 Cat 793	$2,750,000	60,000		-1	d	148.0	10%	6	40.00 R57	5500	$28,000		$82.53		83%	140 m³	240 t	241 t
2 Komatsu 830E AC	$3,178,200	60,000		-1	d	159.0	10%	6	40.00 R57	4000	$26,350		$75.60		83%	147 m³	240 t	240 t
3					d		10%								83%	78 m³	144 t	150 t
4					d		10%								83%	60 m³	91 t	100 t
5					d		10%								83%	129 m³	218 t	320 t

Drilling Equipment	Capital Cost	Machine Life (in hrs)	# of units	Initial year required	Fuel Type (d/g/e)	Consumption (l/hr or KW/hr)	Lube, Oil & Filters (% of fuel)	Drill Bits Unit Costs	Drill Bit Life (metres)	Under Carriage	R&M Reserve	Special Wear Items	Operator Eff	Scheduled Downtime (in shifts)	UnScheduled Downtime (in %)	Drill Type	Bit Diameter (mm)	Down Pressure	Move, Spot and Collar hole	Level Drill (in min)	Add Steel (in min)	Pull Rods (in min)	Penetration Rate Ore (metres/min)	Penetration Rate Waste (metres/min)	RPM
1 Pit Viper 351 (d)	$3,853,100	25,000		-1	d	159.0	10%	$6,019	1,448		$86.01		83.3%	52		Rotary	311.00	100,000	3.00	0.75		0.75	0.39	0.39	70
2 BE 59R Used (e)	$3,707,000	25,000		-1	e	700.0	10%	$6,019	1,448		$97.16		83.3%	52		Rotary	311.00	100,000	3.00	0.75		0.75	0.39	0.39	70
3													83.3%											0.60	

Support	Capital Cost	Machine Life (in hrs)	# of units	Initial year required	Fuel Type (d/g/e)	Consumption (l/hr or KW/hr)	Lube, Oil & Filters (% of fuel)	Number of tires	Size	Life	Tire Price	Under Carriage	R&M Reserve	Special Wear Items	Operator Eff	Scheduled Downtime	UnScheduled Downtime
1 Track Dozer	$1,050,000	35,000	3	-1	d	91.0	10%					$34.50	$39.50	$8.10	83.3%	26	11.4%
2 Grader	$675,000	20,000	2	-1	d	32.0	10%	6	18.00-25 12 PR	3000	$1,100		$28.09	$45.00	83.3%	26	11.4%
3 Rubber Tired Dozer	$1,068,000	30,000	1	-1	d	53.0	10%	4	35/65R33	5000	$10,700		$25.76	$2.10	83.3%	26	11.4%
4 Transfer Loader	$806,000	20,000	1	-1	d	55.0	10%	4	35/65R33	5200	$13,500		$28.05	$10.60	83.3%	26	11.4%
5 Backhoe with hammer	$745,000	10	1	-1	d	26.5	10%					$3.50	$20.49	$1.50	83.3%	26	11.4%
6 Water/Sand Truck - 777	$1,284,500	10	2	-1	d	75.7	10%	6	27.00 R49	5000	$13,600		$49.00		83.3%	26	11.4%
7 Tailings Dozer - D8T LGP	$688,600	10	1	-1	d	38.0	10%					$10.05	$17.77	$2.90	83.3%	26	11.4%
8				-1													

Mine General Equipment													
1 Lube/Fuel Truck	$160,000	6		-1	d	20.0	0.1	6	22.5R11	2000	$395		$5.00
2 Tire Manipulator and Loader	$503,000	4	1	-1	d	15.0	0.1	4	22.5R11	2000	$290		$5.00
3 Welding Truck	$208,000	6		-1	d		0.1	6	22.5R11	2000	$290		$5.00
4 Blasting Loader	$65,000	5		-1	d	10.0	0.1	6	12 x 16.5	2000	$250		$10.00
5 90 ton Crane	$709,500	15	1	-1	d	10.0	0.1	12	265/75 R16	2000	$450		$10.00
6 Integrated Tool Carrier	$256,000	10	1	-1	d	18.0	0.1	4	20.5R25	3000	$1,950		$16.00
7 Compactor	$170,000	10	1	-1	d	10.0	0.1						$10.00
8 Lighting Plants	$8,200	4	5	-1	d	6.0	0.1	2	265/75 R16	4000	$450		$2.00
9 Sanding Truck - Sterling	$350,000	10	2	-1	d	20.0	0.1	6	22.5R11	2000	$395		$15.00
10 Auxilary Pumps	$45,000	5	3	-1	d	10.0							$10.00
11 Pump Truck	$250,000	5	1	-1	d	15.0	0.1	6	22.5R11	2000	$395		$15.00
12 Man Bus	$80,000	5	2	-1	d	9.0	0.1	6		2000	$450		$5.00
13 Pickup Trucks	$40,000	2	8	-1	d	5.0	0.3	4	265/75 R16	2000	$450		$5.00
14 Ambulance	$100,000	10	1	-1									
15 Fire Truck	$200,000	10	1	-1									
2				-1									

Equipment Operating Costs - Hourly

Appendix - Equipment Hourly Operating Costs - Consumables

	Fuel $/hr	Power $/Ophr	Lube, Oil & Filters	Tires $/hr	Under-Carriage	R&M Reserve	Special Wear Items	Total	Drill Bits m/hr	Drill Bits $/hr	Drill Bits $/m
Drills											
Pit Viper 351 (d)	$115.09		$11.51			$86.01	$88.04	**$300.65**	21.2	$88.04	$4.16
BE 59R Used (e)		$31.50				$97.16	$88.04	**$216.70**	21.2	$88.04	$4.16
Loading Equipment									Tire unit cost	$/hr	
PC 5500E		$69.35			$50.00	$185.00	$68.00	**$372.35**			
Cat 994	$123.05		$12.31	$84.64		$47.58	$20.20	**$287.78**	$84,641	$84.64	
Hauling Equipment											
Cat 793	$107.13		$10.72	$30.55		$82.53		**$230.92**	$28,000	$30.55	
Komatsu 830E AC	$115.09		$11.51	$39.53		$75.60		**$241.72**	$26,350	$39.53	
Mine Support Equipment											
Track Dozer	$65.87		$6.59		$34.50	$39.50	$8.10	**$154.56**			
Grader	$23.16		$2.32	$2.20		$28.09	$45.00	**$100.77**	$1,100	$2.20	
Rubber Tired Dozer	$38.36		$3.84	$8.56		$25.76	$2.10	**$78.62**	$10,700	$8.56	
Transfer Loader	$39.81		$3.98	$10.38		$28.05	$10.60	**$92.83**	$13,500	$10.38	
Backhoe with hammer	$19.18		$1.92		$3.50	$20.49	$1.50	**$46.59**			
Water/Sand Truck - 777	$54.79		$5.48	$16.32		$49.00		**$125.59**	$13,600	$16.32	
Tailings Dozer - D8T LGP	$27.51		$2.75		$10.05	$17.77	$2.90	**$60.98**			
Mine General Equipment											
Lube/Fuel Truck	$14.48		$1.45	$1.19		$5.00		**$22.11**	$395	$1.19	
Tire Manipulator and Loade	$10.86		$1.09	$0.58		$5.00		**$17.52**	$290	$0.58	
Welding Truck				$0.87		$5.00		**$5.87**	$290	$0.87	
Blasting Loader	$7.24		$0.72	$0.75		$10.00		**$18.71**	$250	$0.75	
90 ton Crane	$7.24		$0.72	$2.70		$10.00		**$20.66**	$450	$2.70	
Integrated Tool Carrier	$13.03		$1.30	$2.60		$16.00		**$32.93**	$1,950	$2.60	
Compactor	$7.24		$0.72			$10.00		**$17.96**			
Lighting Plants	$4.34		$0.43	$0.23		$2.00		**$7.00**	$450	$0.23	
Auxilary Pumps	$7.24					$10.00		**$17.24**			
Man Bus	$6.51		$0.65	$1.35		$5.00		**$13.52**	$450	$1.35	
Pickup Trucks	3.619168		$0.90	$0.90		$5.00		**$10.42**	$450	$0.90	

																							17-Jan-08
Year of Operation		-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	**Total**
Operating Days	days		365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	**7,665**
Ore Mined	(t X 1000)		327.8	10,795.3	16,366.0	12,886.2	12,073.9	11,368.3	11,349.8	11,111.3	10,885.0	10,876.2	10,885.4	10,880.5	11,126.2	11,293.4	10,880.5	10,994.2	10,893.2	10,875.0	10,894.2	10,938.5	4,678.5	**222,379.4**
Waste Mined	(t X 1000)		6,747.8	29,349.3	25,769.4	23,306.1	18,853.8	14,198.9	8,756.4	5,564.8	9,257.5	9,016.2	10,730.1	10,263.9	7,310.4	12,100.1	14,246.4	13,735.8	16,698.4	18,717.0	8,285.0	5,320.8	2,599.2	**270,827.1**
Total Mined	(t X 1000)		7,075.6	40,144.6	42,135.4	36,192.3	30,927.7	25,567.2	20,106.2	16,676.1	20,142.5	19,892.4	21,615.5	21,144.4	18,436.5	23,393.5	25,126.9	24,730.0	27,591.5	29,592.0	19,179.2	16,259.3	7,277.7	**493,206.5**
Equipment Requirements																								
Drills																								
Pit Viper 351 (d)			630	5,365	6,045	4,789	4,236	3,376	3,034	2,597	3,019	2,987	2,934	3,142	2,817	3,122	3,640	3,392	3,949	4,199	2,898	2,554	1,134	**69,859**
BE 59R Used (e)			630	5,365	6,045	4,789	4,236	3,376	3,034	2,597	3,019	2,987	2,934	3,142	2,817	3,122	3,640	3,392	3,949	4,199	2,898	2,554	1,134	**69,859**
Loading Equipment																								
PC 5500E			2,521	12,925	13,565	11,934	10,185	8,546	6,474	5,369	6,484	6,403	7,081	6,807	5,935	7,800	8,090	8,129	7,207	6,880	6,175	5,236	2,674	**156,420**
Cat 994			477	2,431	2,551	2,245	1,915	1,615	1,217	1,010	1,220	1,205	1,556	1,280	1,116	1,474	1,522	1,529	4,506	6,271	1,161	984	506	**37,791**
Hauling Equipment																								
Cat 793			9,494	54,540	62,111	63,946	59,733	48,990	35,637	27,005	34,478	38,015	41,167	41,973	34,010	40,642	43,577	39,777	40,221	52,509	36,883	30,553	14,896	**850,158**
Komatsu 830E AC																								-
Mine Support Equipment																								
Track Dozer			7,120	12,000	12,000	12,000	12,000	12,000	8,909	6,751	8,619	9,504	10,292	10,493	8,503	10,160	10,894	9,944	10,055	12,000	9,221	7,638	11,172	**211,277**
Grader			5,696	8,800	8,800	8,800	8,800	8,800	7,127	5,401	6,896	7,603	8,233	8,395	6,802	8,128	8,715	7,955	8,044	8,800	7,377	6,111	8,938	**164,222**
Rubber Tired Dozer			3,148	4,400	4,400	4,400	4,235	3,556	2,692	2,233	2,696	2,663	3,023	2,830	2,468	3,246	3,364	3,380	4,100	4,400	2,568	2,177	3,339	**69,317**
Transfer Loader			665	3,818	4,348	4,400	4,181	3,429	2,495	1,890	2,413	2,661	2,882	2,938	2,381	2,845	3,050	2,784	2,815	3,676	2,582	2,139	1,043	**59,435**
Backhoe with hammer			354	2,007	2,107	1,810	1,546	1,278	1,005	834	1,007	380	432	404	353	464	481	483	586	658	367	311	159	**17,025**
Water/Sand Truck - 777			665	3,818	4,348	4,476	4,181	3,429	2,495	1,890	2,413	2,661	2,882	2,938	2,381	2,845	3,050	2,784	2,815	3,676	2,582	2,139	1,043	**59,511**
Tailings Dozer - D8T LGP			3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	3,650	**76,650**
Mine General Equipment																								
Lube/Fuel Truck																								
Tire Manipulator and Loader			730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	730	**15,330**
Welding Truck																								
Blasting Loader																								
90 ton Crane			91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	**1,916**
Integrated Tool Carrier			1,460	1,460	1,460	1,460	1,460	1,460	1,460	1,460	1,460	1,460	1,460	1,460	1,460	1,460	1,460	1,460	1,460	1,460	1,460	1,460	1,460	**30,660**
Compactor																								
Lighting Plants			18,250	18,250	18,250	18,250	18,250	18,250	18,250	18,250	18,250	18,250	18,250	18,250	18,250	18,250	18,250	3,650	3,650	3,650	3,650	3,650	3,650	**295,650**
Sanding Truck - Sterling			2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	1,095	1,095	1,095	1,095	1,095	1,095	**39,420**
Auxilary Pumps			2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	**45,990**
Pump Truck			1,095	1,095	1,095	1,095	1,095	1,095	1,095	1,095	1,095	1,095	1,095	1,095	1,095	1,095	1,095	2,190	2,190	2,190	2,190	2,190	2,190	**29,565**
Man Bus			2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	2,190	**45,990**
Pickup Trucks			29,200	29,200	29,200	29,200	29,200	29,200	29,200	29,200	29,200	29,200	29,200	29,200	29,200	29,200	29,200	29,200	29,200	29,200	29,200	29,200	29,200	**613,200**
Adjustment Factor	dozer and grader		3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	
	other support		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Mine Equipment - Fuel Summary

	type	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
Drills																								
Pit Viper 351 (d)	d		100,170	853,035	961,155	761,451	673,524	536,784	482,406	412,923	480,021	474,933	466,506	499,578	447,903	496,398	578,760	539,328	627,891	667,641	460,782	406,086	180,306	**11,107,581**
BE 59R Used (e)	e		441,000	3,755,500	4,231,500	3,352,300	2,965,200	2,363,200	2,123,800	1,817,900	2,113,300	2,090,900	2,053,800	2,199,400	1,971,900	2,185,400	2,548,000	2,374,400	2,764,300	2,939,300	2,028,600	1,787,800	793,800	**48,901,300**
Loading Equipment																								
PC 5500E	e		3,884,874	19,916,916	20,904,322	18,390,716	15,694,428	13,169,260	9,975,801	8,273,857	9,991,988	9,867,117	10,912,333	10,489,160	9,145,641	12,019,985	12,466,283	12,526,406	11,106,577	10,602,468	9,515,629	8,068,051	4,120,741	**241,042,554**
Cat 994	d		81,122	413,265	433,673	381,633	325,510	274,490	206,888	171,684	207,398	204,847	264,541	217,602	189,796	250,510	258,673	259,949	766,071	1,066,071	197,449	167,347	85,969	**6,424,490**
	d																							
	d																							
Hauling Equipment																								
Cat 793	d		1,405,051	8,071,958	9,192,422	9,463,955	8,840,419	7,250,582	5,274,321	3,996,807	5,102,687	5,626,259	6,092,682	6,212,004	5,033,550	6,015,006	6,449,443	5,887,061	5,952,771	7,771,338	5,458,618	4,521,813	2,204,629	**125,823,376**
Komatsu 830E AC	d																							
	d																							
	d																							
	d																							
Mine Support Equipment																								
Track Dozer	d		647,938	1,092,000	1,092,000	1,092,000	1,092,000	1,092,000	810,749	614,374	784,366	864,847	936,544	954,886	773,738	924,604	991,384	904,937	915,037	1,092,000	839,078	695,076	1,016,662	**19,226,219**
Grader	d		182,277	281,600	281,600	281,600	281,600	281,600	228,079	172,835	220,657	243,298	263,467	268,627	217,667	260,108	278,895	254,576	257,417	281,600	236,048	195,538	286,006	**5,255,095**
Rubber Tired Dozer	d		166,850	233,200	233,200	233,200	224,443	188,478	142,660	118,331	142,911	141,129	160,225	150,009	130,802	172,027	178,290	179,153	217,289	233,200	136,091	115,381	176,954	**3,673,824**
Transfer Loader	d		36,550	209,980	239,127	242,000	229,970	188,613	137,204	103,971	132,739	146,359	158,492	161,596	130,940	156,471	167,773	153,143	154,852	202,160	141,998	117,628	57,350	**3,268,917**
Backhoe with hammer	d		9,375	53,192	55,829	47,955	40,979	33,877	26,641	22,096	26,689	10,081	11,445	10,715	9,343	12,288	12,735	12,797	15,521	17,425	9,721	8,241	4,213	**451,156**
Water/Sand Truck - 777	d		50,307	289,009	329,126	338,848	316,523	259,600	188,842	143,102	182,697	201,443	218,143	222,415	180,221	215,362	230,916	210,781	213,133	278,245	195,441	161,899	78,935	**4,504,987**
Tailings Dozer - D8T LGP	d		138,700	138,700	138,700	138,700	138,700	138,700	138,700	138,700	138,700	138,700	138,700	138,700	138,700	138,700	138,700	138,700	138,700	138,700	138,700	138,700	138,700	**2,912,700**
Mine General Equipment																								
Lube/Fuel Truck	d																							
Tire Manipulator and Loader	d		10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	10,950	**229,950**
Welding Truck	d																							
Blasting Loader	d																							
90 ton Crane	d		913	913	913	913	913	913	913	913	913	913	913	913	913	913	913	913	913	913	913	913	913	**19,163**
Integrated Tool Carrier	d		26,280	26,280	26,280	26,280	26,280	26,280	26,280	26,280	26,280	26,280	26,280	26,280	26,280	26,280	26,280	26,280	26,280	26,280	26,280	26,280	26,280	**551,880**
Compactor	d																							
Lighting Plants	d		109,500	109,500	109,500	109,500	109,500	109,500	109,500	109,500	109,500	109,500	109,500	109,500	109,500	109,500	109,500	21,900	21,900	21,900	21,900	21,900	21,900	**1,773,900**
Sanding Truck - Sterling	d		43,800	43,800	43,800	43,800	43,800	43,800	43,800	43,800	43,800	43,800	43,800	43,800	43,800	43,800	43,800	21,900	21,900	21,900	21,900	21,900	21,900	**788,400**
Auxilary Pumps	d		21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	**459,900**
Pump Truck	d		16,425	16,425	16,425	16,425	16,425	16,425	16,425	16,425	16,425	16,425	16,425	16,425	16,425	16,425	16,425	32,850	32,850	32,850	32,850	32,850	32,850	**443,475**
Man Bus	d		19,710	19,710	19,710	19,710	19,710	19,710	19,710	19,710	19,710	19,710	19,710	19,710	19,710	19,710	19,710	19,710	19,710	19,710	19,710	19,710	19,710	**413,910**
Pickup Trucks	d		146,000	146,000	146,000	146,000	146,000	146,000	146,000	146,000	146,000	146,000	146,000	146,000	146,000	146,000	146,000	146,000	146,000	146,000	146,000	146,000	146,000	**3,066,000**
Ambulance																								
Fire Truck																								
Dewatering																								
Other																								
Engineering																								
Fuel Summary																								
Power			4325873.95	23672416.27	25135821.7	21743016	18659628.3	15532460.2	12099601.32	10091756.54	12105288.3	11958017.35	12966133.43	12688559.66	11117540.76	14205384.99	15014283.01	14900806.06	13870877.13	13541768.49	11544228.75	9855850.72	4914541.297	
Gasoline																								
Diesal			3,213,818	12,031,417	13,352,310	13,376,819	12,559,145	10,640,201	8,031,967	6,290,300	7,814,342	8,447,372	9,106,222	9,231,610	7,648,138	9,036,953	9,681,047	8,842,826	9,561,086	12,050,784	8,116,329	6,830,112	4,532,127	**190,394,923**
Blasting Fuel			55,574	487,696	556,525	440,750	390,867	314,291	284,365	245,629	282,268	279,478	274,894	293,117	264,991	291,999	336,817	315,191	363,832	385,676	271,774	241,637	106,892	**6,484,263**
Total Fuel			3,269,392	12,519,113	13,908,835	13,817,569	12,950,012	10,954,492	8,316,331	6,535,929	8,096,610	8,726,850	9,381,116	9,524,726	7,913,129	9,328,952	10,017,864	9,158,017	9,924,918	12,436,460	8,388,103	7,071,748	4,639,018	**196,879,186**

Mine Staff Manpower Requirments

	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	ManYears
MINE MAINTENANCE																							
Maintenance Superintendent																							
Contract Manager		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		**20**
Equipment Manager		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		**20**
Maintenance Planner		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**21**
Clerk/Secretary																							
Subtotal		**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**1**	**61**
MINE OPERATIONS																							
Mine Operations Superintendent		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**21**
Mine General Foreman		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**103**
Mine Shift Foreman		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	2	**82**
Drill and Blast Foreman																							
Services Foreman		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		**20**
Clerk/Secretary		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**10**
Dispatch		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	2	
Subtotal		**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**7**	**247**
MINE ENGINEERING																							
Chief Engineer		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		**20**
Senior Engineer		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**21**
Open Pit Planning Engineer		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	**41**
Surveyor/Mining Technician		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	2	**82**
Clerk/Secretary		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**21**
Subtotal		**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**5**	**185**
GEOLOGY																							
Chief Geologist																							
Senior Geologist		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		**20**
Grade Control Geologist		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	**21**
Sampling Technician		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	**41**
Clerk/Secretary																							
Subtotal		**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**2**	**82**
TOTAL MINE STAFF		**28**	**28**	**28**	**28**	**28**	**28**	**28**	**28**	**28**	**28**	**28**	**28**	**28**	**28**	**28**	**28**	**28**	**28**	**28**	**28**	**15**	**493**

Mine Manpower Requirements

	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	ManYears
MINE GENERAL																							
Operations																							
Tool Crib Attendent																							
Warehouse Attendent																							
General Mine Labourer		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	3	**120**
Trainee		2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	1	1	**76**
Maintenance																							
Light Duty Mechanic																							
Tire Man		2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	**62**
Lube Truck Driver																							
Subtotal		**10**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**13**	**7**	**7**	**258**
DRILLING																							
Operations																							
Drill Operator 1		2	3	3	3	3	2	4	2	2	2	2	2	2	2	4	2	2	2	2	1.2	0.6	**48**
Drill Operator 2		1	3	3	3	3	2	4	2	2	2	2	2	2	2	2	2	2	2	2	1	1	**45**
Maintenance																							
Heavy Duty Mechanic																							
Welder																							
Electrician		0.2	0.3	0.3	0.3	0.3	0.2	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	
Subtotal		**3**	**6**	**6**	**6**	**6**	**4**	**8**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**6**	**4**	**4**	**4**	**4**	**3**	**1**	**93**
BLASTING																							
Operations																							
Blasters																							
Blaster Helper																							
Subtotal																							
LOADING																							
Operations																							
PC 5500E		2	7	7	6	5	5	4	3	4	4	4	4	3	4	4	4	4	4	4	3	2	**87**
Cat 994		2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	4	2	2	2	**47**
Maintenance																							
Heavy Duty Mechanic																							
Welder																							
Electrician			0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1		
Subtotal		**4**	**10**	**9**	**8**	**7**	**7**	**6**	**5**	**6**	**6**	**6**	**6**	**5**	**6**	**6**	**6**	**8**	**8**	**6**	**5**	**4**	**134**
HAULING																							
Operations																							
Cat 793		5	27	30	31	29	24	17	13	17	19	20	21	17	20	21	19	20	26	18	15	8	**417**
Komatsu 830E AC																							
Maintenance																							
Heavy Duty Mechanic																							
Welder																							
Subtotal		**5**	**27**	**30**	**31**	**29**	**24**	**17**	**13**	**17**	**19**	**20**	**21**	**17**	**20**	**21**	**19**	**20**	**26**	**18**	**15**	**8**	**417**
MINE OPERATIONS SUPPORT																							
Operations																							
Dozer Operator		4.0	6.0	6.0	6.0	6.0	6.0	5.0	4.0	5.0	5.0	5.0	6.0	5.0	5.0	6.0	5.0	5.0	6.0	5.0	4.0	6.0	**111.0**
Grader / RT Operator		2.7	6.3	6.3	6.3	6.2	5.9	4.7	3.6	4.6	4.9	5.4	4.0	3.2	3.9	4.2	3.8	3.8	4.2	3.5	2.9	4.3	**94.7**
Water Truck Driver		0.3	1.8	2.1	2.1	2.0	1.6	1.2	0.9	1.2	1.3	1.4	1.3	1.2	1.5	1.6	1.6	2.0	2.1	1.2	1.0	1.6	**31.0**
Backhoe Operator		0.3	3.0	4.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	1.4	1.1	1.4	1.5	1.3	1.3	1.8	1.2	1.0	0.5	**38.8**
Maintenance																							
Heavy Duty Mechanic																							
Welder																							
Apprentice																							
Subtotal		**7.3**	**17.1**	**18.4**	**17.4**	**17.2**	**16.5**	**12.9**	**10.5**	**12.8**	**13.2**	**13.8**	**12.7**	**10.5**	**11.8**	**13.3**	**11.7**	**12.1**	**14.1**	**10.9**	**8.9**	**12.4**	**276**
MINE SUMMARY																							
Operations Subtotal		25	66	69	68	65	58	50	39	46	48	50	50	43	48	52	47	50	58	44	34	29	1,039
Maintenance Subtotal		2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	62
Total		**27**	**69**	**72**	**71**	**68**	**61**	**53**	**42**	**49**	**51**	**53**	**53**	**46**	**51**	**55**	**50**	**53**	**61**	**47**	**37**	**32**	**1,101**

Staff Mine Employee Salaries

17-Jan-08

		-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
			12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	**252**
MINE MAINTENANCE																								
Maintenance Superintendent	($ x 1000)																							
Contract Manager	($ x 1000)		110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	$110	$110	$110		2199.8
Equipment Manager	($ x 1000)		104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	$105	$105	$105		2091.2
Maintenance Planner	($ x 1000)		93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	$94	$94	$94	$94	1966.9
Clerk/Secretary	($ x 1000)																							
Subtotal	($ x 1000)		**308.2**	**308.2**	**308.2**	**308.2**	**308.2**	**308.2**	**308.2**	**308.2**	**308.2**	**308.2**	**308.2**	**308.2**	**308.2**	**308.2**	**308.2**	**308.2**	**308.2**	**$308**	**$308**	**$308**	**$94**	**6257.9**
MINE OPERATIONS																								
Mine Operations Superintendent	($ x 1000)		148.2	148.2	148.2	148.2	148.2	148.2	148.2	148.2	148.2	148.2	148.2	148.2	148.2	148.2	148.2	148.2	148.2	$148	$148	$148	$148	3112.2
Mine General Foreman	($ x 1000)		110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	110.0	$110	$110	$110	$110	2309.8
Mine Shift Foreman	($ x 1000)		418.2	418.2	418.2	418.2	418.2	418.2	418.2	418.2	418.2	418.2	418.2	418.2	418.2	418.2	418.2	418.2	418.2	$418	$418	$418	$209	8573.9
Drill and Blast Foreman	($ x 1000)																							
Services Foreman	($ x 1000)		93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	$94	$94	$94		1873.2
Clerk/Secretary	($ x 1000)		71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	$71.90	$71.90	$71.90	$71.90	1509.9
Subtotal	($ x 1000)		**1216.6**	**1216.6**	**1216.6**	**1216.6**	**1216.6**	**1216.6**	**1216.6**	**1216.6**	**1216.6**	**1216.6**	**1216.6**	**1216.6**	**1216.6**	**1216.6**	**1216.6**	**1216.6**	**1216.6**	**$1,217**	**$1,217**	**$1,217**	**$727**	**25059.1**
MINE ENGINEERING																								
Chief Engineer	($ x 1000)		126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	126.4	$126	$126	$126		2528.0
Senior Engineer	($ x 1000)		104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	$105	$105	$105	$105	2195.8
Open Pit Planning Engineer	($ x 1000)		187.3	187.3	187.3	187.3	187.3	187.3	187.3	187.3	187.3	187.3	187.3	187.3	187.3	187.3	187.3	187.3	187.3	$187	$187	$187	$94	3840.1
Surveyor/Mining Technician	($ x 1000)		321.1	321.1	321.1	321.1	321.1	321.1	321.1	321.1	321.1	321.1	321.1	321.1	321.1	321.1	321.1	321.1	321.1	$321	$321	$321	$161	6583.0
Clerk/Secretary	($ x 1000)		71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	71.9	$72	$72	$72	$72	1509.9
Subtotal	($ x 1000)		**811.3**	**811.3**	**811.3**	**811.3**	**811.3**	**811.3**	**811.3**	**811.3**	**811.3**	**811.3**	**811.3**	**811.3**	**811.3**	**811.3**	**811.3**	**811.3**	**811.3**	**$811**	**$811**	**$811**	**$431**	**16656.7**
GEOLOGY																								
Chief Geologist	($ x 1000)																							
Senior Geologist	($ x 1000)		104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	104.6	$105	$105	$105		2091.2
Grade Control Geologist	($ x 1000)		93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	93.7	$94	$94	$94	$94	1966.9
Sampling Technician	($ x 1000)		160.6	160.6	160.6	160.6	160.6	160.6	160.6	160.6	160.6	160.6	160.6	160.6	160.6	160.6	160.6	160.6	160.6	$161	$161	$161	$80	3291.5
Clerk/Secretary	($ x 1000)																							
Subtotal	($ x 1000)		358.8	358.8	358.8	358.8	358.8	358.8	358.8	358.8	358.8	358.8	358.8	358.8	358.8	358.8	358.8	358.8	358.8	$359	$359	$359	$174	**7349.5**
TOTAL MINE STAFF	($ x 1000)		**2694.9**	**2694.9**	**2694.9**	**2694.9**	**2694.9**	**2694.9**	**2694.9**	**2694.9**	**2694.9**	**2694.9**	**2694.9**	**2694.9**	**2694.9**	**2694.9**	**2694.9**	**2694.9**	**2694.9**	**$2,695**	**$2,695**	**$2,695**	**$1,425**	**55323.2**

Hourly Wages

17-Jan-08

		-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
			12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
General Mine Services																								
Operations																								
Tool Crib Attendent	($ x 1000)																							
Warehouse Attendent	($ x 1000)																							
General Mine Labourer	($ x 1000)		433.7	433.7	433.7	433.7	433.7	433.7	433.7	433.7	433.7	433.7	433.7	433.7	433.7	433.7	433.7	433.7	433.7	433.7	433.7	216.8	216.8	8,674.0
Trainee	($ x 1000)		98.0	196.1	196.1	196.1	196.1	196.1	196.1	196.1	196.1	196.1	196.1	196.1	196.1	196.1	196.1	196.1	196.1	196.1	196.1	49.0	49.0	
Maintenance																								
Light Duty Mechanic	($ x 1000)																							
Tire Man	($ x 1000)		163.6	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	5,072.1
Lube Truck Driver	($ x 1000)																							
Subtotal	($ x 1000)		**695.3**	**875.2**	**875.2**	**875.2**	**875.2**	**875.2**	**875.2**	**875.2**	**875.2**	**875.2**	**875.2**	**875.2**	**875.2**	**875.2**	**875.2**	**875.2**	**875.2**	**875.2**	**875.2**	**511.3**	**511.3**	**17,471.2**
Drilling																								
Operations																								
Drill Operator 1	($ x 1000)		163.6	245.4	245.4	245.4	245.4	163.6	327.2	163.6	163.6	163.6	163.6	163.6	163.6	163.6	327.2	163.6	163.6	163.6	163.6	98.2	49.1	3,910.4
Drill Operator 2	($ x 1000)		81.8	245.4	245.4	245.4	245.4	163.6	327.2	163.6	163.6	163.6	163.6	163.6	163.6	163.6	163.6	163.6	163.6	171.8	122.7	106.4	49.1	3,640.5
Maintenance																								
Heavy Duty Mechanic	($ x 1000)																							
Welder	($ x 1000)																							
Electrician	($ x 1000)		17.7	26.5	26.5	26.5	26.5	17.7	35.4	17.7	17.7	17.7	17.7	17.7	17.7	17.7	26.5	17.7	17.7	17.7	17.7	8.8	8.8	**415.5**
Subtotal	($ x 1000)		**263.1**	**517.4**	**517.4**	**517.4**	**517.4**	**344.9**	**689.8**	**344.9**	**344.9**	**344.9**	**344.9**	**344.9**	**344.9**	**344.9**	**517.4**	**344.9**	**344.9**	**353.1**	**304.0**	**213.4**	**107.0**	**7,966.4**
Blasting																								
Operations																								
Blasters	($ x 1000)																							
Blaster Helper	($ x 1000)																							
Subtotal	($ x 1000)																							
Loading																								
Operations																								
PC 5500E	($ x 1000)		176.8	618.8	618.8	530.4	442.0	442.0	353.6	265.2	353.6	353.6	353.6	353.6	265.2	353.6	353.6	353.6	353.6	353.6	353.6	265.2	176.8	7,691.2
Cat 994	($ x 1000)		176.8	265.2	176.8	176.8	176.8	176.8	176.8	176.8	176.8	176.8	176.8	176.8	176.8	176.8	176.8	176.8	353.6	353.6	176.8	176.8	176.8	4,155.0
Maintenance																								
Heavy Duty Mechanic	($ x 1000)																							
Welder	($ x 1000)																							
Electrician	($ x 1000)			8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8		**168.0**
Subtotal	($ x 1000)		**353.6**	**892.9**	**804.5**	**716.1**	**627.7**	**627.7**	**539.3**	**450.9**	**539.3**	**539.3**	**539.3**	**539.3**	**450.9**	**539.3**	**539.3**	**539.3**	**716.1**	**716.1**	**539.3**	**450.9**	**353.6**	**12,014.1**
Hauling																								
Operations																								
Cat 793	($ x 1000)		423.7	2,287.8	2,542.0	2,626.7	2,457.2	2,033.6	1,440.5	1,101.5	1,440.5	1,609.9	1,694.6	1,779.4	1,440.5	1,694.6	1,779.4	1,609.9	1,694.6	2,203.0	1,525.2	1,271.0	677.9	35,333.4
Komatsu 830E AC	($ x 1000)																							
Maintenance	($ x 1000)																							
Heavy Duty Mechanic	($ x 1000)																							
Welder	($ x 1000)																							
Subtotal	($ x 1000)		**423.7**	**2,287.8**	**2,542.0**	**2,626.7**	**2,457.2**	**2,033.6**	**1,440.5**	**1,101.5**	**1,440.5**	**1,609.9**	**1,694.6**	**1,779.4**	**1,440.5**	**1,694.6**	**1,779.4**	**1,609.9**	**1,694.6**	**2,203.0**	**1,525.2**	**1,271.0**	**677.9**	**35,333.4**
Mine Operations Support																								
Operations																								
Dozer Operator	($ x 1000)		338.9	508.4	508.4	508.4	508.4	508.4	423.7	338.9	423.7	423.7	423.7	508.4	423.7	423.7	508.4	423.7	423.7	508.4	423.7	338.9	508.4	9,405.3
Grader / RT Operator	($ x 1000)		228.8	533.8	533.8	533.8	525.3	499.9	398.2	305.0	389.8	415.2	457.6	338.9	271.1	330.5	355.9	322.0	322.0	355.9	296.6	245.7	364.3	8,024.2
Water Truck Driver	($ x 1000)		23.0	137.9	160.9	160.9	153.3	122.6	92.0	69.0	92.0	99.6	107.3	99.6	92.0	115.0	122.6	122.6	153.3	160.9	92.0	76.6	122.6	2,375.8
Backhoe Operator	($ x 1000)		25.4	254.2	338.9	254.2	254.2	254.2	169.5	169.5	169.5	169.5	169.5	118.6	93.2	118.6	127.1	110.2	110.2	152.5	101.7	84.7	42.4	3,287.6
Maintenance																								
Heavy Duty Mechanic	($ x 1000)																							
Welder	($ x 1000)																							
Apprentice	($ x 1000)																							
Subtotal	($ x 1000)		**616.1**	**1,434.4**	**1,542.1**	**1,457.3**	**1,441.2**	**1,385.1**	**1,083.3**	**882.4**	**1,074.9**	**1,107.9**	**1,158.0**	**1,065.6**	**880.0**	**987.7**	**1,114.0**	**978.4**	**1,009.1**	**1,177.7**	**913.9**	**746.0**	**1,037.7**	**23,092.9**
Summary																								
Subtotal Operations	($ x 1000)		2,170.5	5,726.8	6,000.3	5,911.9	5,637.9	4,994.5	4,338.4	3,382.9	4,002.7	4,205.3	4,340.0	4,332.4	3,719.4	4,169.8	4,544.4	4,075.8	4,367.9	5,053.2	3,885.6	2,929.4	2,433.2	90,222.4
Subtotal Maintenance	($ x 1000)		163.6	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	245.4	1,516.4	923.3	7,021.0
Total	($ x 1000)		**2,334.2**	**5,972.2**	**6,245.7**	**6,157.3**	**5,883.3**	**5,240.0**	**4,583.9**	**3,628.4**	**4,248.2**	**4,450.7**	**4,585.5**	**4,577.8**	**3,964.9**	**4,415.2**	**4,789.8**	**4,321.2**	**4,613.4**	**5,298.6**	**4,131.0**	**4,445.8**	**3,356.5**	**97,243.4**

Annual Blasting Schedule

		-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	TOTAL
Scheduled Quantities - tonnes																								
Ore	(kt)		327.8	10,795.3	16,366.0	12,886.2	12,073.9	11,368.3	11,349.8	11,111.3	10,885.0	10,876.2	10,885.4	10,880.5	11,126.2	11,293.4	10,880.5	10,994.2	10,893.2	10,875.0	10,894.2	10,938.5	4,678.5	222,379.4
Waste	(kt)		4,573.7	28,012.4	20,523.6	17,211.4	11,298.1	8,593.4	5,420.8	9,113.5	8,872.2	8,439.4	10,111.2	7,166.4	9,377.0	14,102.4	11,953.1	16,550.2	18,573.0	8,141.0	5,320.8	2,599.2	251,722.0
Overburden	(kt)		2,174.1	1,336.9		2,782.6	1,642.4	2,900.8	163.0	144.0	144.0	144.0	2,290.7	152.7	144.0	2,723.1	144.0	1,782.7	148.2	144.0	144.0			19,105.1
Total	(kt)		**7,075.6**	**40,144.6**	**42,135.4**	**36,192.3**	**30,927.7**	**25,567.2**	**20,106.2**	**16,676.1**	**20,142.5**	**19,892.4**	**21,615.5**	**21,144.4**	**18,436.5**	**23,393.5**	**25,126.9**	**24,730.0**	**27,591.5**	**29,592.0**	**19,179.2**	**16,259.3**	**7,277.7**	**493,206.5**
Blasted Quantities - Total bcms																								
Ore	(kbcm)		112.3	3,697.0	5,604.8	4,413.1	4,134.9	3,893.3	3,886.9	3,805.2	3,727.7	3,724.7	3,727.9	3,726.2	3,810.3	3,867.6	3,726.2	3,765.1	3,730.5	3,724.3	3,730.9	3,746.1	1,602.2	76,157.3
Waste	(kbcm)		1,566.3	9,593.3	8,825.1	7,028.6	5,894.3	3,869.2	2,942.9	1,856.5	3,121.1	3,038.4	2,890.2	3,462.7	2,454.2	3,211.3	4,829.6	4,093.5	5,667.9	6,360.6	2,788.0	1,822.2	890.1	86,206.2
Total	(kbcm)		**1,678.6**	**13,290.3**	**14,429.9**	**11,441.7**	**10,029.2**	**7,762.5**	**6,829.9**	**5,661.7**	**6,848.8**	**6,763.1**	**6,618.1**	**7,188.9**	**6,264.6**	**7,078.9**	**8,555.8**	**7,858.7**	**9,398.4**	**10,084.9**	**6,518.9**	**5,568.3**	**2,492.4**	**162,363.5**
Primary Production Blasting Quantity																								
Ore	(kbcm)		112.3	3,697.0	5,604.8	4,413.1	4,134.9	3,893.3	3,886.9	3,805.2	3,727.7	3,724.7	3,727.9	3,726.2	3,810.3	3,867.6	3,726.2	3,765.1	3,730.5	3,724.3	3,730.9	3,746.1	1,602.2	76,157
Waste	(kbcm)		1,566.3	9,593.3	8,825.1	7,028.6	5,894.3	3,869.2	2,942.9	1,856.5	3,121.1	3,038.4	2,890.2	3,462.7	2,454.2	3,211.3	4,829.6	4,093.5	5,667.9	6,360.6	2,788.0	1,822.2	890.1	86,206
Total	(kbcm)		**1,678.6**	**13,290.3**	**14,429.9**	**11,441.7**	**10,029.2**	**7,762.5**	**6,829.9**	**5,661.7**	**6,848.8**	**6,763.1**	**6,618.1**	**7,188.9**	**6,264.6**	**7,078.9**	**8,555.8**	**7,858.7**	**9,398.4**	**10,084.9**	**6,518.9**	**5,568.3**	**2,492.4**	**162,364**
Perimeter Blasting Quantity																								
Ore	(kbcm)																							
Waste	(kbcm)																							
Total	(kbcm)																							
Perimeter Length for Wall Control Blasting	metres																							
Perimeter Blast Material Allocation	(kbcm)																							
Required Primary Blasting - Blastholes per Year																								
Ore	holes		123.0	4,019.0	6,092.0	4,797.0	4,495.0	4,232.0	4,225.0	4,138.0	4,052.0	4,049.0	4,052.0	4,050.0	4,142.0	4,204.0	4,050.0	4,093.0	4,055.0	4,048.0	4,055.0	4,072.0	1,742.0	82,783
Waste	holes		1,703.0	10,427.0	9,592.0	7,640.0	6,407.0	4,206.0	3,199.0	2,018.0	3,393.0	3,303.0	3,142.0	3,764.0	2,668.0	3,491.0	5,250.0	4,450.0	6,161.0	6,914.0	3,031.0	1,981.0	968.0	93,708
Total	holes		**1,826**	**14,446**	**15,684**	**12,437**	**10,902**	**8,438**	**7,424**	**6,154**	**7,445.0**	**7,352.0**	**7,194.0**	**7,814.0**	**6,810.0**	**7,695.0**	**9,300.0**	**8,543.0**	**10,216.0**	**10,962.0**	**7,086.0**	**6,053.0**	**2,710.0**	**176,491**
Wall Control Blastholes per Year																								
Pit Viper 351 -Buffer	holes																							
Pre-shear	holes																							
total	holes																							
BE 59R Used -Buffer	holes																							
Pre-shear	holes																							
total	holes																							
Explosives Consumption Primary Holes - BULK																								
Ore	tonnes		114.5	3,770.3	5,715.9	4,500.6	4,216.9	3,970.5	3,964.0	3,880.7	3,801.7	3,798.6	3,801.8	3,800.1	3,885.9	3,944.3	3,800.1	3,839.8	3,804.5	3,798.2	3,804.9	3,820.4	1,634.0	77,067.7
Waste	tonnes		1,043.3	6,390.0	5,878.3	4,681.7	3,926.1	2,577.2	1,960.3	1,236.6	2,078.9	2,023.9	1,925.1	2,306.5	1,634.7	2,139.0	3,216.9	2,728.7	3,775.3	4,236.7	1,857.1	1,213.7	592.9	57,421.1
Total	tonnes		**1,157.8**	**10,160.3**	**11,594.3**	**9,182.3**	**8,143.1**	**6,547.7**	**5,924.3**	**5,117.3**	**5,880.6**	**5,822.5**	**5,727.0**	**6,106.6**	**5,520.7**	**6,083.3**	**7,017.0**	**6,566.5**	**7,579.8**	**8,034.9**	**5,662.0**	**5,034.1**	**2,226.9**	**135,088.8**
Explosives Consumption Wall control - BULK																								
Buffer	tonnes																							
Pre-shear	tonnes																							
Total	tonnes																							
Explosives Consumption Primary Holes - PACKAGE																								
Ore	# of units																							
Waste	# of units																							
Total	# of units																							
Explosives Consumption Wall control - PACKAGE																								
Buffer	# of units																							
Pre-shear	# of units																							
Total	# of units																							
Explosives - Bulk total																								
ANFO	tonnes		810.5	7,112.2	8,116.0	6,427.6	5,700.1	4,583.4	4,147.0	3,582.1	4,116.4	4,075.7	4,008.9	4,274.6	3,864.5	4,258.3	4,911.9	4,596.5	5,305.9	5,624.4	3,963.4	3,523.9	1,558.8	**94,562.2**
Emulsion	tonnes		347.3	3,048.1	3,478.3	2,754.7	2,442.9	1,964.3	1,777.3	1,535.2	1,764.2	1,746.7	1,718.1	1,832.0	1,656.2	1,825.0	2,105.1	1,969.9	2,274.0	2,410.5	1,698.6	1,510.2	668.1	**40,526.6**
Explosives - Bulk Annual Costs																								
ANFO Annual Cost	($ X 1000)		$359.0	$3,115.2	$3,504.8	$2,815.3	$2,496.7	$2,007.6	$1,816.4	$1,569.0	$1,803.0	$1,785.2	$1,755.9	$1,872.3	$1,692.6	$1,865.2	$2,151.4	$2,013.3	$2,324.0	$2,463.5	$1,736.0	$1,543.5	$682.8	$41,418.6
Emulsion	($ X 1000)		$168.1	$1,475.3	$1,833.5	$1,333.3	$1,182.4	$950.7	$860.2	$743.0	$853.9	$845.4	$831.6	$886.7	$801.6	$883.3	$1,018.9	$953.5	$1,100.6	$1,166.7	$821.1	$731.0	$323.3	$19,614.9
Total	($ X 1000)		**$523.1**	**$4,590.5**	**$5,238.5**	**$4,148.6**	**$3,679.1**	**$2,958.5**	**$2,676.6**	**$2,312.0**	**$2,656.9**	**$2,630.6**	**$2,587.5**	**$2,759.0**	**$2,494.2**	**$2,748.5**	**$3,170.3**	**$2,966.8**	**$3,424.6**	**$3,630.2**	**$2,558.1**	**$2,274.4**	**$1,006.1**	**$61,033.5**
Explosives - Package Annual Costs																								
Ore	($ X 1000)																							
Waste	($ X 1000)																							
Wall Control	($ X 1000)																							
Total	($ X 1000)																							
Patterns																								
Number of Ore Patterns			2	41	61	48	45	43	43	42	41	41	41	41	42	43	41	41	41	41	41	41	18	**838**
Number of Waste Patterns			18	105	96	77	65	43	32	21	34	34	32	38	27	35	53	45	62	70	31	20	10	**948**
Number of HighWall Patterns																								
Blasting Accessories - Annual Cost																								
Ore																								
Boosters			$0.8	$27.5	$41.7	$32.9	$30.8	$29.0	$28.9	$28.3	$27.8	$27.7	$27.8	$27.7	$28.4	$28.8	$27.7	$28.0	$27.8	$27.7	$27.8	$27.9	$11.9	$567.1
Downline																								
Trunkline			$1.0	$20.5	$30.5	$24.0	$22.5	$21.5	$21.5	$21.0	$20.5	$20.5	$20.5	$20.5	$21.0	$21.5	$20.5	$20.5	$20.5	$20.5	$20.5	$20.5	$9.0	$419.6
Surface Delays			$0.1	$3.2	$4.8	$3.8	$3.6	$3.4	$3.3	$3.3	$3.2	$3.2	$3.2	$3.2	$3.3	$3.3	$3.2	$3.2	$3.2	$3.2	$3.2	$3.2	$1.4	$65.6
DownHole Delays			$0.8	$24.8	$37.5	$29.5	$27.7	$26.1	$26.0	$25.5	$25.0	$24.9	$25.0	$24.9	$25.5	$25.9	$24.9	$25.2	$25.0	$24.9	$25.0	$25.1	$10.7	$509.9
Initiation			$0.1	$2.5	$3.7	$2.9	$2.7	$2.6	$2.6	$2.5	$2.5	$2.5	$2.5	$2.5	$2.5	$2.6	$2.5	$2.5	$2.5	$2.5	$2.5	$2.5	$1.1	$50.3
Miscellaneous including Liners			$0.2	$8.0	$12.2	$9.6	$9.0	$8.5	$8.5	$8.3	$8.1	$8.1	$8.1	$8.1	$8.3	$8.4	$8.1	$8.2	$8.1	$8.1	$8.1	$8.1	$3.5	$165.6
Total			$3.1	$86.5	$130.5	$102.7	$99.3	$91.0	$90.9	$88.9	$87.0	$87.0	$87.0	$87.0	$89.0	$90.5	$87.0	$87.7	$87.1	$87.0	$87.1	$87.3	$37.6	$1,778.0
Waste																								
Boosters			$11.7	$71.4	$65.7	$52.3	$43.9	$28.8	$21.9	$13.8	$23.2	$22.6	$21.5	$25.8	$18.3	$23.9	$36.0	$30.5	$42.2	$47.4	$20.8	$13.6	$6.6	$641.9
Downline																								
Trunkline			$1.4	$8.2	$7.5	$6.0	$5.1	$3.4	$2.5	$1.6	$2.7	$2.7	$2.5	$3.0	$2.1	$2.7	$4.1	$3.5	$4.8	$5.5	$2.4	$1.6	$0.8	$73.9
Surface Delays			$1.3	$8.3	$7.6	$6.1	$5.1	$3.3	$2.5	$1.6	$2.7	$2.6	$2.5	$3.0	$2.1	$2.8	$4.2	$3.5	$4.9	$5.5	$2.4	$1.6	$0.8	$74.2
DownHole Delays			$10.5	$64.2	$59.1	$47.1	$39.5	$25.9	$19.7	$12.4	$20.9	$20.3	$19.4	$23.2	$16.4	$21.5	$32.3	$27.4	$38.0	$42.6	$18.7	$12.2	$6.0	$577.2
Initiation			$1.1	$6.3	$5.8	$4.6	$3.9	$2.6	$1.9	$1.3	$2.0	$2.0	$1.9	$2.3	$1.6	$2.1	$3.2	$2.7	$3.7	$4.2	$1.9	$1.2	$0.6	$56.9
Miscellaneous including Liners			$6.8	$41.7	$38.4	$30.6	$25.6	$16.8	$12.8	$8.1	$13.6	$13.2	$12.6	$15.1	$10.7	$14.0	$21.0	$17.8	$24.6	$27.7	$12.1	$7.9	$3.9	$374.8
Total			$32.8	$200.1	$184.0	$146.6	$123.0	$80.8	$61.4	$38.8	$65.1	$63.5	$60.3	$72.2	$51.2	$67.0	$100.8	$85.4	$118.2	$132.7	$58.2	$38.0	$18.6	**$1,799.0**
Wall Control																								
Boosters																								
Downline																								
Trunkline																								
Surface Delays																								
DownHole Delays																								
Initiation																								
Miscellaneous including Liners																								
Total																								
Secondary Blasting & Development																								
Explosives	($ X 1000)																							
Accessories	($ X 1000)																							
Total	($ X 1000)																							
Total Blasting Consumables																								
tonnes Anfo	tonnes		810.5	7,112.2	8,116.0	6,427.6	5,700.1	4,583.4	4,147.0	3,582.1	4,116.4	4,075.7	4,008.9	4,274.6	3,864.5	4,258.3	4,911.9	4,596.5	5,305.9	5,624.4	3,963.4	3,523.9	1,558.8	
tonnes Emulsion	tonnes		347.3	3,048.1	3,478.3	2,754.7	2,442.9	1,964.3	1,777.3	1,535.2	1,764.2	1,746.7	1,718.1	1,832.0	1,656.2	1,825.0	2,105.1	1,969.9	2,274.0	2,410.5	1,698.6	1,510.2	668.1	
packages	# of units																							
Primary and Control Blasting	($ X 1000)		$559.0	$4,877.1	$5,552.8	$4,397.9	$3,898.3	$3,130.1	$2,828.8	$2,439.7	$2,809.0	$2,781.1	$2,734.8	$2,918.2	$2,634.5	$2,906.0	$3,358.1	$3,139.8	$3,629.9	$3,849.9	$2,703.4	$2,399.8	$1,062.4	$64,610.5
Secondary Blasting	($ X 1000)																							
Total	($ X 1000)		**$559.0**	**$4,877.1**	**$5,552.8**	**$4,397.9**	**$3,898.3**	**$3,130.1**	**$2,828.8**	**$2,439.7**	**$2,809.0**	**$2,781.1**	**$2,734.8**	**$2,918.2**	**$2,634.5**	**$2,906.0**	**$3,358.1**	**$3,139.8**	**$3,629.9**	**$3,849.9**	**$2,703.4**	**$2,399.8**	**$1,062.4**	**$64,610.5**
Total Unit Cost - Total including Overburden																								
Primary and Control Blasting	$/t		$0.079	$0.121	$0.132	$0.122	$0.126	$0.122	$0.141	$0.146	$0.139	$0.140	$0.127	$0.138	$0.143	$0.124	$0.134	$0.127	$0.132	$0.130	$0.141	$0.148	$0.146	$0.131
Secondary Blasting	$/t																							
Total	$/t		**$0.079**	**$0.121**	**$0.132**	**$0.122**	**$0.126**	**$0.122**	**$0.141**	**$0.146**	**$0.139**	**$0.140**	**$0.127**	**$0.138**	**$0.143**	**$0.124**	**$0.134**	**$0.127**	**$0.132**	**$0.130**	**$0.141**	**$0.148**	**$0.146**	**$0.131**
Total - Rock Quantity Only	$/t		$0.079	$0.121	$0.132	$0.122	$0.126	$0.122	$0.141	$0.146	$0.139	$0.140	$0.127	$0.138	$0.143	$0.124	$0.134	$0.127	$0.132	$0.130	$0.141	$0.148	$0.146	**$0.131**
General Blasting Related Costs																								
Fixed Installations			12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12					
Explosives Magazine	($ X 1000)																							
Accessories Magazine	($ X 1000)																							
Pickup Trucks & Pumps	($ X 1000)		$597.6	$597.6	$597.6	$597.6	$597.6	$597.6	$597.6	$597.6	$597.6	$597.6	$597.6	$597.6	$597.6	$597.6	$597.6	$597.6	$597.6					$10,159.2
Total	($ X 1000)		**$597.6**	**$597.6**	**$597.6**	**$597.6**	**$597.6**	**$597.6**	**$597.6**	**$597.6**	**$597.6**	**$597.6**	**$597.6**	**$597.6**	**$597.6**	**$597.6**	**$597.6**	**$597.6**	**$597.6**					**$10,159.2**
Summary of Blasting Costs																								
Blasting Consumables	($ X 1000)		$559.0	$4,877.1	$5,552.8	$4,397.9	$3,898.3	$3,130.1	$2,828.8	$2,439.7	$2,809.0	$2,781.1	$2,734.8	$2,918.2	$2,634.5	$2,906.0	$3,358.1	$3,139.8	$3,629.9	$3,849.9	$2,703.4	$2,399.8	$1,062.4	$64,610.5
Blasting General	($ X 1000)		$597.6	$597.6	$597.6	$597.6	$597.6	$597.6	$597.6	$597.6	$597.6	$597.6	$597.6	$597.6	$597.6	$597.6	$597.6	$597.6	$597.6					$10,159.2
Total	($ X 1000)		$1,156.6	$5,474.7	$6,150.4	$4,995.5	$4,495.9	$3,727.7	$3,426.4	$3,037.3	$3,406.6	$3,378.7	$3,332.4	$3,515.8	$3,232.1	$3,503.6	$3,955.7	$3,737.4	$4,227.5	$3,849.9	$2,703.4	$2,399.8	$1,062.4	**$74,769.7**
Blasting Consumables	$/t		$0.079	$0.121	$0.132	$0.122	$0.126	$0.122	$0.141	$0.146	$0.139	$0.140	$0.127	$0.138	$0.143	$0.124	$0.134	$0.127	$0.132	$0.130	$0.141	$0.148	$0.146	$0.131
Blasting General	$/t		$0.084	$0.015	$0.014	$0.017	$0.019	$0.023	$0.030	$0.036	$0.030	$0.030	$0.028	$0.028	$0.032	$0.026	$0.024	$0.024	$0.022					$0.021
Total	$/t		**$0.163**	**$0.136**	**$0.146**	**$0.138**	**$0.145**	**$0.146**	**$0.170**	**$0.182**	**$0.169**	**$0.170**	**$0.154**	**$0.166**	**$0.175**	**$0.150**	**$0.157**	**$0.151**	**$0.153**	**$0.130**	**$0.141**	**$0.148**	**$0.146**	**$0.152**
Total - Not including Overburden - I	$/t		**$0.236**	**$0.141**	**$0.146**	**$0.150**	**$0.154**	**$0.164**	**$0.172**	**$0.184**	**$0.170**	**$0.171**	**$0.172**	**$0.167**	**$0.177**	**$0.169**	**$0.158**	**$0.163**	**$0.154**	**$0.131**	**$0.142**	**$0.148**	**$0.146**	**$0.158**

Annual Drilling Schedule - Diesel Drills

		-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	TOTAL
Total Quantity Scheduled																								
Ore	(kt)		327.8	10,795.3	16,366.0	12,886.2	12,073.9	11,368.3	11,349.8	11,111.3	10,885.0	10,876.2	10,885.4	10,880.5	11,126.2	11,293.4	10,880.5	10,994.2	10,893.2	10,875.0	10,894.2	10,938.5	4,678.5	222,379.4
Waste	(kt)		4,573.7	28,012.4	25,769.4	20,523.6	17,211.4	11,298.1	8,593.4	5,420.8	9,113.5	8,872.2	8,439.4	10,111.2	7,166.4	9,377.0	14,102.4	11,953.1	16,550.2	18,573.0	8,141.0	5,320.8	2,599.2	251,722.0
Total	(kt)		4,901.5	38,807.7	42,135.4	33,409.7	29,285.3	22,666.4	19,943.2	16,532.1	19,998.5	19,748.4	19,324.8	20,991.7	18,292.5	20,670.4	24,982.9	22,947.3	27,443.3	29,448.0	19,035.2	16,259.3	7,277.7	474,101.4
Ore	(kbcms)		112.3	3,697.0	5,604.8	4,413.1	4,134.9	3,893.3	3,886.9	3,805.2	3,727.7	3,724.7	3,727.9	3,726.2	3,810.3	3,867.6	3,726.2	3,765.1	3,730.5	3,724.3	3,730.9	3,746.1	1,602.2	76,157.3
Waste	(kbcms)		1,566.3	9,593.3	8,825.1	7,028.6	5,894.3	3,869.2	2,942.9	1,856.5	3,121.1	3,038.4	2,890.2	3,462.7	2,454.2	3,211.3	4,829.6	4,093.5	5,667.9	6,360.6	2,788.0	1,822.2	890.1	86,206.2
Total	(kbcms)		1,678.6	13,290.3	14,429.9	11,441.7	10,029.2	7,762.5	6,829.9	5,661.7	6,848.8	6,763.1	6,618.1	7,188.9	6,264.6	7,078.9	8,555.8	7,858.7	9,398.4	10,084.9	6,518.9	5,568.3	2,492.4	162,363.5
Ore Drill Allocation																								
Pit Viper 351 (d)	%		50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	
BE 59R Used (e)	%		50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	
Waste Drill Allocation	total		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
BE 59R Used (e)	%		50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	
Pit Viper 351 (d)	%		50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	
	total		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Required drills																								
Pit Viper 351 (d)			1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	
BE 59R Used (e)			1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	
Pit Viper 351 (d)																								
Production Drilling																								
Ore	holes		71	2,349	3,561	2,804	2,627	2,474	2,470	2,418	2,369	2,367	2,369	2,368	2,421	2,457	2,368	2,392	2,370	2,366	2,371	2,380	1,018	48,390
Waste	holes		707	4,331	3,984	3,173	2,661	1,747	1,329	838	1,409	1,372	1,305	1,563	1,108	1,450	2,180	1,848	2,559	2,872	1,259	823	402	38,920
Total	holes		778	6,680	7,545	5,977	5,288	4,221	3,799	3,256	3,778	3,739	3,674	3,931	3,529	3,907	4,548	4,240	4,929	5,238	3,630	3,203	1,420	87,310
Wall Control Drilling																								
Buffer	holes																							
Pre-shear	holes																							
Total	holes																							
BE 59R Used (e)																								
Production Drilling																								
Ore	holes		71	2,349	3,561	2,804	2,627	2,474	2,470	2,418	2,369	2,367	2,369	2,368	2,421	2,457	2,368	2,392	2,370	2,366	2,371	2,380	1,018	48,390
Waste	holes		707	4,331	3,984	3,173	2,661	1,747	1,329	838	1,409	1,372	1,305	1,563	1,108	1,450	2,180	1,848	2,559	2,872	1,259	823	402	38,920
Total	holes		778	6,680	7,545	5,977	5,288	4,221	3,799	3,256	3,778	3,739	3,674	3,931	3,529	3,907	4,548	4,240	4,929	5,238	3,630	3,203	1,420	87,310
Wall Control Drilling																								
Buffer	holes																							
Pre-shear	holes																							
Total	holes																							
Drilling (metres drilled per year)																								
Pit Viper 351 (d)																								
Ore	metres		973	32,181	48,786	38,415	35,990	33,894	33,839	33,127	32,455	32,428	32,455	32,442	33,168	33,661	32,442	32,770	32,469	32,414	32,483	32,606	13,947	662,943
Waste	metres		9,898	60,634	55,776	44,422	37,254	24,458	18,606	11,732	19,726	19,208	18,270	21,882	15,512	20,300	30,520	25,872	35,826	40,208	17,626	11,522	5,628	544,880
Buffer	metres																							
Pre-shear	metres																							
Total	metres		10,871	92,815	104,562	82,837	73,244	58,352	52,445	44,859	52,181	51,636	50,725	54,324	48,680	53,961	62,962	58,642	68,295	72,622	50,109	44,128	19,575	1,207,823
BE 59R Used (e)																								
Ore	metres		973	32,181	48,786	38,415	35,990	33,894	33,839	33,127	32,455	32,428	32,455	32,442	33,168	33,661	32,442	32,770	32,469	32,414	32,483	32,606	13,947	662,943
Waste	metres		9,898	60,634	55,776	44,422	37,254	24,458	18,606	11,732	19,726	19,208	18,270	21,882	15,512	20,300	30,520	25,872	35,826	40,208	17,626	11,522	5,628	544,880
Buffer	metres																							
Pre-shear	metres																							
Total	metres		10,871	92,815	104,562	82,837	73,244	58,352	52,445	44,859	52,181	51,636	50,725	54,324	48,680	53,961	62,962	58,642	68,295	72,622	50,109	44,128	19,575	1,207,823
Drill Hours Required																								
Pit Viper 351 (d)																								
Ore	op hours		47	1552	2352	1852	1736	1635	1632	1598	1565	1564	1565	1564	1599	1623	1564	1580	1566	1563	1566	1572	673	31,968
Waste	op hours		477	2917	2683	2137	1792	1177	895	565	949	924	879	1053	747	977	1468	1245	1723	1934	848	555	271	26,216
Buffer	op hours																							
Pre-shear	op hours																							
Total	op hours		524	4469	5035	3989	3528	2812	2527	2163	2514	2488	2444	2617	2346	2600	3032	2825	3289	3497	2414	2127	944	58,184
Total Cost Hours	cst hours		630	5365	6045	4789	4236	3376	3034	2597	3019	2987	2934	3142	2817	3122	3640	3392	3949	4199	2898	2554	1134	69,859
Total Scheduled Hours	Sch hours		664	5648	6364	5042	4459	3554	3194	2734	3178	3145	3089	3308	2966	3287	3832	3571	4157	4420	3051	2689	1194	73,546
Drill Requirements	number		1	1	1	1	1	1	2	1	1	1	1	1	1	1	2	1	1	1	1	1	1	
Operators Required	1		2.00	3.00	3.00	3.00	3.00	2.00	4.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	4.00	2.00	2.00	2.00	2.00	1.20	0.60	
BE 59R Used (e)																								
Ore	op hours		47	1552	2352	1852	1736	1635	1632	1598	1565	1564	1565	1564	1599	1623	1564	1580	1566	1563	1566	1572	673	31,968
Waste	op hours		477	2917	2683	2137	1792	1177	895	565	949	924	879	1053	747	977	1468	1245	1723	1934	848	555	271	26,216
Buffer	op hours																							
Pre-shear	op hours																							
Total	op hours		524	4469	5035	3989	3528	2812	2527	2163	2514	2488	2444	2617	2346	2600	3032	2825	3289	3497	2414	2127	944	58,184
Total Cost Hours	cst hours		630	5365	6045	4789	4236	3376	3034	2597	3019	2987	2934	3142	2817	3122	3640	3392	3949	4199	2898	2554	1134	69,859
Total Scheduled Hours	Sch hours		664	5648	6364	5042	4459	3554	3194	2734	3178	3145	3089	3308	2966	3287	3832	3571	4157	4420	3051	2689	1194	73,546
Drill Requirements	number		1	1	1	1	1	1	2	1	1	1	1	1	1	1	2	1	1	1	1	1	1	
Operators Required	1		1.00	3.00	3.00	3.00	3.00	2.00	4.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.10	1.50	1.30	0.60	
Secondary Drilling																								
	op hours																							
	cst hours																							
	Sch hours																							
Operators Required	1																							
Operating Cost - By Drill Type - $ x 1000																								
Pit Viper 351 (d)	cst hours		630	5365	6045	4789	4236	3376	3034	2597	3019	2987	2934	3142	2817	3122	3640	3392	3949	4199	2898	2554	1134	69,859
Fuel	$115.09		$72.5	$617.5	$695.7	$551.2	$487.5	$388.5	$349.2	$298.9	$347.5	$343.8	$337.7	$361.6	$324.2	$359.3	$418.9	$390.4	$454.5	$483.3	$333.5	$293.9	$130.5	8,040
Repair & Maintenance	$169.4		$106.6	$909.0	$1,024.1	$811.4	$717.5	$571.8	$513.9	$439.7	$511.3	$505.9	$497.0	$532.2	$477.1	$528.8	$616.7	$574.5	$669.0	$711.4	$490.9	$432.5	$192.0	11,833
Wages - Operating	$56.0		$163.6	$245.4	$245.4	$245.4	$245.4	$163.6	$327.2	$163.6	$163.6	$163.6	$163.6	$163.6	$163.6	$163.6	$327.2	$163.6	$163.6	$163.6	$163.6	$98.2	$49.1	3,910
Wages Maintenance	$3.0		$8.8	$13.3	$13.3	$13.3	$13.3	$8.8	$17.7	$8.8	$8.8	$8.8	$8.8	$8.8	$8.8	$8.8	$13.3	$8.8	$8.8	$8.8	$8.8	$4.4	$4.4	208
Total	$343.43		$351.6	$1,785.1	$1,978.5	$1,621.2	$1,463.8	$1,132.8	$1,208.0	$911.1	$1,031.2	$1,022.2	$1,007.1	$1,066.3	$973.7	$1,060.5	$1,376.1	$1,137.4	$1,295.9	$1,367.1	$996.9	$829.0	$376.0	23,991
BE 59R Used (e)	cst hours		630	5365	6045	4789	4236	3376	3034	2597	3019	2987	2934	3142	2817	3122	3640	3392	3949	4199	2898	2554	1134	69,859
Fuel	$31.50		$19.8	$169.0	$190.4	$150.9	$133.4	$106.3	$95.6	$81.8	$95.1	$94.1	$92.4	$99.0	$88.7	$98.3	$114.7	$106.8	$124.4	$132.3	$91.3	$80.5	$35.7	2,201
Repair & Maintenance	$169.0		$106.4	$907.1	$1,022.0	$809.6	$716.0	$570.6	$512.8	$438.8	$510.2	$504.9	$495.9	$531.1	$476.0	$527.6	$615.4	$573.3	$667.6	$709.8	$489.9	$431.6	$191.5	11,808
Wages - Operating	$52.1		$81.8	$245.4	$245.4	$245.4	$245.4	$163.6	$327.2	$163.6	$163.6	$163.6	$163.6	$163.6	$163.6	$163.6	$163.6	$163.6	$163.6	$171.8	$122.7	$106.4	$49.1	3,640
Wages Maintenance	$3.0		$8.8	$13.3	$13.3	$13.3	$13.3	$8.8	$17.7	$8.8	$8.8	$8.8	$8.8	$8.8	$8.8	$8.8	$13.3	$8.8	$8.8	$8.8	$8.8	$4.4	$4.4	208
Total	$255.61		$216.9	$1,334.8	$1,471.1	$1,219.2	$1,108.1	$849.4	$953.3	$693.1	$777.8	$771.4	$760.8	$802.5	$737.2	$798.4	$906.9	$852.6	$964.4	$1,022.8	$712.7	$622.8	$280.8	17,857
Secondary Drilling	cst hours																							
Fuel																								
Repair & Maintenance																								
Wages - Operating (in first drill)																								
Wages Maintenance																								
Total																								
Combined	cst hours		1,260	10,730	12,090	9,578	8,472	6,752	6,068	5,194	6,038	5,974	5,868	6,284	5,634	6,244	7,280	6,784	7,898	8,398	5,796	5,108	2,268	139,718
Fuel	$73.3		$92.4	$786.5	$886.1	$702.0	$621.0	$494.9	$444.8	$380.7	$442.6	$437.9	$430.1	$460.6	$412.9	$457.7	$533.6	$497.2	$578.9	$615.5	$424.8	$374.4	$166.2	10,241
Repair & Maintenance	$169.2		$213.0	$1,816.1	$2,046.1	$1,621.0	$1,433.6	$1,142.3	$1,026.7	$878.5	$1,021.5	$1,010.8	$992.9	$1,063.3	$953.1	$1,056.4	$1,232.1	$1,147.9	$1,336.6	$1,421.2	$980.8	$864.1	$383.5	23,641
Wages - Operating	$54.0		$245.4	$490.8	$490.8	$490.8	$490.8	$327.2	$654.5	$327.2	$327.2	$327.2	$327.2	$327.2	$327.2	$327.2	$490.8	$327.2	$327.2	$335.4	$286.3	$204.5	$98.2	7,551
Wages Maintenance	$3.0		$17.7	$26.5	$26.5	$26.5	$26.5	$17.7	$35.4	$17.7	$17.7	$17.7	$17.7	$17.7	$17.7	$17.7	$26.5	$17.7	$17.7	$17.7	$17.7	$8.8	$8.8	416
Total	$299.52		$568.5	$3,119.9	$3,449.6	$2,840.4	$2,571.9	$1,982.1	$2,161.2	$1,604.1	$1,809.0	$1,793.6	$1,767.9	$1,868.8	$1,711.0	$1,859.0	$2,283.0	$1,990.0	$2,260.4	$2,389.8	$1,709.6	$1,451.8	$656.7	41,848

Loading Schedule

17-Jan-08

			-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	TOTAL
Quantities																									
Ore		(t X 1000)		328	10,795	16,366	12,886	12,074	11,368	11,350	11,111	10,885	10,876	10,885	10,881	11,126	11,293	10,880	10,994	10,893	10,875	10,894	10,939	4,679	222,379
Waste (including Overburden)		(t X 1000)		6,748	29,349	25,769	23,306	18,854	14,199	8,756	5,565	9,258	9,016	10,730	10,264	7,310	12,100	14,246	13,736	16,698	18,717	8,285	5,321	2,599	270,827
Total		(t X 1000)		**7,076**	**40,145**	**42,135**	**36,192**	**30,928**	**25,567**	**20,106**	**16,676**	**20,143**	**19,892**	**21,616**	**21,144**	**18,437**	**23,393**	**25,127**	**24,730**	**27,592**	**29,592**	**19,179**	**16,259**	**7,278**	**493,206**
Rehandle at the mill																									
Quantity Allocation for Productivity Calculations																									
Ore																									
PC 5500E				90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	87.0%	90.0%	90.0%	90.0%	90.0%	90.0%	70.0%	65.0%	90.0%	90.0%	90.0%	
Cat 994				10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	13.0%	10.0%	10.0%	10.0%	10.0%	10.0%	30.0%	35.0%	10.0%	10.0%	10.0%	
Total				100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Ore																									
PC 5500E		(t X 1000)		295.0	9,715.8	14,729.4	11,597.6	10,866.5	10,231.5	10,214.8	10,000.1	9,796.5	9,788.6	9,470.3	9,792.5	10,013.6	10,164.1	9,792.4	9,894.8	7,625.2	7,068.8	9,804.8	9,844.7	4,210.7	194,917.5
Cat 994		(t X 1000)		32.8	1,079.5	1,636.6	1,288.6	1,207.4	1,136.8	1,135.0	1,111.1	1,088.5	1,087.6	1,415.1	1,088.1	1,112.6	1,129.3	1,088.0	1,099.4	3,268.0	3,806.3	1,089.4	1,093.9	467.9	27,461.9
		(t X 1000)																							
		(t X 1000)																							
Total		(t X 1000)		**327.8**	**10,795.3**	**16,366.0**	**12,886.2**	**12,073.9**	**11,368.3**	**11,349.8**	**11,111.3**	**10,885.0**	**10,876.2**	**10,885.4**	**10,880.5**	**11,126.2**	**11,293.4**	**10,880.5**	**10,994.2**	**10,893.2**	**10,875.0**	**10,894.2**	**10,938.5**	**4,678.5**	222,379.4
Waste																									
PC 5500E				90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	90.0%	75.0%	65.0%	90.0%	90.0%	90.0%	57.8%
Cat 994				10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	25.0%	35.0%	10.0%	10.0%	10.0%	7.8%
Total				100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Waste																									
PC 5500E		(t X 1000)		6,073.0	26,414.4	23,192.4	20,975.5	16,968.4	12,779.0	7,880.8	5,008.4	8,331.8	8,114.6	9,657.1	9,237.5	6,579.3	10,890.0	12,821.8	12,362.2	12,523.8	12,166.0	7,456.5	4,788.7	2,339.3	236,560.4
Cat 994		(t X 1000)		674.8	2,934.9	2,576.9	2,330.6	1,885.4	1,419.9	875.6	556.5	925.8	901.6	1,073.0	1,026.4	731.0	1,210.0	1,424.6	1,373.6	4,174.6	6,550.9	828.5	532.1	259.9	34,266.7
		(t X 1000)																							
		(t X 1000)																							
Total		(t X 1000)		**6,747.8**	**29,349.3**	**25,769.4**	**23,306.1**	**18,853.8**	**14,198.9**	**8,756.4**	**5,564.8**	**9,257.5**	**9,016.2**	**10,730.1**	**10,263.9**	**7,310.4**	**12,100.1**	**14,246.4**	**13,735.8**	**16,698.4**	**18,717.0**	**8,285.0**	**5,320.8**	**2,599.2**	270,827.1
Production Calculations by loading Unit																									
PC 5500E																									
Ore		tph		4,195	4,195	4,195	4,195	4,195	4,195	4,195	4,195	4,195	4,195	4,195	4,195	4,195	4,195	4,195	4,195	4,195	4,195	4,195	4,195	4,195	
Waste		tph		3,772	4,195	4,195	4,043	4,043	3,925	4,195	4,195	4,195	4,195	3,925	4,195	4,195	3,925	4,195	4,043	4,195	4,195	4,195	4,195	3,005	
Ore		op hours		70	2,316	3,511	2,765	2,590	2,439	2,435	2,384	2,335	2,333	2,258	2,334	2,387	2,423	2,334	2,359	1,818	1,685	2,337	2,347	1,004	46,464.0
Waste		op hours		1,610	6,297	5,529	5,188	4,197	3,256	1,879	1,194	1,936	1,934	2,461	2,202	1,568	2,775	3,057	3,058	2,905	2,900	1,778	1,142	778	57,774.0
Total Operating hours		op hours		1,680	8,613	9,040	7,953	6,787	5,695	4,314	3,578	4,321	4,267	4,719	4,536	3,955	5,198	5,391	5,417	4,803	4,585	4,115	3,489	1,782	104,238.0
Total hours for costing		cst hours		2,521	12,925	13,565	11,934	10,185	8,546	6,474	5,369	6,484	6,403	7,081	6,807	5,935	7,800	8,090	8,129	7,207	6,880	6,175	5,236	2,674	156,419.6
Total hours for Scheduling	by loader	sch hours		2,654	13,605	14,279	12,562	10,721	8,996	6,814	5,652	6,825	6,740	7,454	7,165	6,247	8,211	8,516	8,557	7,587	7,242	6,500	5,511	2,815	164,652.2
Total hours for Scheduling	by truck	sch hours		3,937	5,111	5,174	5,327	4,976	5,247	4,453	5,061	4,308	3,563	4,350	5,245	4,250	5,078	4,667	4,970	3,512	3,554	4,608	3,818	3,723	
Loader Requirements				1.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	
Operators		1		2	7	7	6	5	5	4	3	4	4	4	4	3	4	4	4	4	4	4	3	2	
Cat 994																									
Ore		tph		2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	2,478	
Waste		tph		2,211	2,478	2,478	2,389	2,389	2,300	2,478	2,478	2,478	2,478	2,300	2,478	2,478	2,300	2,478	2,389	2,478	2,478	2,478	2,478	1,761	
Ore		op hours		13	436	660	520	487	459	458	448	439	439	571	439	449	456	439	444	1,319	1,536	440	441	189	11,082.0
Waste		op hours		305	1,184	1,040	976	789	617	353	225	374	364	466	414	295	526	575	575	1,684	2,643	334	215	148	14,102.0
Rehandle		op hours																							
Total Operating hours		op hours		318	1,620	1,700	1,496	1,276	1,076	811	673	813	803	1,037	853	744	982	1,014	1,019	3,003	4,179	774	656	337	25,184.0
Total hours for costing		cst hours		477	2,431	2,551	2,245	1,915	1,615	1,217	1,010	1,220	1,205	1,556	1,280	1,116	1,474	1,522	1,529	4,506	6,271	1,161	984	506	37,791.1
Total hours for Scheduling	by loader	sch hours		502	2,559	2,685	2,363	2,016	1,700	1,281	1,063	1,284	1,268	1,638	1,347	1,175	1,551	1,602	1,610	4,743	6,601	1,223	1,036	532	39,780.1
Total hours for Scheduling	by truck	sch hours		3,804	4,563	575	592	553	583	495	562	479	396	549	583	472	564	519	552	1,274	1,914	512	424	414	
Loader Requirements				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	
Operators		1		2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	4	2	2	2	
Operating Cost																									
PC 5500E																									
		Hours		2,521	12,925	13,565	11,934	10,185	8,546	6,474	5,369	6,484	6,403	7,081	6,807	5,935	7,800	8,090	8,129	7,207	6,880	6,175	5,236	2,674	156,420
Fuel & Power	$69.35	($ x 1000)		$174.8	$896.3	$940.7	$827.6	$706.2	$592.6	$448.9	$372.3	$449.6	$444.0	$491.1	$472.0	$411.6	$540.9	$561.0	$563.7	$499.8	$477.1	$428.2	$363.1	$185.4	$10,846.9
Repair & Maintenance	$303.00	($ x 1000)		$763.9	$3,916.2	$4,110.3	$3,616.1	$3,085.9	$2,589.4	$1,961.5	$1,626.9	$1,964.7	$1,940.1	$2,145.6	$2,062.4	$1,798.3	$2,363.4	$2,451.2	$2,463.0	$2,183.8	$2,084.7	$1,871.0	$1,586.4	$810.2	$47,395.1
Wages Operations	$49.17	($ x 1000)		$176.8	$618.8	$618.8	$530.4	$442.0	$442.0	$353.6	$265.2	$353.6	$353.6	$353.6	$353.6	$265.2	$353.6	$353.6	$353.6	$353.6	$353.6	$353.6	$265.2	$176.8	$7,691.2
Wages Maintenance		($ x 1000)																							
Total	$421.52	($ x 1000)		**$1,115.5**	**$5,431.3**	**$5,669.8**	**$4,974.1**	**$4,234.2**	**$3,624.1**	**$2,764.0**	**$2,264.4**	**$2,767.9**	**$2,737.8**	**$2,990.3**	**$2,888.1**	**$2,475.0**	**$3,258.0**	**$3,365.8**	**$3,380.3**	**$3,037.3**	**$2,915.4**	**$2,652.8**	**$2,214.7**	**$1,172.5**	**$65,933.2**
Cat 994																									
		Hours		477	2,431	2,551	2,245	1,915	1,615	1,217	1,010	1,220	1,205	1,556	1,280	1,116	1,474	1,522	1,529	4,506	6,271	1,161	984	506	37,791
Fuel & Power	$123.05	($ x 1000)		$58.7	$299.1	$313.9	$276.2	$235.6	$198.7	$149.8	$124.3	$150.1	$148.3	$191.5	$157.5	$137.4	$181.3	$187.2	$188.2	$554.5	$771.7	$142.9	$121.1	$62.2	$4,650.3
Repair & Maintenance	$164.73	($ x 1000)		$78.6	$400.4	$420.2	$369.8	$315.4	$266.0	$200.5	$166.4	$201.0	$198.5	$256.3	$210.9	$183.9	$242.7	$250.6	$251.9	$742.3	$1,033.0	$191.3	$162.2	$83.3	$6,225.2
Wages Operations	$189.95	($ x 1000)		$176.8	$265.2	$176.8	$176.8	$176.8	$176.8	$176.8	$176.8	$176.8	$176.8	$176.8	$176.8	$176.8	$176.8	$176.8	$176.8	$353.6	$353.6	$176.8	$176.8	$176.8	$4,155.0
Wages Maintenance		($ x 1000)																							
Total	$397.72	($ x 1000)		**$314.1**	**$964.8**	**$910.9**	**$822.8**	**$727.8**	**$641.5**	**$527.0**	**$467.4**	**$527.9**	**$523.6**	**$624.6**	**$545.2**	**$498.1**	**$600.9**	**$614.7**	**$616.9**	**$1,650.4**	**$2,158.3**	**$511.1**	**$460.1**	**$322.3**	**$15,030.5**
total		($ x 1000)																							
Total Loading Cost																									
Repair & Maintenance		($ x 1000)		$842.5	$4,316.6	$4,530.5	$3,985.9	$3,401.3	$2,855.4	$2,162.0	$1,793.2	$2,165.6	$2,138.6	$2,402.0	$2,273.3	$1,982.2	$2,606.2	$2,701.8	$2,714.9	$2,926.1	$3,117.7	$2,062.3	$1,748.5	$893.5	$53,620.3
Fuel & Power		($ x 1000)		$233.5	$1,195.4	$1,254.6	$1,103.8	$941.9	$791.3	$598.7	$496.6	$599.8	$592.3	$682.5	$629.5	$548.9	$722.2	$748.2	$751.8	$1,054.3	$1,248.8	$571.1	$484.2	$247.7	$15,497.2
Labour		($ x 1000)		$353.6	$884.0	$795.6	$707.2	$618.8	$618.8	$530.4	$442.0	$530.4	$530.4	$530.4	$530.4	$442.0	$530.4	$530.4	$530.4	$707.2	$707.2	$530.4	$442.0	$353.6	$11,846.2
Total		($ x 1000)		$1,429.6	$6,396.1	$6,580.8	$5,796.9	$4,962.0	$4,265.5	$3,291.1	$2,731.8	$3,295.8	$3,261.3	$3,614.9	$3,433.2	$2,973.1	$3,858.8	$3,980.5	$3,997.2	$4,687.7	$5,073.7	$3,163.9	$2,674.8	$1,494.8	**$80,963.7**
Total Material Loaded		(t x 1000)		7,075.6	40,144.6	42,135.4	36,192.3	30,927.7	25,567.2	20,106.2	16,676.1	20,142.5	19,892.4	21,615.5	21,144.4	18,436.5	23,393.5	25,126.9	24,730.0	27,591.5	29,592.0	19,179.2	16,259.3	7,277.7	493,206.5
Unit Operating Cost		$/tonne		$0.202	$0.159	$0.156	$0.160	$0.160	$0.167	$0.164	$0.164	$0.164	$0.164	$0.167	$0.162	$0.161	$0.165	$0.158	$0.162	$0.170	$0.171	$0.165	$0.165	$0.205	$0.164
Check Total Tonnes																									
PC 5500E		(t x 1000)		6,368.0	36,130.1	37,921.8	32,573.0	27,834.9	23,010.5	18,095.6	15,008.5	18,128.3	17,903.2	19,127.4	19,029.9	16,592.9	21,054.1	22,614.2	22,257.0	20,149.0	19,234.8	17,261.3	14,633.4	6,549.9	431,477.9
Cat 994		(t x 1000)		707.6	4,014.5	4,213.5	3,619.2	3,092.8	2,556.7	2,010.6	1,667.6	2,014.3	1,989.2	2,488.1	2,114.4	1,843.7	2,339.3	2,512.7	2,473.0	7,442.5	10,357.2	1,917.9	1,625.9	727.8	61,728.6
		(t x 1000)																							
		(t x 1000)																							
Check tonnes		(t x 1000)																							

Haulage Operating Cost

Haulage Allocation Table

Production Year		-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	TOTAL
Quantities																								
Ore	(t X 1000)		327.8	10,795.3	16,366.0	12,886.2	12,073.9	11,368.3	11,349.8	11,111.3	10,885.0	10,876.2	10,885.4	10,880.5	11,126.2	11,293.4	10,880.5	10,994.2	10,893.2	10,875.0	10,894.2	10,938.5	4,678.5	**222,379.4**
Waste	(t X 1000)		6,747.8	29,349.3	25,769.4	23,306.1	18,853.8	14,198.9	8,756.4	5,564.8	9,257.5	9,016.2	10,730.1	10,263.9	7,310.4	12,100.1	14,246.4	13,735.8	16,698.4	18,717.0	8,285.0	5,320.8	2,599.2	**270,827.1**
Total	(t X 1000)		**7,075.6**	**40,144.6**	**42,135.4**	**36,192.3**	**30,927.7**	**25,567.2**	**20,106.2**	**16,676.1**	**20,142.5**	**19,892.4**	**21,615.5**	**21,144.4**	**18,436.5**	**23,393.5**	**25,126.9**	**24,730.0**	**27,591.5**	**29,592.0**	**19,179.2**	**16,259.3**	**7,277.7**	**493,206.5**
Loading Distribution																								
Ore																								
PC 5500E	(t X 1000)		295.0	9,715.8	14,729.4	11,597.6	10,866.5	10,231.5	10,214.8	10,000.1	9,796.5	9,788.6	9,470.3	9,792.5	10,013.6	10,164.1	9,792.4	9,894.8	7,625.2	7,068.8	9,804.8	9,844.7	4,210.7	**194,917.5**
Cat 994	(t X 1000)		32.8	1,079.5	1,636.6	1,288.6	1,207.4	1,136.8	1,135.0	1,111.1	1,088.5	1,087.6	1,415.1	1,088.1	1,112.6	1,129.3	1,088.0	1,099.4	3,268.0	3,806.3	1,089.4	1,093.9	467.9	**27,461.9**
	(t X 1000)																							
	(t X 1000)																							
Waste																								
PC 5500E	(t X 1000)		6,073.0	26,414.4	23,192.4	20,975.5	16,968.4	12,779.0	7,880.8	5,008.4	8,331.8	8,114.6	9,657.1	9,237.5	6,579.3	10,890.0	12,821.8	12,362.2	12,523.8	12,166.0	7,456.5	4,788.7	2,339.3	**236,560.4**
Cat 994	(t X 1000)		674.8	2,934.9	2,576.9	2,330.6	1,885.4	1,419.9	875.6	556.5	925.8	901.6	1,073.0	1,026.4	731.0	1,210.0	1,424.6	1,373.6	4,174.6	6,550.9	828.5	532.1	259.9	**34,266.7**
	(t X 1000)																							
	(t X 1000)																							
Haulage Unit - Code According to Capacity in Tonnes																								
Ore																								
PC 5500E	truck type		241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	
Cat 994	truck type		241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	
	truck type																							
	truck type																							
Waste																								
PC 5500E	truck type		241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	
Cat 994	truck type		241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	241	
	truck type																							
	truck type																							
Weighted Haulage times (includes fixed times)																								
WEIGHTED TIME - Ore (including fixed times)	minutes		9.81	8.56	10.55	12.57	14.08	14.50	14.45	12.33	10.30	12.31	12.99	13.63	13.20	13.33	14.67	12.43	9.33	12.20	15.55	15.50	12.46	
WEIGHTED TIME - Waste (including fixed times)	minutes		11.53	12.27	13.73	16.55	18.63	17.75	17.22	17.44	20.56	22.94	19.44	22.45	21.33	15.68	15.70	14.46	13.99	17.43	19.49	19.43	24.36	
Adjusted Cycle Times - Including Loading																								
Ore																								
PC 5500E	minutes		12.71	11.46	13.45	15.47	16.98	17.40	17.35	15.23	13.20	15.21	15.89	16.53	16.10	16.23	17.57	15.33	12.23	15.10	18.45	18.40	15.36	
Cat 994	minutes		15.18	13.93	15.92	17.93	19.45	19.86	19.82	17.70	15.66	17.67	18.36	19.00	18.56	18.70	20.03	17.80	14.70	17.56	20.92	20.87	17.82	
	minutes																							
	minutes																							
Waste																								
PC 5500E	minutes		14.98	15.17	16.63	19.45	21.53	20.65	20.12	20.34	23.46	25.84	22.34	25.35	24.23	18.58	18.60	17.36	16.89	20.33	22.39	22.33	27.81	
Cat 994	minutes		17.57	17.63	19.09	21.91	23.99	23.11	22.59	22.81	25.93	28.31	24.81	27.82	26.70	21.05	21.07	19.82	19.36	22.79	24.86	24.80	30.40	
	minutes																							
	minutes																							
Truck Load Factors																								
Ore																								
PC 5500E	tonnes/load		210.24	210.24	210.24	210.24	210.24	210.24	210.24	210.24	210.24	210.24	210.24	210.24	210.24	210.24	210.24	210.24	210.24	210.24	210.24	210.24	210.24	
Cat 994	tonnes/load		229.86	229.86	229.86	229.86	229.86	229.86	229.86	229.86	229.86	229.86	229.86	229.86	229.86	229.86	229.86	229.86	229.86	229.86	229.86	229.86	229.86	
	tonnes/load																							
	tonnes/load																							
Waste																								
PC 5500E	tonnes/load		225.68	210.24	210.24	202.75	202.75	195.41	210.24	210.24	210.24	210.24	195.41	210.24	210.24	195.41	210.24	202.75	210.24	210.24	210.24	210.24	181.61	
Cat 994	tonnes/load		231.32	229.86	229.86	221.68	221.68	213.65	229.86	229.86	229.86	229.86	213.65	229.86	229.86	213.65	229.86	221.68	229.86	229.86	229.86	229.86	186.15	
	tonnes/load																							
	tonnes/load																							
Production Hours by Truck Type																								
Cat 793	**241 t**																							
Ore	hours		333	9,919	17,599	15,895	16,329	15,747	15,682	13,500	11,484	13,195	13,815	14,330	14,276	14,611	15,217	13,448	10,874	13,307	15,994	16,016	5,730	277,302
Waste	hours		7,575	35,513	34,139	37,372	33,428	25,062	14,003	8,996	17,236	18,472	20,477	20,633	14,055	19,243	21,083	19,687	22,630	30,433	14,730	9,435	6,678	430,880
Total operating hours	op hours		7908	45432	51738	53267	49757	40809	29686	22496	28720	31667	34292	34964	28331	33855	36300	33135	33504	43740	30723	25450	12408	708,182
Total hours for costing	cst hours		9494	54540	62111	63946	59733	48990	35637	27005	34478	38015	41167	41973	34010	40642	43577	39777	40221	52509	36883	30553	14896	850,158
Total hours for Scheduling	sch hours		9778	56176	63974	65864	61525	50460	36706	27816	35512	39156	42402	43232	35031	41861	44885	40971	41428	54084	37989	31469	15343	875,663
Truck Requirements			2.00	8.00	9.00	9.00	9.00	7.00	6.00	4.00	6.00	8.00	7.00	6.00	6.00	6.00	7.00	6.00	7.00	8.00	6.00	6.00	3.00	
Operators Required	1		5	27	30	31	29	24	17	13	17	19	20	21	17	20	21	19	20	26	18	15	8	
Operating Cost - By Truck Type - $ x 1000																								
Cat 793	**241 t**																							
	hours		9,493.6	54,540.3	62,111.0	63,945.6	59,732.6	48,990.4	35,637.3	27,005.5	34,477.6	38,015.3	41,166.8	41,973.0	34,010.5	40,641.9	43,577.3	39,777.4	40,221.4	52,509.0	36,882.6	30,552.8	14,896.1	850,157.9
Fuel	$107.1		$1,017.0	$5,842.8	$6,653.8	$6,850.3	$6,399.0	$5,248.2	$3,817.7	$2,893.0	$3,693.5	$4,072.5	$4,410.1	$4,496.5	$3,643.5	$4,353.9	$4,668.3	$4,261.3	$4,308.8	$5,625.2	$3,951.1	$3,273.0	$1,595.8	$91,075.2
Repair & Maintenance	$123.8		$1,175.2	$6,751.7	$7,688.9	$7,916.0	$7,394.5	$6,064.7	$4,411.7	$3,343.1	$4,268.1	$4,706.0	$5,096.2	$5,196.0	$4,210.3	$5,031.2	$5,394.6	$4,924.2	$4,979.1	$6,500.3	$4,565.8	$3,782.2	$1,844.0	$105,243.9
Wages - Operating	$41.6		$423.7	$2,287.8	$2,542.0	$2,626.7	$2,457.2	$2,033.6	$1,440.5	$1,101.5	$1,440.5	$1,609.9	$1,694.6	$1,779.4	$1,440.5	$1,694.6	$1,779.4	$1,609.9	$1,694.6	$2,203.0	$1,525.2	$1,271.0	$677.9	$35,333.4
Wages Maintenance																								
Total	$272.5		$2,615.9	$14,882.3	$16,884.7	$17,393.1	$16,250.7	$13,346.5	$9,669.8	$7,337.6	$9,402.0	$10,388.4	$11,200.9	$11,471.8	$9,294.2	$11,079.7	$11,842.3	$10,795.3	$10,982.6	$14,328.5	$10,042.1	$8,326.3	$4,117.7	$231,652.5
Total Fuel	($ x 1000)		$1,017.0	$5,842.8	$6,653.8	$6,850.3	$6,399.0	$5,248.2	$3,817.7	$2,893.0	$3,693.5	$4,072.5	$4,410.1	$4,496.5	$3,643.5	$4,353.9	$4,668.3	$4,261.3	$4,308.8	$5,625.2	$3,951.1	$3,273.0	$1,595.8	$91,075
Total Repair & Maintenance	($ x 1000)		$1,175.2	$6,751.7	$7,688.9	$7,916.0	$7,394.5	$6,064.7	$4,411.7	$3,343.1	$4,268.1	$4,706.0	$5,096.2	$5,196.0	$4,210.3	$5,031.2	$5,394.6	$4,924.2	$4,979.1	$6,500.3	$4,565.8	$3,782.2	$1,844.0	$105,243.9
Check Fuel	($ x 1000)		$1,017.0	$5,842.8	$6,653.8	$6,850.3	$6,399.0	$5,248.2	$3,817.7	$2,893.0	$3,693.5	$4,072.5	$4,410.1	$4,496.5	$3,643.5	$4,353.9	$4,668.3	$4,261.3	$4,308.8	$5,625.2	$3,951.1	$3,273.0	$1,595.8	$91,075
Check R&M	($ x 1000)		$1,175.2	$6,751.7	$7,688.9	$7,916.0	$7,394.5	$6,064.7	$4,411.7	$3,343.1	$4,268.1	$4,706.0	$5,096.2	$5,196.0	$4,210.3	$5,031.2	$5,394.6	$4,924.2	$4,979.1	$6,500.3	$4,565.8	$3,782.2	$1,844.0	$105,243.9

Appendix G

vii) Capital Cost Development

					Options									
	Total Price	Base Price	Freight	Erection	Spare Bucket	Spare Box	Spare Blade	Tires	Chains	Accessories	Power Cable	Substation	Switchhouse	Comments
Primary Drill - PV351 (d)	$ 4,199,679	$ 3,722,679	$ 95,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 182,000	$ 200,000	$ -	$ -	Accessories are first drill string, assumed 5,000 feet of cable, GPS drill positioning ($100k)
Primary Drill - BE59R (e)	$ 4,089,000	$ 3,707,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 182,000	$ 200,000	$ -	$ -	Accessories are first drill string, assumed 5,000 feet of cable, GPS drill positioning ($100k)
PC 5500 Front Shovel (e)	$ 10,566,000	$ 9,322,500	$ -	$ -	$ 843,500	$ -	$ -	$ -	$ -	$ 100,000	$ 200,000	$ -	$ 100,000	Accessories are GPS, one spare bucket per shovel, assume one switchouse per shovel
Production Loader - Cat 994	$ 4,127,392	$ 3,350,000			$ 291,000			$ 338,564	$ 97,828	$ 50,000				Accessories are GPS, one spare bucket per loader
Breaker Loader - Cat 988	$ 894,655	$ 750,000			$ 55,655			$ 54,000		$ 35,000				One spare bucket, GPS (basic)
Haulage Trucks (Cat 793 - 240 ton)	$ 3,050,500	$ 2,750,000				$ 82,500		$ 168,000		$ 50,000				Six tires per truck and 1 spare box per 3 trucks ($247,600/3=82,500 per truck), dispatch at $50,000 per truck
Tracked Dozer (Cat D11T)	$ 2,015,277	$ 1,825,000			$ 140,277					$ 50,000				Assume one spare blade for the 2 dozers
Tracked Dozer (Cat D8T LGP)	$ 738,610	$ 688,610								$ 50,000				
Grader (Cat 16M)	$ 716,600	$ 675,000						$ 6,600		$ 35,000				
Grader (Komatsu GD675)	$ 271,500	$ 229,900						$ 6,600		$ 35,000				
Rubber Tired Dozer (Cat 854G)	$ 1,990,840	$ 1,656,240			$ 175,000			$ 109,600		$ 50,000				
Rubber Tired Dozer (Cat 834H)	$ 1,127,800	$ 950,000						$ 42,800		$ 135,000				Accessories are basic GPS and $100K for a cable reel attachment
Utility Backhoe with hammer(Cat 345CL)	$ 780,000	$ 625,000								$ 155,000				Includes basic GPS and $120K hammer
Water/Sand Truck (Cat 777F)	$ 1,551,112	$ 1,284,512				$ 150,000		$ 81,600		$ 35,000				Considers the cost of a spare box for each truck to use in the winter
Sand Truck -Sterling/Kenworth	$ 350,000	$ 350,000												Assume comes with spreader box
Tool Carrier	$ 375,000	$ 325,000								$ 50,000				Accessories include quick coupler with forks, bucket and snow plow
Blasting Skid Steer Loader	$ 39,900	$ 39,900												Provided to the blasting contractor
Light Plants	$ 8,200	$ 8,200												
Lowbed and International tractor	$ 331,500	$ 331,500												Based on new price but used one likely is cheaper
Tire Manipulator and WA500 loader	$ 535,000	$ 389,500						$ 32,000		$ 113,500				WA500 with tire manipulator
Crewcab Pickups	$ 40,000	$ 40,000												
90 ton Crane	$ 709,500	$ 709,500												
Pumps	$ 45,000	$ 45,000												
Pump Truck	$ 250,000	$ 250,000												
Pickup Truck	$ 35,000	$ 35,000												
Manbus	$ 30,000	$ 30,000												
Ambulance	$ 100,000	$ 100,000												
Fire Truck	$ 290,000	$ 290,000												Includes the cost of a used truck, air tanks, pads, etc. required
Compactor	$ 170,000	$ 170,000												Sheepsfoot packer for roads, liners, tailings, etc.
Mine Dewatering System	$ 500,000	$ 500,000												Pipelines, settling ponds, ditching
Mine Powerline System	$ 158,400	$ 158,400												Price per Mile - Based on $30 per foot and 40,000 feet required
Mine Access Roads	$ 100,000	$ 100,000												Based on $100,000 per mile and 5.7 miles (30,200 feet)
Site Shop Building at mine	$ 100,000	$ 100,000												30'x40' building with concrete slab, heat, etc.

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Production Rate 32,000 tpd

	Unit Cost $ US	Unit Life	Total Capital Cost $US	Units Required																							
				Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22
Total Capital Cost																											
Mining Capital			$ 154,092,828																								
Processing Capital			$ -																								
Infrastructure Capital			$ 2,900,000																								
Indirect Costs			$ -																								
Total			$ 156,992,828																								
Mining Capital																											
Primary Drill - PV351 (d)	$ 4,199,679	25,000 hrs	$ 12,599,037	1						1								1									
Primary Drill - BE59R (e)	$ 4,089,000	25,000 hrs	$ 12,267,000	1						1								1									
PC 5500 Front Shovel (e)	$ 10,566,000	60,000 hrs	$ 31,698,000	1	1													1									
Production Loader - Cat 994	$ 4,127,392	25,000 hrs	$ 8,254,784	1																1							
Breaker Loader - Cat 988	$ 894,655	25,000 hrs	$ 2,683,965		1					1								1									
Haulage Trucks (Cat 793 - 240 ton)	$ 3,050,500	60,000 hrs	$ 48,808,000	4	4	1										3	3	1									
Tracked Dozer (Cat D11T)	$ 2,015,277	35,000 hrs	$ 8,061,108	2										1	1												
Tracked Dozer (Cat D8T LGP)	$ 738,610	35,000 hrs	$ 2,215,830		1								1								1						
Grader (Cat 16M)	$ 716,600	20,000 hrs	$ 2,866,400	1					1					1					1								
Grader (Komatsu GD675)	$ 271,500	20,000 hrs	$ 1,086,000	1					1						1					1							
Rubber Tired Dozer (Cat 854G)	$ 1,990,840	30,000 hrs	$ 3,981,680	1									1														
Rubber Tired Dozer (Cat 834H)	$ 1,127,800	30,000 hrs	$ 3,383,400	1								1									1						
Utility Backhoe with hammer(Cat 345CL)	$ 780,000	20,000 hrs	$ 1,560,000	1										1													
Water/Sand Truck (Cat 777F)	$ 1,551,112	20 years	$ 3,102,224	1	1																						
Sand Truck -Sterling/Kenworth	$ 350,000	10 years	$ 1,400,000		1	1									1	1											
Tool Carrier	$ 375,000	10 years	$ 750,000		1										1												
Blasting Skid Steer Loader	$ 39,900	6 years	$ 239,400		2						2						2										
Light Plants	$ 8,200	4 years	$ 205,000		5				5				5				5				5						
Lowbed and International tractor	$ 331,500	mine life	$ 331,500		1																						
Tire Manipulator and WA500 loader	$ 535,000	mine life	$ 535,000		1																						
Crewcab Pickups	$ 40,000	2 years	$ 1,200,000		3		3		3		3		3		3		3		3		3		3				
90 ton Crane	$ 709,500	mine life	$ 709,500		1																						
Pumps	$ 45,000	4 years	$ 675,000		3				3				3				3				3						
Pump Truck	$ 250,000	10 years	$ 500,000		1										1												
Pickup Truck	$ 35,000	2 years	$ 1,750,000		5		5		5		5		5		5		5		5		5		5				
Manbus	$ 30,000	7 years	$ 180,000		2							2							2								
Ambulance	$ 100,000	10 years	$ 200,000		1										1												
Fire Truck	$ 290,000	10 years	$ 580,000		1										1												
Compactor	$ 170,000	10 years	$ -																								
Mine Dewatering System	$ 500,000	10 years	$ 500,000	1																							
Mine Powerline System	$ 158,400	per mile	$ 1,200,000	4	3.58																						
Mine Access Roads	$ 100,000	per mile	$ 570,000	3	2.7																						
Subtotal Mining Capital			$ 154,092,828																								
Processing Capital																											
Plant			$ -																								
Sustaining Capital (@1% of initial capital)	$ -		$ -																								
Subtotal Processing Capital			$ -																								
Infrastructure Capital																											
Dunka Road Upgrade			$ -																								
Train Loadout			$ -																								
Railway Upgrades			$ -																								
Railcar Repairs			$ -																								
Shop Supplies			$ -																								
Shop Tools - Tire Bay	$ 300,000		$ 300,000		1																						
Power Transformer			$ -																								
Powerline			$ -																								
Fuel Station			$ -																								
Dispatch System	$ 2,500,000		$ 2,500,000		1																						
Miscellaneous Buildings	$ 100,000		$ 100,000		1																						
Communications			$ -																								
Pit Access Road			$ -																								
Site Ditching			$ -																								
Dewatering System			$ -																								
			$ -																								
Stockpile Liners			$ -																								
			$ -																								
Subtotal Infrastructure Capital	$ 2,900,000		$ 2,900,000																								
Indirect Costs																											
Contractor's Overhead			$ -																								
Operation's Overhead			$ -																								
Head Office Overhead			$ -																								
Design and Engineering			$ -																								
First Fills, Commisssions, Vendor Reps			$ -																								
Spare Parts			$ -																								
Contingency			$ -																								
			$ -																								
Total Indirect Costs	$ -		$ -																								

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Production Rate **32,000 tpd**

	Unit Cost $ US	Unit Life	Total Capital Cost $US	Year -2	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22
				Capital Cost																							
Total Capital Cost																											
Mining Capital			$ 154,092,828	$ 47,086,077	$ 30,340,577	$ 3,400,500	$ 295,000	$ -	$ 1,459,100	$ 9,183,334	$ 374,800	$ 1,187,800	$ 3,200,450	$ 3,511,877	$ 3,946,777	$ 9,501,500	$ 9,702,300	$ 22,799,834	$ 1,071,600	$ 4,398,892	$ 2,337,410	$ -	$ 295,000	$ -	$ -	$ -	$ -
Processing Capital			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Infrastructure Capital			$ 2,900,000	$ -	$ 2,900,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Indirect Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total			$ 156,992,828	$ 47,086,077	$ 33,240,577	$ 3,400,500	$ 295,000	$ -	$ 1,459,100	$ 9,183,334	$ 374,800	$ 1,187,800	$ 3,200,450	$ 3,511,877	$ 3,946,777	$ 9,501,500	$ 9,702,300	$ 22,799,834	$ 1,071,600	$ 4,398,892	$ 2,337,410	$ -	$ 295,000	$ -	$ -	$ -	$ -
Mining Capital																											
Primary Drill - PV351 (d)	$ 4,199,679	25,000 hrs	$ 12,599,037	$ 4,199,679	$ -	$ -	$ -	$ -	$ -	$ 4,199,679	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,199,679	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Drill - BE59R (e)	$ 4,089,000	25,000 hrs	$ 12,267,000	$ 4,089,000	$ -	$ -	$ -	$ -	$ -	$ 4,089,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,089,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
PC 5500 Front Shovel (e)	$ 10,566,000	60,000 hrs	$ 31,698,000	$ 10,566,000	$ 10,566,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 10,566,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Production Loader - Cat 994	$ 4,127,392	25,000 hrs	$ 8,254,784	$ 4,127,392	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,127,392	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Breaker Loader - Cat 988	$ 894,655	25,000 hrs	$ 2,683,965	$ -	$ 894,655	$ -	$ -	$ -	$ -	$ 894,655	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 894,655	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Haulage Trucks (Cat 793 - 240 ton)	$ 3,050,500	60,000 hrs	$ 48,808,000	$ 12,202,000	$ 12,202,000	$ 3,050,500	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 9,151,500	$ 9,151,500	$ 3,050,500	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Tracked Dozer (Cat D11T)	$ 2,015,277	35,000 hrs	$ 8,061,108	$ 4,030,554	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,015,277	$ 2,015,277	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Tracked Dozer (Cat D8T LGP)	$ 738,610	35,000 hrs	$ 2,215,830	$ -	$ 738,610	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 738,610	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 738,610	$ -	$ -	$ -	$ -	$ -	$ -
Grader (Cat 16M)	$ 716,600	20,000 hrs	$ 2,866,400	$ 716,600	$ -	$ -	$ -	$ -	$ 716,600	$ -	$ -	$ -	$ -	$ 716,600	$ -	$ -	$ -	$ -	$ 716,600	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grader (Komatsu GD675)	$ 271,500	20,000 hrs	$ 1,086,000	$ 271,500	$ -	$ -	$ -	$ -	$ 271,500	$ -	$ -	$ -	$ -	$ -	$ 271,500	$ -	$ -	$ -	$ -	$ 271,500	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Rubber Tired Dozer (Cat 854G)	$ 1,990,840	30,000 hrs	$ 3,981,680	$ 1,990,840	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,990,840	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Rubber Tired Dozer (Cat 834H)	$ 1,127,800	30,000 hrs	$ 3,383,400	$ 1,127,800	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,127,800	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,127,800	$ -	$ -	$ -	$ -	$ -	$ -
Utility Backhoe with hammer(Cat 345CL)	$ 780,000	20,000 hrs	$ 1,560,000	$ 780,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 780,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Water/Sand Truck (Cat 777F)	$ 1,551,112	20 years	$ 3,102,224	$ 1,551,112	$ 1,551,112	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sand Truck - Sterling/Kenworth	$ 350,000	10 years	$ 1,400,000	$ -	$ 350,000	$ 350,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 350,000	$ 350,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Tool Carrier	$ 375,000	10 years	$ 750,000	$ -	$ 375,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 375,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Blasting Skid Steer Loader	$ 39,900	6 years	$ 239,400	$ -	$ 79,800	$ -	$ -	$ -	$ -	$ -	$ 79,800	$ -	$ -	$ -	$ -	$ -	$ 79,800	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Light Plants	$ 8,200	4 years	$ 205,000	$ -	$ 41,000	$ -	$ -	$ -	$ 41,000	$ -	$ -	$ -	$ 41,000	$ -	$ -	$ -	$ 41,000	$ -	$ -	$ -	$ 41,000	$ -	$ -	$ -	$ -	$ -	$ -
Lowbed and International tractor	$ 331,500	mine life	$ 331,500	$ -	$ 331,500	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Tire Manipulator and WA500 loader	$ 535,000	mine life	$ 535,000	$ -	$ 535,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Crewcab Pickups	$ 40,000	2 years	$ 1,200,000	$ -	$ 120,000	$ -	$ 120,000	$ -	$ 120,000	$ -	$ 120,000	$ -	$ 120,000	$ -	$ 120,000	$ -	$ 120,000	$ -	$ 120,000	$ -	$ 120,000	$ -	$ 120,000	$ -	$ -	$ -	$ -
90 ton Crane	$ 709,500	mine life	$ 709,500	$ -	$ 709,500	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pumps	$ 45,000	4 years	$ 675,000	$ -	$ 135,000	$ -	$ -	$ -	$ 135,000	$ -	$ -	$ -	$ 135,000	$ -	$ -	$ -	$ 135,000	$ -	$ -	$ -	$ 135,000	$ -	$ -	$ -	$ -	$ -	$ -
Pump Truck	$ 250,000	10 years	$ 500,000	$ -	$ 250,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 250,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pickup Truck	$ 35,000	2 years	$ 1,750,000	$ -	$ 175,000	$ -	$ 175,000	$ -	$ 175,000	$ -	$ 175,000	$ -	$ 175,000	$ -	$ 175,000	$ -	$ 175,000	$ -	$ 175,000	$ -	$ 175,000	$ -	$ 175,000	$ -	$ -	$ -	$ -
Manbus	$ 30,000	7 years	$ 180,000	$ -	$ 60,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 60,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 60,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Ambulance	$ 100,000	10 years	$ 200,000	$ -	$ 100,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 100,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fire Truck	$ 290,000	10 years	$ 580,000	$ -	$ 290,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 290,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compactor	$ 170,000	10 years	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Mine Dewatering System	$ 500,000	10 years	$ 500,000	$ 500,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Mine Powerline System	$ 158,400	per mile	$ 1,200,000	$ 633,600	$ 566,400	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Mine Access Roads	$ 100,000	per mile	$ 570,000	$ 300,000	$ 270,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal Mining Capital			$ 154,092,828	$ 47,086,077	$ 30,340,577	$ 3,400,500	$ 295,000	$ -	$ 1,459,100	$ 9,183,334	$ 374,800	$ 1,187,800	$ 3,200,450	$ 3,511,877	$ 3,946,777	$ 9,501,500	$ 9,702,300	$ 22,799,834	$ 1,071,600	$ 4,398,892	$ 2,337,410	$ -	$ 295,000	$ -	$ -	$ -	$ -
Processing Capital																											
Plant			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sustaining Capital (@1% of initial capital)	$ -		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal Processing Capital			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Infrastructure Capital																											
Dunka Road Upgrade			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Train Loadout			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Railway Upgrades			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Railcar Repairs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Shop Supplies			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Shop Tools - Tire Bay	$ 300,000		$ 300,000	$ -	$ 300,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Power Transformer			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Powerline			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Fuel Station			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dispatch System	$ 2,500,000		$ 2,500,000	$ -	$ 2,500,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Miscellaneous Buildings	$ 100,000		$ 100,000	$ -	$ 100,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Communications			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Pit Access Road			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Ditching			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Dewatering System			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stockpile Liners			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal Infrastructure Capital	$ 2,900,000		$ 2,900,000	$ -	$ 2,900,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Indirect Costs																											
Contractor's Overhead			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operation's Overhead			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Head Office Overhead			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Design and Engineering			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
First Fills, Commissions, Vendor Reps			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Spare Parts			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
				$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Contingency			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Indirect Costs	$ -		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -