

Extra Revenue from Nickel & Gold normally left behind recovered from mine floors with vacuuming

19 08 2020

Nickel								
Nickel Mine A Calculation								
Nickel price US\$/t	14,542							
Exchange rate Aus/US\$	0.73							
Ni credit to Mine A by Roaster/Refinery	65%							
Mill recovery	85%							
Mine A costs Aus\$/t:								
Loading and trucking to surface	8.0							
Carting to the mill	6.0							
Milling	15.0 (Variable costs only)							
Diesel fuel @ \$1.0/l with 200l/shift @ 40t/shift	5.0							
Other costs	6.0 (Vacuuming costs not included)							
Total Aus\$/t:	40.0							
Vacuumed Nickel Revenue calculations:								
X Level Ore Drive								
SG	3.0							
Length	140.0							
Width	4.0							
Thickness of floor material, m	0.1							
X Level Ni Ore T & Ore T/m² of mine floor	168 0.3 336 0.6 504 0.9 672 1.2							
Y Level Ore Drive								
SG	3.0							
Length	200.0							
Width	4.0							
Thickness of floor material, m	0.1							
Y Level Ni Ore T & Ore T/m² of mine floor	240 0.3 480 0.6 720 0.9 960 1.2							
Total vacuumed m² of mine floor	1360							
Total Ni Ore Tonnes vacuumed	408 816 1,224 1,632							
Ni Ore grade % Ni T vacuumed @ 65% Credit & Ni T/m² of mine floor								
Ni Ore grade %:								
	Tot Ni T	Ni T/floor m ²	Tot Ni T	Ni T/floor m ²	Tot Ni T	Ni T/floor m ²	Tot Ni T	Ni T/floor m ²
1.50%	4.0	0.003	8.0	0.006	11.9	0.009	15.9	0.012
2.00%	5.3	0.004	10.6	0.008	15.9	0.012	21.2	0.016
2.50%	6.6	0.005	13.3	0.010	19.9	0.015	26.5	0.020
3.00%	8.0	0.006	16.0	0.012	23.9	0.018	31.8	0.023
3.50%	9.3	0.007	18.6	0.014	27.8	0.020	37.1	0.027
4.00%	10.6	0.008	21.2	0.016	31.8	0.023	42.4	0.031
4.50%	11.9	0.009	23.9	0.018	35.8	0.026	47.7	0.035
5.00%	13.3	0.010	26.5	0.020	39.8	0.029	53.0	0.039
8.60%	22.8	0.017	45.6	0.034	68.4	0.050	91.2	0.067
Value of: Vacuumed Ni T in Aus\$ & Aus\$/m² of mine floor								
Ni Ore grade %:								
	Value in Aus\$	Aus\$/m ²	Value in Aus\$	Aus\$/m ²	Value in Aus\$	Aus\$/m ²	Value in Aus\$	Aus\$/m ²
1.50%	67,355	50	134,710	99	202,065	149	269,420	198
2.00%	89,807	66	179,613	132	269,420	198	359,227	264
2.50%	112,258	83	224,517	165	336,775	246	449,034	330
3.00%	134,710	99	269,420	198	404,130	297	538,840	396
3.50%	157,162	116	314,323	231	471,485	347	628,647	462
4.00%	179,613	132	359,227	264	538,840	396	718,454	528
4.50%	202,065	149	404,130	297	606,195	446	809,260	594
5.00%	224,517	165	449,034	330	673,550	495	898,067	660
8.60%	386,169	284	772,338	568	1,158,507	852	1,544,675	1,136
Extra Revenue of: Vacuumed Ni T in Aus\$ (after Mine A costs deduction)								
Ni Ore Grade %:								
	Value in Aus\$	Aus\$/m ²	Value in Aus\$	Aus\$/m ²	Value in Aus\$	Aus\$/m ²	Value in Aus\$	Aus\$/m ²
1.50%	51,035	37.5	118,390	87.1	185,745	136.6	253,100	186.1
2.00%	73,487	54.6	163,293	120.1	253,100	186.1	342,907	252.1
2.50%	95,938	70.5	208,197	153.1	320,455	235.6	432,714	318.2
3.00%	118,390	87.1	253,100	186.1	387,810	285.2	522,520	384.2
3.50%	140,842	103.6	298,003	219.1	455,165	334.7	612,327	450.2
4.00%	163,293	120.1	342,907	252.1	522,520	384.2	702,134	516.3
4.50%	185,745	136.6	387,810	285.2	589,875	433.7	791,940	582.3
5.00%	208,197	153.1	432,714	318.2	657,230	483.3	881,747	648.3
8.60%	369,849	271.9	756,018	555.9	1,142,187	839.8	1,528,355	1,123.8

* Additional revenue from by-product metals not included

* Apart from diesel costs for the Supersucker vacuuming costs not included

* Toll Ni Concentrate roasting/refining

* 8.6% Nickel ore vacuumed in an airleg/hand-held mined stopes in 2003 in Western Australia (WA) by Ausvac Mining PL

* 0.5 m Thick >8 % Ni mine floor material vacuumed on a nickel mine in WA in late 2003 by Ausvac Mining PL

Ausvac Mining Pty Ltd website: www.ausvacmining.com.au

Gold								
Gold Mine B Calculation								
Gold price US\$/oz and per g	2,003.90							
Exchange rate Aus/US\$	0.73							
Gold credit to Mine B	100%							
Mill recovery	95%							
Other costs	31.10							
Mine B costs Aus\$/t:								
Loading and trucking to surface	8.0							
Carting to the mill	3.0							
Milling	15.0 (Variable costs only)							
Diesel fuel @ \$1.0/l with 200l/shift @ 40t/shift	5.0							
Other Costs	6.0 (Vacuuming costs not included)							
Total \$/t:	37.0							
Western Australia State Gold Revenue	2.5%							
Gold bars transportation and refinery @ Aus\$/oz	22.0							
Revenue calculations:								
X Level Ore Drive								
SG	2.5							
Length	140.0							
Width	4.0							
Thickness of floor material, m	0.1							
X Level Au ore T & T/m² of mine floor	140 0.25 280 0.50 420 0.75 560 1.00							
Y Level Ore Drive								
SG	2.5							
Length	200.0							
Width	4.0							
Thickness of floor material, m	0.1							
Y Level Au Ore T & T/m² of mine floor	200 0.25 400 0.50 600 0.75 800 1.00							
Total vacuumed m² of mine floor	1360							
Total vacuumed Au Ore Tonnes	340 680 1,020 1,360							
Total vacuumed Au Ounces with Mine B 100% Credit & Au Oz/m² of mine floor								
Grade g/t:								
	Total Oz	Au Oz/m ²	Total Oz	Au Oz/m ²	Total Oz	Au Oz/m ²	Total Oz	Au Oz/m ²
5.0	54.7	0.04	109.3	0.08	164.0	0.12	218.6	0.16
10.0	109.3	0.08	218.6	0.16	327.9	0.24	437.3	0.32
15.0	164.0	0.12	327.9	0.24	491.8	0.36	655.9	0.48
20.0	218.6	0.16	437.3	0.32	655.9	0.48	874.5	0.64
25.0	273.3	0.20	546.6	0.40	819.8	0.60	1,093.1	0.80
30.0	327.9	0.24	655.9	0.48	983.8	0.72	1,311.5	0.96
35.0	382.6	0.28	765.2	0.56	1,147.8	0.84	1,530.4	1.13
40.0	437.3	0.32	874.5	0.64	1,311.8	0.96	1,749.0	1.29
120.0	1,211.8	0.96	2,423.5	1.92	3,635.3	2.88	5,247.0	3.84
Value of: Vacuumed Au Ounces in Aus\$ and Aus\$/m² of mine floor								
Grade g/t:								
	Value in Aus\$	Aus\$/m ²	Value in Aus\$	Aus\$/m ²	Value in Aus\$	Aus\$/m ²	Value in Aus\$	Aus\$/m ²
5.0	104,049	77	208,099	153	312,148	230	416,198	306
10.0	208,099	153	416,198	306	624,296	459	832,395	612
15.0	312,148	230	624,296	459	936,445	689	1,248,593	918
20.0	416,198	306	832,395	612	1,248,593	918	1,664,791	1,224
25.0	520,247	383	1,040,494	765	1,560,741	1,147	2,080,988	1,530
30.0	624,296	459	1,248,593	918	1,872,889	1,387	2,497,186	1,836
35.0	728,345	536	1,456,692	1,071	2,188,038	1,607	2,913,384	2,142
40.0	832,395	612	1,664,791	1,224	2,497,186	1,836	3,329,581	2,448
120.0	2,497,186	1,836	4,994,372	3,672	7,491,558	5,508	9,988,744	7,345
Extra Revenue of: Vacuumed/recovered Au Ounces in Aus\$ at Mine B costs (with deducted State gold revenue charges and gold refining costs)								
Grade g/t:								
	Value in Aus\$	Aus\$/m ²	Value in Aus\$	Aus\$/m ²	Value in Aus\$	Aus\$/m ²	Value in Aus\$	Aus\$/m ²
5.0	90,266	66	180,531	133	270,797	199	361,062	265
10.0	180,531	133	361,062	266	542,124	400	722,124	530
15.0	270,797	200	541,594	399	812,391	600	1,082,581	800
20.0	361,062	266	722,124	530	1,082,581	800	1,443,441	1,067
25.0	451,327	332	902,654	664	1,353,981	1,000	1,805,308	1,354
30.0	541,594	400	1,082,581	800	1,625,381	1,200	2,167,171	1,625
35.0	631,859	467	1,262,718	934	1,896,718	1,400	2,518,541	1,897
40.0	722,124	530	1,443,441	1,067	2,167,171	1,625	2,888,241	2,167
120.0	2,483,402	1,826	4,966,804	3,652	7,450,206	5,478	9,933,608	7,304

* Additional revenue from by-product metals not included

* Apart from diesel costs for the Supersucker vacuuming costs not included

* Much higher grades were sampled on stopes' and drives' floors in 2010/11 (i.e. >> 40 g/t)

* After eight (8) hands-on trials on nickel and gold mines in Australia

* Ausvac Mining P/L can now vacuum/recover 40 tonnes/shift with two (2) operators from underground mine floors or 80 t/day with >>2,000 t/month on two-shifts arrangement (with only 85 % equipment and workplaces availability)

* It is common that up to 0.5 m thick of already broken ore is left behind on ore floors never to be recovered by conventional machines

* Due to "milling" action of conventional LHDs and scrapers on mine floors, water and gravity force, the grades of vacuumed ore are much higher than those mined from the stopes and ore drives

* Refer to 40.02 g/t of Au vacuum floor sampling conducted by Kris Biegaj in a new in-stope decline

* In April 2002 - Slides 7 & 8 (Hence low "milling" grade enhancement in a new in-stope decline)