Appendix Table 3.6. Electron microprobe analyses of silicate minerals from the McIntosh layered intrusion.

Sample no.	92522273	92522273	Sample no.	92522273	92522273	92522273	92522273	92522273	92522273	92522273
Analysis no.	70817	70818	Analysis no.	70791	70792	70793	70794	70795	70815	70816
Mineral	Amphibole	Amphibole	Mineral	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine
Description	Corona	Corona	Description	Cumulus (r)	Cumulus (r)	Cumulus (c)	Cumulus (c)	Cumulus (c)	Cumulus (r)	Cumulus (r)
Lithology	Olivine gabbronorite	Olivine gabbronorite	Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	1100	1100	Strat. ht. (m)	1100	1100	1100	1100	1100	1100	1100
SiO_2	42.27	41.99	SiO_2	38.51	38.55	38.36	38.37	38.70	38.63	38.32
TiO_2	2.10	2.23	TiO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Al_2O_3	13.84	14.54	Al_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cr_2O_3	0.00	0.00	Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	8.31	8.58	FeO*	20.68	20.79	20.38	20.40	20.36	20.38	20.24
MnO	0.00	0.00	MnO	0.15	0.15	0.12	0.13	0.12	0.00	0.00
MgO	15.51	14.97	MgO	40.38	40.49	40.45	40.72	40.80	40.77	40.65
CaO	11.39	11.89	CaO	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Na_2O	1.96	1.95	Na_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00
K_2O	0.91	1.01	K_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	96.29	97.16	Total	99.73	99.98	99.31	99.62	99.99	99.79	99.21
Oxygens	23	23	Oxygens	4	4	4	4	4	4	4
Si	6.090	6.046	Si	0.995	0.993	0.994	0.990	0.995	0.995	0.992
Ti	0.228	0.241	Ti	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Al	2.350	2.467	Al	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cr	0.000	0.000	Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.783	0.560	Fe^{3+}	0.010	0.013	0.012	0.019	0.009	0.010	0.015
Fe^{2+}	0.218	0.473	Fe^{2+}	0.437	0.435	0.429	0.421	0.429	0.430	0.423
Mn	0.000	0.000	Mn	0.003	0.003	0.003	0.003	0.003	0.000	0.000
Mg	3.331	3.213	Mg	1.555	1.555	1.562	1.567	1.564	1.566	1.569
Ca	1.758	1.834	Ca	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Na	0.547	0.544	Na	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K	0.167	0.185	K	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	15.472	15.563	Total Cations	3.000	3.000	3.000	3.000	3.000	3.000	3.000
mg	0.938	0.872	mg	78.1	78.1	78.5	78.8	78.5	78.5	78.8
Classification	Ferrian Tschermakite	Magnesio Hastingsite								

Appendix Table 3.6 (cont.). Electron microprobe analyses of silicate minerals from the McIntosh layered intrusion.

Sample no.	92522273	92522273
Analysis no.	70819	70821
Mineral	Olivine	Olivine
Description	Cumulus (r)	Cumulus (r)
Lithology	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	1100	1100
SiO_2	38.67	38.46
TiO_2	0.00	0.00
Al_2O_3	0.00	0.00
Cr_2O_3	0.00	0.00
FeO*	20.52	20.35
MnO	0.00	0.12
MgO	40.77	40.28
CaO	0.00	0.00
Na_2O	0.00	0.00
K_2O	0.00	0.00
Total	99.97	99.21
Oxygens	4	4
Si	0.995	0.998
Ti	0.000	0.000
Al	0.000	0.000
Cr	0.000	0.000
Fe^{3+}	0.010	0.004
Fe^{2+}	0.431	0.437
Mn	0.000	0.003
Mg	1.563	1.558
Ca	0.000	0.000
Na	0.000	0.000
K	0.000	0.000
Total Cations	3.000	3.000
mg	78.4	78.1

Sample no.	92522273	92522273	92522273	92522273
Analysis no.	70804	70806	70807	70808
Mineral	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene
Description	Corona	Corona	Corona	Corona
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	1100	1100	1100	1100
SiO_2	55.38	56.08	55.01	55.52
TiO_2	0.00	0.00	0.00	0.00
Al_2O_3	0.00	0.00	0.14	0.00
Cr_2O_3	0.00	0.00	0.00	0.00
FeO*	14.32	14.57	14.44	14.61
MnO	0.12	0.19	0.14	0.10
MgO	30.16	29.60	29.95	29.68
CaO	0.00	0.00	0.00	0.00
Na_2O	0.00	0.00	0.00	0.00
K_2O	0.00	0.00	0.00	0.00
Total	99.98	100.44	99.68	99.91
Oxygens	6	6	6	6
Si	1.971	1.993	1.964	1.982
Ti	0.000	0.000	0.000	0.000
Al	0.000	0.000	0.006	0.000
Cr	0.000	0.000	0.000	0.000
Fe^{3+}	0.059	0.013	0.066	0.037
Fe^{2+}	0.368	0.420	0.366	0.399
Mn	0.004	0.006	0.004	0.003
Mg	1.599	1.568	1.594	1.579
Ca	0.000	0.000	0.000	0.000
Na	0.000	0.000	0.000	0.000
K	0.000	0.000	0.000	0.000
Total Cations	4.000	4.000	4.000	4.000
mg	81.3	78.9	81.3	79.8
Enstatite	81.3	78.9	81.3	79.8
Ferrosilite	18.7	21.1	18.7	20.2
Wollastonite	0.0	0.0	0.0	0.0

Sample no.	92522273
Analysis no.	70796
Mineral	Plagioclase
Description	Cumulus (r)
Lithology	Olivine gabbronorite
Strat. ht. (m)	1100
SiO_2	48.79
TiO_2	0.00
Al_2O_3	33.85
Cr_2O_3	0.00
FeO*	0.00
MnO	0.00
MgO	0.00
CaO	15.48
Na_2O	2.50
K_2O	0.00
Total	100.62
Oxygens	8
Si	2.212
Ti	
Al	1.809
Cr	
Fe^{3+}	0.000
Fe^{2+}	0.000
Mn	0.000
Mg	0.000
Ca	0.752
Na	0.220
K	0.000
Total Cations	4.993
Albite	22.6
Anorthite	77.4
Orthoclase	0.0

Appendix Table 3.6 (cont.). Electron microprobe analyses of silicate minerals from the McIntosh layered intrusion.

Sample no.	92522273	92522273	92522273	92522273	92522273	92522273	92522273
Analysis no.	70797	70798	70799	70813	70814	70822	70823
Mineral	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase
Description	Cumulus (r)	Cumulus (c)	Cumulus (c)	Cumulus (r)	Cumulus (r)	Cumulus (r)	Cumulus (r)
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	1100	1100	1100	1100	1100	1100	1100
SiO_2	48.37	48.28	47.92	49.23	48.78	48.89	50.03
TiO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Al_2O_3	33.66	33.86	33.76	33.60	33.41	33.60	32.83
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	0.15	0.15	0.11	0.00	0.00	0.00	0.00
MnO	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CaO	15.54	15.39	15.44	15.06	15.18	15.14	14.39
Na_2O	2.33	2.36	2.25	2.55	2.48	2.70	2.89
K_2O	0.00	0.00	0.00	0.05	0.00	0.00	0.00
Total	100.05	100.04	99.48	100.49	99.85	100.33	100.14
Oxygens	8	8	8	8	8	8	8
Si	2.208	2.203	2.199	2.231	2.226	2.222	2.270
Ti							
Al	1.811	1.821	1.826	1.795	1.797	1.800	1.756
Cr				0.000	0.000	0.000	0.000
Fe^{3+}	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{2+}	0.006	0.006	0.004	0.000	0.000	0.000	0.000
Mn	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mg	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ca	0.760	0.753	0.759	0.732	0.742	0.737	0.700
Na	0.206	0.209	0.200	0.224	0.220	0.238	0.255
K	0.000	0.000	0.000	0.003	0.000	0.000	0.000
Total Cations	4.990	4.991	4.988	4.984	4.985	4.997	4.980
Albite	21.3	21.7	20.9	23.4	22.9	24.4	26.7
Anorthite	78.7	78.3	79.1	76.6	77.1	75.6	73.3
Orthoclase	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Appendix Table 3.6a. Electron microprobe analyses of oxide minerals from the McIntosh layered intrusion.

Sample no.	92522273	92522273	92522273	92522273	92522273
Analysis no.	72931	72932	72933	72934	72935
Mineral	Spinel	Spinel	Spinel	Spinel	Spinel
Description	Corona	Corona	Corona	Corona	Corona
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	1100	1100	1100	1100	1100
Al_2O_3	65.91	66.56	65.54	65.51	64.90
FeO*	20.10	18.16	19.65	21.34	22.02
MgO	14.14	15.55	14.82	13.17	12.90
Total	100.16	100.28	100.01	100.02	99.81
Oxygens	32	32	32	32	32
Al	16.098	16.087	16.010	16.118	16.064
Fe^{3+}	0.000	0.000	0.000	0.000	0.000
Fe^{2+}	3.484	3.115	3.407	3.726	3.867
Mg	4.369	4.754	4.579	4.097	4.038
Total Cations	23.951	23.956	23.995	23.941	23.968
mg	55.6	60.4	57.3	52.4	51.1

Appendix Table 3.7. Electron microprobe analyses of silicate minerals from the Norton intrusion.

Sample no.	94522167	94522167	94522167	94522167	94522167	94522167	94522167	94522167
Analysis no.	72158	72159	72161	72155	72156	72157	72164	72165
Mineral	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole
Description	Metam.	Metam.	Metam.	Metam. (c)	Metam. (c)	Metam. (c)	Metam.	Metam.
Lithology	Metagabbro	Metagabbro	Metagabbro	Metagabbro	Metagabbro	Metagabbro	Metagabbro	Metagabbro
Strat. ht. (m)	20	20	20	20	20	20	20	20
SiO_2	45.95	45.98	45.88	50.17	52.05	52.45	51.82	51.87
TiO_2	1.74	1.79	1.69	0.92	0.00	0.00	0.00	0.00
Al_2O_3	8.39	8.47	7.94	0.94	0.82	0.54	0.26	0.57
FeO*	16.20	15.93	16.82	27.36	27.02	26.35	25.79	24.68
MnO	0.10	0.00	0.00	0.57	0.62	0.57	0.55	0.56
MgO	12.14	12.28	11.80	15.88	16.10	16.78	16.27	15.99
CaO	10.96	11.09	11.13	1.16	1.04	1.25	0.39	0.47
Na_2O	1.00	1.06	1.17	0.00	0.00	0.00	0.00	0.00
K_2O	0.27	0.31	0.19	0.00	0.00	0.00	0.00	0.00
Total	98.55	98.67	98.49	97.00	97.63	97.95	97.96	96.89
Oxygens	23	23	23	23	23	23	23	23
Si	6.722	6.721	6.765	7.507	7.713	7.716	7.865	7.940
Ti	0.191	0.197	0.187	0.103	0.000	0.000	0.000	0.000
Al	1.446	1.459	1.380	0.166	0.142	0.094	0.047	0.103
Fe^{3+}	0.959	0.873	0.828	0.613	0.433	0.473	0.224	0.017
Fe^{2+}	1.023	1.074	1.246	2.811	2.915	2.768	3.049	3.142
Mn	0.012	0.000	0.000	0.073	0.077	0.071	0.071	0.072
Mg	2.647	2.676	2.593	3.541	3.555	3.680	3.680	3.649
Ca	1.718	1.737	1.758	0.186	0.165	0.197	0.064	0.076
Na	0.284	0.300	0.334	0.000	0.000	0.000	0.000	0.000
K	0.050	0.058	0.036	0.000	0.000	0.000	0.000	0.000
Total Cations	15.052	15.095	15.127	15.000	15.000	15.000	15.000	15.000
mg	72.1	71.3	67.5	55.7	54.9	57.1	54.7	53.7
Classification	Ferrian Magnesio Hornblende	Ferrian Magnesio Hornblende	Ferrian Magnesio Hornblende	Cummingtonite	Cummingtonite	Cummingtonite	Cummingtonite	Cummingtonite

Appendix Table 3.7 (cont.). Electron microprobe analyses of silicate minerals from the Norton intrusion.

Sample no.	94522167	94522167	94522167
Analysis no.	72148	72149	72150
Mineral	Orthopyroxene	Orthopyroxene	Orthopyroxene
Description	Metam. (c)	Metam. (c)	Metam.
Lithology	Metagabbro	Metagabbro	Metagabbro
Strat. ht. (m)	20	20	20
SiO_2	51.42	50.91	50.78
TiO_2	0.00	0.00	0.00
Al_2O_3	0.37	0.34	0.48
FeO*	29.36	30.00	29.95
MnO	0.62	0.55	0.55
MgO	17.39	17.41	16.99
CaO	0.58	0.52	0.69
Na_2O	0.00	0.00	0.00
K_2O	0.00	0.00	0.00
Total	99.76	99.88	99.54
Oxygens	6	6	6
Si	1.988	1.970	1.973
Ti	0.000	0.000	0.000
Al	0.017	0.016	0.022
Fe^{3+}	0.008	0.045	0.031
Fe^{2+}	0.941	0.926	0.942
Mn	0.020	0.018	0.018
Mg	1.002	1.004	0.984
Ca	0.024	0.021	0.029
Na	0.000	0.000	0.000
K	0.000	0.000	0.000
Total Cations	4.000	4.000	4.000
mg	51.6	52.0	51.1
Enstatite	51.0	51.4	50.3
Ferrosilite	47.8	47.5	48.2
Wollastonite	1.2	1.1	1.5

Sample no.	94522167	94522167	94522167	94522167
Analysis no.	72151	72152	72153	72154
Mineral	Plagioclase	Plagioclase	Plagioclase	Plagioclase
Description	Metam. (r)	Metam. (r)	Metam. (c)	Metam. (c)
Lithology	Metagabbro	Metagabbro	Metagabbro	Metagabbro
Strat. ht. (m)	20	20	20	20
SiO_2	50.40	49.86	50.01	49.88
TiO_2	0.00	0.00	0.00	0.00
Al_2O_3	33.30	32.97	32.64	32.66
FeO*	0.00	0.17	0.00	0.00
MnO	0.00	0.00	0.00	0.00
MgO	0.00	0.00	0.00	0.00
CaO	14.49	14.47	14.33	14.32
Na_2O	3.31	2.93	2.98	2.90
K_2O	0.06	0.05	0.00	0.00
Total	101.74	100.46	99.95	99.76
Oxygens	8	8	8	8
Si	2.257	2.260	2.274	2.272
Ti	0.000	0.000	0.000	0.000
Al	1.757	1.761	1.749	1.753
Fe^{3+}	0.006	0.000	0.000	0.000
Fe^{2+}	0.000	0.007	0.000	0.000
Mn	0.000	0.000	0.000	0.000
Mg	0.000	0.000	0.000	0.000
Ca	0.695	0.703	0.698	0.699
Na	0.288	0.258	0.262	0.256
K	0.003	0.003	0.000	0.000
Total Cations	5.007	4.990	4.983	4.980
Albite	29.2	26.8	27.3	26.8
Anorthite	70.5	72.9	72.7	73.2
Orthoclase	0.3	0.3	0.0	0.0

Appendix Table 3.8. Electron microprobe analyses of silicate minerals from the Sally Malay layered intrusion.

Sample no.	93522066	93522066	93522066	93522066	93522066
Analysis no.	70761	70762	70775	70776	70790
Mineral	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole
Description	Corona	Incl. in plag.	Corona	Corona	Corona
Lithology	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite
Strat. ht. (m)	350	350	350	350	350
SiO_2	42.17	42.04	42.48	41.93	41.88
TiO_2	0.96	0.99	0.72	0.54	0.89
Al_2O_3	15.41	15.90	15.59	15.72	15.49
Cr_2O_3	0.34	0.00	0.18	0.12	0.21
FeO*	7.64	8.41	8.14	7.44	8.09
MnO	0.00	0.00	0.09	0.00	0.00
MgO	16.37	15.38	16.48	16.41	16.11
CaO	11.89	11.61	11.59	11.80	11.26
Na_2O	2.21	2.24	2.62	2.47	2.37
K_2O	0.66	0.63	0.65	0.65	0.69
Total	98.50	98.15	99.45	97.91	97.90
Oxygens	23	23	23	23	23
Si	5.969	5.974	5.948	5.955	5.945
Ti	0.102	0.106	0.076	0.058	0.095
Al	2.571	2.663	2.573	2.631	2.591
Cr	0.038	0.000	0.020	0.013	0.024
Fe^{3+}	0.841	0.910	0.953	0.883	0.960
Fe^{2+}	0.064	0.000	0.000	0.000	0.000
Mn	0.000	0.000	0.011	0.000	0.000
Mg	3.454	3.258	3.439	3.473	3.408
Ca	1.803	1.768	1.739	1.795	1.712
Na	0.606	0.617	0.711	0.680	0.652
K	0.119	0.617	0.116	0.118	0.125
Total Cations	15.567	15.913	15.586	15.606	15.512
mg	98.2	100.0	100.0	100.0	100.0
Classification	Ferrian Magnesio Hastingsite	Ferrian Tschermakite	Ferrian Magnesio Hastingsite	Ferrian Magnesio Hastingsite	Ferrian Tschermakite

Sample no.	93522066	93522066	93522066	93522066
Analysis no.	70748	70749	70750	70767
Mineral	Olivine	Olivine	Olivine	Olivine
Description	Cumulus (c)	Cumulus (c)	Corona (r)	Corona (r)
Lithology	Troctolite	Troctolite	Troctolite	Troctolite
Strat. ht. (m)	350	350	350	350
SiO_2	38.64	38.48	38.27	38.87
TiO_2	0.00	0.00	0.00	0.00
Al_2O_3	0.00	0.00	0.00	0.00
Cr_2O_3	0.00	0.00	0.00	0.00
FeO*	20.52	20.92	20.53	20.50
MnO	0.13	0.11	0.00	0.00
MgO	40.39	39.98	40.50	40.82
CaO	0.00	0.00	0.00	0.00
Na_2O	0.00	0.00	0.00	0.00
K_2O	0.00	0.00	0.00	0.00
Total	99.69	99.51	99.38	100.22
Oxygens	4	4	4	4
Si	0.998	0.998	0.991	0.998
Ti	0.000	0.000	0.000	0.000
Al	0.000	0.000	0.000	0.000
Cr	0.000	0.000	0.000	0.000
Fe^{3+}	0.003	0.004	0.017	0.004
Fe^{2+}	0.440	0.450	0.428	0.436
Mn	0.003	0.002	0.000	0.000
Mg	1.555	1.546	1.564	1.562
Ca	0.000	0.000	0.000	0.000
Na	0.000	0.000	0.000	0.000
K	0.000	0.000	0.000	0.000
Total Cations	3.000	3.000	3.000	3.000
mg	77.9	77.5	78.5	78.2

Appendix Table 3.8 (cont.). Electron microprobe analyses of silicate minerals from the Sally Malay layered intrusion.

Sample no.	93522066	93522066	93522066	93522066	93522066	93522066	93522066	Sample no.	93522066	93522066
Analysis no.	70768	70769	70770	70785	70786	70787	70788	Analysis no.	70777	70778
Mineral	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Mineral	Orthopyroxene	Orthopyroxene
Description	Corona (r)	Cumulus (c)	Cumulus (c)	Cumulus (r)	Cumulus (r)	Cumulus (c)	Cumulus (c)	Description	Corona	Corona
Lithology	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Lithology	Troctolite	Troctolite
Strat. ht. (m)	350	350	350	350	350	350	350	Strat. ht. (m)	350	350
SiO_2	38.16	38.19	38.27	38.08	38.39	38.22	38.01	SiO_2	53.66	53.74
TiO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TiO_2	0.00	0.00
Al_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Al_2O_3	2.88	3.00
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Cr_2O_3	0.00	0.00
FeO*	20.30	21.19	20.76	20.71	21.01	20.92	20.80	FeO*	14.17	13.83
MnO	0.13	0.12	0.12	0.11	0.00	0.00	0.09	MnO	0.00	0.10
MgO	40.52	39.98	40.13	40.55	40.51	40.45	40.06	MgO	29.19	28.74
CaO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CaO	0.10	0.07
Na_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Na_2O	0.00	0.00
K_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	K_2O	0.00	0.00
Total	99.22	99.57	99.34	99.60	100.01	99.71	99.07	Total	100.23	99.57
Oxygens	4	4	4	4	4	4	4	Oxygens	6	6
Si	0.990	0.991	0.994	0.985	0.990	0.988	0.990	Si	1.908	1.922
Ti	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Ti	0.000	0.000
Al	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Al	0.121	0.126
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Cr	0.000	0.000
Fe^{3+}	0.020	0.018	0.013	0.029	0.020	0.023	0.020	Fe^{3+}	0.064	0.029
Fe^{2+}	0.420	0.442	0.438	0.419	0.433	0.429	0.433	Fe^{2+}	0.357	0.385
Mn	0.003	0.003	0.003	0.002	0.000	0.000	0.002	Mn	0.000	0.003
Mg	1.567	1.546	1.553	1.564	1.557	1.559	1.555	Mg	1.547	1.532
Ca	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Ca	0.004	0.003
Na	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Na	0.000	0.000
K	0.000	0.000	0.000	0.000	0.000	0.000	0.000	K	0.000	0.000
Total Cations	3.000	3.000	3.000	3.000	3.000	3.000	3.000	Total Cations	4.000	4.000
mg	78.9	77.8	78.0	78.9	78.2	78.4	78.2	mg	81.3	79.9
								Enstatite	81.1	79.7
								Ferrosilite	18.7	20.1
								Wollastonite	0.2	0.2

Appendix Table 3.8 (cont.). Electron microprobe analyses of silicate minerals from the Sally Malay layered intrusion.

Sample no.	93522066	Sample no.	93522066	93522066	93522066	93522066	93522066	93522066	93522066	93522066
Analysis no.	70789	Analysis no.	70752	70754	70755	70771	70772	70773	70774	70782
Mineral	Orthopyroxene	Mineral	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase
Description	Corona	Description	Cumulus (r)	Cumulus (r)	Cumulus (c)	Cumulus (r)	Cumulus (c)	Cumulus (c)	Cumulus (c)	Cumulus (r)
Lithology	Troctolite	Lithology	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite
Strat. ht. (m)	350	Strat. ht. (m)	350	350	350	350	350	350	350	350
SiO_2	55.45	SiO_2	45.79	45.91	46.53	46.78	45.39	45.40	45.09	45.73
TiO_2	0.00	TiO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Al_2O_3	0.73	Al_2O_3	35.39	35.62	35.37	36.42	35.92	35.65	36.21	35.94
Cr_2O_3	0.00	Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	14.23	FeO*	0.12	0.15	0.00	0.10	0.11	0.00	0.00	0.00
MnO	0.16	MnO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	29.84	MgO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CaO	0.00	CaO	17.44	17.36	17.13	17.44	17.80	17.70	18.14	17.75
Na_2O	0.00	Na_2O	1.22	1.12	1.51	1.17	1.06	0.97	0.79	1.27
K_2O	0.00	K_2O	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.05
Total	100.56	Total	99.96	100.16	100.60	101.92	100.29	99.72	100.23	100.84
Oxygens	6	Oxygens	8	8	8	8	8	8	8	8
Si	1.966	Si	2.104	2.104	2.122	2.104	2.081	2.091	2.068	2.086
Ti	0.000	Ti	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Al	0.030	Al	1.917	1.924	1.901	1.931	1.941	1.935	1.958	1.932
Cr	0.000	Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.038	Fe^{3+}	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
Fe^{2+}	0.384	Fe^{2+}	0.004	0.006	0.000	0.004	0.004	0.000	0.000	0.000
Mn	0.005	Mn	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mg	1.577	Mg	0.000	0.000	0.837	0.000	0.000	0.000	0.000	0.000
Ca	0.000	Ca	0.858	0.852	0.133	0.841	0.874	0.873	0.892	0.867
Na	0.000	Na	0.109	0.099	0.004	0.102	0.094	0.087	0.070	0.112
K	0.000	K	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
Total Cations	4.000	Total Cations	4.992	4.984	4.996	4.982	4.995	4.985	4.988	5.004
mg	80.4	Albite	11.3	10.4	2.9	10.8	9.7	9.1	7.3	11.4
Enstatite	80.4	Anorthite	88.7	89.6	97.1	89.2	90.3	90.9	92.7	88.3
Ferrosilite	19.6	Orthoclase	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Wollastonite	0.0									

Appendix Table 3.8 (cont.). Electron microprobe analyses of silicate minerals from the Sally Malay layered intrusion.

Sample no.	93522066	93522066
Analysis no.	70783	70784
Mineral	Plagioclase	Plagioclase
Description	Cumulus (r)	Cumulus (c)
Lithology	Troctolite	Troctolite
Strat. ht. (m)	350	350
SiO_2	45.41	45.66
TiO_2	0.00	0.00
Al_2O_3	35.90	35.79
Cr_2O_3	0.00	0.00
FeO*	0.18	0.00
MnO	0.00	0.00
MgO	0.00	0.00
CaO	18.06	17.59
Na_2O	0.87	1.04
K_2O	0.00	0.00
Total	100.41	100.07
Oxygens	8	8
Si	2.080	2.094
Ti	0.000	0.000
Al	1.938	1.934
Cr	0.000	0.000
Fe^{3+}	0.000	0.000
Fe^{2+}	0.007	0.000
Mn	0.000	0.000
Mg	0.000	0.000
Ca	0.886	0.864
Na	0.078	0.092
K	0.000	0.000
Total Cations	4.989	4.985
Albite	8.1	9.6
Anorthite	91.9	90.4
Orthoclase	0.0	0.0

Appendix Table 3.8a. Electron microprobe analyses of oxide minerals from the Sally Malay layered intrusion.

Sample no.	93522066	93522066	93522066	93522066
Analysis no.	70763	70765	70779	70780
Mineral name	Spinel	Spinel	Spinel	Spinel
Description	Corona	Corona	Corona	Corona
Lithology	Troctolite	Troctolite	Troctolite	Troctolite
Strat. ht. (m)	350	350	350	350
Al_2O_3	60.93	58.21	58.24	58.66
Cr_2O_3	2.43	4.65	4.77	4.62
FeO*	21.88	23.41	22.17	22.29
MnO	0.15	0.19	0.16	0.16
MgO	13.86	13.51	14.17	14.14
Total	99.25	99.97	99.51	99.87
Oxygens	32	32	32	32
Al	15.277	14.681	14.682	14.730
Cr	0.409	0.787	0.807	0.779
Fe^{3+}	0.315	0.532	0.512	0.491
Fe^{2+}	3.579	3.657	3.454	3.480
Mn	0.028	0.034	0.029	0.028
Mg	4.393	4.309	4.517	4.492
Total Cations	24.000	24.000	24.000	24.000
mg	55.1	54.1	56.7	56.3

Appendix Table 3.9. Electron microprobe analyses of silicate minerals from the Spring Creek layered intrusion.

Sample no.	94522062	94522062	94522062	94522062	94522062	94522062	94522062
Analysis no.	71746	71747	72915	72916	71744	71748	71749
Mineral	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole
Description	Corona	Corona	Repl. cpx	Repl. cpx	Corona	Corona	Corona
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	2080	2080	2080	2080	2080	2080	2080
SiO_2	44.18	45.43	43.98	43.98	56.74	55.71	55.90
TiO_2	0.00	0.00	2.48	2.43	0.00	0.00	0.00
Al_2O_3	14.68	13.12	12.12	11.99	0.00	0.30	0.00
Cr_2O_3	0.00	0.00	0.44	0.48	0.00	0.00	0.00
FeO*	8.26	8.18	11.71	12.02	11.05	13.87	14.40
MnO	0.00	0.00	0.00	0.00	0.00	0.31	0.23
MgO	16.16	17.04	13.46	13.37	24.26	25.32	24.99
CaO	11.59	11.55	11.95	12.00	4.69	0.62	0.34
Na_2O	2.06	1.72	0.66	0.54	0.00	0.00	0.00
K_2O	0.29	0.18	0.68	0.69	0.00	0.00	0.00
Total	97.22	97.22	97.48	97.50	96.74	96.13	95.86
Oxygens	23	23	23	23	23	23	23
Si	6.210	6.342	6.295	6.359	7.942	7.859	7.930
Ti	0.000	0.000	0.267	0.264	0.000	0.000	0.000
Al	2.432	2.158	2.045	2.043	0.000	0.050	0.000
Cr	0.000	0.000	0.050	0.055	0.000	0.000	0.000
Fe^{3+}	0.971	0.955	0.709	0.551	0.115	0.232	0.141
Fe^{2+}	0.000	0.000	0.813	0.902	1.178	1.404	1.568
Mn	0.000	0.000	0.000	0.000	0.000	0.037	0.028
Mg	3.388	3.545	2.822	2.881	5.061	5.324	5.283
Ca	1.745	1.727	1.833	1.859	0.703	0.094	0.052
Na	0.561	0.465	0.183	0.151	0.000	0.000	0.000
K	0.052	0.032	0.124	0.127	0.000	0.000	0.000
Total Cations	15.359	15.224	15.141	15.192	15.000	15.000	15.000
mg	100.0	100.0	77.9	76.2	81.1	79.1	77.1
Classification	Ferrian Tschermakite	Ferrian Tschermakite	Titanian Tschermakitic Hornblende	Titanian Tschermakitic Hornblende	Magnesio Cummingtonite	Magnesio Cummingtonite	Magnesio Cummingtonite

Sample no.	94522062
Analysis no.	71768
Mineral	Clinopyroxene
Description	Cumulus
Lithology	Olivine gabbronorite
Strat. ht. (m)	2080
SiO_2	50.76
TiO_2	1.37
Al_2O_3	2.58
Cr_2O_3	0.48
FeO*	10.42
MnO	0.14
MgO	15.70
CaO	18.21
Na_2O	0.00
K_2O	0.00
Total	99.67
Oxygens	6
Si	1.898
Ti	0.039
Al	0.114
Cr	0.014
Fe^{3+}	0.000
Fe^{2+}	0.326
Mn	0.005
Mg	0.875
Ca	0.730
Na	0.000
K	0.000
Total Cations	3.999
mg	72.9
Enstatite	45.3
Ferrosilite	16.9
Wollastonite	37.8

Appendix Table 3.9 (cont.). Electron microprobe analyses of silicate minerals from the Spring Creek layered intrusion.

Sample no.	94522062	94522062	94522062	94522062	94522062	94522062
Analysis no.	71769	72909	72911	72912	72913	72914
Mineral	Clinopyroxene	Clinopyroxene	Clinopyroxene	Clinopyroxene	Clinopyroxene	Clinopyroxene
Description	Cumulus	Intercumulus	Intercumulus	Intercumulus	Intercumulus	Intercumulus
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	2080	2080	2080	2080	2080	2080
SiO_2	51.24	50.93	51.29	51.48	51.80	51.24
TiO_2	0.74	1.03	0.64	0.85	0.61	0.68
Al_2O_3	3.56	3.35	2.89	3.06	2.74	3.04
Cr_2O_3	0.46	0.55	0.60	0.54	0.43	0.64
FeO*	6.65	7.28	8.84	9.81	7.53	8.40
MnO	0.00	0.21	0.00	0.16	0.15	0.17
MgO	14.90	14.84	15.06	16.22	15.14	15.17
CaO	21.46	21.42	20.54	18.06	21.40	20.46
Na_2O	0.28	0.25	0.00	0.19	0.30	0.00
K_2O	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.16	99.86	99.85	100.37	100.10	99.80
Oxygens	6	6	6	6	6	6
Si	1.904	1.888	1.909	1.900	1.912	1.906
Ti	0.021	0.029	0.018	0.024	0.017	0.019
Al	0.156	0.146	0.127	0.133	0.119	0.133
Cr	0.014	0.016	0.018	0.016	0.013	0.019
Fe^{3+}	0.002	0.022	0.003	0.018	0.031	0.000
Fe^{2+}	0.205	0.204	0.272	0.285	0.202	0.261
Mn	0.000	0.007	0.000	0.005	0.005	0.005
Mg	0.825	0.820	0.835	0.892	0.833	0.841
Ca	0.854	0.851	0.819	0.714	0.847	0.815
Na	0.020	0.018	0.000	0.013	0.022	0.000
K	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	4.000	4.000	4.000	4.000	4.000	3.999
mg	80.1	80.1	75.4	75.8	80.5	76.3
Enstatite	43.8	43.7	43.4	47.1	44.3	43.9
Ferrosilite	10.9	10.9	14.1	15.1	10.7	13.6
Wollastonite	45.3	45.4	42.5	37.8	45.0	42.5

Sample no.	94522062	94522062	94522062
Analysis no.	71735	71736	71737
Mineral	Olivine	Olivine	Olivine
Description	Cumulus (c)	Cumulus (c)	Cumulus (r)
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	2080	2080	2080
SiO_2	38.35	37.66	37.52
TiO_2	0.00	0.00	0.00
Al_2O_3	0.00	0.00	0.00
Cr_2O_3	0.00	0.00	0.00
FeO*	23.48	26.12	26.13
MnO	0.13	0.20	0.16
MgO	38.25	36.74	36.52
CaO	0.00	0.00	0.00
Na_2O	0.00	0.00	0.00
K_2O	0.00	0.00	0.00
Total	100.21	100.72	100.33
Oxygens	4	4	4
Si	1.000	0.987	0.988
Ti	0.000	0.000	0.000
Al	0.000	0.000	0.000
Cr	0.000	0.000	0.000
Fe^{3+}	0.001	0.026	0.024
Fe^{2+}	0.511	0.547	0.551
Mn	0.003	0.004	0.004
Mg	1.486	1.436	1.433
Ca	0.000	0.000	0.000
Na	0.000	0.000	0.000
K	0.000	0.000	0.000
Total Cations	3.000	3.000	3.000
mg	74.4	72.4	72.2

Appendix Table 3.9 (cont.). Electron microprobe analyses of silicate minerals from the Spring Creek layered intrusion.

Sample no.	94522062	94522062	94522062	94522062	94522062	94522062	94522062	94522062
Analysis no.	71738	71750	71751	71752	71757	71758	71759	71760
Mineral	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine
Description	Cumulus (r)	Cumulus (r)	Cumulus (r)	Cumulus (c)	Cumulus (r)	Cumulus (r)	Cumulus (c)	Cumulus (c)
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	2080	2080	2080	2080	2080	2080	2080	2080
SiO_2	37.53	37.69	37.68	37.55	37.79	37.54	37.66	37.50
TiO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Al_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	26.48	25.98	26.24	26.05	26.17	26.09	25.99	26.13
MnO	0.14	0.11	0.19	0.16	0.18	0.24	0.20	0.22
MgO	36.19	36.51	36.01	36.53	35.92	36.58	36.34	36.54
CaO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Na_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
K_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.34	100.29	100.12	100.29	100.06	100.45	100.19	100.39
Oxygens	4	4	4	4	4	4	4	4
Si	0.990	0.992	0.996	0.989	1.000	0.987	0.993	0.987
Ti	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Al	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.020	0.015	0.008	0.022	0.000	0.025	0.013	0.026
Fe^{2+}	0.564	0.557	0.573	0.551	0.579	0.548	0.560	0.549
Mn	0.003	0.002	0.004	0.003	0.004	0.005	0.004	0.005
Mg	1.423	1.433	1.419	1.434	1.417	1.434	1.429	1.433
Ca	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Na	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
mg	71.6	72.0	71.2	72.2	71.0	72.4	71.8	72.3

Sample no.	94522062
Analysis no.	71765
Mineral	Orthopyroxene
Description	Corona
Lithology	Olivine gabbronorite
Strat. ht. (m)	2080
SiO_2	53.93
TiO_2	0.19
Al_2O_3	1.02
Cr_2O_3	0.00
FeO*	16.80
MnO	0.16
MgO	28.04
CaO	0.47
Na_2O	0.00
K_2O	0.00
Total	100.61
Oxygens	6
Si	1.930
Ti	0.005
Al	0.043
Cr	0.000
Fe^{3+}	0.086
Fe^{2+}	0.417
Mn	0.005
Mg	1.496
Ca	0.018
Na	0.000
K	0.000
Total Cations	4.000
mg	78.2
Enstatite	77.5
Ferrosilite	21.6
Wollastonite	0.9

Appendix Table 3.9 (cont.). Electron microprobe analyses of silicate minerals from the Spring Creek layered intrusion.

Sample no.	94522062	94522062
Analysis no.	71766	71767
Mineral	Orthopyroxene	Orthopyroxene
Description	Corona	Corona
Lithology	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	2080	2080
SiO_2	54.23	53.96
TiO_2	0.12	0.16
Al_2O_3	1.03	1.22
Cr_2O_3	0.00	0.00
FeO*	16.46	16.62
MnO	0.23	0.23
MgO	27.33	26.65
CaO	0.82	1.12
Na_2O	0.00	0.00
K_2O	0.00	0.00
Total	100.22	99.96
Oxygens	6	6
Si	1.952	1.953
Ti	0.003	0.004
Al	0.044	0.052
Cr	0.000	0.000
Fe^{3+}	0.045	0.034
Fe^{2+}	0.450	0.469
Mn	0.007	0.007
Mg	1.467	1.438
Ca	0.031	0.043
Na	0.000	0.000
K	0.000	0.000
Total Cations	4.000	4.000
mg	76.5	75.4
Enstatite	75.3	73.7
Ferrosilite	23.1	24.1
Wollastonite	1.6	2.2

Sample no.	94522062	94522062	94522062	94522062	94522062	94522062	94522062
Analysis no.	71739	71740	71741	71742	71753	71754	71755
Mineral	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase
Description	Cumulus (r)	Cumulus (r)	Cumulus (c)	Cumulus (c)	Cumulus (r)	Cumulus (r)	Cumulus (c)
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	2080	2080	2080	2080	2080	2080	2080
SiO_2	48.02	48.09	47.38	48.74	48.07	48.14	49.05
TiO_2	0.00	0.00	0.34	0.00	0.00	0.00	0.00
Al_2O_3	34.19	33.72	33.28	33.79	34.01	34.20	33.53
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	0.00	0.14	0.99	0.00	0.22	0.25	0.00
MnO	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CaO	15.96	15.66	15.23	15.18	15.63	15.72	15.09
Na_2O	1.99	2.07	2.25	2.40	2.01	2.10	2.61
K_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.16	99.68	99.47	100.10	99.94	100.42	100.29
Oxygens	8	8	8	8	8	8	8
Si	2.189	2.202	2.186	2.218	2.196	2.190	2.229
Ti	0.000	0.000	0.012	0.000	0.000	0.000	0.000
Al	1.837	1.820	1.809	1.812	1.830	1.834	1.795
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.000	0.000	0.000	0.000	0.008	0.010	0.000
Fe^{2+}	0.000	0.005	0.038	0.000	0.000	0.000	0.000
Mn	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mg	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ca	0.779	0.768	0.752	0.740	0.765	0.766	0.734
Na	0.176	0.184	0.201	0.212	0.178	0.185	0.230
K	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	4.981	4.980	4.998	4.982	4.978	4.985	4.989
Albite	18.4	19.3	21.1	22.3	18.9	19.5	23.9
Anorthite	81.6	80.7	78.9	77.7	81.1	80.5	76.1
Orthoclase	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Appendix Table 3.9 (cont.). Electron microprobe analyses of silicate minerals from the Spring Creek layered intrusion.

Sample no.	94522062	94522062	94522062	94522062	94522062	94522062	94522062	94522062	94522062
Analysis no.	71756	71761	71762	71763	71764	72917	72918	72919	72920
Mineral	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase
Description	Cumulus (c)	Cumulus (r)	Cumulus (r)	Cumulus (c)	Cumulus (c)	Cumulus (r)	Cumulus (r)	Cumulus (c)	Cumulus (c)
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	2080	2080	2080	2080	2080	2080	2080	2080	2080
SiO_2	48.77	45.63	47.96	47.66	47.71	48.17	47.74	47.94	48.12
TiO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Al_2O_3	32.93	35.65	34.08	33.65	33.61	33.77	34.12	33.96	33.71
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	0.73	0.00	0.18	0.17	0.34	0.11	0.00	0.09	0.00
MnO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	0.00	0.00	0.00	0.00	0.48	0.48	0.48	0.48	0.48
CaO	15.08	17.53	15.75	15.35	15.16	15.46	15.33	15.53	15.52
Na_2O	2.34	1.03	2.20	2.29	2.05	2.08	2.30	2.22	2.15
K_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.06
Total	99.84	99.84	100.16	99.11	99.34	100.07	99.95	100.32	100.04
Oxygens	8	8	8	8	8	8	8	8	8
Si	2.232	2.097	2.188	2.196	2.193	2.206	2.189	2.193	2.205
Ti	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Al	1.776	1.931	1.833	1.828	1.821	1.822	1.844	1.831	1.820
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.028	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{2+}	0.000	0.000	0.000	0.007	0.013	0.004	0.000	0.003	0.000
Mn	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mg	0.000	0.000	0.000	0.000	0.033	0.000	0.000	0.000	0.000
Ca	0.739	0.863	0.770	0.758	0.746	0.759	0.753	0.761	0.762
Na	0.208	0.091	0.194	0.204	0.183	0.185	0.204	0.197	0.191
K	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.003
Total Cations	4.984	4.983	4.992	4.992	4.988	4.976	4.991	4.993	4.982
Albite	22.0	9.5	20.1	21.2	19.7	19.6	21.3	20.4	20.0
Anorthite	78.0	90.5	79.9	78.8	80.3	80.4	78.7	79.0	79.7
Orthoclase	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.3

Appendix Table 3.10. Electron microprobe analyses of silicate minerals from the Springvale layered intrusion.

Sample no.	92522454	92522454	92522454	92522454	92522454	92522454	92522454	92522454	92522454	92522454	92522454
Analysis no.	57316	57319	57320	57322	57323	57324	57326	57327	57340	57341	57343
Mineral	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole
Description	Alter. of cpx	Alter. of cpx	Alter. of cpx	Alter. of cpx	Alter. of cpx	Alter. of cpx	Alter. of cpx	Alter. of cpx	Alter. of cpx	Alter. of cpx	Alter. of cpx
Lithology	Norite	Norite	Norite	Norite	Norite	Norite	Norite	Norite	Norite	Norite	Norite
Strat. ht. (m)	50	50	50	50	50	50	50	50	50	50	50
SiO_2	53.88	53.92	54.74	52.93	52.32	53.39	54.15	54.66	53.54	54.00	53.66
TiO_2	0.00	0.00	0.34	0.00	0.00	0.00	0.51	0.00	0.00	0.00	0.60
Al_2O_3	0.26	1.57	0.52	0.49	0.67	0.85	0.94	0.59	0.44	0.34	0.46
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	21.89	17.14	20.22	22.12	21.79	22.24	19.01	21.44	23.18	23.27	23.10
MnO	0.32	0.17	0.29	0.35	0.30	0.34	0.33	0.41	0.33	0.46	0.27
NiO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	18.84	18.50	20.21	19.21	18.72	18.81	20.49	19.66	18.58	18.58	18.85
CaO	0.33	4.96	0.21	0.36	0.48	0.46	0.59	0.29	0.38	0.98	0.70
Na_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
K_2O	0.00	0.00	0.00	0.00	0.15	0.00	0.26	0.00	0.00	0.00	0.00
Total	95.52	96.26	96.53	95.46	94.43	96.09	96.28	97.05	96.45	97.63	97.64
Oxygens	23	23	23	23	23	23	23	23	23	23	23
Si	7.983	7.842	7.948	7.836	7.833	7.866	7.861	7.941	7.887	7.864	7.811
Ti	0.000	0.000	0.037	0.000	0.000	0.000	0.056	0.000	0.000	0.000	0.066
Al	0.045	0.269	0.089	0.085	0.118	0.148	0.161	0.101	0.076	0.058	0.079
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.000	0.047	0.000	0.243	0.245	0.120	0.053	0.017	0.149	0.213	0.168
Fe^{2+}	2.712	2.038	2.455	2.496	2.483	2.620	2.255	2.588	2.706	2.622	2.644
Ni	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.040	0.021	0.036	0.044	0.038	0.042	0.041	0.050	0.041	0.057	0.033
Mg	4.161	4.010	4.374	4.239	4.177	4.131	4.434	4.257	4.080	4.033	4.090
Ca	0.052	0.773	0.033	0.057	0.077	0.073	0.092	0.045	0.060	0.153	0.109
Na	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K	0.000	0.000	0.000	0.000	0.029	0.000	0.048	0.000	0.000	0.000	0.000
Total Cations	14.994	15.000	14.971	15.000	15.000	15.000	15.000	15.000	15.000	15.000	15.000
mg	60.5	66.3	64.0	62.9	62.7	61.2	66.2	62.2	60.1	60.6	60.7
Classification	Cummingtonite	Cummingtonite	Cummingtonite	Cummingtonite	Cummingtonite	Cummingtonite	Cummingtonite	Cummingtonite	Cummingtonite	Cummingtonite	Cummingtonite

Appendix Table 3.10 (cont.). Electron microprobe analyses of silicate minerals from the Springvale layered intrusion.

Sample no.	92522454	92522461	92522461	92522461	92522461
Analysis no.	57344	57497	57504	57516	57517
Mineral	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole
Description	Alter. of cpx	Alter. of cpx	Alter. of cpx	Alter. of cpx	Alter. of cpx
Lithology	Norite	Biot. olivine gabbronorite	Biot. olivine gabbronorite	Biot. olivine gabbronorite	Biot. olivine gabbronorite
Strat. ht. (m)	50	840	840	840	840
SiO_2	53.46	42.85	43.51	42.17	42.40
TiO_2	0.00	1.79	1.66	1.69	1.59
Al_2O_3	0.66	11.91	11.61	12.09	12.37
Cr_2O_3	0.00	0.00	0.00	0.00	0.00
FeO*	22.19	12.65	12.78	13.23	13.23
MnO	0.34	0.00	0.00	0.00	0.00
NiO	0.00	0.00	0.00	0.00	0.00
MgO	19.53	14.19	14.71	13.76	13.84
CaO	0.46	11.51	11.40	11.48	11.54
Na_2O	0.00	2.12	2.33	2.30	2.06
K_2O	0.00	0.82	0.90	0.91	0.87
Total	96.64	97.84	98.90	97.63	97.90
Oxygens	23	23	23	23	23
Si	7.809	6.192	6.212	6.142	6.134
Ti	0.000	0.195	0.178	0.185	0.173
Al	0.114	2.028	1.954	2.075	2.109
Cr	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.268	0.889	0.969	0.870	0.963
Fe^{2+}	2.443	0.639	0.226	0.741	0.638
Ni	0.000	0.000	0.000	0.000	0.000
Mn	0.042	0.000	0.000	0.000	0.000
Mg	4.252	3.056	3.130	2.987	2.984
Ca	0.072	1.782	1.744	1.791	1.788
Na	0.000	0.594	0.645	0.649	0.578
K	0.000	0.151	0.164	0.169	0.161
Total Cations	15.000	15.526	15.222	15.609	15.528
mg	63.5	82.7	85.4	80.1	82.4
Classification	Cummingtonite	Ferrian Magnesio Hastingsite	Ferrian Magnesio Hastingsite	Ferrian Magnesio Hastingsite	Ferrian Magnesio Hastingsite

Sample no.	92522439	92522439	92522454	92522454	92522461	92522461
Analysis no.	57371	57372	57317	57318	57511	57512
Mineral	Biotite	Biotite	Biotite	Biotite	Biotite	Biotite
Description	Intercumulus	Intercumulus	Intercumulus	Intercumulus	Intercumulus	Intercumulus
Lithology	Gabbronorite	Gabbronorite	Norite	Norite	Biot. olivine gabbronorite	Biot. olivine gabbronorite
Strat. ht. (m)	650	650	50	50	840	840
SiO_2	37.60	37.59	37.24	36.62	37.16	36.55
TiO_2	3.73	3.29	1.96	2.18	2.20	4.32
Al_2O_3	15.52	15.26	16.60	16.15	16.16	15.60
Cr_2O_3	0.10	0.00	0.00	0.00	0.00	0.00
FeO*	13.63	12.99	19.63	18.81	12.51	14.26
MnO	0.00	0.00	0.00	0.00	0.00	0.00
NiO	0.00	0.00	0.00	0.00	0.00	0.00
MgO	15.90	16.57	13.29	12.80	18.72	15.94
CaO	0.00	0.00	0.00	0.00	0.00	0.00
Na_2O	0.00	0.00	0.00	0.00	0.00	0.16
K_2O	9.93	9.85	9.23	9.09	9.53	9.42
Total	96.41	95.55	97.95	95.65	96.28	96.25
Oxygens	22	22	22	22	22	22
Si	5.522	5.552	5.503	5.530	5.427	5.396
Ti	0.412	0.365	0.218	0.248	0.242	0.480
Al	2.686	2.656	2.891	2.875	2.782	2.714
Cr	0.012	0.000	0.000	0.000	0.000	0.000
Fe	1.674	1.605	2.426	2.376	1.528	1.761
Ni	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.000	0.000	0.000	0.000	0.000	0.000
Mg	3.481	3.648	2.927	2.881	4.075	3.507
Ca	0.000	0.000	0.000	0.000	0.000	0.000
Na	0.000	0.000	0.000	0.000	0.000	0.046
K	1.860	1.856	1.740	1.751	1.775	1.774
Total Cations	15.647	15.682	15.704	15.660	15.828	15.677
mg	67.5	69.5	54.7	54.8	72.7	66.6

Appendix Table 3.10 (cont.). Electron microprobe analyses of silicate minerals from the Springvale layered intrusion.

Sample no.	92522461	92522461	92522461
Analysis no.	57513	57520	57521
Mineral	Biotite	Biotite	Biotite
Description	Intercumulus	Intercumulus	Intercumulus
Lithology	Biot. olivine gabbronorite	Biot. olivine gabbronorite	Biot. olivine gabbronorite
Strat. ht. (m)	840	840	840
SiO_2	36.78	36.18	36.10
TiO_2	3.84	5.22	5.26
Al_2O_3	15.80	15.08	14.97
Cr_2O_3	0.00	0.00	0.00
FeO*	13.22	15.68	15.61
MnO	0.00	0.00	0.00
NiO	0.00	0.00	0.00
MgO	17.06	15.21	14.89
CaO	0.00	0.00	0.00
Na_2O	0.19	0.00	0.00
K_2O	9.34	9.47	9.53
Total	96.23	96.84	96.36
Oxygens	22	22	22
Si	5.398	5.353	5.370
Ti	0.424	0.581	0.588
Al	2.733	2.630	2.624
Cr	0.000	0.000	0.000
Fe	1.623	1.940	1.942
Ni	0.000	0.000	0.000
Mn	0.000	0.000	0.000
Mg	3.732	3.354	3.301
Ca	0.000	0.000	0.000
Na	0.054	0.000	0.000
K	1.749	1.787	1.808
Total Cations	15.713	15.645	15.634
mg	69.7	63.4	63.0
Classification			

Sample no.	92522439	92522461	92522461	92522461	92522475	92522475	92522475
Analysis no.	57374	57505	57506	57507	57351	57353	57354
Mineral	Clinopyroxene	Clinopyroxene	Clinopyroxene	Clinopyroxene	Clinopyroxene	Clinopyroxene	Clinopyroxene
Description	Intercumulus	Intercumulus	Intercumulus	Intercumulus	Intercumulus	Intercumulus	Intercumulus
Lithology	Gabbronorite	Biot. olivine gabbronorite	Biot. olivine gabbronorite	Biot. olivine gabbronorite	Gabbronorite	Gabbronorite	Gabbronorite
Strat. ht. (m)	650	840	840	840	2020	2020	2020
SiO_2	52.19	51.40	52.01	51.89	53.49	52.43	52.37
TiO_2	0.50	0.39	0.26	0.45	0.30	0.30	0.40
Al_2O_3	1.96	3.10	1.72	2.22	1.03	1.85	1.50
Cr_2O_3	0.21	0.69	0.00	0.11	0.09	0.00	0.00
FeO*	7.60	7.64	8.10	7.80	9.44	8.04	7.36
MnO	0.12	0.00	0.17	0.11	0.00	0.00	0.19
NiO	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	15.11	15.74	14.68	15.93	16.79	16.79	15.75
CaO	22.20	20.66	22.18	20.46	19.51	19.51	22.15
Na_2O	0.00	0.00	0.18	0.25	0.00	0.00	0.00
K_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	99.89	99.62	99.98	99.78	100.31	100.46	99.73
Oxygens	6	6	6	6	6	6	6
Si	1.937	1.906	1.939	1.925	1.949	1.930	1.940
Ti	0.014	0.011	0.007	0.013	0.008	0.008	0.011
Al	0.086	0.135	0.076	0.097	0.044	0.080	0.066
Cr	0.006	0.020	0.000	0.003	0.003	0.000	0.000
Fe^{3+}	0.007	0.011	0.031	0.038	0.039	0.043	0.031
Fe^{2+}	0.229	0.226	0.312	0.213	0.174	0.247	0.197
Ni	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.004	0.000	0.008	0.005	0.003	0.000	0.006
Mg	0.835	0.870	0.909	0.812	0.921	0.921	0.870
Ca	0.882	0.821	0.718	0.881	0.859	0.770	0.879
Na	0.000	0.000	0.000	0.013	0.000	0.000	0.000
K	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	4.000	4.000	4.000	4.000	4.000	4.000	4.000
mg	78.5	79.4	74.5	79.2	84.1	78.8	81.6
Enstatite	42.9	45.4	46.9	42.5	47.1	47.5	44.7
Ferrosilite	11.8	11.8	16.1	11.2	8.9	12.8	10.1
Wollastonite	45.3	42.8	37.0	46.3	44.0	39.7	45.2

Appendix Table 3.10 (cont.). Electron microprobe analyses of silicate minerals from the Springvale layered intrusion.

Sample no.	92522475	92522475	92522475	92522475
Analysis no.	57355	57356	57360	57361
Mineral	Clinopyroxene	Clinopyroxene	Clinopyroxene	Clinopyroxene
Description	Intercumulus	Intercumulus	Intercumulus	Intercumulus
Lithology	Gabbronorite	Gabbronorite	Gabbronorite	Gabbronorite
Strat. ht. (m)	2020	2020	2020	2020
SiO_2	51.90	51.93	51.80	51.89
TiO_2	0.36	0.35	0.44	0.53
Al_2O_3	1.92	1.93	1.96	1.60
Cr_2O_3	0.00	0.17	0.10	0.09
FeO*	9.99	7.61	7.88	11.94
MnO	0.00	0.12	0.12	0.25
NiO	0.00	0.00	0.00	0.00
MgO	16.61	15.24	15.50	17.94
CaO	18.80	22.18	21.61	15.07
Na_2O	0.00	0.00	0.00	0.00
K_2O	0.00	0.00	0.00	0.00
Total	99.59	99.54	99.41	99.31
Oxygens	6	6	6	6
Si	1.928	1.931	1.928	1.934
Ti	0.010	0.010	0.012	0.015
Al	0.084	0.085	0.086	0.070
Cr	0.000	0.005	0.003	0.003
Fe^{3+}	0.040	0.028	0.030	0.030
Fe^{2+}	0.270	0.209	0.215	0.343
Ni	0.000	0.000	0.000	0.000
Mn	0.000	0.004	0.004	0.008
Mg	0.920	0.845	0.860	0.997
Ca	0.748	0.884	0.862	0.602
Na	0.000	0.000	0.000	0.000
K	0.000	0.000	0.000	0.000
Total Cations	4.000	4.000	4.000	4.000
mg	77.3	80.2	80.0	74.4
Enstatite	47.5	43.6	44.4	51.4
Ferrosilite	13.9	10.8	11.1	17.6
Wollastonite	38.6	45.6	44.5	31.0

Sample no.	92522446	92522446	92522446	92522446	92522446	92522446
Analysis no.	57375	57376	57380	57381	57382	57383
Mineral	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine
Description	Cumulus (r)	Cumulus (c)	Cumulus (c)	Cumulus (c)	Cumulus (c)	Cumulus (r)
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	940	940	940	940	940	940
SiO_2	35.24	34.99	35.50	35.26	35.69	35.24
TiO_2	0.00	0.00	0.00	0.00	0.00	0.00
Al_2O_3	0.00	0.00	0.00	0.00	0.00	0.00
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	34.60	35.64	34.91	35.17	35.11	34.22
MnO	0.28	0.38	0.38	0.25	0.28	0.21
NiO	0.00	0.00	0.00	0.00	0.00	0.00
MgO	29.69	29.69	30.25	30.12	29.78	29.57
CaO	0.00	0.00	0.00	0.00	0.00	0.00
Na_2O	0.00	0.00	0.00	0.00	0.00	0.00
K_2O	0.00	0.00	0.00	0.00	0.00	0.00
Total	99.80	100.70	101.04	100.79	100.86	99.23
Oxygens	4	4	4	4	4	4
Si	0.973	0.960	0.967	0.964	0.976	0.978
Ti	0.000	0.000	0.000	0.000	0.000	0.000
Al	0.000	0.000	0.000	0.000	0.000	0.000
Cr	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.054	0.080	0.065	0.072	0.048	0.044
Fe^{2+}	0.745	0.737	0.730	0.731	0.755	0.750
Ni	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.007	0.009	0.009	0.006	0.007	0.005
Mg	1.222	1.214	1.228	1.227	1.214	1.223
Ca	0.000	0.000	0.000	0.000	0.000	0.000
Na	0.000	0.000	0.000	0.000	0.000	0.000
K	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	3.001	3.000	2.999	3.000	3.000	3.000
mg	62.1	62.2	62.7	62.7	61.7	62.0

Appendix Table 3.10 (cont.). Electron microprobe analyses of silicate minerals from the Springvale layered intrusion.

Sample no.	92522446	92522446	92522446	92522446	92522446	92522446	92522446	92522446	92522461	92522461	92522461	92522461
Analysis no.	57384	57385	65003	65004	65005	65006	65007	65008	57501	57502	57503	57518
Mineral	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine
Description	Cumulus (c)	Cumulus (r)	Cumulus (r)	Cumulus (c)	Cumulus (c)	Cumulus (c)	Cumulus	Cumulus (c)	Cumulus (c)	Cumulus (c)	Cumulus (r)	Cumulus (c)
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Biot. olivine gabbronorite	Biot. olivine gabbronorite	Biot. olivine gabbronorite	Biot. olivine gabbronorite
Strat. ht. (m)	940	940	940	940	940	940	940	940	840	840	840	840
SiO_2	35.44	35.30	35.58	35.43	35.60	35.59	35.37	35.17	35.14	35.20	35.65	35.38
TiO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Al_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	35.38	34.84	35.41	35.36	35.19	35.49	35.03	35.33	34.08	34.27	32.86	34.53
MnO	0.31	0.38	0.36	0.25	0.24	0.30	0.29	0.29	0.36	0.36	0.37	0.25
NiO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	29.76	29.53	29.56	29.59	29.54	29.65	29.74	29.42	30.31	30.23	31.18	30.29
CaO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Na_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
K_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.90	100.06	100.91	100.63	100.57	101.03	100.43	100.22	99.88	100.07	100.05	100.46
Oxygens	4	4	4	4	4	4	4	4	4	4	4	4
Si	0.970	0.974	0.974	0.972	0.977	0.973	0.971	0.970	0.966	0.967	0.973	0.968
Ti	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Al	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.061	0.053	0.051	0.055	0.045	0.054	0.057	0.061	0.068	0.066	0.054	0.064
Fe^{2+}	0.749	0.751	0.759	0.756	0.763	0.758	0.747	0.754	0.715	0.721	0.696	0.727
Ni	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.007	0.009	0.008	0.006	0.006	0.007	0.007	0.007	0.008	0.008	0.009	0.006
Mg	1.214	1.214	1.206	1.210	1.209	1.208	1.217	1.209	1.242	1.238	1.268	1.236
Ca	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Na	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	3.001	3.001	2.998	2.999	3.000	3.000	2.999	3.001	2.999	3.000	3.000	3.001
mg	61.8	61.8	61.4	61.5	61.3	61.4	62.0	61.6	63.5	63.2	64.6	63.0

Appendix Table 3.10 (cont.). Electron microprobe analyses of silicate minerals from the Springvale layered intrusion.

Sample no.	92522461	Sample no.	92522439	92522439	92522439	92522439	92522439	92522439	92522446	92522446	92522446
Analysis no.	57519	Analysis no.	57364	57365	57367	57366	57367	57370	57386	57388	57389
Mineral	Olivine	Mineral	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene
Description	Cumulus (r)	Description	Cumulus (r)	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus	Intercumulus	Intercumulus	Intercumulus
Lithology	Biot. olivine gabbronorite	Lithology	Gabbronorite	Gabbronorite	Gabbronorite	Gabbronorite	Gabbronorite	Gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	840	Strat. ht. (m)	650	650	650	650	650	650	940	940	940
SiO_2	35.53	SiO_2	53.41	53.25	53.12	52.94	53.12	53.29	52.34	52.27	52.29
TiO_2	0.00	TiO_2	0.10	0.00	0.24	0.00	0.24	0.09	0.36	0.00	0.33
Al_2O_3	0.00	Al_2O_3	1.06	0.72	0.60	0.87	0.60	1.00	0.76	0.82	0.78
Cr_2O_3	0.00	Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	32.94	FeO*	18.39	17.15	18.38	18.17	18.38	16.62	21.02	21.14	20.38
MnO	0.46	MnO	0.21	0.27	0.20	0.21	0.20	0.28	0.33	0.26	0.32
NiO	0.00	NiO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	31.41	MgO	26.27	25.58	26.09	25.96	26.09	25.29	23.98	24.24	23.61
CaO	0.00	CaO	0.72	2.73	0.74	0.99	0.74	2.81	1.50	1.16	2.71
Na_2O	0.00	Na_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
K_2O	0.00	K_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.34	Total	100.43	100.02	99.37	99.43	99.63	99.58	100.64	100.29	100.80
Oxygens	4	Oxygens	6	6	6	6	6	6	6	6	6
Si	0.967	Si	1.938	1.941	1.945	1.941	1.945	1.949	1.926	1.927	1.921
Ti	0.000	Ti	0.003	0.000	0.007	0.000	0.007	0.002	0.010	0.000	0.009
Al	0.000	Al	0.045	0.031	0.026	0.038	0.026	0.043	0.033	0.036	0.034
Cr	0.000	Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.067	Fe^{3+}	0.073	0.087	0.070	0.080	0.070	0.054	0.096	0.111	0.105
Fe^{2+}	0.683	Fe^{2+}	0.486	0.436	0.493	0.477	0.493	0.454	0.551	0.541	0.521
Ni	0.000	Ni	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.011	Mn	0.006	0.008	0.006	0.007	0.006	0.009	0.010	0.008	0.010
Mg	1.273	Mg	1.421	1.390	1.424	1.419	1.424	1.379	1.315	1.332	1.293
Ca	0.000	Ca	0.028	0.107	0.029	0.039	0.029	0.110	0.059	0.046	0.107
Na	0.000	Na	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K	0.000	K	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	3.001	Total Cations	4.000	4.000	4.000	4.000	4.000	4.000	4.000	4.000	4.000
mg	65.6	mg	74.5	76.1	74.3	74.9	74.3	75.2	70.5	71.1	71.3
		Enstatite	73.5	71.9	73.2	73.3	73.2	70.9	68.3	69.4	67.3
		Ferrosilite	25.1	22.6	25.3	24.7	25.3	23.4	28.6	28.2	27.1
		Wollastonite	1.5	5.5	1.5	2.0	1.5	5.7	3.1	2.4	5.6

Appendix Table 3.10 (cont.). Electron microprobe analyses of silicate minerals from the Springvale layered intrusion.

Sample no.	92522461	92522461	92522461	92522461	92522461	92522475	92522475	92522475	92522475	92522475	92522475
Analysis no.	57500	57502	57514	57522	57523	57346	57350	57352	57357	57362	57363
Mineral	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene
Description	Intercumulus	Intercumulus	Intercumulus	Intercumulus	Intercumulus	Intercumulus	Intercumulus	Intercumulus	Intercumulus	Intercumulus	Intercumulus
Lithology	Biot. olivine gabbronorite	Biot. olivine gabbronorite	Biot. olivine gabbronorite	Biot. olivine gabbronorite	Biot. olivine gabbronorite	Gabbronorite	Gabbronorite	Gabbronorite	Gabbronorite	Gabbronorite	Gabbronorite
Strat. ht. (m)	840	840	840	840	840	2020	2020	2020	2020	2020	2020
SiO_2	53.14	52.69	52.52	52.69	52.33	53.73	53.47	53.90	53.35	53.46	53.54
TiO_2	0.00	0.29	0.15	0.09	0.11	0.12	0.13	0.00	0.27	0.00	0.13
Al_2O_3	0.62	1.69	1.58	0.77	0.71	0.68	0.64	0.63	0.73	0.44	0.68
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	21.65	20.30	20.70	23.35	23.22	18.62	18.63	18.55	19.55	19.23	19.04
MnO	0.32	0.18	0.27	0.21	0.39	0.22	0.28	0.28	0.36	0.28	0.22
NiO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	23.94	23.95	23.38	22.53	22.49	25.78	25.63	25.98	25.00	26.18	26.12
CaO	0.65	2.16	2.06	1.15	1.29	1.26	1.48	1.05	1.44	0.54	0.91
Na_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
K_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.54	101.56	100.92	101.02	100.84	100.64	100.53	100.62	100.95	100.46	100.96
Oxygens	6	6	6	6	6	6	6	6	6	6	6
Si	1.957	1.915	1.926	1.948	1.940	1.951	1.946	1.956	1.942	1.946	1.939
Ti	0.000	0.008	0.004	0.003	0.003	0.003	0.004	0.000	0.007	0.000	0.004
Al	0.027	0.072	0.068	0.034	0.031	0.029	0.027	0.027	0.031	0.019	0.029
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.060	0.081	0.072	0.065	0.083	0.062	0.074	0.062	0.069	0.090	0.086
Fe^{2+}	0.607	0.536	0.563	0.657	0.637	0.503	0.493	0.501	0.526	0.496	0.490
Ni	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.010	0.006	0.008	0.007	0.012	0.007	0.009	0.009	0.011	0.009	0.007
Mg	1.314	1.298	1.278	1.242	1.243	1.395	1.390	1.405	1.357	1.420	1.410
Ca	0.026	0.084	0.081	0.046	0.051	0.049	0.058	0.041	0.056	0.021	0.035
Na	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	4.000	4.000	4.000	4.000	4.000	4.000	4.000	4.000	4.000	4.000	4.000
mg	68.4	70.8	69.4	65.4	66.1	73.5	73.8	73.7	72.1	74.1	74.2
Enstatite	67.5	67.7	66.5	63.8	64.3	71.5	71.6	72.2	70.0	73.3	72.9
Ferrosilite	31.2	27.9	29.3	33.8	33.0	25.8	25.4	25.7	27.1	25.6	25.3
Wollastonite	1.3	4.4	4.2	2.4	2.7	2.5	3.0	2.1	2.9	1.1	1.8

Appendix Table 3.10 (cont.). Electron microprobe analyses of silicate minerals from the Springvale layered intrusion.

Sample no.	92522439	92522439	92522446	92522446	92522446	92522446	92522446	92522446	92522454	92522454	92522454
Analysis no.	57369	57373	57375	57391	65009	65010	65011	65012	57320	57328	57329
Mineral	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase
Description	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus (r)	Cumulus (c)	Cumulus (r)	Cumulus (r)	Cumulus	Cumulus (c)	Cumulus (c)
Lithology	Gabbronorite	Gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Norite	Norite	Norite
Strat. ht. (m)	650	650	940	940	940	940	940	940	50	50	50
SiO_2	48.23	49.28	46.96	50.82	48.77	48.38	49.66	49.58	51.59	49.00	49.79
TiO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Al_2O_3	33.39	33.03	34.45	33.14	34.11	34.07	33.24	33.62	30.83	33.25	32.47
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	0.52	0.11	0.39	0.00	0.37	0.21	0.15	0.22	0.35	0.25	0.20
MnO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NiO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
CaO	14.82	14.39	16.08	14.35	15.51	15.27	14.72	14.82	12.02	14.69	13.98
Na_2O	2.70	2.95	2.02	3.25	2.49	2.36	2.97	2.89	4.38	2.88	3.26
K_2O	0.00	0.00	0.00	0.11	0.07	0.00	0.12	0.08	0.08	0.00	0.00
Total	99.66	99.76	99.90	101.67	101.32	100.29	100.86	101.21	99.55	100.07	99.70
Oxygens	8	8	8	8	8	8	8	8	8	8	8
Si	2.212	2.249	2.155	2.274	2.201	2.201	2.245	2.234	2.350	2.233	2.272
Ti	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Al	1.805	1.776	1.863	1.747	1.815	1.827	1.771	1.786	1.655	1.786	1.747
Cr	0.000	0.000	0.000	0.000	0.014	0.008	0.006	0.008	0.013	0.010	0.008
Fe^{3+}	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{2+}	0.020	0.004	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ni	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mg	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ca	0.728	0.704	0.791	0.688	0.750	0.744	0.713	0.716	0.587	0.717	0.684
Na	0.240	0.261	0.180	0.282	0.218	0.208	0.260	0.253	0.387	0.255	0.288
K	0.000	0.000	0.000	0.006	0.004	0.000	0.007	0.005	0.005	0.000	0.000
Total Cations	5.005	4.994	5.003	4.997	5.002	4.989	5.003	5.001	5.018	5.001	4.999
Albite	24.8	27.1	18.5	28.9	22.4	21.9	26.6	26.0	39.5	26.2	29.7
Anorthite	75.2	72.9	81.5	70.4	77.2	78.1	72.7	73.5	60.0	73.8	70.3
Orthoclase	0.0	0.0	0.0	0.7	0.4	0.0	0.7	0.5	0.5	0.0	0.0

Appendix Table 3.10 (cont.). Electron microprobe analyses of silicate minerals from the Springvale layered intrusion.

Sample no.	92522454	92522454	92522461	92522461	92522461	92522461	92522475	92522475	92522475	92522475
Analysis no.	57330	57345	57496	57509	57515	57524	57347	57349	57358	57359
Mineral	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase
Description	Cumulus (r)	Cumulus (c)	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus (c)	Cumulus (c)	Cumulus (r)
Lithology	Norite	Norite	Biot. olivine gabbronorite	Biot. olivine gabbronorite	Biot. olivine gabbronorite	Biot. olivine gabbronorite	Gabbronorite	Gabbronorite	Gabbronorite	Gabbronorite
Strat. ht. (m)	50	50	840	840	840	840	2020	2020	2020	2020
SiO_2	52.79	53.12	52.53	51.17	51.36	53.86	47.47	47.49	47.43	46.84
TiO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00
Al_2O_3	30.83	30.50	31.25	32.10	31.71	30.01	34.43	34.20	34.49	33.62
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	0.38	0.31	0.00	0.21	0.18	0.21	0.27	0.00	0.29	0.33
MnO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NiO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CaO	11.86	11.27	12.21	13.17	13.04	10.92	15.82	15.91	16.26	15.80
Na_2O	4.80	5.15	4.66	3.91	4.00	5.31	2.24	2.28	2.06	1.87
K_2O	0.11	0.06	0.10	0.08	0.10	0.10	0.00	0.10	0.05	0.05
Total	100.77	100.41	100.75	100.64	100.39	100.40	100.23	100.06	100.58	98.51
Oxygens	8	8	8	8	8	8	8	8	8	8
Si	2.375	2.394	2.361	2.310	2.323	2.423	2.168	2.172	2.162	2.177
Ti	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000
Al	1.635	1.620	1.656	1.708	1.691	1.591	1.853	1.844	1.853	1.841
Cr	0.014	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{2+}	0.000	0.000	0.000	0.008	0.007	0.008	0.010	0.000	0.011	0.013
Ni	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mg	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ca	0.572	0.544	0.588	0.637	0.632	0.526	0.774	0.780	0.794	0.787
Na	0.419	0.450	0.407	0.342	0.351	0.463	0.198	0.202	0.182	0.168
K	0.006	0.003	0.006	0.005	0.006	0.006	0.000	0.006	0.003	0.003
Total Cations	5.020	5.023	5.017	5.010	5.009	5.016	5.004	5.007	5.004	4.989
Albite	42.0	45.1	40.7	34.8	35.5	46.6	20.4	20.5	18.6	17.6
Anorthite	57.4	54.6	58.7	64.7	63.9	52.8	79.6	78.9	81.1	82.1
Orthoclase	0.6	0.3	0.6	0.5	0.6	0.6	0.0	0.6	0.3	0.3

Appendix Table 3.10a. Electron microprobe analyses of oxide minerals from the Springvale layered intrusion.

Sample no.	92522446	92522446	92522446	92522454	92522454	92522454	92522454	92522454	92522461	92522461
Analysis no.	57397	57398	57399	57334	57335	57336	57337	57338	57493	57495
Mineral	Ilmenite	Ilmenite	Ilmenite	Ilmenite	Ilmenite	Ilmenite	Ilmenite	Ilmenite	Ilmenite	Ilmenite
Description										
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Norite	Norite	Norite	Norite	Norite	Biot. olivine gabbronorite	Biot. olivine gabbronorite
Strat. ht. (m)	940	940	940	50	50	50	50	50	840	840
SiO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00
TiO_2	52.53	53.03	51.84	51.76	51.76	52.18	51.79	51.44	51.59	51.38
Al_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00
V_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cr_2O_3	0.00	0.10	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
FeO*	44.46	44.51	45.37	48.45	47.58	47.74	47.79	47.25	45.46	45.16
MnO	0.57	0.63	0.91	0.86	0.80	0.84	0.83	0.69	1.49	1.39
MgO	2.54	2.49	0.18	0.13	0.16	0.26	0.15	0.11	1.37	1.14
Total	100.10	100.76	98.30	101.20	100.40	101.02	100.56	99.61	100.03	99.07
Oxygens	3	3	3	3	3	3	3	3	3	3
Si	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000
Ti	0.976	0.980	0.974	0.973	0.977	0.978	0.976	0.979	0.967	0.975
Al	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000
V	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cr	0.000	0.002	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.048	0.039	0.052	0.055	0.045	0.044	0.049	0.040	0.060	0.051
Fe^{2+}	0.870	0.875	0.948	0.950	0.954	0.950	0.952	0.960	0.888	0.902
Mn	0.012	0.013	0.019	0.018	0.017	0.018	0.018	0.015	0.031	0.030
Mg	0.094	0.091	0.007	0.005	0.006	0.010	0.006	0.004	0.051	0.043
Total Cations	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000

Appendix Table 3.10a (cont.). Electron microprobe analyses of oxide minerals from the Springvale layered intrusion.

Sample no.	92522446	92522461	92522461	92522461	92522461	92522461	92522461
Analysis no.	57396	57488	57489	57490	57491	57492	57494
Mineral	Spinel	Magnetite	Magnetite	Magnetite	Magnetite	Magnetite	Magnetite
Description							
Lithology	Olivine gabbronorite	Biot. olivine gabbronorite	Biot. olivine gabbronorite	Biot. olivine gabbronorite	Biot. olivine gabbronorite	Biot. olivine gabbronorite	Biot. olivine gabbronorite
Strat. ht. (m)	940	840	840	840	840	840	840
SiO_2	0.00	0.12	0.16	0.10	0.15	0.00	0.35
TiO_2	36.24	0.16	0.66	0.00	0.21	0.00	0.00
Al_2O_3	0.46	0.25	0.44	0.14	0.43	0.41	0.14
V_2O_3	0.46	0.38	0.46	0.12	0.77	0.26	0.00
Cr_2O_3	0.90	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	59.45	92.13	92.90	93.96	93.08	93.31	93.18
MnO	0.46	0.22	0.17	0.10	0.17	0.00	0.00
MgO	1.69	0.00	0.00	0.00	0.00	0.00	0.12
Total	99.66	93.26	94.79	94.42	94.81	93.98	93.79
Oxygens	32	32	32	32	32	32	32
Si	0.000	0.037	0.048	0.030	0.045	0.000	0.107
Ti	7.960	0.037	0.150	0.000	0.048	0.000	0.000
Al	0.158	0.091	0.157	0.050	0.153	0.147	0.050
V	0.108	0.094	0.112	0.029	0.187	0.064	0.000
Cr	0.208	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.000	15.669	15.336	15.861	15.475	15.790	15.737
Fe^{2+}	14.521	8.016	8.155	8.005	8.049	8.000	8.052
Mn	0.114	0.057	0.044	0.026	0.044	0.000	0.000
Mg	0.736	0.000	0.000	0.000	0.000	0.000	0.055
Total Cations	23.804	24.001	24.001	24.001	24.001	24.001	24.001

Appendix Table 3.11. Electron microprobe analyses of silicate minerals from the Toby layered intrusion.

Sample no.	92522513	92522513	92522513	92522518	92522518	92522518	92522523	92522523	92522523
Analysis no.	65047	65048	65049	65102	65103	65104	65116	65118	65119
Mineral	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole
Description	Alter. of cpx	Alter. of cpx	Alter. of cpx	Alter. of cpx	Alter. of cpx	Alter. of cpx	Alter. of cpx	Alter. of cpx	Alter. of cpx
Lithology	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite
Trav. dist. (m)	1750	1750	1750	3500	3500	3500	9300	9300	9300
SiO_2	48.12	45.73	46.53	47.22	47.77	48.17	48.29	47.19	47.49
TiO_2	0.62	1.40	1.30	1.02	0.75	0.94	0.95	1.06	0.97
Al_2O_3	5.85	7.92	7.20	6.51	6.38	5.90	6.49	7.01	6.96
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26
FeO*	16.57	17.71	17.17	16.36	16.82	16.18	14.47	15.14	15.74
MnO	0.00	0.15	0.15	0.00	0.15	0.10	0.11	0.09	0.13
NiO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	13.40	11.89	12.41	12.97	13.01	13.69	14.56	13.69	13.68
CaO	11.06	11.30	11.17	11.23	11.22	11.19	11.36	11.27	11.18
Na_2O	0.29	0.88	0.62	0.39	0.37	0.45	0.66	0.69	0.54
K_2O	0.39	0.79	0.67	0.48	0.52	0.39	0.54	0.57	0.52
Total	96.30	97.77	97.22	96.18	96.99	97.01	97.43	96.71	97.47
Oxygens	23	23	23	23	23	23	23	23	23
Si	7.005	6.697	6.799	6.923	6.944	6.970	6.933	6.863	6.853
Ti	0.068	0.154	0.143	0.112	0.082	0.102	0.103	0.116	0.105
Al	1.004	1.367	1.240	1.125	1.093	1.006	1.093	1.201	1.184
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.030
Fe^{3+}	1.248	0.988	1.000	1.076	1.161	1.183	1.053	1.029	1.106
Fe^{2+}	0.769	1.180	1.018	0.930	0.884	0.775	0.684	0.812	0.793
Ni	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.000	0.019	0.019	0.000	0.018	0.012	0.013	0.011	0.016
Mg	2.907	2.595	2.703	2.834	2.819	2.952	3.116	2.967	2.942
Ca	1.725	1.773	1.748	1.764	1.747	1.735	1.747	1.756	1.728
Na	0.082	0.250	0.176	0.111	0.104	0.126	0.184	0.195	0.151
K	0.072	0.148	0.125	0.090	0.096	0.072	0.099	0.106	0.096
Total Cations	14.880	15.171	14.971	14.965	14.948	14.933	15.025	15.056	15.004
mg	79.1	68.7	72.6	75.3	76.1	79.2	82.0	78.5	78.8
Classification	Ferri Magnesio Hornblende	Ferrian Magnesio Hornblende	Ferrian Magnesio Hornblende	Ferrian Magnesio Hornblende	Ferrian Magnesio Hornblende	Ferrian Magnesio Hornblende	Ferrian Magnesio Hornblende	Ferrian Magnesio Hornblende	Ferrian Magnesio Hornblende

Appendix Table 3.11 (cont.). Electron microprobe analyses of silicate minerals from the Toby layered intrusion.

Sample no.	92522513	92522513	92522518	92522518	92522520	92522520	92522520	92522520	92522520	92522523
Analysis no.	65050	65051	65097	65098	57538	57539	57544	57545	57547	65121
Mineral	Biotite	Biotite	Biotite	Biotite	Biotite	Biotite	Biotite	Biotite	Biotite	Biotite
Description										
Lithology	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite
Trav. dist. (m)	1750	1750	3500	3500	5200	5200	5200	5200	5200	9300
SiO_2	35.25	35.80	36.55	35.34	36.04	35.81	35.59	36.57	35.96	35.81
TiO_2	4.66	4.55	4.97	5.21	6.05	6.62	6.37	5.97	6.57	5.31
Al_2O_3	14.55	14.54	15.00	14.04	14.49	14.32	14.56	14.13	14.67	14.87
Cr_2O_3	0.00	0.00	0.00	0.00	0.15	0.24	0.34	0.24	0.22	0.00
FeO*	19.58	18.20	19.69	19.34	19.12	18.95	19.21	19.35	19.60	17.60
MnO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NiO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	11.36	12.81	12.21	11.41	12.12	11.65	11.29	11.93	11.27	13.15
CaO	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Na_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
K_2O	9.82	10.00	9.42	9.93	9.94	9.95	10.02	9.42	10.07	10.08
Total	95.22	95.90	97.93	95.27	97.91	97.54	97.38	97.61	98.36	96.82
Oxygens	22	22	22	22	22	22	22	22	22	22
Si	5.431	5.438	5.438	5.443	5.380	5.369	5.356	5.460	5.360	5.372
Ti	0.540	0.520	0.556	0.603	0.679	0.746	0.721	0.670	0.736	0.599
Al	2.642	2.603	2.630	2.548	2.549	2.530	2.582	2.486	2.577	2.629
Cr	0.000	0.000	0.000	0.000	0.018	0.028	0.040	0.028	0.026	0.000
Fe	2.523	2.312	2.450	2.491	2.387	2.376	2.418	2.416	2.443	2.208
Ni	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mg	2.609	2.900	2.708	2.619	2.697	2.603	2.532	2.655	2.504	2.941
Ca	0.000	0.000	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Na	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K	1.930	1.938	1.788	1.951	1.893	1.903	1.924	1.794	1.915	1.929
Total Cations	15.674	15.710	15.585	15.655	15.603	15.557	15.573	15.510	15.560	15.678
mg	50.8	55.6	52.5	51.3	53.1	52.3	51.2	52.4	50.6	57.1

Appendix Table 3.11 (cont.). Electron microprobe analyses of silicate minerals from the Toby layered intrusion.

Sample no.	92522523	92522524	92522524
Analysis no.	65122	65076	65077
Mineral	Biotite	Biotite	Biotite
Description			
Lithology	Suboph. biot gabbronorite	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.
Trav. dist. (m)	9300	11400	11400
SiO_2	35.53	35.74	35.16
TiO_2	5.57	5.59	5.75
Al_2O_3	14.93	14.44	14.50
Cr_2O_3	0.00	0.00	0.00
FeO*	17.65	20.63	20.27
MnO	0.00	0.00	0.00
NiO	0.00	0.00	0.00
MgO	12.64	10.96	10.91
CaO	0.00	0.00	0.00
Na_2O	0.00	0.00	0.00
K_2O	10.06	10.00	9.73
Total	96.38	97.36	96.32
Oxygens	22	22	22
Si	5.359	5.408	5.371
Ti	0.632	0.636	0.661
Al	2.654	2.575	2.610
Cr	0.000	0.000	0.000
Fe	2.227	2.611	2.589
Ni	0.000	0.000	0.000
Mn	0.000	0.000	0.000
Mg	2.842	2.472	2.484
Ca	0.000	0.000	0.000
Na	0.000	0.000	0.000
K	1.936	1.930	1.896
Total Cations	15.650	15.633	15.611
mg	56.1	48.6	49.0

Sample no.	92522513	92522513	92522518	92522518	92522520	92522520	92522520
Analysis no.	65053	65054	65099	65100	57532	57533	57534
Mineral	Clinopyroxene	Clinopyroxene	Clinopyroxene	Clinopyroxene	Clinopyroxene	Clinopyroxene	Clinopyroxene
Description	Subophitic	Subophitic	Subophitic	Subophitic	Subophitic	Subophitic	Subophitic
Lithology	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite
Trav. dist. (m)	1750	1750	3500	3500	5200	5200	5200
SiO_2	51.63	51.65	51.97	51.37	51.73	51.54	51.43
TiO_2	0.00	0.15	0.00	0.14	0.26	0.42	0.45
Al_2O_3	0.67	0.80	0.60	0.95	1.44	1.45	1.56
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	12.28	11.98	11.97	12.41	11.29	11.80	11.62
MnO	0.34	0.22	0.16	0.16	0.13	0.18	0.22
NiO	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	12.75	13.03	12.62	12.39	13.74	13.93	13.39
CaO	21.30	21.45	22.09	21.49	20.72	20.43	20.78
Na_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00
K_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	98.97	99.28	99.41	98.91	99.31	99.75	99.45
Oxygens	6	6	6	6	6	6	6
Si	1.971	1.962	1.974	1.964	1.955	1.941	1.946
Ti	0.000	0.004	0.000	0.004	0.007	0.012	0.013
Al	0.030	0.036	0.027	0.043	0.064	0.064	0.070
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.029	0.032	0.025	0.020	0.012	0.031	0.014
Fe^{2+}	0.363	0.348	0.355	0.377	0.345	0.341	0.354
Ni	0.000	0.000	0.005	0.005	0.004	0.006	0.007
Mn	0.011	0.007	0.000	0.000	0.000	0.000	0.000
Mg	0.725	0.738	0.715	0.706	0.774	0.782	0.755
Ca	0.871	0.873	0.899	0.880	0.839	0.824	0.842
Na	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	4.000	4.000	4.000	4.000	4.000	4.000	4.000
mg	66.6	67.9	66.8	65.2	69.2	69.6	68.1
Enstatite	37.0	37.7	36.3	36.0	39.5	40.2	38.7
Ferrosilite	18.5	17.8	18.1	19.2	17.6	17.5	18.2
Wollastonite	44.5	44.6	45.7	44.9	42.8	42.3	43.2

Appendix Table 3.11 (cont.). Electron microprobe analyses of silicate minerals from the Toby layered intrusion.

Sample no.	92522520	92522523	92522523	92522523	92522524	92522524	92522524
Analysis no.	57548	65120	65123	65124	65080	65081	65082
Mineral	Clinopyroxene	Clinopyroxene	Clinopyroxene	Clinopyroxene	Clinopyroxene	Clinopyroxene	Clinopyroxene
Description	Subophitic	Subophitic	Subophitic	Subophitic	Subophitic	Subophitic	Subophitic
Lithology	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.
Trav. dist. (m)	5200	9300	9300	9300	11400	11400	11400
SiO_2	51.29	51.83	51.84	52.04	51.52	50.91	51.76
TiO_2	0.45	0.00	0.18	0.22	0.20	0.23	0.00
Al_2O_3	2.06	0.67	1.13	1.05	0.93	0.90	0.76
Cr_2O_3	0.29	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	10.28	10.30	10.08	10.65	12.27	12.31	12.04
MnO	0.11	0.13	0.19	0.17	0.26	0.21	0.11
NiO	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	13.88	13.43	13.63	13.43	12.45	12.08	12.21
CaO	21.64	21.66	22.54	21.86	21.28	21.87	22.07
Na_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00
K_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.00	98.02	99.59	99.42	98.91	98.51	98.95
Oxygens	6	6	6	6	6	6	6
Si	1.920	1.983	1.950	1.965	1.970	1.957	1.978
Ti	0.013	0.000	0.005	0.006	0.006	0.007	0.000
Al	0.091	0.030	0.050	0.047	0.042	0.041	0.034
Cr	0.009	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.035	0.005	0.041	0.011	0.006	0.032	0.009
Fe^{2+}	0.287	0.325	0.276	0.326	0.386	0.364	0.375
Ni	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.003	0.004	0.006	0.005	0.008	0.007	0.004
Mg	0.774	0.766	0.764	0.756	0.710	0.692	0.696
Ca	0.868	0.888	0.908	0.884	0.872	0.901	0.904
Na	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	4.000	4.000	4.000	4.000	4.000	4.000	4.000
mg	73.0	70.2	73.4	69.9	64.8	65.5	65.0
Enstatite	40.1	38.7	39.2	38.5	36.1	35.4	35.2
Ferrosilite	14.9	16.4	14.2	16.6	19.6	18.6	19.0
Wollastonite	45.0	44.9	46.6	44.9	44.3	46.0	45.8

Sample no.	92522520	92522520	92522520
Analysis no.	57550	57551	57552
Mineral	Olivine	Olivine	Olivine
Description	Cumulus		
Lithology	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite
Trav. dist. (m)	5200	5200	5200
SiO_2	34.42	34.43	34.21
TiO_2	0.00	0.00	0.00
Al_2O_3	0.00	0.00	0.00
Cr_2O_3	0.00	0.00	0.00
FeO*	41.97	41.36	41.01
MnO	0.45	0.43	0.41
NiO	0.00	0.00	0.00
MgO	24.28	24.66	25.13
CaO	0.00	0.00	0.00
Na_2O	0.00	0.00	0.00
K_2O	0.00	0.00	0.00
Total	101.13	100.88	100.75
Oxygens	4	4	4
Si	0.973	0.973	0.965
Ti	0.000	0.000	0.000
Al	0.000	0.000	0.000
Cr	0.000	0.000	0.000
Fe^{3+}	0.053	0.054	0.069
Fe^{2+}	0.939	0.924	0.899
Ni	0.000	0.000	0.000
Mn	0.011	0.010	0.010
Mg	1.023	1.039	1.057
Ca	0.000	0.000	0.000
Na	0.000	0.000	0.000
K	0.000	0.000	0.000
Total Cations	2.999	3.000	3.000
mg	52.1	52.9	54.0

Appendix Table 3.11 (cont.). Electron microprobe analyses of silicate minerals from the Toby layered intrusion.

Sample no.	92522520	92522520	Sample no.	92522513	92522518	92522518	92522518	92522520	92522520	92522520	92522520
Analysis no.	57553	57554	Analysis no.	65052	65101	65105	65106	57536	57537	57542	57543
Mineral	Olivine	Olivine	Mineral	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene
Description			Description	Subophitic	Subophitic	Subophitic	Subophitic	Subophitic	Subophitic	Subophitic	Subophitic
Lithology	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Lithology	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite
Trav. dist. (m)	5200	5200	Trav. dist. (m)	1750	3500	3500	3500	5200	5200	5200	5200
SiO_2	34.48	34.32	SiO_2	50.91	51.06	51.14	50.94	51.67	51.85	51.90	50.90
TiO_2	0.00	0.00	TiO_2	0.00	0.00	0.00	0.00	0.28	0.16	0.29	0.40
Al_2O_3	0.00	0.00	Al_2O_3	0.37	0.29	0.33	0.31	0.84	0.73	0.78	0.84
Cr_2O_3	0.00	0.00	Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	39.78	40.45	FeO*	29.17	29.60	30.71	29.99	24.78	24.53	24.21	25.96
MnO	0.28	0.41	MnO	0.71	0.46	0.53	0.53	0.42	0.30	0.41	0.38
NiO	0.00	0.00	NiO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	25.75	25.38	MgO	18.05	17.98	17.43	17.66	20.68	21.07	21.47	20.36
CaO	0.00	0.00	CaO	0.87	0.92	0.85	0.79	1.58	1.66	1.84	1.72
Na_2O	0.00	0.00	Na_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
K_2O	0.00	0.00	K_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.30	100.57	Total	100.34	100.56	101.24	100.45	100.48	100.56	101.23	100.96
Oxygens	4	4	Oxygens	6	6	6	6	6	6	6	6
Si	0.972	0.968	Si	1.955	1.958	1.957	1.959	1.941	1.942	1.929	1.913
Ti	0.000	0.000	Ti	0.000	0.000	0.000	0.000	0.008	0.005	0.008	0.011
Al	0.000	0.000	Al	0.017	0.013	0.015	0.014	0.037	0.032	0.034	0.037
Cr	0.000	0.000	Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.055	0.063	Fe^{3+}	0.074	0.072	0.072	0.068	0.064	0.074	0.091	0.114
Fe^{2+}	0.883	0.891	Fe^{2+}	0.863	0.877	0.911	0.897	0.714	0.694	0.662	0.703
Ni	0.000	0.000	Ni	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.007	0.010	Mn	0.023	0.015	0.017	0.017	0.013	0.010	0.013	0.012
Mg	1.083	1.067	Mg	1.033	1.027	0.994	1.012	1.158	1.176	1.190	1.141
Ca	0.000	0.000	Ca	0.036	0.038	0.035	0.033	0.064	0.067	0.073	0.069
Na	0.000	0.000	Na	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K	0.000	0.000	K	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	3.000	2.999	Total Cations	4.000	4.000	4.000	4.000	4.000	4.000	4.000	4.000
mg	55.1	54.5	mg	54.5	53.9	52.2	53.0	61.9	62.9	64.3	61.9
			Enstatite	53.5	52.8	51.2	52.1	59.8	60.8	61.8	59.7
			Ferrosilite	44.7	45.2	47.0	46.2	36.9	35.8	34.4	36.7
			Wollastonite	1.9	2.0	1.8	1.7	3.3	3.4	3.8	3.6

Appendix Table 3.11 (cont.). Electron microprobe analyses of silicate minerals from the Toby layered intrusion.

Sample no.	92522520	92522520	92522520	92522523	92522523	92522524	92522524	92522524	92522524
Analysis no.	57555	57556	57557	65125	65126	65074	65075	65078	65079
Mineral	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene
Description	Subophitic	Subophitic	Subophitic	Subophitic	Subophitic	Subophitic	Subophitic	Subophitic	Subophitic
Lithology	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite
Trav. dist. (m)	5200	5200	5200	9300	9300	11400	11400	11400	11400
SiO_2	51.62	51.74	51.83	51.66	51.65	50.75	50.28	50.63	50.79
TiO_2	0.26	0.34	0.30	0.00	0.00	0.19	0.00	0.00	0.00
Al_2O_3	0.81	0.83	0.78	0.32	0.43	0.41	0.29	0.35	0.46
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	26.17	24.56	25.51	27.47	26.70	31.30	31.21	31.22	30.75
MnO	0.31	0.28	0.45	0.43	0.41	0.67	0.54	0.53	0.52
NiO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	20.36	21.07	20.72	19.73	20.30	16.35	16.49	16.74	16.85
CaO	1.38	1.67	1.72	0.86	0.41	0.95	0.78	0.82	0.93
Na_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
K_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	101.20	100.75	101.63	100.74	100.13	100.78	99.82	100.52	100.50
Oxygens	6	6	6	6	6	6	6	6	6
Si	1.934	1.935	1.930	1.955	1.958	1.961	1.960	1.958	1.961
Ti	0.007	0.010	0.008	0.000	0.000	0.006	0.000	0.000	0.000
Al	0.036	0.037	0.034	0.014	0.019	0.019	0.013	0.016	0.021
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.081	0.074	0.089	0.076	0.065	0.048	0.066	0.068	0.057
Fe^{2+}	0.739	0.694	0.706	0.793	0.781	0.964	0.952	0.942	0.936
Ni	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.010	0.009	0.014	0.014	0.013	0.022	0.018	0.017	0.017
Mg	1.137	1.175	1.150	1.113	1.147	0.942	0.958	0.965	0.970
Ca	0.055	0.067	0.069	0.035	0.017	0.039	0.033	0.034	0.038
Na	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	4.000	4.000	4.000	4.000	4.000	4.000	4.000	4.000	4.000
mg	60.6	62.9	62.0	58.4	59.5	49.4	50.2	50.6	50.9
Enstatite	58.8	60.6	59.7	57.3	59.0	48.4	49.3	49.7	49.9
Ferrosilite	38.3	35.9	36.7	40.9	40.1	49.6	49.0	48.5	48.1
Wollastonite	2.9	3.5	3.6	1.8	0.9	2.0	1.7	1.8	2.0

Sample no.	92522513
Analysis no.	65029
Mineral	Plagioclase
Description	Subophitic (r)
Lithology	Suboph. biot qtz gabbronor.
Trav. dist. (m)	1750
SiO_2	51.07
TiO_2	0.00
Al_2O_3	32.06
Cr_2O_3	0.00
FeO*	0.17
MnO	0.00
NiO	0.00
MgO	0.00
CaO	13.33
Na_2O	3.78
K_2O	0.00
Total	100.41
Oxygens	8
Si	2.309
Ti	0.000
Al	1.709
Cr	0.000
Fe^{3+}	0.000
Fe^{2+}	0.006
Ni	0.000
Mn	0.000
Mg	0.000
Ca	0.646
Na	0.331
K	0.000
Total Cations	5.002
Albite	33.9
Anorthite	66.1
Orthoclase	0.0

Appendix Table 3.11 (cont.). Electron microprobe analyses of silicate minerals from the Toby layered intrusion.

Sample no.	92522513	92522513	92522513	92522513	92522513	92522513	92522513	92522513	92522513	92522513	92522513
Analysis no.	65030	65031	65032	65033	65034	65035	65036	65037	65038	65039	65040
Mineral	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase
Description	Subophitic (c)	Subophitic (r)	Subophitic (c)	Subophitic (r)	Subophitic (r)	Subophitic (r)	Subophitic (c)	Subophitic (r)	Subophitic (c)	Subophitic (r)	Subophitic (c)
Lithology	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.
Trav. dist. (m)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
SiO_2	53.70	49.67	54.44	54.53	54.04	55.81	54.05	54.24	46.22	53.07	50.54
TiO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Al_2O_3	29.84	32.71	29.23	29.50	29.80	28.27	29.49	29.34	35.10	30.21	32.51
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	0.25	0.31	0.23	0.33	0.20	0.25	0.20	0.19	0.17	0.25	0.31
MnO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NiO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CaO	10.92	13.95	10.18	10.41	10.68	9.20	10.75	10.59	16.77	11.48	13.86
Na_2O	5.00	3.16	5.52	5.54	5.39	6.19	5.31	5.10	1.53	4.86	3.67
K_2O	0.10	0.08	0.17	0.19	0.10	0.12	0.16	0.08	0.00	0.12	0.08
Total	99.81	99.88	99.77	100.50	100.21	99.84	99.96	99.54	99.79	99.99	100.97
Oxygens	8	8	8	8	8	8	8	8	8	8	8
Si	2.427	2.264	2.459	2.449	2.433	2.512	2.441	2.454	2.124	2.401	2.281
Ti	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Al	1.590	1.757	1.556	1.561	1.582	1.500	1.569	1.564	1.901	1.611	1.729
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{2+}	0.009	0.012	0.009	0.012	0.008	0.009	0.008	0.007	0.007	0.009	0.012
Ni	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mg	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ca	0.529	0.681	0.493	0.501	0.515	0.444	0.520	0.513	0.826	0.556	0.670
Na	0.438	0.279	0.483	0.482	0.471	0.540	0.465	0.447	0.136	0.426	0.321
K	0.006	0.005	0.010	0.011	0.006	0.007	0.009	0.005	0.000	0.007	0.005
Total Cations	5.000	4.999	5.010	5.017	5.014	5.012	5.012	4.990	4.994	5.011	5.018
Albite	45.0	28.9	49.0	48.5	47.4	54.5	46.8	46.3	14.2	43.1	32.2
Anorthite	54.4	70.6	50.0	50.4	52.0	44.8	52.3	53.2	85.8	56.2	67.3
Orthoclase	0.6	0.5	1.0	1.1	0.6	0.7	0.9	0.5	0.0	0.7	0.5

Appendix Table 3.11 (cont.). Electron microprobe analyses of silicate minerals from the Toby layered intrusion.

Sample no.	92522513	92522513	92522513	92522513	92522513	92522513	92522518	92522518	92522518	92522518	92522518
Analysis no.	65041	65042	65043	65044	65045	65046	65083	65084	65085	65086	65087
Mineral	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase
Description	Subophitic (r)	Subophitic (c)	Subophitic (r)	Subophitic (c)	Subophitic (r)	Subophitic (c)	Subophitic (r)	Subophitic (c)	Subophitic (r)	Subophitic (c)	Subophitic (r)
Lithology	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.
Trav. dist. (m)	1750	1750	1750	1750	1750	1750	3500	3500	3500	3500	3500
SiO_2	50.78	50.29	54.67	49.44	53.39	54.73	54.77	51.26	54.61	54.36	53.02
TiO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Al_2O_3	31.89	32.50	30.01	32.68	29.96	29.45	28.94	31.16	29.15	29.20	30.38
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	0.23	0.21	0.39	0.20	0.39	0.12	0.26	0.14	0.28	0.17	0.18
MnO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NiO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CaO	13.26	13.84	10.83	14.25	11.22	10.38	10.18	12.62	10.21	10.36	11.49
Na_2O	3.75	3.25	5.42	3.03	4.91	5.58	5.56	4.01	5.60	5.52	4.79
K_2O	0.09	0.05	0.18	0.11	0.08	0.18	0.15	0.09	0.19	0.18	0.10
Total	100.00	100.14	101.50	99.71	99.95	100.44	99.86	99.28	100.04	99.79	99.96
Oxygens	8	8	8	8	8	8	8	8	8	8	8
Si	2.308	2.283	2.434	2.259	2.414	2.456	2.471	2.341	2.462	2.456	2.398
Ti	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Al	1.708	1.739	1.575	1.760	1.597	1.558	1.539	1.677	1.549	1.555	1.619
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{2+}	0.009	0.008	0.015	0.008	0.015	0.005	0.010	0.005	0.011	0.006	0.007
Ni	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mg	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ca	0.646	0.673	0.517	0.698	0.544	0.499	0.492	0.617	0.493	0.502	0.557
Na	0.330	0.286	0.468	0.268	0.431	0.486	0.486	0.355	0.489	0.484	0.420
K	0.005	0.003	0.010	0.006	0.005	0.010	0.009	0.005	0.011	0.010	0.006
Total Cations	5.006	4.992	5.018	4.999	5.005	5.013	5.007	5.001	5.014	5.013	5.006
Albite	33.7	29.7	47.0	27.6	44.0	48.8	49.3	36.3	49.3	48.6	42.8
Anorthite	65.8	70.0	52.0	71.7	55.5	50.2	49.8	63.2	49.6	50.4	56.6
Orthoclase	0.5	0.3	1.0	0.7	0.5	1.0	0.9	0.5	1.1	1.0	0.6

Appendix Table 3.11 (cont.). Electron microprobe analyses of silicate minerals from the Toby layered intrusion.

Sample no.	92522518	92522518	92522518	92522518	92522518	92522518	92522520	92522520	92522520	92522520	92522520
Analysis no.	65088	65089	65090	65091	65092	65093	57535	57540	57541	57546	57547
Mineral	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase (c)	Plagioclase (r)	Plagioclase	Plagioclase
Description	Subophitic (c)	Subophitic (r)	Subophitic (r)	Subophitic (r)	Subophitic (c)	Subophitic	Subophitic	Subophitic (c)	Subophitic (r)	Subophitic (c)	Subophitic (r)
Lithology	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite
Trav. dist. (m)	3500	3500	3500	3500	3500	3500	5200	5200	5200	5200	5200
SiO_2	52.05	54.45	53.61	55.74	54.76	53.44	53.79	49.70	54.20	49.92	52.36
TiO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Al_2O_3	30.66	29.23	29.99	28.60	29.12	30.11	30.04	32.82	29.98	32.99	31.12
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	0.00	0.00	0.00	0.33	0.13	0.16	0.16	0.00	0.11	0.15	0.25
MnO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NiO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CaO	12.03	10.24	11.14	9.52	9.99	11.20	10.99	14.22	10.84	14.24	12.23
Na_2O	4.31	5.42	4.95	5.98	5.75	5.04	5.30	3.27	5.19	3.35	4.68
K_2O	0.05	0.19	0.15	0.19	0.20	0.10	0.18	0.08	0.20	0.06	0.08
Total	99.10	99.79	99.84	100.36	99.95	100.05	100.45	100.09	100.52	100.70	100.73
Oxygens	8	8	8	8	8	8	8	8	8	8	8
Si	2.374	2.459	2.422	2.499	2.468	2.413	2.420	2.261	2.432	2.259	2.358
Ti	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Al	1.648	1.556	1.597	1.511	1.547	1.602	1.592	1.760	1.586	1.759	1.652
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{2+}	0.000	0.010	0.000	0.012	0.005	0.006	0.006	0.000	0.004	0.006	0.010
Ni	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mg	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ca	0.588	0.495	0.539	0.457	0.482	0.542	0.529	0.693	0.521	0.690	0.590
Na	0.381	0.475	0.434	0.520	0.502	0.441	0.462	0.289	0.452	0.294	0.409
K	0.003	0.011	0.009	0.011	0.011	0.006	0.010	0.005	0.011	0.003	0.005
Total Cations	4.994	5.006	5.001	5.011	5.016	5.010	5.020	5.006	5.006	5.011	5.023
Albite	39.2	48.4	44.2	52.6	50.4	44.6	46.2	29.3	45.9	29.8	40.8
Anorthite	60.5	50.5	54.9	46.3	48.4	54.8	52.8	70.2	53.0	69.9	58.7
Orthoclase	0.3	1.1	0.9	1.1	1.2	0.6	1.0	0.5	1.1	0.3	0.5

Appendix Table 3.11 (cont.). Electron microprobe analyses of silicate minerals from the Toby layered intrusion.

Sample no.	92522523	92522523	92522523	92522523	92522523	92522523	92522524	92522524	92522524	92522524	92522524
Analysis no.	65107	65108	65109	65110	65111	65112	65059	65060	65061	65062	65064
Mineral	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase
Description	Subophitic (r)	Subophitic (c)	Subophitic (r)	Subophitic (c)	Subophitic (r)	Subophitic (c)	Subophitic (r)	Subophitic (c)	Subophitic (c)	Subophitic (r)	Subophitic (c)
Lithology	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.
Trav. dist. (m)	9300	9300	9300	9300	9300	9300	11400	11400	11400	11400	11400
SiO_2	52.49	52.49	52.63	54.45	52.31	53.82	52.95	50.87	52.59	54.45	53.41
TiO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Al_2O_3	29.96	30.80	30.59	29.16	31.04	29.40	29.98	31.35	30.59	29.32	29.77
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	0.23	0.20	0.26	0.27	0.20	0.00	0.31	0.12	0.21	0.13	0.00
MnO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NiO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CaO	11.26	11.99	11.86	10.30	12.08	10.94	10.97	12.77	11.57	10.20	11.07
Na_2O	5.08	4.41	4.76	5.64	4.39	5.06	4.97	3.86	4.66	5.41	4.98
K_2O	0.12	0.14	0.13	0.26	0.11	0.16	0.12	0.13	0.14	0.16	0.06
Total	99.13	100.03	100.23	100.08	100.13	99.38	99.30	99.10	99.76	99.67	99.29
Oxygens	8	8	8	8	8	8	8	8	8	8	8
Si	2.397	2.375	2.379	2.456	2.365	2.442	2.409	2.329	2.385	2.459	2.425
Ti	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Al	1.612	1.642	1.630	1.550	1.654	1.572	1.608	1.691	1.635	1.561	1.593
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{2+}	0.009	0.008	0.010	0.010	0.008	0.000	0.012	0.005	0.008	0.005	0.000
Ni	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mg	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ca	0.551	0.581	0.574	0.498	0.585	0.532	0.535	0.626	0.562	0.494	0.539
Na	0.449	0.387	0.417	0.493	0.385	0.445	0.438	0.343	0.410	0.474	0.438
K	0.007	0.008	0.007	0.015	0.006	0.009	0.007	0.008	0.008	0.009	0.003
Total Cations	5.025	5.001	5.018	5.023	5.003	5.000	5.009	5.001	5.007	5.002	4.999
Albite	44.6	39.6	41.8	49.0	39.4	45.1	44.7	35.1	41.8	48.5	44.7
Anorthite	54.7	59.6	57.4	49.5	59.9	54.0	54.6	64.1	57.4	50.6	54.9
Orthoclase	0.7	0.8	0.8	1.5	0.7	0.9	0.7	0.8	0.8	0.9	0.4

Appendix Table 3.11 (cont.). Electron microprobe analyses of silicate minerals from the Toby layered intrusion.

Sample no.	92522524	92522524	92522524	92522524	92522524	92522524
Analysis no.	65065	65066	65067	65068	65069	65070
Mineral	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase
Description	Subophitic (r)	Subophitic (c)	Subophitic (r)	Subophitic (c)	Subophitic (r)	Subophitic (c)
Lithology	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.
Trav. dist. (m)	11400	11400	11400	11400	11400	11400
SiO_2	49.09	45.85	51.47	53.48	52.67	50.82
TiO_2	0.00	0.00	0.00	0.00	0.00	0.00
Al_2O_3	32.99	35.19	31.37	29.99	30.57	31.92
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	0.14	0.24	0.13	0.00	0.23	0.21
MnO	0.00	0.00	0.00	0.00	0.00	0.00
NiO	0.00	0.00	0.00	0.00	0.00	0.00
MgO	0.00	0.00	0.00	0.00	0.00	0.00
CaO	14.48	16.76	12.50	11.11	11.82	13.10
Na_2O	2.87	1.56	4.27	5.04	4.54	3.80
K_2O	0.05	0.00	0.05	0.12	0.14	0.11
Total	99.62	99.60	99.79	99.74	99.97	99.96
Oxygens	8	8	8	8	8	8
Si	2.245	2.113	2.339	2.419	2.384	2.310
Ti	0.000	0.000	0.000	0.000	0.000	0.000
Al	1.778	1.911	1.680	1.599	1.631	1.710
Cr	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{2+}	0.005	0.009	0.005	0.000	0.009	0.008
Ni	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.000	0.000	0.000	0.000	0.000	0.000
Mg	0.000	0.000	0.000	0.000	0.000	0.000
Ca	0.709	0.828	0.609	0.538	0.573	0.638
Na	0.254	0.139	0.376	0.442	0.398	0.335
K	0.003	0.000	0.003	0.007	0.008	0.006
Total Cations	4.995	5.001	5.011	5.006	5.004	5.006
Albite	26.3	14.4	38.1	44.8	40.7	34.2
Anorthite	73.4	85.6	61.6	54.5	58.5	65.1
Orthoclase	0.3	0.0	0.3	0.7	0.8	0.7

Appendix Table 3.11a. Electron microprobe analyses of oxide minerals from the Toby layered intrusion.

Sample no.	92522513	92522513	92522513	92522518	92522518	92522518	92522520	92522520	92522520	92522523
Analysis no.	65055	65056	65057	65094	65095	65096	57527	57529	57530	65113
Mineral	Ilmenite	Ilmenite	Ilmenite	Ilmenite	Ilmenite	Ilmenite	Ilmenite	Ilmenite	Ilmenite	Ilmenite
Description										
Lithology	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite
Trav. dist. (m)	1750	1750	1750	3500	3500	3500	5200	5200	5200	9300
SiO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00
TiO_2	50.27	50.14	50.17	50.09	49.95	50.76	51.20	50.61	51.43	48.18
Al_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
V_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cr_2O_3	0.00	0.00	0.10	0.00	0.11	0.10	0.00	0.11	0.11	0.00
FeO	46.90	46.89	46.60	47.10	47.52	47.55	45.26	46.29	47.41	49.46
MnO	1.38	1.37	1.43	0.55	0.57	0.58	1.18	0.65	0.62	0.80
MgO	0.00	0.00	0.36	0.19	0.19	0.00	0.87	0.52	0.15	0.21
CaO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	0.00	0.00
Total	98.55	98.40	98.66	97.93	98.34	98.99	98.72	98.95	99.72	98.65
Oxygens	3	3	3	3	3	3	3	3	3	3
Si	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000
Ti	0.967	0.966	0.961	0.968	0.961	0.973	0.976	0.963	0.977	0.922
Al	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
V	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cr	0.000	0.000	0.002	0.000	0.002	0.002	0.000	0.002	0.002	0.000
Fe^{3+}	0.066	0.068	0.076	0.064	0.075	0.053	0.036	0.071	0.043	0.156
Fe^{2+}	0.937	0.936	0.916	0.949	0.942	0.960	0.924	0.909	0.958	0.897
Mn	0.030	0.030	0.031	0.012	0.012	0.013	0.025	0.014	0.013	0.017
Mg	0.000	0.000	0.014	0.007	0.007	0.000	0.033	0.020	0.006	0.008
Ca	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.021	0.000	0.000
Total Cations	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000

Appendix Table 3.11a (cont.). Electron microprobe analyses of oxide minerals from the Toby layered intrusion.

Sample no.	92522523	92522524	92522524	Sample no.	92522513	92522520	92522520	92522520	92522520	92522524
Analysis no.	65115	65071	65072	Analysis no.	65058	57525	57526	57528	57531	65073
Mineral	Ilmenite	Ilmenite	Ilmenite	Mineral	Magnetite	Magnetite	Magnetite	Magnetite	Magnetite	Magnetite
Description				Description						
Lithology	Suboph. biot gabbronorite	Suboph. biot qtz gabbronor.	Suboph. biot qtz gabbronor.	Lithology	Suboph. biot qtz gabbronor.	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot gabbronorite	Suboph. biot qtz gabbronor.
Trav. dist. (m)	9300	11400	11400	Trav. dist. (m)	1750	5200	5200	5200	5200	11400
SiO_2	0.00	0.00	0.00	SiO_2	0.00	0.17	0.00	0.09	0.00	0.00
TiO_2	49.27	50.46	50.23	TiO_2	0.16	0.26	0.12	0.15	0.25	0.25
Al_2O_3	0.00	0.00	0.00	Al_2O_3	0.00	0.22	0.65	0.23	0.28	0.00
V_2O_3	0.00	0.00	0.00	V_2O_3	1.36	1.84	0.55	0.55	2.19	1.31
Cr_2O_3	0.00	0.10	0.00	Cr_2O_3	0.43	1.59	0.74	0.95	4.13	1.75
FeO	48.78	46.91	46.77	FeO	91.29	90.48	92.26	91.70	89.13	89.88
MnO	0.69	0.77	0.70	MnO	0.00	0.14	0.16	0.00	0.11	0.14
MgO	0.18	0.23	0.18	MgO	0.00	0.00	0.00	0.00	0.00	0.00
CaO	0.00	0.00	0.00	CaO	0.00	0.00	0.00	0.00	0.00	0.00
Total	98.92	98.47	97.88	Total	93.24	94.71	94.48	93.66	96.08	93.34
Oxygens	3	3	3	Oxygens	32	32	32	32	32	32
Si	0.000	0.000	0.000	Si	0.000	0.054	0.000	0.028	0.000	0.000
Ti	0.942	0.970	0.972	Ti	0.037	0.061	0.027	0.035	0.058	0.060
Al	0.000	0.000	0.000	Al	0.000	0.082	0.243	0.087	0.102	0.000
V	0.000	0.000	0.000	V	0.343	0.466	0.138	0.137	0.546	0.331
Cr	0.000	0.002	0.000	Cr	0.107	0.397	0.184	0.235	1.015	0.436
Fe^{3+}	0.117	0.058	0.057	Fe^{3+}	15.477	14.824	15.381	15.418	14.222	15.114
Fe^{2+}	0.920	0.944	0.950	Fe^{2+}	8.037	8.077	7.984	8.062	8.030	8.024
Mn	0.015	0.017	0.015	Mn	0.000	0.038	0.044	0.000	0.028	0.037
Mg	0.007	0.009	0.007	Mg	0.000	0.000	0.000	0.000	0.000	0.000
Ca	0.000	0.000	0.000	Ca	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	2.000	2.000	2.000	Total Cations	24.001	24.001	24.001	24.001	24.001	24.001

Appendix Table 3.12. Electron microprobe analyses of silicate minerals from the Wilagee layered intrusion.

Sample no.	92522506	92522506	92522506	92522506	92522506	92522506	92522506
Analysis no.	57466	57467	57468	57469	57470	57471	57476
Mineral	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole
Description	Alter. of cpx	Alter. of cpx	Alter. of cpx (r)	Alter. of cpx (r)	Alter. of cpx (c)	Alter. of cpx (c)	Alter. of cpx
Lithology	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite
Strat. ht. (m)	70	70	70	70	70	70	70
SiO_2	52.87	50.31	45.92	48.17	48.98	50.11	50.44
TiO_2	0.16	0.35	1.85	0.41	0.40	0.28	0.00
Al_2O_3	4.48	7.75	10.70	9.53	8.72	7.66	8.25
Cr_2O_3	0.28	0.42	0.41	0.51	0.41	0.36	0.00
FeO*	5.09	5.82	6.13	6.00	5.79	5.85	5.82
MnO	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NiO	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	21.78	19.96	18.34	19.34	19.50	20.02	20.68
CaO	11.89	12.17	12.29	12.11	12.29	12.07	11.41
Na_2O	0.38	1.14	1.86	1.40	1.54	1.26	1.32
K_2O	0.00	0.08	0.45	0.23	0.20	0.05	0.05
Total	96.93	98.00	97.95	97.70	97.83	97.66	97.97
Oxygens	23	23	23	23	23	23	23
Si	7.236	6.934	6.462	6.694	6.813	6.924	6.841
Ti	0.016	0.036	0.196	0.043	0.042	0.029	0.000
Al	0.723	1.259	1.774	1.561	1.429	1.247	1.319
Cr	0.030	0.046	0.046	0.056	0.045	0.039	0.000
Fe^{3+}	0.582	0.671	0.480	0.697	0.613	0.676	0.660
Fe^{2+}	0.000	0.000	0.242	0.000	0.061	0.000	0.000
Ni	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mg	4.443	4.100	3.847	4.006	4.043	4.123	4.180
Ca	1.743	1.797	1.853	1.803	1.831	1.787	1.658
Na	0.101	0.305	0.507	0.377	0.415	0.338	0.347
K	0.000	0.014	0.081	0.041	0.035	0.009	0.009
Total Cations	14.874	15.162	15.488	15.278	15.327	15.172	15.014
mg	100.0	100.0	94.1	100.0	98.5	100.0	100.0
Classification	Magnesio Hornblende	Magnesio Hornblende	Tschermakit Hornblende	Magnesio Hornblende	Magnesio Hornblende	Magnesio Hornblende	Magnesio Hornblende

Sample no.	92522502	92522502	92522502
Analysis no.	57563	57564	57566
Mineral	Clinopyroxene	Clinopyroxene	Clinopyroxene
Description	Intercumulus	Intercumulus	Intercumulus
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	710	710	710
SiO_2	51.18	51.55	52.09
TiO_2	1.27	0.98	0.34
Al_2O_3	2.67	2.26	2.48
Cr_2O_3	0.00	0.00	0.65
FeO*	6.62	6.56	6.81
MnO	0.16	0.00	0.00
NiO	0.00	0.00	0.00
MgO	16.49	16.81	18.60
CaO	20.55	20.44	18.22
Na_2O	0.00	0.00	0.00
K_2O	0.00	0.00	0.00
Total	98.94	98.60	99.19
Oxygens	6	6	6
Si	1.903	1.920	1.916
Ti	0.036	0.027	0.009
Al	0.117	0.099	0.108
Cr	0.000	0.000	0.019
Fe^{3+}	0.005	0.006	0.022
Fe^{2+}	0.201	0.199	0.188
Ni	0.000	0.000	0.000
Mn	0.005	0.000	0.000
Mg	0.914	0.933	1.020
Ca	0.819	0.816	0.718
Na	0.000	0.000	0.000
K	0.000	0.000	0.000
Total Cations	4.000	4.000	4.000
mg	82.0	82.5	84.5
Enstatite	47.3	47.9	52.9
Ferrosilite	10.4	10.2	9.8
Wollastonite	42.3	41.9	37.3

Table 3.12 (cont). Electron microprobe analyses of silicate minerals from the Wilagee layered intrusion.

Sample no.	92522502	92522502	92522502	92522502	92522502
Analysis no.	57567	57568	57569	57571	57579
Mineral	Clinopyroxene	Clinopyroxene	Clinopyroxene	Clinopyroxene	Clinopyroxene
Description	Intercumulus	Intercumulus	Intercumulus	Intercumulus	Intercumulus
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	710	710	710	710	710
SiO_2	52.16	51.98	52.11	53.56	51.12
TiO_2	0.38	0.35	0.36	0.21	0.98
Al_2O_3	2.00	2.28	2.41	0.88	2.79
Cr_2O_3	0.54	0.67	0.67	0.18	0.53
FeO*	5.95	6.46	5.59	4.03	5.66
MnO	0.12	0.00	0.00	0.00	0.15
NiO	0.00	0.00	0.00	0.00	0.00
MgO	17.30	17.69	17.49	17.18	16.08
CaO	20.52	19.70	20.89	23.76	21.81
Na_2O	0.00	0.00	0.00	0.00	0.00
K_2O	0.00	0.00	0.00	0.00	0.00
Total	98.97	99.13	99.52	99.80	99.12
Oxygens	6	6	6	6	6
Si	1.930	1.919	1.914	1.960	1.898
Ti	0.011	0.010	0.010	0.006	0.027
Al	0.087	0.099	0.104	0.038	0.122
Cr	0.016	0.020	0.019	0.005	0.016
Fe^{3+}	0.015	0.023	0.027	0.026	0.013
Fe^{2+}	0.169	0.176	0.144	0.097	0.163
Ni	0.000	0.000	0.000	0.000	0.000
Mn	0.004	0.000	0.000	0.000	0.005
Mg	0.954	0.974	0.958	0.937	0.890
Ca	0.814	0.779	0.822	0.931	0.867
Na	0.000	0.000	0.000	0.000	0.000
K	0.000	0.000	0.000	0.000	0.000
Total Cations	4.000	4.000	4.000	4.000	4.000
mg	84.9	84.7	86.9	90.6	84.5
Enstatite	49.3	50.5	49.8	47.7	46.3
Ferrosilite	8.7	9.1	7.5	4.9	8.5
Wollastonite	42.0	40.4	42.7	47.4	45.2

Sample no.	92522502	92522502	92522502	92522502	92522502
Analysis no.	1 - Tas	2 - Tas	3 - Tas	4 - Tas	5 - Tas
Mineral	Olivine	Olivine	Olivine	Olivine	Olivine
Description	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	710	710	710	710	710
SiO_2	38.79	38.32	38.63	38.74	38.88
TiO_2	0.02	0.00	0.01	0.00	0.01
Al_2O_3	0.01	0.01	0.01	0.01	0.00
Cr_2O_3	0.00	0.05	0.06	0.00	0.01
FeO*	18.40	18.35	18.26	19.29	18.46
MnO	0.28	0.32	0.27	0.28	0.28
NiO	0.23	0.18	0.27	0.20	0.23
MgO	41.89	42.18	42.03	41.63	41.69
CaO	0.02	0.01	0.02	0.03	0.00
Na_2O	0.01	0.00	0.00	0.00	0.00
K_2O	0.00	0.00	0.00	0.00	0.00
Total	99.65	99.43	99.57	100.18	99.56
Oxygens	4	4	4	4	4
Si	0.994	0.982	0.990	0.990	0.998
Ti	0.000	0.000	0.000	0.000	0.000
Al	0.000	0.000	0.000	0.000	0.000
Cr	0.000	0.001	0.001	0.000	0.000
Fe^{3+}	0.012	0.034	0.018	0.019	0.004
Fe^{2+}	0.382	0.360	0.373	0.393	0.392
Ni	0.006	0.007	0.006	0.006	0.006
Mn	0.005	0.004	0.006	0.004	0.005
Mg	1.599	1.612	1.605	1.586	1.595
Ca	0.001	0.000	0.001	0.001	0.000
Na	0.001	0.000	0.000	0.000	0.000
K	0.000	0.000	0.000	0.000	0.000
Total Cations	3.000	3.000	3.000	2.999	3.000
mg	80.7	81.7	81.1	80.1	80.6

Table 3.12 (cont). Electron microprobe analyses of silicate minerals from the Wilagee layered intrusion.

Sample no.	92522502	92522502	92522502	92522502	92522502	92522502	92522502	92522502	92522502	92522502	92522502	92522502
Analysis no.	6 - Tas	7 - Tas	8 - Tas	9 - Tas	10 - Tas	11 - Tas	12 - Tas	13 - Tas	14 - Tas	15 - Tas	16 - Tas	18 - Tas
Mineral	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine
Description	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	710	710	710	710	710	710	710	710	710	710	710	710
SiO_2	38.66	38.19	38.48	38.06	38.48	39.00	38.83	38.92	38.90	38.80	38.76	38.55
TiO_2	0.00	0.03	0.02	0.03	0.01	0.03	0.02	0.00	0.02	0.02	0.04	0.02
Al_2O_3	0.01	0.02	0.02	0.00	0.01	0.00	0.01	0.01	0.01	0.00	0.00	0.00
Cr_2O_3	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.03	0.05	0.00	0.01	0.01
FeO*	19.34	19.47	19.13	19.33	19.35	19.33	18.86	18.94	19.40	18.91	19.95	19.99
MnO	0.30	0.28	0.23	0.23	0.36	0.29	0.26	0.29	0.24	0.27	0.28	0.23
NiO	0.22	0.20	0.24	0.23	0.28	0.19	0.28	0.18	0.29	0.29	0.24	0.27
MgO	41.51	41.09	41.23	41.20	41.38	42.02	41.63	42.05	41.47	41.87	41.15	41.37
CaO	0.00	0.00	0.07	0.01	0.06	0.05	0.00	0.00	0.17	0.01	0.00	0.01
Na_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
K_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.05	99.28	99.43	99.09	99.95	100.92	99.90	100.43	100.56	100.17	100.43	100.46
Oxygens	4	4	4	4	4	4	4	4	4	4	4	4
Si	0.990	0.986	0.991	0.984	0.987	0.989	0.994	0.991	0.992	0.990	0.992	0.985
Ti	0.000	0.001	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000
Al	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000
Fe^{3+}	0.020	0.026	0.016	0.031	0.025	0.020	0.010	0.018	0.014	0.018	0.015	0.028
Fe^{2+}	0.395	0.395	0.397	0.387	0.390	0.390	0.394	0.385	0.400	0.386	0.412	0.399
Ni	0.007	0.006	0.005	0.005	0.008	0.006	0.006	0.006	0.005	0.006	0.006	0.005
Mn	0.005	0.004	0.005	0.005	0.006	0.004	0.006	0.004	0.006	0.006	0.005	0.006
Mg	1.584	1.582	1.583	1.587	1.582	1.588	1.589	1.595	1.576	1.593	1.569	1.576
Ca	0.000	0.000	0.002	0.000	0.002	0.001	0.000	0.000	0.005	0.000	0.000	0.000
Na	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	3.001	3.001	3.000	3.000	3.000	2.999	2.999	3.000	2.999	2.999	3.000	2.999
mg	80.0	80.0	79.9	80.4	80.2	80.3	80.1	80.6	80.0	80.5	79.2	79.9

Table 3.12 (cont). Electron microprobe analyses of silicate minerals from the Wilagee layered intrusion.

Sample no.	92522502	92522502	92522502	92522502	92522502	92522502	92522502	92522502	92522502	92522502	92522502	92522502
Analysis no.	19 - Tas	20 - Tas	30 - Tas	57572	57573	57575	57576	57577	57578	64988	64989	64990
Mineral	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine
Description	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus (c)	Cumulus	Cumulus	Cumulus (r)	Cumulus (c)	Cumulus	Cumulus	Cumulus
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	710	710	710	710	710	710	710	710	710	710	710	710
SiO_2	38.54	38.75	38.82	38.11	37.91	38.27	38.34	38.36	38.38	38.51	38.60	38.38
TiO_2	0.05	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Al_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cr_2O_3	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	19.79	19.50	19.27	21.13	20.83	19.86	20.09	19.38	19.40	19.56	19.19	19.38
MnO	0.27	0.34	0.34	0.15	0.15	0.20	0.10	0.23	0.17	0.16	0.13	0.15
NiO	0.22	0.22	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	41.21	41.23	42.02	40.96	40.53	41.81	41.68	42.18	41.86	41.97	41.98	42.23
CaO	0.03	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Na_2O	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
K_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.12	100.14	100.73	100.34	99.42	100.15	100.21	100.15	99.81	100.20	99.90	100.14
Oxygens	4	4	4	4	4	4	4	4	4	4	4	4
Si	0.988	0.993	0.986	0.978	0.982	0.978	0.980	0.978	0.983	0.983	0.987	0.979
Ti	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Al	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cr	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.021	0.012	0.026	0.045	0.037	0.043	0.039	0.043	0.034	0.035	0.026	0.043
Fe^{2+}	0.403	0.405	0.383	0.408	0.414	0.381	0.390	0.370	0.381	0.383	0.384	0.370
Ni	0.006	0.007	0.007	0.003	0.003	0.004	0.002	0.005	0.004	0.003	0.003	0.003
Mn	0.005	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mg	1.575	1.575	1.591	1.566	1.564	1.593	1.588	1.603	1.598	1.596	1.600	1.605
Ca	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Na	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	3.000	3.000	3.000	3.000	3.000	2.999	2.999	2.999	3.000	3.000	3.000	3.000
mg	79.6	79.5	80.6	79.3	79.1	80.7	80.4	81.2	80.7	80.6	80.6	81.3

Table 3.12 (cont). Electron microprobe analyses of silicate minerals from the Wilagee layered intrusion.

Sample no.	92522502	92522502	92522502	92522502	92522502	92522506	92522506	92522506	92522506	92522506	92522506	92522506	92522506
Analysis no.	64991	64992	64993	64994	65001	57402	57403	57404	57405	57457	57458	57459	57460
Mineral	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine
Description	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus (r)	Cumulus (c)	Cumulus (c)	Cumulus	Cumulus	Cumulus	Cumulus
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite
Strat. ht. (m)	710	710	710	710	710	70	70	70	70	70	70	70	70
SiO_2	38.35	38.15	38.26	38.20	38.17	39.11	38.71	39.03	38.48	39.03	38.98	38.55	38.56
TiO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Al_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	20.69	20.69	20.57	20.65	20.38	17.21	17.63	17.19	17.44	17.24	17.38	18.76	18.80
MnO	0.12	0.11	0.13	0.17	0.19	0.00	0.00	0.11	0.00	0.12	0.00	0.11	0.12
NiO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	40.69	40.65	41.30	40.68	41.31	43.95	43.43	43.92	43.52	43.91	43.82	42.69	42.43
CaO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00
Na_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00
K_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	99.85	99.60	100.26	99.70	100.05	100.26	99.76	100.34	99.44	100.29	100.19	100.11	99.91
Oxygens	4	4	4	4	4	4	4	4	4	4	4	4	4
Si	0.988	0.985	0.980	0.986	0.979	0.986	0.983	0.983	0.979	0.984	0.984	0.980	0.983
Ti	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Al	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.023	0.029	0.040	0.028	0.042	0.028	0.035	0.036	0.042	0.032	0.032	0.039	0.033
Fe^{2+}	0.423	0.418	0.400	0.417	0.396	0.334	0.339	0.326	0.329	0.331	0.335	0.360	0.368
Ni	0.003	0.002	0.003	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.003	0.000	0.002	0.003
Mg	1.563	1.565	1.577	1.565	1.580	1.651	1.643	1.649	1.650	1.650	1.649	1.618	1.613
Ca	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Na	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000
K	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	3.000	2.999	3.000	3.000	3.001	2.999	3.000	2.999	3.000	3.000	3.000	2.999	3.000
mg	78.7	78.9	79.8	79.0	80.0	83.2	83.0	83.5	83.4	83.3	83.1	81.8	81.4

Table 3.12 (cont). Electron microprobe analyses of silicate minerals from the Wilagee layered intrusion.

Sample no.	92522506	92522506	92522506	92522506	92522506	92522506	92522506	92522506	92522506	92522506	92522506	92522506	92522506
Analysis no.	57461	57462	57463	57464	57465	65014	65016	65017	65018	65019	65020	65021	65022
Mineral	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine
Description	Cumulus (c)	Cumulus (r)	Cumulus (c)	Cumulus (r)	Cumulus (c)	Cumulus (r)	Cumulus (c)	Cumulus (r)	Cumulus (c)	Cumulus (r)	Cumulus (c)	Cumulus (c)	Cumulus (c)
Lithology	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite
Strat. ht. (m)	70	70	70	70	70	70	70	70	70	70	70	70	70
SiO_2	38.94	38.85	38.87	38.72	39.11	38.85	39.15	38.97	39.08	39.09	39.01	38.84	38.65
TiO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Al_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	17.23	17.75	17.81	17.86	17.60	16.81	17.36	17.52	17.57	17.98	17.29	17.82	18.32
MnO	0.00	0.24	0.00	0.10	0.23	0.13	0.12	0.14	0.00	0.12	0.13	0.00	0.10
NiO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	43.93	43.67	43.70	43.73	44.53	43.63	43.68	43.49	43.57	42.69	43.41	43.05	42.84
CaO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00
Na_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
K_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.10	100.50	100.38	100.40	101.46	99.42	100.31	100.12	100.22	99.96	99.84	99.71	99.91
Oxygens	4	4	4	4	4	4	4	4	4	4	4	4	4
Si	0.983	0.980	0.981	0.977	0.975	0.987	0.988	0.986	0.988	0.994	0.989	0.988	0.983
Ti	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Al	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.034	0.041	0.038	0.046	0.051	0.025	0.024	0.028	0.025	0.011	0.021	0.024	0.033
Fe^{2+}	0.330	0.334	0.337	0.330	0.316	0.332	0.342	0.343	0.346	0.371	0.346	0.356	0.357
Ni	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.000	0.005	0.000	0.002	0.005	0.003	0.003	0.003	0.000	0.003	0.003	0.000	0.002
Mg	1.653	1.641	1.643	1.644	1.654	1.653	1.643	1.640	1.641	1.618	1.641	1.633	1.625
Ca	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000
Na	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	3.000	3.001	2.999	2.999	3.001	3.000	3.000	3.000	3.000	2.999	3.000	3.001	3.000
mg	83.4	83.1	83.0	83.3	84.0	83.3	82.8	82.7	82.8	81.3	82.6	82.1	82.0

Table 3.12 (cont). Electron microprobe analyses of silicate minerals from the Wilagee layered intrusion.

Sample no.	92522506	92522506
Analysis no.	65023	65024
Mineral	Olivine	Olivine
Description	Cumulus	Cumulus
Lithology	Troctolite	Troctolite
Strat. ht. (m)	70	70
SiO_2	38.99	39.24
TiO_2	0.00	0.00
Al_2O_3	0.00	0.00
Cr_2O_3	0.00	0.00
FeO*	17.99	17.66
MnO	0.00	0.00
NiO	0.00	0.00
MgO	43.08	43.74
CaO	0.00	0.00
Na_2O	0.00	0.00
K_2O	0.00	0.00
Total	100.06	100.64
Oxygens	4	4
Si	0.989	0.988
Ti	0.000	0.000
Al	0.000	0.000
Cr	0.000	0.000
Fe^{3+}	0.022	0.025
Fe^{2+}	0.360	0.347
Ni	0.000	0.000
Mn	0.000	0.000
Mg	1.629	1.641
Ca	0.000	0.000
Na	0.000	0.000
K	0.000	0.000
Total Cations	3.000	3.001
mg	81.9	82.5

Sample no.	92522502	92522502	92522502	92522502	92522502	92522502
Analysis no.	57560	57561	57570	57580	57581	57582
Mineral	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene
Description	Cumulus (r)	Cumulus (c)	Cumulus (c)	Cumulus (r)	Cumulus (c)	Cumulus (c)
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	710	710	710	710	710	710
SiO_2	54.44	55.09	54.48	54.42	54.45	54.54
TiO_2	0.48	0.32	0.36	0.24	0.31	0.33
Al_2O_3	1.02	1.00	1.22	0.99	1.15	1.32
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	12.83	12.94	12.78	12.74	12.94	12.55
MnO	0.18	0.00	0.28	0.10	0.13	0.18
NiO	0.00	0.00	0.00	0.00	0.00	0.00
MgO	29.18	29.63	29.58	28.97	29.48	29.02
CaO	1.59	1.28	1.12	2.00	1.49	1.90
Na_2O	0.00	0.00	0.00	0.00	0.00	0.00
K_2O	0.00	0.00	0.00	0.00	0.00	0.00
Total	99.89	100.40	100.01	99.65	100.19	99.99
Oxygens	6	6	6	6	6	6
Si	1.943	1.952	1.939	1.947	1.936	1.943
Ti	0.013	0.009	0.010	0.006	0.008	0.009
Al	0.043	0.042	0.051	0.042	0.048	0.055
Cr	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.046	0.036	0.052	0.052	0.063	0.041
Fe^{2+}	0.337	0.347	0.328	0.329	0.321	0.333
Ni	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.005	0.000	0.008	0.003	0.004	0.005
Mg	1.552	1.565	1.569	1.545	1.562	1.541
Ca	0.061	0.049	0.043	0.077	0.057	0.073
Na	0.000	0.000	0.000	0.000	0.000	0.000
K	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	4.000	4.000	4.000	4.000	4.000	4.000
mg	82.2	81.9	82.7	82.5	82.9	82.2
Enstatite	79.6	79.8	80.9	79.2	80.5	79.2
Ferrosilite	17.3	17.7	16.9	16.9	16.6	17.1
Wollastonite	3.1	2.5	2.2	3.9	2.9	3.7

Table 3.12 (cont). Electron microprobe analyses of silicate minerals from the Wilagee layered intrusion.

Sample no.	92522502	92522502	92522502	92522502	92522502	92522502	92522502	92522502	92522502	92522502	92522502	92522502
Analysis no.	21 - Tas	22 - Tas	23 - Tas	24 - Tas	25 - Tas	26 - Tas	27 - Tas	28 - Tas	29 - Tas	57558	57559	57561
Mineral	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase
Description	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	710	710	710	710	710	710	710	710	710	710	710	710
SiO_2	45.61	45.49	46.46	46.71	46.21	47.24	46.49	46.26	46.53	46.29	45.83	46.50
TiO_2	0.01	0.02	0.04	0.01	0.00	0.01	0.00	0.04	0.06	0.00	0.00	0.00
Al_2O_3	34.41	34.90	34.11	34.35	34.27	33.91	34.31	34.14	34.31	34.60	35.20	34.74
Cr_2O_3	0.00	0.00	0.01	0.07	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
FeO*	0.29	0.33	0.24	0.34	0.28	0.33	0.42	0.28	0.30	0.21	0.14	0.27
MnO	0.01	0.00	0.04	0.03	0.03	0.00	0.00	0.02	0.02	0.00	0.00	0.00
NiO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	0.00	0.01	0.00	0.00	0.06	0.07	0.04	0.04	0.03	0.00	0.00	0.00
CaO	17.48	17.66	17.00	16.97	17.25	16.70	17.23	17.37	17.55	16.55	16.98	16.51
Na_2O	1.64	1.39	1.81	1.88	1.88	2.09	1.78	1.69	1.60	1.58	1.27	1.76
K_2O	0.01	0.07	0.04	0.04	0.04	0.17	0.05	0.07	0.03	0.00	0.08	0.09
Total	99.46	99.87	99.75	100.40	100.02	100.52	100.32	99.91	100.44	99.23	99.51	99.88
Oxygens	8	8	8	8	8	8	8	8	8	8	8	8
Si	2.113	2.100	2.142	2.140	2.128	2.161	2.134	2.133	2.133	2.138	2.113	2.137
Ti	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.002	0.000	0.000	0.000
Al	1.879	1.899	1.853	1.855	1.860	1.829	1.856	1.855	1.854	1.884	1.913	1.881
Cr	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{2+}	0.011	0.013	0.009	0.013	0.011	0.013	0.016	0.011	0.012	0.008	0.005	0.011
Ni	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.000	0.000	0.002	0.001	0.001	0.000	0.000	0.001	0.001	0.000	0.000	0.000
Mg	0.000	0.001	0.000	0.000	0.004	0.005	0.003	0.003	0.002	0.000	0.000	0.000
Ca	0.868	0.873	0.840	0.833	0.851	0.819	0.847	0.858	0.862	0.819	0.839	0.813
Na	0.147	0.124	0.162	0.167	0.168	0.185	0.158	0.151	0.142	0.141	0.114	0.157
K	0.001	0.004	0.002	0.002	0.002	0.010	0.003	0.004	0.002	0.000	0.005	0.005
Total Cations	5.021	5.014	5.012	5.015	5.026	5.022	5.018	5.016	5.010	4.991	4.989	5.004
Albite	14.5	12.4	16.1	16.7	16.4	18.3	15.7	14.9	14.1	14.7	11.9	16.1
Anorthite	85.4	87.2	83.7	83.1	83.4	80.7	84.0	84.7	85.7	85.3	87.6	83.4
Orthoclase	0.1	0.4	0.2	0.2	0.2	1.0	0.3	0.4	0.2	0.0	0.5	0.5

Table 3.12 (cont). Electron microprobe analyses of silicate minerals from the Wilagee layered intrusion.

Sample no.	92522502	92522502	92522502	92522502	92522502	92522502	92522502	92522506	92522506	92522506	92522506	92522506
Analysis no.	57565	57574	64995	64996	64997	64998	64999	57472	57473	57474	57475	65025
Mineral	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase
Description	Cumulus	Cumulus	Cumulus (c)	Cumulus (r)	Cumulus (r)	Cumulus (c)	Cumulus (c)	Cumulus (r)	Cumulus (c)	Cumulus	Cumulus	Cumulus (r)
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite
Strat. ht. (m)	710	710	710	710	710	710	710	70	70	70	70	70
SiO_2	45.95	45.95	46.74	46.91	47.07	46.88	47.03	47.29	47.51	48.19	48.09	47.75
TiO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Al_2O_3	35.21	35.38	34.87	34.99	34.53	34.85	34.65	34.59	34.30	34.66	34.45	34.81
Cr_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	0.13	0.21	0.18	0.24	0.24	0.19	0.32	0.28	0.55	0.13	0.21	0.18
MnO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NiO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MgO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CaO	17.30	17.00	16.77	16.35	16.30	16.51	16.33	16.25	16.09	16.12	15.93	16.07
Na_2O	1.43	1.40	1.66	1.79	1.85	1.56	1.84	1.91	1.94	2.26	2.30	2.19
K_2O	0.06	0.49	0.07	0.00	0.00	0.00	0.09	0.07	0.19	0.09	0.00	0.00
Total	100.08	100.43	100.29	100.28	99.99	99.99	100.26	100.39	100.58	101.45	100.98	101.00
Oxygens	8	8	8	8	8	8	8	8	8	8	8	8
Si	2.110	2.107	2.138	2.143	2.156	2.146	2.151	2.158	2.167	2.174	2.179	2.164
Ti	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Al	1.906	1.911	1.880	1.884	1.864	1.881	1.868	1.861	1.844	1.844	1.840	1.859
Cr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{2+}	0.005	0.008	0.007	0.009	0.009	0.007	0.012	0.011	0.021	0.005	0.008	0.007
Ni	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mg	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ca	0.851	0.835	0.822	0.800	0.800	0.810	0.800	0.795	0.787	0.779	0.774	0.780
Na	0.127	0.125	0.147	0.159	0.164	0.138	0.163	0.169	0.172	0.198	0.202	0.192
K	0.003	0.029	0.004	0.000	0.000	0.000	0.005	0.004	0.011	0.005	0.000	0.000
Total Cations	5.002	5.014	4.998	4.995	4.994	4.983	4.999	4.998	5.002	5.005	5.002	5.003
Albite	13.0	12.6	15.1	16.5	17.0	14.6	16.9	17.5	17.7	20.2	20.7	19.8
Anorthite	86.6	84.5	84.5	83.5	83.0	85.4	82.5	82.1	81.2	79.3	79.3	80.2
Orthoclase	0.4	2.9	0.4	0.0	0.0	0.0	0.6	0.4	1.1	0.5	0.0	0.0

Table 3.12 (cont). Electron microprobe analyses of silicate minerals from the Wilagee layered intrusion.

Sample no.	92522506	92522506	92522506
Analysis no.	65026	65027	65028
Mineral	Plagioclase	Plagioclase	Plagioclase
Description	Cumulus (c)	Cumulus (r)	Cumulus (c)
Lithology	Troctolite	Troctolite	Troctolite
Strat. ht. (m)	70	70	70
SiO_2	47.54	47.70	47.69
TiO_2	0.00	0.00	0.00
Al_2O_3	34.60	34.64	34.39
Cr_2O_3	0.00	0.00	0.00
FeO*	0.15	0.00	0.24
MnO	0.00	0.00	0.00
NiO	0.00	0.00	0.00
MgO	0.00	0.00	0.00
CaO	15.96	15.92	16.06
Na_2O	2.05	2.06	2.08
K_2O	0.12	0.00	0.08
Total	100.42	100.32	100.54
Oxygens	8	8	8
Si	2.167	2.172	2.172
Ti	0.000	0.000	0.000
Al	1.858	1.859	1.846
Cr	0.000	0.000	0.000
Fe^{3+}	0.000	0.000	0.000
Fe^{2+}	0.006	0.000	0.009
Ni	0.000	0.000	0.000
Mn	0.000	0.000	0.000
Mg	0.000	0.000	0.000
Ca	0.779	0.777	0.784
Na	0.181	0.182	0.184
K	0.007	0.000	0.005
Total Cations	4.998	4.989	4.999
Albite	18.7	19.0	18.9
Anorthite	80.6	81.0	80.6
Orthoclase	0.7	0.0	0.5

Appendix Table 3.12a. Electron microprobe analyses of oxide minerals from the Wilagee layered intrusion.

Sample no.	92522502	92522502	92522502	92522502
Analysis no.	57594	57595	57598	57599
Mineral	Ilmenite	Ilmenite	Ilmenite	Ilmenite
Description	Intercumulus	Intercumulus	Intercumulus	Intercumulus
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	710	710	710	710
TiO_2	51.10	51.08	50.74	50.72
Al_2O_3	0.00	0.00	0.00	0.00
V_2O_3	0.00	0.00	0.00	0.00
Cr_2O_3	0.73	0.68	1.26	0.86
FeO*	43.86	43.76	44.15	43.85
MnO	0.85	0.83	0.94	0.84
MgO	1.83	1.63	1.69	1.78
CaO	0.14	0.00	0.00	0.00
Total	98.51	97.99	98.78	98.06
Oxygens	3	3	3	3
Ti	0.969	0.976	0.961	0.967
Al	0.000	0.000	0.000	0.000
V	0.000	0.000	0.000	0.000
Cr	0.014	0.014	0.025	0.017
Fe^{3+}	0.047	0.033	0.053	0.048
Fe^{2+}	0.878	0.897	0.878	0.882
Mn	0.018	0.018	0.020	0.018
Mg	0.069	0.062	0.064	0.067
Ca	0.004	0.000	0.000	0.000
Total Cations	2.000	2.000	2.000	2.000

Sample no.	92522502	92522502	92522502	92522502	92522502
Analysis no.	57588	57589	57590	57591	57592
Mineral	Spinel	Spinel	Spinel	Spinel	Spinel
Description	Cumulus	Cumulus	Cumulus	Cumulus	Cumulus
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
Strat. ht. (m)	710	710	710	710	710
TiO_2	0.45	0.58	0.62	0.10	0.87
Al_2O_3	12.00	11.73	9.26	28.54	29.59
V_2O_3	1.09	1.08	1.03	0.31	0.25
Cr_2O_3	30.54	31.04	26.78	27.84	26.89
FeO*	51.51	51.53	58.58	32.35	32.29
MnO	0.65	0.44	0.38	0.25	0.24
MgO	1.91	1.87	1.35	8.76	8.13
CaO	0.00	0.00	0.00	0.00	0.00
Total	98.14	98.26	98.01	98.16	98.26
Oxygens	32	32	32	32	32
Ti	0.095	0.121	0.132	0.018	0.163
Al	3.947	3.862	3.092	8.382	8.689
V	0.243	0.241	0.234	0.063	0.051
Cr	6.741	6.855	5.999	5.486	5.298
Fe^{3+}	4.880	4.800	6.412	2.032	1.636
Fe^{2+}	7.146	7.238	7.469	4.710	5.093
Mn	0.153	0.104	0.092	0.054	0.050
Mg	0.795	0.779	0.571	3.255	3.021
Ca	0.000	0.000	0.000	0.000	0.000
Total Cations	24.000	24.000	24.000	24.000	24.000
mg	10.0	9.7	7.1	40.9	37.2

Appendix Table 3.12a (cont.). Electron microprobe analyses of oxide minerals from the Wilagee layered intrusion.

Sample no.	92522502	92522502	92522506	92522506	92522506	92522506	92522506	92522506	92522506	92522506	92522506
Analysis no.	57593	57596	57408	57411	57412	57414	57415	57416	57417	57418	57419
Mineral	Spinel	Spinel	Spinel	Spinel	Spinel	Spinel	Spinel	Spinel	Spinel	Spinel	Spinel
Description	Cumulus	Cumulus	Alteration	Cumulus	Alteration	Cumulus	Cumulus	Cumulus	Cumulus	Alteration	Alteration
Lithology	Olivine gabbronorite	Olivine gabbronorite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite
Strat. ht. (m)	710	710	70	70	70	70	70	70	70	70	70
TiO_2	0.00	0.96	0.00	1.15	0.00	1.50	2.31	0.00	1.13	0.00	0.00
Al_2O_3	30.03	16.64	63.03	15.58	63.37	15.97	15.85	33.79	16.28	63.40	63.01
V_2O_3	0.31	0.72	0.00	0.61	0.00	0.70	0.74	0.11	0.75	0.00	0.00
Cr_2O_3	27.22	34.08	0.00	40.26	0.00	37.19	36.81	27.77	37.09	0.00	0.00
FeO*	34.05	43.99	21.46	37.99	20.94	40.28	40.56	30.12	40.20	20.48	20.73
MnO	0.24	0.26	0.00	0.25	0.12	0.50	0.36	0.17	0.48	0.00	0.00
MgO	8.11	2.21	14.03	3.15	14.34	2.57	2.32	6.85	2.86	14.68	15.15
CaO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	99.96	98.87	98.52	98.98	98.77	98.70	98.93	98.81	98.80	98.56	98.89
Oxygens	32	32	32	32	32	32	32	32	32	32	32
Ti	0.000	0.196	0.000	0.235	0.000	0.308	0.474	0.000	0.231	0.000	0.000
Al	8.674	5.340	15.757	4.994	15.769	5.142	5.106	9.813	5.218	15.768	15.757
V	0.061	0.157	0.000	0.133	0.000	0.153	0.163	0.021	0.164	0.000	0.000
Cr	5.274	7.334	0.000	8.660	0.000	8.033	7.956	5.409	7.976	0.000	0.000
Fe^{3+}	1.991	2.778	0.243	1.743	0.231	2.057	1.826	0.757	2.181	0.232	0.243
Fe^{2+}	4.988	7.237	3.564	6.901	3.466	7.147	7.448	5.448	6.962	3.383	3.210
Mn	0.050	0.061	0.000	0.058	0.021	0.115	0.083	0.035	0.111	0.000	0.000
Mg	2.962	0.898	4.436	1.276	4.513	1.046	0.944	2.517	1.158	4.617	4.790
Ca	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000
mg	37.3	11.0	55.5	15.6	56.6	12.8	11.2	31.6	14.3	57.7	59.9

Appendix Table 3.12a (cont.). Electron microprobe analyses of oxide minerals from the Wilagee layered intrusion.

Sample no.	92522506	92522506	92522506	92522506	92522506	92522506	92522506	92522506	92522506
Analysis no.	57477	57478	57479	57480	57481	57482	57483	57486	57487
Mineral	Spinel	Spinel	Spinel	Spinel	Spinel	Spinel	Spinel	Spinel	Spinel
Description	Alteration	Alteration	Alteration	Cumulus	Cumulus (r)	Cumulus (c)	Cumulus (c)	Cumulus (c)	Cumulus (r)
Lithology	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite
Strat. ht. (m)	70	70	70	70	70	70	70	70	70
TiO_2	0.00	0.00	0.00	0.41	1.11	6.96	1.26	1.50	1.43
Al_2O_3	63.24	63.35	63.67	23.54	16.34	13.58	15.96	13.96	16.01
V_2O_3	0.00	0.00	0.00	0.44	0.72	0.56	0.66	0.67	0.64
Cr_2O_3	0.00	0.00	0.00	33.72	37.08	35.57	38.41	38.94	39.55
FeO*	20.58	19.75	19.19	36.50	40.14	38.80	38.88	40.71	38.49
MnO	0.00	0.10	0.00	0.35	0.41	0.47	0.45	0.57	0.49
MgO	14.59	15.19	15.75	3.75	2.98	2.83	2.78	1.84	2.08
CaO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	98.41	98.39	98.61	98.71	98.77	98.77	98.39	98.19	98.68
Oxygens	32	32	32	32	32	32	32	32	32
Ti	0.000	0.000	0.000	0.082	0.228	1.446	0.259	0.314	0.294
Al	15.762	15.732	15.720	7.278	5.232	4.423	5.148	4.582	5.182
V	0.000	0.000	0.000	0.093	0.157	0.123	0.145	0.150	0.141
Cr	0.000	0.000	0.000	6.994	7.964	7.768	8.312	8.574	8.584
Fe^{3+}	0.238	0.268	0.280	1.471	2.192	0.794	1.877	2.067	1.505
Fe^{2+}	3.401	3.212	3.082	6.537	6.927	8.170	7.022	7.415	7.332
Mn	0.000	0.018	0.000	0.077	0.095	0.110	0.104	0.134	0.113
Mg	4.599	4.770	4.918	1.468	1.205	1.166	1.134	0.765	0.849
Ca	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000
mg	57.5	59.8	61.5	18.3	14.8	12.5	13.9	9.4	10.4

Appendix Table 3.13. Electron microprobe analyses of silicate minerals from the Wilson Creek intrusion.

Sample no.	93522126	93522126	93522126	93522126	93522126	93522126	93522126	93522126
Analysis no.	71420	71421	71422	71433	71440	71441	71442	71443
Mineral	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole	Amphibole
Description	Corona	Corona	Corona	Corona	Corona	Corona	Corona	Corona
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
SiO_2	42.75	43.02	42.57	42.07	42.57	41.73	42.08	42.09
TiO_2	0.75	0.88	0.66	0.00	1.03	0.00	0.00	0.00
Al_2O_3	14.69	14.32	14.27	17.09	14.69	16.39	16.57	16.60
FeO*	10.18	10.17	10.50	11.16	10.89	10.93	10.71	10.81
MnO	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00
MgO	15.05	15.00	14.92	13.75	13.70	14.20	14.29	14.18
CaO	11.11	11.23	11.21	11.06	10.86	11.11	11.18	11.14
Na_2O	2.20	2.28	2.38	2.57	2.02	2.60	2.67	2.54
K_2O	0.41	0.40	0.30	0.19	0.40	0.20	0.13	0.25
Total	98.28	98.42	98.08	99.15	97.36	98.37	98.83	98.80
Oxygens	23	23	23	23	23	23	23	23
Si	6.064	6.118	6.081	5.942	6.137	5.939	5.955	5.959
Ti	0.080	0.094	0.071	0.000	0.112	0.000	0.000	0.000
Al	2.458	2.400	2.402	2.845	2.496	2.749	2.764	2.770
Fe^{3+}	1.185	1.054	1.148	1.185	1.016	1.233	1.180	1.192
Fe^{2+}	0.024	0.155	0.106	0.133	0.299	0.068	0.087	0.088
Mn	0.000	0.000	0.015	0.000	0.000	0.000	0.000	0.000
Mg	3.185	3.179	3.177	2.895	2.943	3.012	3.014	2.992
Ca	1.690	1.711	1.716	1.674	1.677	1.694	1.695	1.690
Na	0.606	0.629	0.629	0.704	0.565	0.717	0.733	0.697
K	0.074	0.073	0.055	0.034	0.074	0.036	0.023	0.045
Total Cations	15.366	15.413	15.400	15.412	15.319	15.448	15.451	15.433
mg	99.3	95.3	96.8	95.6	90.8	97.8	97.2	97.1
Classification	Ferri Tschermakite	Ferri Tschermakite	Ferri Tschermakite	Ferri Tschermakite	Ferri Tschermakite	Ferri Tschermakite	Ferri Tschermakite	Ferri Tschermakite

Appendix Table 3.13 (cont.). Electron microprobe analyses of silicate minerals from the Wilson Creek intrusion.

Sample no.	93522126	93522126	93522126	93522126	93522126	93522126	93522126	93522126	93522126	93522126	93522126
Analysis no.	71408	71409	71410	71411	71412	71413	71414	71415	71434	71435	71436
Mineral	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine
Description	Cumulus (c)	Cumulus (c)	Cumulus (c)	Cumulus (c)	Cumulus (c)	Cumulus (c)	Cumulus (r)	Cumulus (c)	Cumulus (r)	Cumulus (r)	Cumulus (c)
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
SiO_2	35.78	35.88	35.93	36.33	36.17	36.25	36.39	35.98	35.87	35.70	35.78
TiO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Al_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	33.70	32.98	32.72	33.16	33.01	33.06	33.43	33.35	34.18	34.25	34.24
MnO	0.31	0.25	0.23	0.29	0.18	0.24	0.35	0.27	0.27	0.23	0.25
MgO	30.26	30.55	30.81	30.68	31.09	30.41	30.90	31.00	30.01	29.71	29.84
CaO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Na_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
K_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.23	99.81	99.82	100.55	100.60	100.02	101.22	100.80	100.50	100.05	100.27
Oxygens	4	4	4	4	4	4	4	4	4	4	4
Si	0.982	0.986	0.985	0.990	0.984	0.994	0.986	0.979	0.983	0.984	0.984
Ti	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Al	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.036	0.029	0.030	0.019	0.032	0.012	0.028	0.043	0.033	0.032	0.033
Fe^{2+}	0.737	0.729	0.721	0.737	0.719	0.746	0.730	0.716	0.751	0.758	0.755
Mn	0.007	0.006	0.005	0.007	0.004	0.006	0.008	0.006	0.006	0.005	0.006
Mg	1.238	1.251	1.259	1.247	1.261	1.243	1.248	1.257	1.226	1.221	1.223
Ca	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Na	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
mg	62.7	63.2	63.6	62.9	63.7	62.5	63.1	63.7	62.0	61.7	61.8

Appendix Table 3.13 (cont.). Electron microprobe analyses of silicate minerals from the Wilson Creek intrusion.

Sample no.	93522126	93522126	93522126	93522126	93522126	93522126	93522126	93522126
Analysis no.	71437	71446	71447	71448	71449	71450	71458	71459
Mineral	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine	Olivine
Description	Cumulus (c)	Cumulus (r)	Cumulus (r)	Cumulus (c)	Cumulus (c)	Cumulus (c)	Cumulus (r)	Cumulus (r)
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
SiO_2	35.95	35.72	35.73	35.68	35.93	36.07	35.56	35.63
TiO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Al_2O_3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FeO*	34.27	33.83	34.29	33.56	33.20	32.82	34.16	33.99
MnO	0.15	0.17	0.25	0.21	0.25	0.20	0.27	0.29
MgO	29.79	30.01	29.65	30.05	30.23	30.40	29.86	29.83
CaO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Na_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
K_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	100.27	99.89	100.06	99.66	99.72	99.56	100.05	99.91
Oxygens	4	4	4	4	4	4	4	4
Si	0.988	0.984	0.985	0.985	0.989	0.993	0.980	0.983
Ti	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Al	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fe^{3+}	0.024	0.032	0.030	0.031	0.022	0.015	0.040	0.035
Fe^{2+}	0.764	0.747	0.761	0.744	0.743	0.741	0.747	0.749
Mn	0.004	0.004	0.006	0.005	0.006	0.005	0.006	0.007
Mg	1.220	1.233	1.219	1.236	1.241	1.247	1.227	1.226
Ca	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Na	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
K	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Cations	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
mg	61.5	62.3	61.6	62.4	62.6	62.7	62.2	62.1

Appendix Table 3.13 (cont.). Electron microprobe analyses of silicate minerals from the Wilson Creek intrusion.

Sample no.	93522126	93522126	93522126	93522126	93522126	93522126	93522126	Sample no.	93522126
Analysis no.	71426	71427	71432	71444	71445	71455	71456	Analysis no.	71416
Mineral	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Orthopyroxene	Mineral	Plagioclase
Description	Cumulus	Cumulus	Corona	Corona	Corona	Intercumulus	Intercumulus	Description	Cumulus (r)
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Lithology	Olivine gabbronorite
SiO_2	53.06	53.13	53.70	53.55	53.77	52.38	53.37	SiO_2	50.85
TiO_2	0.00	0.00	0.00	0.00	0.00	0.19	0.00	TiO_2	0.00
Al_2O_3	1.09	0.89	0.27	0.32	0.49	2.54	0.88	Al_2O_3	32.41
FeO*	21.43	21.34	20.54	21.19	20.63	18.51	20.46	FeO*	0.15
MnO	0.30	0.28	0.19	0.24	0.27	0.20	0.15	MnO	0.00
MgO	23.84	24.12	25.21	24.92	25.40	23.22	24.82	MgO	0.00
CaO	0.30	0.56	0.00	0.00	0.00	2.74	0.44	CaO	13.38
Na_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Na_2O	3.24
K_2O	0.00	0.00	0.00	0.00	0.00	0.00	0.00	K_2O	0.00
Total	100.16	100.51	100.06	100.43	100.76	99.87	100.30	Total	100.03
Oxygens	6	6	6	6	6	6	6	Oxygens	8
Si	1.958	1.953	1.972	1.965	1.961	1.927	1.957	Si	2.303
Ti	0.000	0.000	0.000	0.000	0.000	0.005	0.000	Ti	0.000
Al	0.047	0.038	0.012	0.014	0.021	0.110	0.038	Al	1.730
Fe^{3+}	0.037	0.055	0.044	0.056	0.057	0.025	0.049	Fe^{3+}	0.000
Fe^{2+}	0.625	0.601	0.587	0.595	0.572	0.545	0.578	Fe^{2+}	0.006
Mn	0.010	0.009	0.006	0.008	0.008	0.006	0.005	Mn	0.000
Mg	1.312	1.322	1.380	1.363	1.381	1.273	1.356	Mg	0.000
Ca	0.012	0.022	0.000	0.000	0.000	0.108	0.017	Ca	0.650
Na	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Na	0.285
K	0.000	0.000	0.000	0.000	0.000	0.000	0.000	K	0.000
Total Cations	4.000	4.000	4.000	4.000	4.000	4.000	4.000	Total Cations	4.974
mg	67.7	68.7	70.2	69.6	70.7	70.0	70.1	Albite	30.5
Enstatite	67.3	68.0	70.2	69.6	70.7	66.1	69.5	Anorthite	69.5
Ferrosilite	32.1	30.9	29.8	30.4	29.3	28.3	29.6	Orthoclase	0.0
Wollastonite	0.6	1.1	0.0	0.0	0.0	5.6	0.9		

Appendix Table 3.13 (cont.). Electron microprobe analyses of silicate minerals from the Wilson Creek intrusion.

Sample no.	93522126	93522126	93522126	93522126	93522126	93522126
Analysis no.	71417	71418	71451	71452	71453	71454
Mineral	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase	Plagioclase
Description	Cumulus (r)	Cumulus (c)	Cumulus (r)	Cumulus (r)	Cumulus (c)	Cumulus (c)
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
SiO_2	51.59	50.05	49.77	50.27	50.43	51.12
TiO_2	0.00	0.00	0.00	0.00	0.00	0.00
Al_2O_3	31.62	32.85	32.65	32.98	32.52	31.95
FeO*	0.00	0.00	0.00	0.00	0.00	0.00
MnO	0.00	0.00	0.00	0.00	0.00	0.00
MgO	0.00	0.00	0.00	0.00	0.00	0.00
CaO	12.83	14.18	14.25	14.39	13.80	13.25
Na_2O	3.65	2.83	3.02	3.05	3.17	3.56
K_2O	0.00	0.00	0.05	0.05	0.00	0.05
Total	99.69	99.91	99.72	100.73	99.92	99.93
Oxygens	8	8	8	8	8	8
Si	2.340	2.274	2.282	2.269	2.290	2.319
Ti	0.000	0.000	0.000	0.000	0.000	0.000
Al	1.690	0.000	1.745	1.754	1.740	1.707
Fe^{3+}	0.000	1.759	0.000	0.000	0.000	0.000
Fe^{2+}	0.000	0.000	0.000	0.000	0.000	0.000
Mn	0.000	0.000	0.000	0.000	0.000	0.000
Mg	0.000	0.000	0.000	0.000	0.000	0.000
Ca	0.623	0.690	0.684	0.696	0.671	0.644
Na	0.321	0.249	0.270	0.267	0.279	0.313
K	0.000	0.000	0.000	0.003	0.000	0.003
Total Cations	4.975	4.972	4.981	4.989	4.980	4.986
Albite	34.0	26.5	28.3	27.7	29.4	32.6
Anorthite	66.0	73.5	71.7	72.0	70.6	67.1
Orthoclase	0.0	0.0	0.0	0.3	0.0	0.3

Appendix Table 3.13a. Electron microprobe analyses of oxide minerals from the Wilson Creek intrusion.

Sample no.	93522126	93522126	93522126
Analysis no.	71428	71429	71430
Mineral	Spinel	Spinel	Spinel
Description	Corona	Corona	Corona
Lithology	Olivine gabbronorite	Olivine gabbronorite	Olivine gabbronorite
Al_2O_3	60.33	61.58	61.50
FeO*	28.08	27.38	27.40
MnO	0.13	0.00	0.13
MgO	9.73	9.99	9.95
Total	98.28	98.95	98.98
Oxygens	32	32	32
Al	15.628	15.656	15.685
Fe^{3+}	0.372	0.344	0.315
Fe^{2+}	4.789	4.786	4.767
Mn	0.024	0.000	0.024
Mg	3.187	3.214	3.208
Total Cations	24.000	24.000	24.000
mg	40.0	40.2	40.2

Appendix Table 3.14. Electron microprobe analyses of chromite from chromitite layers in East Kimberley intrusions.

Sample no.	93522026	93522026	93522026	93522026	83330021	83330021	83330021	83330021	83330021	83330021	83330021	83330192	83330192	83330192
Analysis no.	124357	124359	124361	124363	124441	124442	124443	124444	124445	124446	124447	124247	124248	124250
Intrusion	Big Ben	Big Ben	Big Ben	Big Ben	Lamboo	Lamboo	Lamboo	Lamboo	Lamboo	Lamboo	Lamboo	Lamboo	Lamboo	Lamboo
Lithology	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite
SiO_2	<.02	<.02	0.03	0.03	<.02	0.05	0.10	<.02	<.02	<.02	0.03	<.02	0.03	<.02
TiO_2	1.03	1.24	1.07	0.70	0.74	0.70	0.75	0.76	0.81	0.80	0.78	0.66	0.64	0.96
Al_2O_3	14.25	14.47	14.30	15.61	22.98	20.93	22.07	23.69	23.38	23.76	22.71	24.91	25.26	22.75
V_2O_3	0.24	0.24	0.24	0.24	0.18	0.19	0.20	0.19	0.21	0.19	0.22	0.18	0.17	0.20
Cr_2O_3	40.95	40.61	40.90	41.60	38.85	37.11	40.05	40.10	39.80	39.70	40.25	38.86	39.13	39.13
Fe_2O_3	11.27	10.67	11.01	9.62	5.72	9.82	4.90	5.54	6.01	5.71	5.85	5.34	5.38	6.33
FeO	27.87	28.08	27.82	27.37	22.79	21.53	24.29	17.89	18.21	17.93	20.47	16.19	16.17	18.01
MnO	0.39	0.33	0.37	0.30	0.81	1.50	0.70	0.21	0.20	0.25	0.26	0.15	0.18	0.24
NiO	0.06	0.07	0.10	0.05	0.14	0.20	0.16	0.16	0.17	0.21	0.16	0.17	0.19	0.17
MgO	4.43	4.43	4.47	4.78	8.20	8.27	7.31	11.97	11.77	11.88	10.19	12.96	13.18	11.58
ZnO	0.24	0.18	0.22	0.20	0.21	0.23	0.22	<.07	<.08	0.07	0.22	<.08	<.08	0.16
CaO	<.01	<.01	0.02	0.02	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01
Total	100.74	100.31	100.53	100.52	100.61	100.54	100.75	100.51	100.55	100.50	101.13	99.42	100.33	99.52
Oxygens	32	32	32	32	32	32	32	32	32	32	32	32	32	32
Si	-	-	0.007	0.008	-	0.012	0.025	-	-	-	0.008	-	0.007	-
Ti	0.209	0.252	0.217	0.140	0.141	0.135	0.144	0.140	0.150	0.148	0.145	0.122	0.118	0.180
Al	4.525	4.606	4.545	4.921	6.839	6.294	6.622	6.864	6.789	6.889	6.650	7.199	7.225	6.691
V	0.051	0.051	0.053	0.052	0.037	0.040	0.041	0.037	0.042	0.037	0.043	0.035	0.033	0.040
Cr	8.721	8.672	8.720	8.794	7.757	7.486	8.061	7.794	7.754	7.721	7.907	7.535	7.509	7.721
Fe^{3+}	2.285	2.168	2.234	1.936	1.087	1.885	0.938	1.024	1.114	1.056	1.093	0.986	0.983	1.189
Fe^{2+}	6.278	6.341	6.274	6.122	4.813	4.593	5.171	3.678	3.754	3.689	4.253	3.321	3.281	3.759
Mn	0.090	0.075	0.084	0.067	0.174	0.325	0.151	0.043	0.041	0.052	0.054	0.030	0.038	0.051
Ni	0.014	0.016	0.021	0.010	0.029	0.041	0.032	0.033	0.034	0.041	0.031	0.033	0.037	0.035
Mg	1.780	1.785	1.795	1.904	3.086	3.145	2.773	4.386	4.321	4.354	3.774	4.738	4.769	4.306
Zn	0.049	0.036	0.044	0.040	0.039	0.043	0.042	-	-	-	-	-	-	0.029
Ca	-	-	0.006	0.005	-	-	-	-	-	0.013	0.041	-	-	-
Total Cations	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000
mg	22	22	22	24	39	41	35	54	54	54	47	59	59	53
Cr'	56	56	57	57	49	48	52	50	50	49	51	48	48	49
Al'	29	30	29	31	44	40	42	44	43	44	42	46	46	43
Fe^{3+}'	15	14	14	12	7	12	6	7	7	7	7	6	6	8

Appendix Table 3.14 (cont.). Electron microprobe analyses of chromite from chromitite layers in East Kimberley intrusions.

Sample no.	83330192	83330192	92522338	92522338	92522338	92522338	92522338	92522338	92522338	92522037	92522037	92522037	92522037
Analysis no.	124251	124252	124427	124428	124430	124431	124433	124435	124436	124346	124347	124350	124354
Intrusion	Lamboo	Lamboo	Mini	Mini	Mini	Mini	Mini	Mini	Mini	Panton	Panton	Panton	Panton
Chrom. gp.										Lower Group	Lower Group	Lower Group	Lower Group
Lithology	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite
SiO_2	<.02	<.02	0.21	<.02	<.02	<.02	<.02	<.02	0.05	<.02	0.06	<.02	0.08
TiO_2	0.61	0.64	0.20	0.44	0.41	0.71	0.64	0.46	0.32	0.53	0.48	0.60	0.49
Al_2O_3	25.12	25.27	16.04	15.64	17.02	15.27	17.05	17.52	17.79	15.95	17.74	17.70	17.42
V_2O_3	0.19	0.18	0.34	0.31	0.32	0.30	0.30	0.31	0.30	0.20	0.18	0.18	0.16
Cr_2O_3	38.68	38.59	44.22	43.52	42.12	43.53	41.89	41.84	41.19	43.48	44.22	44.16	44.20
Fe_2O_3	5.81	5.54	5.28	6.20	6.07	6.61	6.27	5.35	6.40	7.30	5.56	5.31	5.23
FeO	16.00	17.25	31.96	31.66	31.58	31.89	32.31	31.74	31.86	26.61	26.55	26.25	26.33
MnO	0.16	0.22	0.47	0.50	0.44	0.50	0.54	0.48	0.49	0.41	0.29	0.35	0.35
NiO	0.15	0.17	<.03	<.03	0.04	<.03	<.03	0.04	<.03	0.04	0.09	0.06	0.09
MgO	13.12	12.42	1.54	1.55	1.72	1.65	1.45	1.57	1.61	4.89	5.52	5.62	5.41
ZnO	0.11	<.08	0.47	0.44	0.47	0.43	0.56	0.50	0.56	0.37	0.24	0.23	0.32
CaO	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	0.02	0.02	<.01
Total	99.96	100.29	100.72	100.26	100.18	100.89	101.01	99.81	100.57	99.78	100.94	100.48	100.09
Oxygens	32	32	32	32	32	32	32	32	32	32	32	32	32
Si	-	-	0.057	-	-	-	-	-	0.013	-	0.015	-	0.022
Ti	0.112	0.118	0.040	0.090	0.084	0.145	0.130	0.094	0.064	0.106	0.095	0.119	0.097
Al	7.217	7.266	5.141	5.048	5.459	4.907	5.437	5.629	5.671	5.044	5.481	5.488	5.435
V	0.038	0.035	0.073	0.067	0.070	0.067	0.066	0.067	0.065	0.043	0.039	0.038	0.035
Cr	7.455	7.445	9.510	9.426	9.060	9.382	8.960	9.017	8.808	9.226	9.164	9.186	9.250
Fe^{3+}	1.065	1.018	1.081	1.279	1.243	1.355	1.277	1.098	1.303	1.475	1.098	1.051	1.041
Fe^{2+}	3.263	3.520	7.270	7.253	7.185	7.271	7.310	7.236	7.206	5.972	5.820	5.776	5.827
Mn	0.034	0.046	0.107	0.115	0.101	0.117	0.123	0.112	0.112	0.094	0.063	0.078	0.078
Ni	0.029	0.034	-	-	0.008	-	-	0.009	-	0.009	0.018	0.013	0.019
Mg	4.767	4.517	0.625	0.632	0.696	0.670	0.585	0.636	0.647	1.957	2.157	2.203	2.133
Zn	0.020	-	0.095	0.090	0.095	0.086	0.112	0.100	0.112	0.074	0.046	0.044	0.063
Ca	-	-	-	-	-	-	-	-	-	-	0.004	0.005	-
Total Cations	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000
mg	59	56	8	8	9	8	7	8	8	25	27	28	27
Cr'	47	47	60	60	57	60	57	57	56	59	58	58	58
Al'	46	46	33	32	35	31	35	36	36	32	35	35	35
Fe^{3+}'	7	6	7	8	8	9	8	7	8	9	7	7	7

Appendix Table 3.14 (cont.). Electron microprobe analyses of chromite from chromitite layers in East Kimberley intrusions.

Sample no.	92522023	92522023	92522023	92522023	92522052	92522052	92522052	92522052	92522052	92522052	92522086
Analysis no.	124314	124315	124316	124317	124257	124258	124260	124261	124262	124263	124450
Intrusion	Panton	Panton	Panton	Panton	Panton	Panton	Panton	Panton	Panton	Panton	Panton
Chrom. gp.	Middle Group	Middle Group	Middle Group	Middle Group	Middle Group	Middle Group	Middle Group	Middle Group	Middle Group	Middle Group	Middle Group
Lithology	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite
SiO_2	<.02	<.02	<.02	<.02	<.02	0.09	<.02	<.02	<.02	<.02	<.02
TiO_2	0.49	0.40	0.33	0.81	0.97	0.93	0.85	0.68	0.72	0.72	0.61
Al_2O_3	19.76	19.07	19.77	19.01	18.09	18.37	18.48	18.63	18.35	18.32	19.05
V_2O_3	0.18	0.19	0.20	0.22	0.23	0.25	0.25	0.22	0.21	0.20	0.16
Cr_2O_3	41.18	41.55	41.46	41.46	41.93	42.42	42.49	43.12	42.78	43.01	43.79
Fe_2O_3	5.56	6.21	5.51	5.31	6.03	5.41	5.33	3.84	5.84	4.53	5.01
FeO	26.45	26.72	26.28	27.10	25.05	25.39	24.86	24.15	24.77	24.53	22.08
MnO	0.32	0.33	0.29	0.21	0.32	0.30	0.33	0.38	0.33	0.36	0.35
NiO	0.06	0.07	0.09	0.06	0.06	<.03	0.08	0.03	<.03	<.03	0.11
MgO	5.47	5.20	5.46	5.27	6.46	6.49	6.59	6.64	6.68	6.50	8.36
ZnO	0.26	0.27	0.33	0.18	0.14	0.14	0.13	0.14	0.15	0.15	0.12
CaO	0.03	0.03	<.01	<.01	0.05	0.02	0.02	0.03	0.03	0.04	<.01
Total	99.74	100.05	99.71	99.62	99.35	99.80	99.41	97.84	99.85	98.35	99.63
Oxygens	32	32	32	32	32	32	32	32	32	32	32
Si	-	-	-	-	-	0.023	-	-	-	-	-
Ti	0.097	0.079	0.065	0.160	0.193	0.183	0.168	0.135	0.142	0.143	0.118
Al	6.118	5.919	6.124	5.918	5.624	5.676	5.725	5.843	5.664	5.735	5.805
V	0.037	0.041	0.041	0.046	0.048	0.053	0.052	0.046	0.044	0.042	0.033
Cr	8.553	8.652	8.616	8.661	8.745	8.794	8.831	9.072	8.857	9.032	8.953
Fe^{3+}	1.098	1.231	1.090	1.055	1.197	1.067	1.055	0.769	1.151	0.905	0.974
Fe^{2+}	5.812	5.884	5.776	5.988	5.525	5.568	5.465	5.374	5.425	5.450	4.775
Mn	0.071	0.075	0.065	0.048	0.073	0.066	0.073	0.085	0.072	0.081	0.076
Ni	0.013	0.016	0.019	0.012	0.014	-	0.016	0.007	-	-	0.024
Mg	2.141	2.043	2.140	2.076	2.541	2.538	2.581	2.633	2.607	2.573	3.221
Zn	0.050	0.052	0.064	0.036	0.028	0.027	0.026	0.028	0.029	0.029	-
Ca	0.010	0.009	-	-	0.014	0.006	0.007	0.008	0.008	0.011	0.022
Total Cations	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000
mg	27	26	27	26	32	31	32	33	32	32	40
Cr'	54	55	54	55	56	56	56	58	57	57	57
Al'	39	37	39	38	36	37	37	37	36	37	37
Fe^{3+}'	7	8	7	7	8	7	7	5	7	6	6

Appendix Table 3.14 (cont.). Electron microprobe analyses of chromite from chromitite layers in East Kimberley intrusions.

Sample no.	92522086	92522086	92522086	92522086	92522086	92522046	92522046	92522046	92522046	92522046	92522046
Analysis no.	124451	124452	124453	124454	124455	124298	124300	124302	124304	124305	124306
Intrusion	Panton	Panton	Panton	Panton	Panton	Panton	Panton	Panton	Panton	Panton	Panton
Chrom. gp.	Middle Group	Middle Group	Middle Group	Middle Group	Middle Group	Upper Group	Upper Group	Upper Group	Upper Group	Upper Group	Upper Group
Lithology	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite
SiO_2	<.02	<.02	<.02	<.02	0.03	<.02	<.02	<.02	0.03	<.02	<.02
TiO_2	0.43	0.43	0.60	0.40	0.52	0.27	0.37	0.24	6.04	0.23	0.60
Al_2O_3	18.91	18.94	19.33	18.87	19.18	17.42	17.54	17.24	14.44	17.82	17.49
V_2O_3	0.19	0.19	0.16	0.18	0.19	0.48	0.50	0.46	0.36	0.47	0.45
Cr_2O_3	43.55	43.12	43.45	43.70	43.61	40.83	39.71	41.43	37.11	39.72	40.31
Fe_2O_3	5.75	6.06	5.24	5.94	5.28	7.35	8.60	7.43	2.79	8.69	7.35
FeO	22.23	21.86	22.19	22.20	22.08	30.13	30.66	30.50	35.42	30.64	30.72
MnO	0.34	0.38	0.34	0.35	0.31	0.89	0.89	0.85	0.89	0.82	0.89
NiO	0.03	0.04	0.09	<.03	0.05	0.06	<.03	0.06	<.03	0.05	0.08
MgO	8.20	8.32	8.33	8.26	8.40	2.44	2.38	2.30	2.05	2.29	2.30
ZnO	0.16	0.21	0.23	0.18	0.22	0.19	0.10	0.20	0.11	0.30	0.20
CaO	<.01	0.02	<.01	<.01	<.01	<.01	0.02	0.02	0.02	0.02	<.01
Total	99.80	99.58	99.96	100.08	99.86	100.06	100.77	100.75	99.26	101.04	100.39
Oxygens	32	32	32	32	32	32	32	32	32	32	32
Si	-	-	-	-	0.008	-	-	-	0.009	-	-
Ti	0.083	0.084	0.116	0.078	0.100	0.056	0.075	0.049	1.256	0.046	0.121
Al	5.767	5.781	5.869	5.740	5.828	5.553	5.560	5.474	4.703	5.632	5.565
V	0.039	0.040	0.034	0.036	0.038	0.104	0.107	0.100	0.080	0.100	0.097
Cr	8.907	8.830	8.849	8.915	8.892	8.735	8.442	8.822	8.107	8.421	8.602
Fe^{3+}	1.120	1.181	1.015	1.154	1.024	1.497	1.741	1.505	0.580	1.754	1.493
Fe^{2+}	4.810	4.734	4.781	4.791	4.761	6.817	6.895	6.871	8.184	6.871	6.935
Mn	0.075	0.083	0.075	0.076	0.067	0.204	0.203	0.195	0.208	0.185	0.203
Ni	0.007	0.009	0.018	-	0.010	0.012	-	0.013	-	0.010	0.017
Mg	3.161	3.212	3.199	3.176	3.228	0.985	0.952	0.924	0.845	0.916	0.926
Zn	0.030	0.041	0.044	0.035	0.043	0.038	0.020	0.040	0.022	0.059	0.040
Ca	-	0.004	-	-	-	-	0.005	0.006	0.005	0.005	-
Total Cations	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000
mg	40	40	40	40	40	13	12	12	9	12	12
Cr'	56	56	56	56	56	56	54	55	61	53	54
Al'	37	37	37	36	37	35	35	35	35	36	36
Fe^{3+}'	7	7	6	7	7	9	11	10	4	11	10

Appendix Table 3.14 (cont.). Electron microprobe analyses of chromite from chromitite layers in East Kimberley intrusions.

Sample no.	92522046	92522046	92522377	92522377	92522377	92522377	92522377	92522377	92522377	92522377
Analysis no.	124307	124308	124235	124236	124237	124238	124239	124240	124242	124243
Intrusion	Panton	Panton	South Melon	South Melon	South Melon	South Melon	South Melon	South Melon	South Melon	South Melon
Chrom. gp.	Upper Group	Upper Group	Patch	Patch	Patch	Patch	Patch	Patch	Patch	Patch
Lithology	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite
SiO_2	<.02	<.02	<.02	0.23	<.02	<.02	<.02	<.02	<.02	<.02
TiO_2	0.40	0.32	0.69	0.63	0.68	0.80	0.48	0.64	0.81	0.43
Al_2O_3	17.34	17.29	17.86	18.08	17.92	17.12	17.80	18.69	17.23	17.85
V_2O_3	0.45	0.49	0.27	0.26	0.24	0.24	0.27	0.27	0.26	0.26
Cr_2O_3	39.70	39.54	42.66	42.60	41.57	42.46	42.13	41.86	43.34	42.50
Fe_2O_3	9.09	8.77	7.59	6.74	7.62	6.55	7.36	7.42	6.92	6.40
FeO	30.69	30.22	24.90	24.64	25.72	25.42	25.76	24.79	25.28	24.61
MnO	0.78	0.92	0.36	0.31	0.30	0.24	0.27	0.33	0.25	0.26
NiO	0.07	0.04	0.06	0.08	0.06	0.09	<.03	0.11	0.08	0.05
MgO	2.43	2.40	6.72	7.01	6.04	6.01	5.96	6.79	6.47	6.42
ZnO	0.15	0.17	0.25	0.23	0.23	0.21	0.12	0.26	0.20	0.10
CaO	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01
Total	101.09	100.16	101.37	100.79	100.38	99.14	100.14	101.15	100.85	98.86
Oxygens	32	32	32	32	32	32	32	32	32	32
Si	-	-	-	0.059	-	-	-	-	-	-
Ti	0.081	0.064	0.134	0.123	0.134	0.161	0.095	0.124	0.159	0.085
Al	5.484	5.516	5.455	5.529	5.546	5.373	5.524	5.695	5.309	5.582
V	0.097	0.107	0.057	0.054	0.051	0.052	0.056	0.057	0.054	0.055
Cr	8.423	8.462	8.741	8.737	8.629	8.941	8.772	8.557	8.957	8.915
Fe^{3+}	1.835	1.787	1.480	1.315	1.505	1.312	1.459	1.443	1.362	1.277
Fe^{2+}	6.887	6.841	5.397	5.345	5.647	5.662	5.674	5.362	5.526	5.460
Mn	0.177	0.211	0.079	0.068	0.067	0.055	0.059	0.072	0.056	0.058
Ni	0.014	0.009	0.014	0.016	0.013	0.018	-	0.023	0.016	0.011
Mg	0.973	0.970	2.596	2.709	2.363	2.385	2.338	2.619	2.522	2.537
Zn	0.030	0.034	0.048	0.044	0.045	0.041	0.023	0.049	0.038	0.019
Ca	-	-	-	-	-	-	-	-	-	-
Total Cations	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000
mg	12	12	32	34	30	30	29	33	31	32
Cr'	53	54	56	57	55	58	56	55	57	57
Al'	35	35	35	35	35	34	35	36	34	35
Fe^{3+}'	12	11	9	8	10	8	9	9	9	8

Appendix Table 3.14 (cont.). Electron microprobe analyses of chromite from chromitite layers in East Kimberley intrusions.

Sample no.	92522354	92522354	92522354	92522354	92522354	92522499	92522499	92522499	92522499	92522499
Analysis no.	124321	124322	124323	124324	124328	124332	124333	124336	124338	124339
Intrusion	West McIntosh	West McIntosh	West McIntosh	West McIntosh	West McIntosh	Wilagee	Wilagee	Wilagee	Wilagee	Wilagee
Lithology	Peridotite	Peridotite	Peridotite	Peridotite	Peridotite	Troctolite	Troctolite	Troctolite	Troctolite	Troctolite
SiO_2	<.02	<.02	<.02	<.02	<.02	<.02	0.02	<.02	0.05	0.03
TiO_2	0.48	0.31	0.50	0.42	0.41	0.29	0.23	0.39	0.37	0.29
Al_2O_3	18.53	17.56	15.59	17.76	17.49	27.36	26.65	25.00	22.81	25.35
V_2O_3	0.18	0.23	0.24	0.20	0.21	0.21	0.24	0.24	0.23	0.22
Cr_2O_3	43.66	43.27	45.61	43.85	43.54	32.23	33.14	35.33	37.68	34.77
Fe_2O_3	4.66	7.61	6.79	6.12	6.61	6.84	6.60	7.30	5.43	5.65
FeO	24.29	25.21	25.41	25.09	25.00	29.45	29.56	25.55	30.25	29.83
MnO	0.33	0.32	0.30	0.29	0.33	0.30	0.30	0.27	0.35	0.32
NiO	0.06	<.03	<.03	0.04	0.06	0.13	0.13	0.19	0.09	0.15
MgO	6.68	6.27	6.02	6.30	6.29	4.62	4.39	6.91	3.67	3.98
ZnO	0.19	0.23	0.20	0.23	0.12	0.08	0.16	0.11	<.07	0.13
CaO	<.01	0.02	<.01	<.01	0.02	0.04	0.03	<.01	<.01	0.02
Total	99.06	101.03	100.66	100.31	100.06	101.54	101.45	101.29	100.95	100.74
Oxygens	32	32	32	32	32	32	32	32	32	32
Si	-	-	-	-	-	-	0.006	-	0.013	0.007
Ti	0.095	0.061	0.100	0.083	0.081	0.056	0.045	0.074	0.072	0.057
Al	5.754	5.404	4.860	5.491	5.425	8.127	7.956	7.403	6.982	7.675
V	0.039	0.049	0.051	0.042	0.044	0.042	0.048	0.048	0.049	0.044
Cr	9.093	8.931	9.537	9.093	9.060	6.422	6.638	7.020	7.736	7.061
Fe^{3+}	0.924	1.494	1.352	1.208	1.308	1.298	1.257	1.380	1.062	1.092
Fe^{2+}	5.351	5.503	5.620	5.503	5.503	6.207	6.263	5.370	6.568	6.407
Mn	0.073	0.072	0.067	0.065	0.073	0.064	0.065	0.057	0.078	0.071
Ni	0.012	-	-	0.008	0.012	0.026	0.026	0.038	0.020	0.032
Mg	2.622	2.439	2.373	2.463	2.466	1.734	1.658	2.589	1.420	1.524
Zn	0.037	0.044	0.040	0.044	0.022	0.014	0.030	0.020	-	0.024
Ca	-	0.004	-	-	0.005	0.011	0.008	-	-	0.007
Total Cations	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000	24.000
mg	33	31	30	31	31	22	21	33	18	19
Cr'	58	57	60	57	58	41	42	44	49	45
Al'	36	34	31	35	34	51	50	47	44	48
Fe^{3+}'	6	9	9	8	8	8	8	9	7	7

APPENDIX 4. U-PB GEOCHRONOLOGICAL TABLES

Appendix Table 4.1. Panton intrusion

Appendix Table 4.2. Rose Bore Granite and pegmatite cutting Panton intrusion

Appendix Table 4.3. Springvale intrusion

Appendix Table 4.4. Toby intrusion

Appendix Table 4.5. Sally Malay intrusion (zircon data)

Appendix Table 4.6. Sally Malay intrusion (baddeleyite data)

Appendix Table 4.7. McIntosh intrusion

Appendix Table 4.1. Zircon U-Pb SHRIMP data for a mottled anorthosite (93526033) from the Panton intrusion.

Grain-analysis	*U ppm*	*Th/U*	*$^{206}Pb/^{204}Pb$*	** f206%*	*$^{208}Pb/^{206}Pb$*	*$^{206}Pb/^{238}U$*	±	*$^{207}Pb/^{235}U$*	±	*$^{207}Pb/^{206}Pb$*	±	*$^{207}Pb/^{206}Pb$ age*	±
200.1	2356	1.62	543478	0.00	0.4494	0.3347	0.0074	5.237	0.116	0.1135	0.0000	1856	1
201.1	3224	1.82	330033	0.00	0.4956	0.3333	0.0073	5.218	0.116	0.1135	0.0001	1857	2
202.1	2897	2.04	244499	0.00	0.5687	0.3336	0.0073	5.224	0.116	0.1136	0.0001	1857	2
203.1	3742	2.33	671141	0.00	0.6423	0.3369	0.0074	5.278	0.117	0.1136	0.0001	1858	2
204.1	5930	3.10	1204819	0.00	0.8489	0.3412	0.0075	5.343	0.118	0.1136	0.0000	1858	1
205.1	3529	2.26	444444	0.00	0.6268	0.3274	0.0072	5.114	0.113	0.1133	0.0001	1853	2
206.1	4732	2.19	591716	0.00	0.6195	0.3460	0.0076	5.421	0.120	0.1136	0.0000	1858	1
207.1	4651	2.61	2439024	0.00	0.7300	0.3254	0.0072	5.049	0.112	0.1126	0.0000	1841	1
208.1	3167	1.38	303030	0.00	0.3772	0.3203	0.0071	5.016	0.111	0.1136	0.0001	1857	2
209.1	3580	2.24	371747	0.00	0.6183	0.3318	0.0073	5.183	0.115	0.1133	0.0001	1853	2
210.1	3555	2.39	411523	0.00	0.6552	0.3246	0.0071	5.072	0.112	0.1133	0.0001	1853	2
211.1	3672	1.87	546448	0.00	0.5191	0.3357	0.0074	5.256	0.116	0.1136	0.0000	1857	1
212.1	2874	0.99	255102	0.00	0.2731	0.3284	0.0072	5.141	0.114	0.1136	0.0001	1857	2
213.1	3202	1.68	500000	0.00	0.4790	0.3319	0.0073	5.188	0.115	0.1134	0.0001	1854	2
214.1	4420	2.30	36873	0.04	0.6445	0.3522	0.0078	5.506	0.122	0.1134	0.0000	1855	1
215.1	2400	2.42	171233	0.00	0.6575	0.3326	0.0073	5.203	0.115	0.1135	0.0001	1855	2

* denotes the percentage of common ^{206}Pb in the total measured ^{206}Pb.

Appendix Table 4.2. Zircon U-Pb SHRIMP data for the Rose Bore Granite (113439) and a pegmatite (93526031) cutting the Panton intrusion.

Grain-analysis	*U ppm*	*Th/U*	$^{206}Pb/^{204}Pb$	* *f206%*	$^{208}Pb/^{206}Pb$	$^{206}Pb/^{238}U$	±	$^{207}Pb/^{235}U$	±	$^{207}Pb/^{206}Pb$	±	$^{207}Pb/^{206}Pb$ *age*	±
Rose Bore Granite													
1.1	276	0.36	10062	0.15	0.0983	0.3263	0.0059	5.069	0.098	0.1127	0.0006	1843	9
1.2	302	0.30	30581	0.05	0.0850	0.3205	0.0058	5.016	0.096	0.1135	0.0005	1856	8
2.1	547	0.49	45662	0.03	0.1356	0.3332	0.0060	5.236	0.098	0.1140	0.0003	1864	5
3.1	771	0.27	39231	0.04	0.0701	0.3278	0.0059	5.152	0.096	0.1140	0.0003	1864	4
4.1	270	0.81	26144	0.06	0.2270	0.3339	0.0061	5.262	0.101	0.1143	0.0005	1869	8
5.1	315	0.49	42070	0.04	0.1403	0.3212	0.0058	5.052	0.096	0.1141	0.0004	1865	7
6.1	223	0.52	133156	0.01	0.1469	0.3307	0.0060	5.213	0.102	0.1143	0.0006	1869	9
7.1	460	0.42	7402	0.21	0.1236	0.3098	0.0056	4.837	0.092	0.1133	0.0005	1852	7
7.2	190	0.62	14449	0.11	0.1720	0.3285	0.0060	5.152	0.102	0.1137	0.0007	1860	10
8.1	969	0.27	14453	0.11	0.0781	0.3255	0.0059	5.055	0.094	0.1126	0.0003	1842	4
8.2	1072	0.55	203252	0.00	0.1590	0.3218	0.0058	5.027	0.093	0.1133	0.0002	1853	4
9.1	606	0.32	36819	0.04	0.0868	0.3286	0.0059	5.166	0.096	0.1140	0.0003	1865	5
10.1	350	0.37	57110	0.03	0.1024	0.3309	0.0060	5.187	0.098	0.1137	0.0004	1859	6
11.1	971	0.03	85324	0.02	0.0083	0.3680	0.0067	6.414	0.118	0.1264	0.0002	2048	3
12.1	2185	0.03	14843	0.10	0.0097	0.3335	0.0060	5.268	0.096	0.1146	0.0002	1873	3
13.1	780	0.19	35932	0.04	0.0419	0.3286	0.0059	5.187	0.096	0.1145	0.0003	1872	4
14.1	813	0.50	523560	0.00	0.1400	0.3302	0.0060	5.213	0.097	0.1145	0.0003	1872	4
15.1	232	0.42	41271	0.04	0.1202	0.3233	0.0059	5.054	0.099	0.1134	0.0006	1854	9
16.1	97	0.37	6261	0.25	0.1037	0.3169	0.0059	4.944	0.111	0.1131	0.0012	1850	19
17.1	536	0.37	41322	0.04	0.1036	0.3235	0.0059	5.079	0.095	0.1139	0.0004	1862	6
18.1	403	0.38	69589	0.02	0.1070	0.3328	0.0060	5.227	0.099	0.1139	0.0004	1863	6
19.1	102	0.48	9077	0.17	0.1131	0.3225	0.0060	5.015	0.112	0.1128	0.0012	1845	19
Muscovite pegmatite													
51.1	2179	0.00	1978	0.78	0.0005	0.2967	0.0059	4.553	0.093	0.1113	0.0003	1821	6
52.1	3733	0.00	545	2.83	0.0061	0.3265	0.0064	5.025	0.103	0.1116	0.0004	1826	7

* denotes the percentage of common ^{206}Pb in the total measured ^{206}Pb.

Appendix Table 4.3. Zircon U-Pb SHRIMP data for a leucogabbro (93526022) from the Springvale intrusion.

Grain-analysis	*U ppm*	*Th/U*	$^{206}Pb/^{204}Pb$	* *f206%*	$^{208}Pb/^{206}Pb$	$^{206}Pb/^{238}U$	±	$^{207}Pb/^{235}U$	±	$^{207}Pb/^{206}Pb$	±	$^{207}Pb/^{206}Pb$ *age*	±
300.1	232	1.38	15053	0.10	0.3816	0.3293	0.0073	5.123	0.116	0.1128	0.0003	1846	5
301.1	1314	1.21	106724	0.01	0.3534	0.3330	0.0073	5.213	0.115	0.1135	0.0000	1857	1
302.1	3145	0.66	371747	0.00	0.1813	0.3335	0.0073	5.226	0.115	0.1137	0.0000	1859	1
303.1	566	0.14	46642	0.03	0.0414	0.3329	0.0073	5.209	0.116	0.1135	0.0002	1856	3
304.1	2668	2.00	312500	0.00	0.5487	0.3296	0.0073	5.160	0.114	0.1136	0.0000	1857	1
305.1	795	0.58	72046	0.02	0.1624	0.3318	0.0073	5.181	0.115	0.1133	0.0002	1852	2
306.1	562	0.35	53022	0.03	0.1104	0.3370	0.0074	5.277	0.118	0.1136	0.0002	1857	3
307.1	2527	1.04	51073	0.03	0.2917	0.3291	0.0072	5.154	0.114	0.1136	0.0000	1857	1
308.1	413	1.17	17331	0.09	0.3393	0.3307	0.0073	5.179	0.118	0.1136	0.0004	1857	6
309.1	1050	1.72	45331	0.03	0.4832	0.3248	0.0072	5.083	0.114	0.1135	0.0002	1857	3
310.1	533	1.02	48473	0.03	0.2850	0.3271	0.0072	5.126	0.116	0.1137	0.0003	1859	5
311.1	517	1.14	13321	0.12	0.3626	0.3266	0.0072	5.079	0.115	0.1128	0.0003	1845	5
312.1	962	0.95	42553	0.04	0.2716	0.3245	0.0072	5.069	0.113	0.1133	0.0002	1853	3
313.1	1242	1.34	81699	0.02	0.3635	0.3164	0.0070	4.940	0.110	0.1133	0.0002	1852	3
314.1	1051	1.33	35549	0.04	0.3753	0.3259	0.0072	5.093	0.114	0.1134	0.0002	1854	3
315.1	491	1.09	38536	0.04	0.3120	0.3250	0.0072	5.085	0.115	0.1135	0.0003	1856	5
316.1	286	0.78	19113	0.08	0.2580	0.3189	0.0070	4.984	0.114	0.1134	0.0004	1854	6
317.1	780	1.36	30665	0.05	0.3716	0.3206	0.0071	5.012	0.112	0.1134	0.0002	1854	3

* denotes the percentage of common ^{206}Pb in the total measured ^{206}Pb.

Appendix Table 4.4. Zircon U-Pb SHRIMP data for a quartz gabbro (93526017) from the Toby intrusion.

Grain-analysis	*U ppm*	*Th/U*	*$^{206}Pb/^{204}Pb$*	** f206%*	*$^{208}Pb/^{206}Pb$*	*$^{206}Pb/^{238}U$*	±	*$^{207}Pb/^{235}U$*	±	*$^{207}Pb/^{206}Pb$*	±	*$^{207}Pb/^{206}Pb$ age*	±
1.1	309	0.66	152672	0.01	0.1812	0.3301	0.0073	5.161	0.115	0.1134	0.0002	1854	3
2.1	117	0.50	36536	0.04	0.1372	0.3327	0.0074	5.214	0.119	0.1137	0.0004	1859	7
3.1	85	0.47	32321	0.05	0.1269	0.3374	0.0075	5.259	0.122	0.1131	0.0005	1849	8
4.1	192	0.66	157233	0.01	0.1807	0.3380	0.0075	5.312	0.119	0.1140	0.0003	1864	4
5.1	129	0.57	124224	0.01	0.1569	0.3282	0.0073	5.122	0.118	0.1132	0.0005	1851	8
6.1	150	0.71	56818	0.03	0.1933	0.3301	0.0073	5.188	0.117	0.1140	0.0003	1864	5
7.1	155	0.59	42717	0.04	0.1631	0.3392	0.0075	5.297	0.120	0.1133	0.0003	1853	5
8.1	177	0.59	24242	0.06	0.1619	0.3218	0.0071	5.017	0.114	0.1131	0.0003	1849	6
9.1	118	0.48	31676	0.05	0.1351	0.3312	0.0073	5.195	0.120	0.1138	0.0005	1860	8
10.1	378	0.60	71225	0.02	0.1678	0.3275	0.0072	5.114	0.115	0.1133	0.0002	1852	4
11.1	157	0.62	35448	0.04	0.1684	0.3212	0.0071	4.999	0.114	0.1129	0.0004	1847	6
12.1	454	1.01	523560	0.00	0.2807	0.3271	0.0072	5.122	0.114	0.1136	0.0002	1857	3
13.1	321	0.92	60496	0.03	0.2527	0.3331	0.0073	5.187	0.116	0.1130	0.0003	1847	4
13.2	459	0.93	77101	0.02	0.2558	0.3235	0.0071	5.066	0.113	0.1136	0.0002	1857	3
14.1	425	0.99	431034	0.00	0.2738	0.3245	0.0072	5.096	0.114	0.1139	0.0002	1862	4
15.1	389	0.81	143678	0.01	0.2247	0.3318	0.0073	5.199	0.116	0.1137	0.0002	1859	4
16.1	111	0.52	16321	0.09	0.1423	0.3251	0.0072	5.042	0.117	0.1125	0.0005	1840	9
17.1	219	0.62	42827	0.04	0.1732	0.3330	0.0074	5.164	0.117	0.1125	0.0004	1840	6
18.1	111	0.52	69156	0.02	0.1422	0.3257	0.0072	5.089	0.118	0.1134	0.0005	1854	8
19.1	385	0.95	65189	0.02	0.2621	0.3336	0.0074	5.211	0.117	0.1133	0.0003	1853	4
20.1	179	0.63	22920	0.07	0.1751	0.3328	0.0074	5.179	0.118	0.1129	0.0004	1846	6
21.1	188	0.59	21061	0.07	0.1627	0.3292	0.0073	5.135	0.117	0.1131	0.0004	1850	6
22.1	99	0.51	12158	0.13	0.1400	0.3277	0.0073	5.088	0.120	0.1126	0.0006	1842	10
23.1	169	0.55	27108	0.06	0.1504	0.3229	0.0071	5.046	0.116	0.1133	0.0005	1853	8

* denotes the percentage of common ^{206}Pb in the total measured ^{206}Pb.

Appendix Table 4.5. Zircon U-Pb SHRIMP data for a mottled anorthosite (94522307) from the Sally Malay intrusion.

Grain-analysis	*U ppm*	*Th/U*	$^{206}Pb/^{204}Pb$	* *f206%*	$^{208}Pb/^{206}Pb$	$^{206}Pb/^{238}U$	±	$^{207}Pb/^{235}U$	±	$^{207}Pb/^{206}Pb$	±	$^{207}Pb/^{206}Pb$ *age*	±
2.1	59	0.77	INF	-0.00	0.2249	0.3216	0.0064	5.000	0.111	0.1128	0.0009	1845	14
3.1	73	0.61	38926	0.04	0.1773	0.3210	0.0064	4.981	0.104	0.1125	0.0005	1841	8
4.1	113	0.51	35423	0.04	0.1451	0.3165	0.0063	4.913	0.100	0.1126	0.0004	1841	6
5.1	582	0.89	149254	0.01	0.2564	0.3227	0.0064	5.011	0.100	0.1126	0.0001	1842	2
5.2	411	0.75	INF	-0.00	0.2156	0.3119	0.0215	4.871	0.338	0.1133	0.0002	1853	4
6.1	105	1.14	29412	0.05	0.3310	0.3236	0.0064	5.002	0.103	0.1121	0.0004	1834	7
7.1	98	0.81	22548	0.07	0.2364	0.3183	0.0063	4.926	0.102	0.1123	0.0005	1836	7
8.1	164	1.07	INF	-0.01	0.3081	0.3139	0.0062	4.907	0.099	0.1134	0.0003	1854	4
8.2	199	1.19	INF	-0.03	0.3469	0.3311	0.0229	5.147	0.358	0.1127	0.0005	1844	7
9.1	82	1.00	30618	0.05	0.2869	0.3253	0.0065	5.063	0.106	0.1129	0.0005	1847	8
10.1	107	0.53	65104	0.02	0.1498	0.3242	0.0064	5.019	0.103	0.1123	0.0004	1836	6
10.2	132	0.38	35002	0.04	0.1085	0.3026	0.0060	4.687	0.096	0.1123	0.0004	1838	6
11.1	80	0.98	77160	0.02	0.2834	0.3229	0.0064	5.009	0.103	0.1125	0.0004	1840	6
12.1	107	0.93	46598	0.03	0.2677	0.3192	0.0063	4.972	0.103	0.1130	0.0005	1848	7
12.2	99	0.78	17649	0.09	0.2248	0.3366	0.0067	5.232	0.108	0.1127	0.0004	1844	7
13.1	1316	2.21	746269	0.00	0.6334	0.3208	0.0063	4.975	0.099	0.1125	0.0000	1840	1
13.2	1096	2.34	136799	0.01	0.6787	0.3212	0.0222	5.006	0.346	0.1130	0.0002	1849	3
13.3	975	1.36	77220	0.02	0.3945	0.3596	0.0248	5.604	0.388	0.1130	0.0002	1849	3
14.1	108	0.84	19881	0.08	0.2413	0.3220	0.0064	4.993	0.103	0.1125	0.0004	1839	7
15.1	100	1.07	24863	0.06	0.3165	0.3061	0.0061	4.734	0.098	0.1122	0.0005	1835	8
16.1	165	0.95	64977	0.02	0.2761	0.3165	0.0063	4.907	0.099	0.1125	0.0003	1839	4
18.1	70	0.66	17277	0.09	0.1899	0.3168	0.0063	4.931	0.104	0.1129	0.0006	1847	9
25.1	1279	1.01	60716	0.03	0.2904	0.3348	0.0231	5.220	0.361	0.1131	0.0001	1850	2

* denotes the percentage of common ^{206}Pb in the total measured ^{206}Pb.
INF = very low ^{204}Pb, not measurable.

Appendix Table 4.6. Baddeleyite U-Pb SHRIMP data for a mottled anorthosite (94522307) from the Sally Malay intrusion.

Grain-analysis	*U ppm*	*Th/U*	$^{206}Pb/^{204}Pb$	* *f206%*	$^{208}Pb/^{206}Pb$	$^{206}Pb/^{238}U$	±	$^{207}Pb/^{235}U$	±	$^{207}Pb/^{206}Pb$	±	$^{207}Pb/^{206}Pb$ *age*	±
1.1	124	0.00	243309	0.00	0.0010	0.2878	0.0057	4.464	0.093	0.1125	0.0006	1840	9
19.1	32	0.00	9741	0.16	0.0004	0.3307	0.0228	5.078	0.370	0.1114	0.0018	1822	30
20.1	61	0.00	19223	0.08	0.0041	0.2993	0.0207	4.720	0.340	0.1144	0.0015	1870	24
21.1	61	0.02	45704	0.03	0.0074	0.3736	0.0258	5.820	0.411	0.1130	0.0010	1848	16
22.1	89	0.02	19253	0.08	0.0057	0.3143	0.0217	4.904	0.343	0.1132	0.0007	1851	11
23.1	42	0.00	5493	0.28	-0.0005	0.3295	0.0228	5.078	0.368	0.1118	0.0017	1828	28
24.1	47	0.00	8283	0.19	0.0013	0.3255	0.0225	5.054	0.358	0.1126	0.0011	1842	17
26.1	66	0.00	15380	0.10	0.0011	0.3103	0.0214	4.771	0.334	0.1115	0.0007	1825	11
27.1	71	0.00	21983	0.07	0.0018	0.3104	0.0214	4.858	0.342	0.1135	0.0009	1857	14
27.2	58	0.00	22085	0.07	0.0011	0.3008	0.0208	4.668	0.333	0.1126	0.0013	1841	21
28.1	61	0.01	9813	0.16	0.0022	0.3229	0.0223	4.994	0.352	0.1122	0.0009	1835	14
29.1	54	0.00	29595	0.05	0.0039	0.3075	0.0212	4.773	0.336	0.1126	0.0009	1841	15
31.1	41	0.00	11130	0.14	0.0023	0.3222	0.0222	4.931	0.349	0.1110	0.0010	1816	17
32.1	67	0.00	INF	-0.07	0.0042	0.3334	0.0230	5.221	0.370	0.1136	0.0011	1857	18
32.2	41	0.00	15470	0.10	-0.0002	0.3500	0.0242	5.453	0.391	0.1130	0.0014	1848	22
33.1	29	0.00	283286	0.00	0.0052	0.2952	0.0204	4.573	0.323	0.1123	0.0010	1838	16
34.1	30	0.00	16375	0.09	0.0014	0.3550	0.0245	5.504	0.391	0.1124	0.0012	1839	19
35.1	47	0.00	74019	0.02	0.0018	0.3252	0.0224	5.056	0.354	0.1128	0.0007	1845	11
36.1	41	0.00	14808	0.10	0.0007	0.3569	0.0246	5.574	0.395	0.1133	0.0011	1853	17
37.1	68	0.01	32300	0.05	0.0039	0.3379	0.0233	5.231	0.366	0.1123	0.0007	1837	10
38.1	173	0.00	INF	-0.00	0.0032	0.3125	0.0216	4.874	0.338	0.1131	0.0003	1850	5
39.1	57	0.00	36510	0.04	0.0007	0.3543	0.0245	5.520	0.388	0.1130	0.0008	1848	13
40.1	37	0.00	17182	0.09	0.0023	0.3166	0.0219	4.922	0.348	0.1128	0.0010	1844	16
41.1	59	0.01	23618	0.07	0.0103	0.3089	0.0213	4.835	0.339	0.1135	0.0008	1857	12
42.1	47	0.00	12726	0.12	0.0000	0.3205	0.0221	4.966	0.350	0.1124	0.0009	1838	14
43.1	60	0.00	10326	0.15	0.0008	0.3374	0.0233	5.200	0.366	0.1118	0.0009	1829	14
44.1	39	0.00	INF	-0.03	0.0052	0.2974	0.0205	4.610	0.329	0.1124	0.0013	1839	20
45.1	107	0.00	21209	0.07	0.0024	0.3231	0.0223	5.036	0.351	0.1131	0.0005	1849	8
46.1	57	0.00	13401	0.12	-0.0002	0.3266	0.0225	4.997	0.353	0.1110	0.0009	1815	15
48.1	139	0.01	42626	0.04	0.0052	0.3199	0.0221	5.017	0.349	0.1138	0.0004	1860	6

* denotes the percentage of common ^{206}Pb in the total measured ^{206}Pb.
INF = very low ^{204}Pb, not measurable.

Appendix Table 4.7. Zircon U-Pb SHRIMP data for a paramigmatite (93525043) from the McIntosh intrusion.

Grain-analysis	*U ppm*	*Th/U*	$^{206}Pb/^{204}Pb$	* *f206%*	$^{208}Pb/^{206}Pb$	$^{206}Pb/^{238}U$	±	$^{207}Pb/^{235}U$	±	$^{207}Pb/^{206}Pb$	±	$^{207}Pb/^{206}Pb$ *age*	±
Leucosome—younger zircons													
111.1	369	1.18	14285714	0.00	0.3264	0.3221	0.0071	4.979	0.111	0.1121	0.0002	1834	3
111.2	351	1.04	102775	0.02	0.2917	0.3225	0.0071	4.966	0.112	0.1117	0.0003	1827	4
114.1	362	0.98	81566	0.02	0.2697	0.3131	0.0069	4.820	0.109	0.1116	0.0003	1826	5
114.2	293	0.59	108225	0.01	0.1603	0.3119	0.0069	4.800	0.108	0.1116	0.0003	1826	5
114.3	374	0.81	34423	0.05	0.2285	0.3275	0.0072	5.088	0.116	0.1127	0.0004	1843	6
115.1	221	0.33	4558	0.34	0.0929	0.3227	0.0071	4.963	0.115	0.1115	0.0005	1825	8
116.1	424	0.90	65189	0.02	0.2476	0.3259	0.0072	5.020	0.113	0.1117	0.0002	1827	4
116.2	376	0.90	51546	0.03	0.2486	0.3069	0.0068	4.729	0.107	0.1118	0.0004	1828	6
120.1	444	1.07	65189	0.02	0.2971	0.3246	0.0072	5.026	0.113	0.1123	0.0002	1837	4
125.1	350	0.93	17513	0.09	0.2603	0.3311	0.0073	5.122	0.118	0.1122	0.0004	1835	7
126.1	179	0.67	22302	0.07	0.1892	0.3133	0.0070	4.829	0.113	0.1118	0.0006	1828	10
126.2	173	0.40	21160	0.07	0.1118	0.3072	0.0068	4.731	0.109	0.1117	0.0005	1827	8
131.1	232	0.34	18889	0.08	0.0962	0.3101	0.0069	4.776	0.110	0.1117	0.0005	1827	7
131.2	254	0.93	271003	0.00	0.2584	0.3140	0.0069	4.849	0.110	0.1120	0.0004	1832	6
Palaeosome—older zircons													
100.1	210	0.28	INF	-0.01	0.0768	0.3456	0.0076	5.486	0.126	0.1151	0.0005	1882	8
101.1	201	0.29	47348	0.03	0.0785	0.3429	0.0076	5.425	0.122	0.1147	0.0003	1876	4
102.1	231	0.57	55249	0.03	0.1579	0.4115	0.0091	8.066	0.180	0.1422	0.0003	2254	3
103.1	393	0.47	168919	0.00	0.1290	0.3306	0.0073	5.193	0.116	0.1139	0.0002	1863	3
104.1	369	0.35	163399	0.00	0.1018	0.3259	0.0072	5.140	0.115	0.1144	0.0002	1870	3
105.1	193	0.22	71633	0.02	0.0625	0.3319	0.0073	5.266	0.119	0.1151	0.0003	1881	5
106.1	382	0.70	273224	0.00	0.1948	0.3387	0.0075	5.321	0.119	0.1139	0.0002	1863	4
107.1	202	0.40	35855	0.04	0.1121	0.3285	0.0073	5.151	0.116	0.1137	0.0003	1860	5
108.1	377	0.37	119760	0.01	0.1030	0.3353	0.0074	5.287	0.118	0.1144	0.0002	1870	4
109.1	260	0.45	46882	0.03	0.1258	0.3270	0.0072	5.141	0.116	0.1140	0.0003	1865	5
110.1	360	0.54	56786	0.03	0.1475	0.3205	0.0071	5.037	0.113	0.1140	0.0002	1864	4
112.1	349	0.43	39124	0.04	0.1205	0.3270	0.0072	5.147	0.115	0.1142	0.0002	1867	4
113.1	449	0.46	38447	0.04	0.1287	0.3258	0.0072	5.131	0.115	0.1142	0.0002	1867	3
117.1	513	0.68	195313	0.00	0.1914	0.3304	0.0073	5.180	0.116	0.1137	0.0002	1859	4
118.1	990	0.39	94162	0.02	0.1092	0.4857	0.0107	11.754	0.261	0.1755	0.0002	2611	2
119.1	476	0.25	32394	0.05	0.0687	0.3315	0.0073	5.201	0.117	0.1138	0.0003	1860	4
121.1	271	0.48	775194	0.00	0.1369	0.3326	0.0073	5.218	0.118	0.1138	0.0003	1861	5
122.1	218	0.40	33580	0.05	0.1086	0.3291	0.0073	5.153	0.117	0.1136	0.0004	1857	6
123.1	576	0.91	72622	0.02	0.2534	0.3211	0.0071	5.023	0.112	0.1135	0.0002	1855	3
124.1	281	0.18	657895	0.00	0.0498	0.3241	0.0072	5.127	0.117	0.1147	0.0004	1876	6
127.1	336	0.59	16946	0.09	0.1648	0.3234	0.0071	5.058	0.115	0.1134	0.0004	1855	6
128.1	229	0.42	31201	0.05	0.1173	0.3345	0.0074	5.397	0.124	0.1170	0.0004	1911	7
129.1	270	0.32	7610	0.20	0.0949	0.2928	0.0065	4.595	0.106	0.1138	0.0005	1862	7
130.1	176	0.41	58207	0.03	0.1139	0.3273	0.0073	5.190	0.120	0.1150	0.0005	1880	8

* denotes the percentage of common ^{206}Pb in the total measured ^{206}Pb. INF = very low ^{204}Pb, not measurable.

APPENDIX 5. MAGNETIC SUSCEPTIBILITY TABLES

Code: Four-digit number, comprising year of collection (92), and AGSO project code (52; LAB for some samples).

Sample: Four-digit sample number.

Fr: Fraction of sample used.

E-AMG: Australian Map Grid (AMG) co-ordinates comprising 6 digit easting.

N-AMG: Australian Map Grid (AMG) co-ordinates comprising 7 digit northing.

Lithology: Simplified field description of lithology.

Unit: Name of formation, intrusion, informal rock unit.

Magnetic susceptibility [Field] (SI [10^{-6}]): As measured by R.D. Shaw on exposures of rock in the field. Commonly, in this particular terrain, the wide variation between field and laboratory measurements is a result of heterogeneous variations in the content of the magnetic mineral, which is generally magnetite.

Estimated magnetite content %: Approximate estimate of the content of 'magnetite' in percent; assumes 31 415 [SI *10^{-6}] = 1% of 'magnetite'; uses field values.

Magnetic susceptibility [Laboratory] (SI [10^{-6}]): Normalised SI*10^{-6}; measured in AGSO Laboratory Black Mountain, Canberra, on cored samples.

NRM (mA/m): Normal Remanent Magnetism; measured in AGSO Laboratory Black Mountain, Canberra, on cored samples.

NRM inclination: Normal Remanent Magnetism (NRM) measured with respect to the foliation on hand specimens oriented with a Brunton compass. Basic cleaning of 2.5 cm drilll core samples only; not suitable for palaeomagnetic studies; used to give an indication of whether NRM is an important parameter or not.

Bulk specific gravity: Equivalent to dry density; units are g/cc; 1.0 g/cm^3 is equivalent to one tonne per cubic metre; analyses by K. Rouse & S. Burrows, AMDEL Report L5863/94; ASTM C97–83 standard test method by water absorption.

Gamma–ray (c/s): Total counts/second; relative spectrometric (radiometric) measurement made in field by hand-held instrument while in a standing position.

Notes: Information that could be important to understanding the measured sample/site values.

Appendix Table 5. Measured physical properties of rock samples from the Dixon Range and Gordon Downs 1:250 000 Sheet areas.

Code	*Sample*	*Fr*	*E-AMG*	*N-AMG*	*Lithology*	*Unit*	*Magnetic suscept. [Field] (SI [10^{-6}])*	*Estimated magnetite content (%)*	*Magnetic suscept. [Laborat.] (SI [10^{-6}])*	*NRM (mA/m)*	*NRM inclin.*	*Bulk specific gravity*	*Gamma-ray (c/s)*	*Notes*
9252	2048		377750	8035380	Amphibolite	Tickalara Metamorphics	430	0.01						
9252	2057		374080	8033260	Gabbro	Panton intrusion	410	0.01						
9252	2070		373580	8036190	Magnetite gabbro	Panton intrusion	12 800	0.4						
9252	2082	8	376050	8036770	Plagioclase peridotite	Panton intrusion	510	0.02				2.97		SiO_2 - 38.1 wt%, MgO - 21.8%, $FeO+Fe_2O_3$ - 8.4%, Al_2O_3 - 15.2%
9252	2085	8	376100	8036700	Serpentinised dunite	Panton intrusion	4470	0.15				2.95		SiO_2 - 35 wt%, MgO - 43.1%, $FeO+Fe_2O_3$ - 13.1%, Al_2O_3 - 4.3%
9252	2087	2	376200	8036600	Tremolite-actinolite ultramafic rock	Panton intrusion						2.98		
9252	2097	1	376440	8036190	Gabbro	Panton intrusion	340	0.01						
9252	2106	7	376340	8035800	Anorthosite	Panton intrusion	50	0.00						SiO_2 - 48 wt%, MgO - 2.2%, $FeO+Fe_2O_3$ - 2.5%, Al_2O_3 - 28.5%
9252	2108	5	376340	8035720	Anorthosite	Panton intrusion	250	0.01						
9252	2109	7	375930	8035160	Anorthosite	Panton intrusion	1020	0.05				2.80		SiO_2 - 46.7 wt%, MgO - 2.5, $FeO+Fe_2O_3$ - 5.4%, Al_2O_3 - 27.2%

9252	2159		376860	8031070	Peridotite	Unnamed intrusion	11 000	0.35	3.02	
9252	2205	9	384500	8043350	Magnetite gabbro	McIntosh intrusion	42 500	1.35		SiO_2 - 47.9 wt%, MgO - 6.9%, $FeO+Fe_2O_3$ - 11.7%, Al_2O_3 - 17.2%
9252	2206		384660	8043860	Magnetite gabbro	McIntosh intrusion	6970	0.22		
9252	2262		382990	8032080	Metabasalt	Tickalara Metamorphics	600	0.02		
9252	2263		382990	8032080	Hybrid granite	Tickalara Metamorphics	160	0.01		
9252	2268	8	383320	8034250	Troctolite	McIntosh intrusion	1520	0.05	3.24	SiO_2 - 42.6 wt%, MgO - 22.7%, $FeO+ Fe_2O_3$ - 15.1%, Al_2O_3 - 9%
9252	2269	9	383450	8034540	Olivine gabbronorite	McIntosh intrusion	2030	0.06	3.22	SiO_2 - 41.2 wt%, MgO - 27.7%, $FeO+ Fe_2O_3$ - 16.9%, Al_2O_3 - 6.3%
9252	2270	9	383660	8034750	Olivine gabbronorite	McIntosh intrusion	1800	0.06		
9252	2287	9	383650	8038130	Olivine gabbro	McIntosh intrusion	1760	0.06		SiO_2 - 47.1 wt%, MgO - 10.4%, $FeO+ Fe_2O_3$ - 6.9%, Al_2O_3 - 18.6%
9252	2288	9	383660	8038220	Olivine gabbronorite	McIntosh intrusion	1770	0.06		
9252	2358	8	381060	8043640	Anorthosite	West McIntosh intrusion	70	>0.01		
9252	2398		388120	8051380	Gabbro	Melon Patch intrusion	520	0.02		

9252	2435		387000	8043620	Gabbro	Wild Dog Creek intrusion	210	0.01					
9252	2447		354200	8034900	Cordierite-magnetite -sillimanite metasediment	Raft in Springvale intrusion	15 400	0.5					Cordierite, magnetite, sillimanite
9252	2452	5	360050	8033090	Biotite granite	Paperbark supersuite	210	0.01					SiO_2 - 70.3 wt % MgO - 0.4%, FeO+ Fe_2O_3 - 4.1%, Al_2O_3 - 13.3%
9252	2486		360220	8032490	Granite	Paperbark supersuite	13 100	0.42					
9252	2510		362350	8052150	Biotite granite	Paperbark supersuite	170	0.01					
9252	2520	9	357650	8056450	Biotite olivine gabbro	Toby intrusion	12 000	0.38					SiO_2 - 49 wt %, MgO - 8.3%, FeO+ Fe_2O_3 - 10.9%, Al_2O_3 - 16.0%
9252	2546		374060	8022260	Magnetite gabbro	Panton River intrusion	11 400	0.35					
9252	5018	A	376900	7975000	Felsic volcaniclastic rock	Biscay Formation	350	0.01				27	
9252	5025	A	377600	7971000	Black chert	Biscay Formation	100	0.00				2	
9252	5029		377200	7962900	Turbiditic sandstone	Olympio Formation	300	0.01	338.41	0.2583	-0.7	2.69	14
9252	5044		378000	7961000	Siltstone	Ranford Formation	300	0.01					19
9252	5064		408300	7963900	Basalt	Antrim Plateau Basalt	20 000	0.65					13 With biotite and chlorite, auto-metamorphism?
9252	5071		375270	7955800	Metabasalt	Biscay Formation	800	0.03	1520.15	21981	44.7	2.99	5
9252	5073	A	371240	8049400	Gabbro	Togo intrusion	400	0.01					27 Sheared; within Springvale Fault Zone

9252	5073	B	371240	8049400	Granite	Sandy Dam Monzogranite	50	>0.01						
9252	5106	A	402800	8064500	Deformed metabasalt	Tickalara Metamorphics	600	0.02	410.27	0.9678	-57	2.72		
9252	5121		372200	8032700	Granite	Togo Monzogranite	6000	0.20	9204.81	404.82	-33.9	2.68	7	
9252	5122		370700	8033500	Leucogranite	Corrara Granite	1300	0.04					7	Sally Downs supersuite
9252	5126		364900	8029900	Deformed granite	Mussell Creek Granite	250	0.01	117.65	18.168	-20.9	2.64	16	Sheared, porphyritic
9252	5128		363000	80310500	Granite	Mussell Creek Granite	500	0.02					15	Sheared, porphyritic
9252	5129		363330	80311400	Deformed granite	Mussell Creek Granite	900	0.03	129.84	0.08379	0	2.60	15	Sheared, porphyritic
9252	5133		357800	8032200	Olivine gabbro	Springvale intrusion (east)	1700	0.05	2874.25	5808.9	73.5	3.17	2	
9252	5136		350100	8035100	Granite	Top Water Tonalite	300	0.01	220.87	0.2436	-57.1	2.69	14.5	
9252	5138	A	342000	8048500	Felsic Volcanics	Whitewater Volcanics	100	>0.01						
9252	5138	B	345500	8036200	Metasediments	Marboo Formation	100	>0.01					10	
9252	5143		370500	7982000	Turbiditic sandstone	Biscay Formation	800	0.03	1017.83	47.899	-60.3	3.04	2	
9252	5145		368600	7982000	Black siltstone	Olympio Formation	400	0.01	293.06	1.368	-57	2.99	20	
9252	5148		363600	7980700	Sandstone	Moola Bulla Formation	200	0.01	86.28	1.0796	-37.8		19	
9252	5150		362600	7982800	Metabasalt	Carson Volcanics	25 000	0.80	54 434.72	3832.7	-49.8	2.98	4	
9252	5154	D	347800	7974800	Ironstone	Koongie Park Formation	60 000	1.90					13	Rockhole Prospect; weathered samples can be low (200-400)

9252	5157		397200	8070800	Metadolerite	Woodward Dolerite?	400	0.01	777.56	15.128	8.7	2.95	2	Post-tectonic, of the Woodward Dolerite type
9252	5158		397200	8070800	Sillimanite gneiss	Tickalara Metamorphics	60 000	1.90	76 706.75	13 862	-61.3	2.79	4	
9252	5160		387000	8068700	Tonalite	Mabel Downs Tonalite	40 000	1.28	33 939.35	35 688	-74.8	2.71	3.5	Foliated
9252	5162		403700	8074700	Granodiorite	Mabel Downs Tonalite	20 000	0.65	24 277.69	282.13	-14.7	2.72	3	
9252	5169		412800	8073900	Basalt	'Fish Hole Dolerite'	6500	0.20	846.26	9.658	-23.6	3.04	3	
9252	5173		418700	8076900	Turbiditic sandstone	Olympio Formation	500	0.02	1863.97	36.965	-10.8	2.67	19	
9252	5175		423800	8061500	Basalt	Antrim Plateau Basalt	15 000	0.48	34 839.53	3578.3	-16.3	2.83	4	
9252	5179	A	422815	8058289	Basalt	Antrim Plateau Basalt	30 000	0.95	34 697.40	747.45	12.3	2.92	5	
9252	5180	A	422800	8058300	Amydaloidal basalt	Antrim Plateau Basalt	2500	0.08	1191.66	54.712	-52.6	2.28	13	Weathered?
9252	5181		422800	8058300	Amydaloidal basalt	Antrim Plateau Basalt	1750	0.06	35 304.28	1216.09	-54.2	2.89	8	
9252	5188		407500	8077600	Diorite	Mabel Downs Tonalite	2500	0.08						Foliated, with leucosomes
9252	5192	A	400600	8081500	Sillimanite gneiss	Tickalara Metamorphics	6000	0.20	1532.44	335.86	25.6	2.74	5	
9252	5192	B	400600	8081500	Sillimanite gneiss	Tickalara Metamorphics	5000	0.16	13 173.26	4290.9	-3		4	
9252	5194		419600	8114200	Hornblende tonalite	Mabel Downs Tonalite	3500	0.1	3600.93	1687.6	-76.7	2.80	6	Foliated, with leucosomes
9252	5195		420600	8094500	Dolerite	Tickalara Metamorphics	600	0.02	838.02	0.0347	-63	3.02	5	Foliated, Woodward Dolerite'

9252	5197		420300	8095600	Diorite	McHale Granite	10 000	0.32					Hornblende
9252	5199	A	400500	8081600	Pyroxene granulite	Tickalara Metamorphics	400	0.01	367.35	88.43	-9.4	2.75	Fine-grained, hybrid rock; +biotite
9252	5199	B	400500	8081600	Pyroxene granulite	Tickalara Metamorphics	400	0.01	1282.13	176.88	41.4	3.07	Hybrid rock
9252	5210	A	407100	8096090	Sillimanite gneiss	Tickalara Metamorphics	15 000	0.48					2
9252	5210	B	407100	8096090	Garnet-sillimanite gneiss	Tickalara Metamorphics	100	>0.01					2
9252	5210	C	407100	8096090	Para-amphibolite	Tickalara Metamorphics	200	>0.01	239.48	4.43	-6.6	2.77	2
9252	5211		408100	8061550	Para-amphibolite	Tickalara Metamorphics	300	0.01	782.97	3.5283	5.9	2.85	2
9252	5212		408500	8061500	Metabasalt	'Fish Hole Dolerite'	400	0.01	792.90	3.718	-62.2	2.80	1
9252	5215	A	409300	8064000	Metabasalt	'Fish Hole Dolerite'	300	0.01	989.07	6735	71.1		6
9252	5216	A	409400	8064000	Para-amphibolite	Tickalara Metamorphics	700	0.02	822.79	0.0243	9	2.93	2
9252	5217		410300	8067400	Banded magnetite quartzite	Tickalara Metamorphics	325 000	10.35					2
9252	5219		410600	8069000	Vein quartz	Halls Creek Fault	>50	>0.01					0.1
9252	5223		373400	8057300	Granite	Togo Monzogranite	50	>0.01					13 Sheared, porphyritic
9252	5224		373700	8057200	Biotite gabbronorite	Toby intrusion	700	0.02					4 Dolerite
9252	5226	A	373300	8057600	Granite	Togo Monzogranite	50	>0.01					16
9252	5226	B	373300	8057600	Granite eluvium	Togo Monzogranite	100	>0.01					14
9252	5227		371900	8058000	Granite	Togo Monzogranite	300	>0.01					16 Sheared, porphyritic

9252	5228	A	373700	8059000	Biotite gabbronorite	Toby intrusion	200	>0.01				6	Dolerite
9252	5231		373800	8061900	Granite	Togo Monzogranite	400	0.01				5	Sheared, porphyritic
9252	5232		373600	8061900	Granite	Togo Monzogranite	300	0.01				12	Sheared, porphyritic
9252	5234		283170	8063000	Metadiorite	Tickalara Metamorphics	750	0.02	1079.87	10.857	49.6	3.08	
9252	5235		283170	8063000	Tonalite	Mabel Downs Tonalite	2500	0.08				5	
9252	5160	C	387000	8068700	Tonalite	Mabel Downs Tonalite	40 000	1.27	34 340.00			2.71	3.5 Duplicate analyses
LAB	5160	C	387000	8068700	Tonalite	Mabel Downs Tonalite	40 000	1.28	34 680.00			2.71	3.5 Duplicate analyses
LAB	5158	C	397200	8070800	Sillimanite gneiss	Tickalara Metamorphics	60 000	1.9	77 310.00			2.79	4 Duplicate analyses
LAB	5158	C	397200	8070800	Sillimanite gneiss	Tickalara Metamorphics	60 000	1.9	77 780.00			2.79	4 Duplicate analyses
LAB	5211	C	408100	8061550	Para-amphibolite	Tickalara Metamorphics	300	0.01	746.80			2.85	2 Duplicate analyses
LAB	5211	C	408100	8061550	Para-amphibolite	Tickalara Metamorphics	300	0.01	741.50			2.85	2 Duplicate analyses
LAB	5126	C	364900	8029900	Granite	Musell Creek Granite	250	0.01	117.30			2.64	16 Duplicate analyses
LAB	5126	C	364900	8029900	Granite	Musell Creek Granite	250	0.01	115.40			2.64	16 Duplicate analyses
LAB	5071	C	375270	7955800	Metabasalt	Biscay Formation	800	0.03	1583.00				5 Duplicate analyses
LAB	5071	C	375270	7955800	Metabasalt	Biscay Formation	800	0.03	1594.00				5 Duplicate analyses

APPENDIX 6. NATIONAL GEOSCIENCE MAPPING ACCORD BIBLIOGRAPHY OF THE EAST KIMBERLEY

The following publications (including abstracts), maps, and commentaries relating to the East Kimberley have been produced by AGSO and GSWA within the framework of the National Geoscience Mapping Accord Kimberley–Arunta project. The 118 entries are post-1991 and have been alphabetically grouped into seven categories:

- geochemistry
- geochronology
- geological maps and map commentaries
- geophysics and remote sensing
- mineralisation
- regional geology
- structure and tectonics

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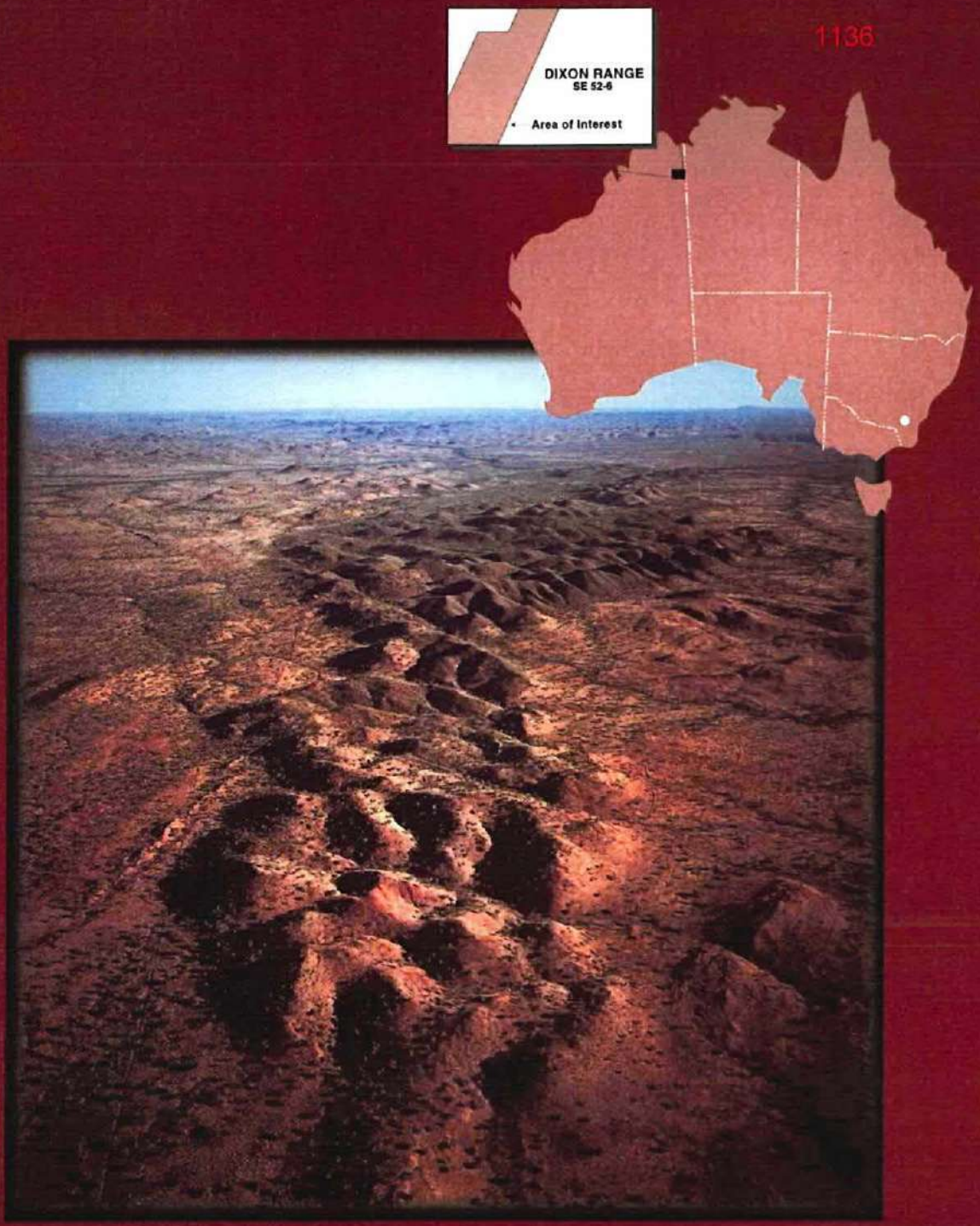
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The Palaeoproterozoic layered mafic–ultramafic intrusions in the Halls Creek Orogen of the East Kimberley, Western Australia, represent one of the most extensively mineralised igneous associations of their type in Australia. They contain a range of magmatic and hydrothermal deposits of platinum-group elements, chromium, nickel, copper, cobalt, titanium, vanadium, iron, and gold.

This *Bulletin* presents the results of a collaborative AGSO/GSWA/Monash University/minerals industry study of the geology and mineral potential of these intrusions. It is an essential reference for those involved in the exploration of layered mafic–ultramafic intrusions, the geology of the Halls Creek Orogen and its environs, or the study of Precambrian orogenic terranes.

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ABN: 47 095 792 288

Level 9, 553 Hay St
Perth, WA 6000

T: +61 8 6374 1700
E: info@panres.com

ASX ANNOUNCEMENT
05 October 2023

Savannah Nickel Project
2023 Mineral Resource and Ore Reserve Statement

KEY POINTS

- Total Savannah Project Mineral Resources (including Savannah North) as at 1 September 2023 increased to 14.57Mt @ 1.49% Ni, 0.67% Cu and 0.10% Co for 216.9kt Ni, 97.6kt Cu and 14.0kt Co contained metal
- The focused drilling carried out in Savannah (above and below the 900 fault), resulted in a 42% increase of contained nickel metal in Mineral Resources at Savannah (excluding Savannah North)
- Total Savannah Project Ore Reserve (including Savannah North) as at 1 September 2023 stands at 8.7Mt @ 1.23% Ni, 0.56% Cu and 0.08% Co for 106.8kt Ni, 48.7kt Cu and 7.4kt Co contained metal
- Increase of 4,100t contained nickel metal in Savannah Project Ore Reserve after mining depletion in FY23
- The Mineral Resource update incorporates the addition of 133 (17,754m) new infill grade control and resource definition holes at Savannah North and the addition of 43 (7,778m) holes at Savannah
- The Savannah and Savannah North orebodies remain open along strike and at depth, providing the potential to bring additional material into future Mineral Resources and Ore Reserves as exploration continues into FY24

Panoramic Resources Limited (ASX: PAN) (**Panoramic** or **the Company**) is pleased to report the 2023 Mineral Resource and Ore Reserve statement for the Savannah Nickel Project (**Savannah** or **the Project**). The Project consists of the large Savannah North deposit and the more depleted Savannah deposit which has been classified into two areas, above and below the 900 Fault.

Commenting on the Mineral Resource and Ore Reserve statement, Managing Director & CEO, Victor Rajasooriar said:

"We're pleased to have achieved an uplift in our Mineral Resources and successfully increased our Ore Reserves after accounting for ore depletion from mining in FY23. This includes the most recent success we've had drilling under the historical working of Savannah, which shows that the mineralisation extends further and will be a key focus for the current FY24 drilling program.

"The relatively modest drill program carried out in FY23 generated a solid return on investment and we will remain disciplined with our in-mine exploration targeting in FY24."

In the period since the Mineral Resource and Ore Reserve statements were reported for July 2022, 133 holes (17,754m) were drilled at Savannah North (Appendix 1). The drilling focussed mostly on the immediate mining area by infilling the existing Mineral Resource between the 1200 and 1325 RLs, as well as infilling smaller areas of known peripheral mineralisation.

An additional 43 holes (7,778m) were drilled at Savannah (Appendix 1). The drilling at Savannah focused mainly on infilling the Savannah orebody above the 900 Fault with drilling below the 900 Fault consisting of broader spaced resource definition drilling to better define the western extension of the Savannah orebody.

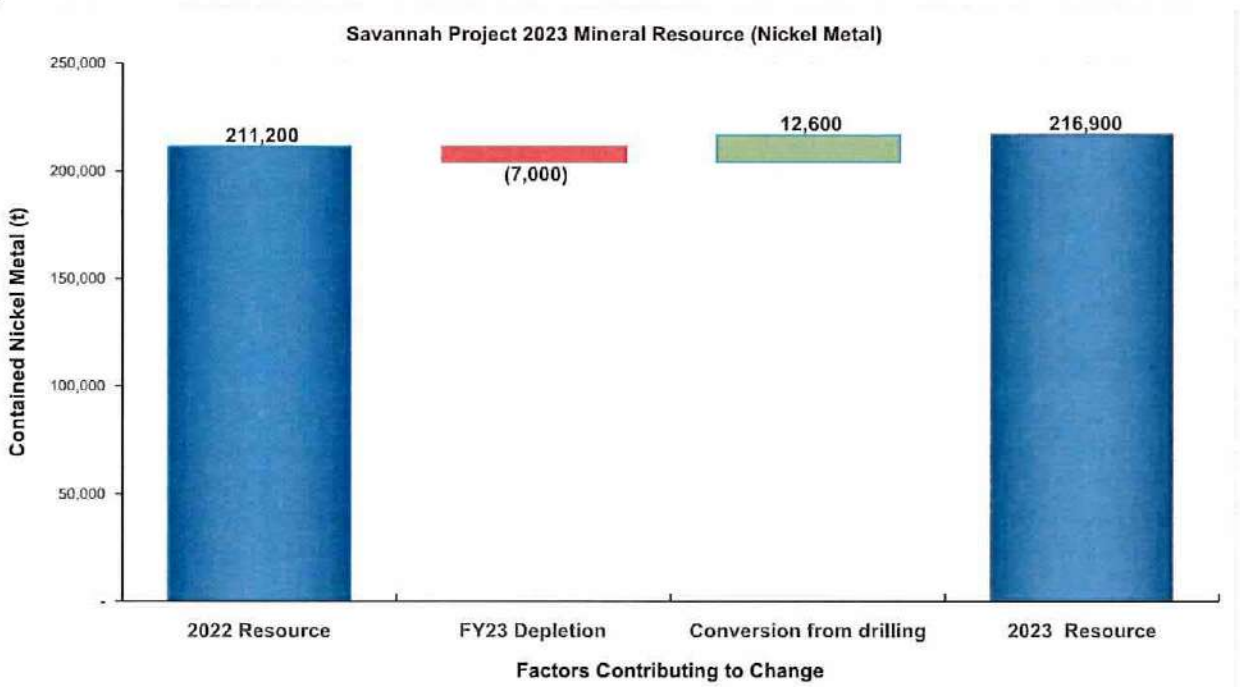
Mineral Resource

The Mineral Resource Estimate (**MRE**) for the Savannah Nickel Project is 14.57 million tonnes grading 1.49% Ni, 0.67% Cu and 0.10% Co for a total contained metal in Resource of 216,900t Ni, 97,600t Cu and 14,000t Co (Table 1). The MRE is current as of 1 September 2023. It incorporates all drilling completed until 1 September 2023, noting no drilling was completed at Savannah North in the months of July and August. All MRE's for the Project are reported to 2012 JORC standards and at a cut-off grade of 0.50% Ni. Details regarding the preparation of the MRE and associated 2012 JORC reporting requirements are included in Appendix 2. The MRE summarised in Table 1 forms the basis of the Ore Reserve for the Savannah Nickel Operation.

Table 1: *2023 Savannah Project MRE*

Resource	Metal	MRE Date	Measured		Indicated		Inferred		Total		Metal
			Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	Tonnes
Savannah Above 900F	Nickel	Jan-23	817,000	1.36	523,000	1.66	30,000	1.82	1,370,000	1.48	20,300
	Copper			0.77		1.18		1.14		0.93	12,800
	Cobalt			0.069		0.08		0.09		0.07	1,000
Savannah Below 900F	Nickel	Sep-23	0	0.00	987,000	1.80	820,000	1.57	1,807,000	1.70	30,600
	Copper			0.00		0.86		0.78		0.82	14,900
	Cobalt			0.000		0.11		0.07		0.09	1,700
Savannah North	Nickel	Jun-23	2,381,000	1.42	5,466,000	1.57	3,542,000	1.31	11,389,000	1.46	165,900
	Copper			0.57		0.70		0.50		0.61	69,900
	Cobalt			0.10		0.11		0.08		0.10	11,300
Total Savannah Project	Nickel		3,198,000	1.40	6,976,000	1.61	4,392,000	1.36	14,566,000	1.49	216,900
	Copper			0.62		0.76		0.56		0.67	97,600
	Cobalt			0.09		0.11		0.08		0.10	14,000

* Resource tonnes are rounded to the nearest 1,000t and contained metal tonnes to the nearest 100t. Therefore, rounding errors may cause individual column totals not to sum precisely.



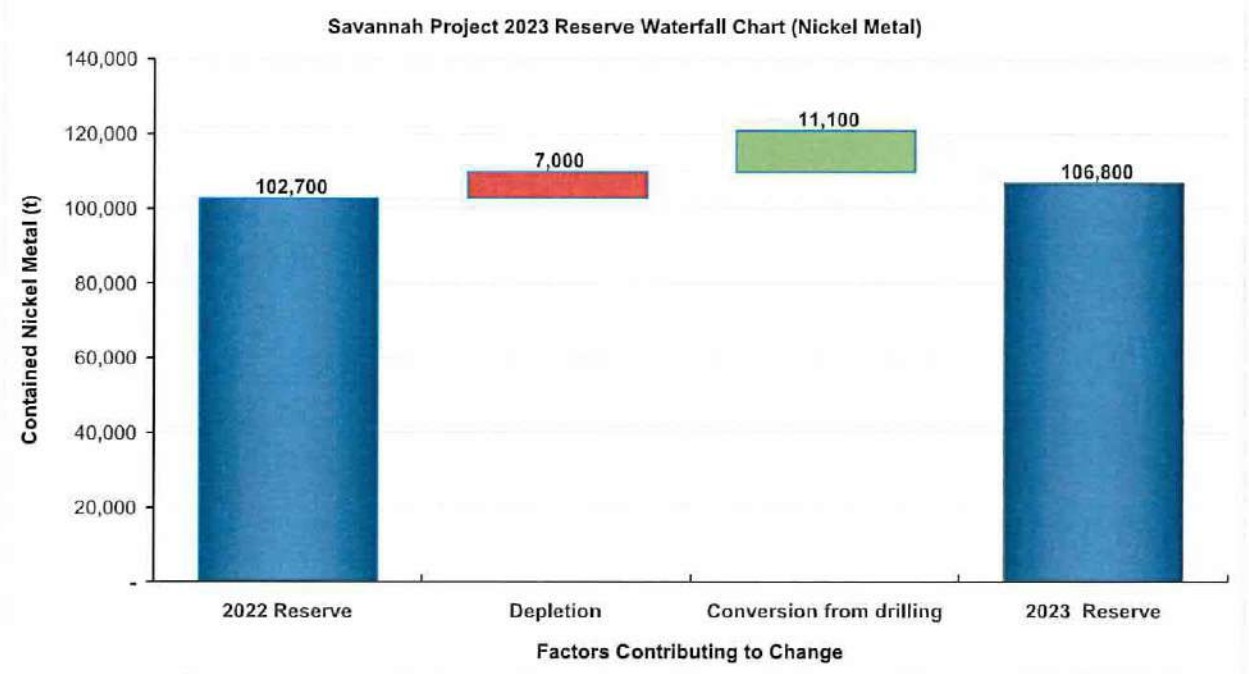
Ore Reserve

The Savannah Nickel Project Ore Reserve (including Savannah North) stands at 8.7Mt grading 1.23% Ni, 0.56% Cu and 0.08% Co for total contained metal of 106,800t Ni, 48,700t Cu and 7,400t Co (Table 2). All key assumptions and modifying factors applied during preparation of the Ore Reserve and associated 2012 JORC reporting requirements are included in Appendix 2.

Table 2: *2023 Savannah Nickel Project Ore Reserve*

Ore Reserve	Metal	Proved		Probable		Total		Metal Tonnes
		Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	
Savannah	Nickel	318,000	1.37	1,047,000	1.48	1,365,000	1.45	19,800
	Copper		0.65		0.79		0.76	10,300
	Cobalt		0.07		0.08		0.08	1,100
Savannah North	Nickel	1,897,000	1.29	5,437,000	1.15	7,334,000	1.19	87,000
	Copper		0.53		0.52		0.52	38,400
	Cobalt		0.10		0.08		0.09	6,300
Total	Nickel	2,215,000	1.30	6,483,000	1.20	8,698,000	1.23	106,800
	Copper		0.55		0.56		0.56	48,700
	Cobalt		0.09		0.08		0.08	7,400

* Resource tonnes are rounded to the nearest 1,000t and contained metal tonnes to the nearest 100t. Therefore, rounding errors may cause individual column totals not to sum precisely.



The largely undeveloped Savannah North orebody and the area below the historic workings at Savannah remain open along strike and at depth. This provides the potential to bring more material into the Mine Plan with future exploration and underground drilling which will be carried out as mine development advances in FY24.

FY23 Mining Summary

Operations at Savannah commenced in 2021 and the Project was successfully commissioned with first concentrate shipment achieved in December 2021. Mining continued at Savannah North and Savannah in FY23. In total 0.68Mt @ 1.02% Ni, 0.51% Cu and 0.07% Co for 7.0kt Ni, 3.5kt Cu and 0.5kt Co contained metal was mined in FY23. The updated Resource and Reserve statements as of 1 September 2023 takes into consideration this depletion up to 30 June 2023.

Geology and Upside Potential

The Savannah Project Mineral Resources are composed of magmatic, massive and breccia textured Ni-Cu-Co rich sulphide mineralisation associated with the emplacement of the Savannah and Savannah North layered mafic-ultramafic intrusions. In the vicinity of the Project a large, younger gabbroic intrusion (the Turkey Creek Gabbro) separates the two Savannah layered intrusions.

The Savannah Mineral Resource formed first and is composed predominantly of a single zone of mineralisation developed about the basal ultramafic dominant part of the Savannah intrusion. Subsequent folding after

emplacement of the Savannah intrusion has resulted in the rotation of the intrusion through almost 90 degrees, such that the Savannah mineralisation now dips sub-vertically.

The Savannah North Mineral Resource is composed predominantly of two discrete zones of mineralisation: the Upper and Lower Zones.

The Savannah North Upper Zone relates to mineralisation developed on or about the basal contact of the Savannah North intrusion. The Upper Zone strikes northeast-southwest and dips moderately to the northwest. Multiple, smaller discrete lenses of mineralisation that are developed just above the Upper Zone inside the intrusion have been modelled as "Other" (Table 3).

Table 3: *2023 Modelled Domains of the Savannah North MRE*

Domain	Variable	Measured		Indicated		Inferred		Total		
		Tonnes	Grade (%)	Tonnes	Grade (%)	Tonnes	Grade (%)	Tonnes	Grade (%)	Metal (t)
Upper	Nickel	2,088,000	1.44	2,111,000	1.41	1,569,000	1.25	5,767,000	1.38	79,800
	Copper		0.58		0.59		0.41		0.54	31,300
	Cobalt		0.11		0.11		0.07		0.10	5,500
Lower	Nickel	-		2,882,000	1.73	849,000	1.56	3,730,000	1.70	63,500
	Copper				0.84		0.72	-	0.82	30,500
	Cobalt				0.12		0.10	-	0.12	4,300
Other	Nickel	294,000	1.25	474,000	1.32	1,125,000	1.21	1,892,000	1.19	22,600
	Copper		0.52		0.38		0.47		0.43	8,100
	Cobalt		0.09		0.08		0.08		0.08	1,400
Total	Nickel	2,381,000	1.42	5,466,000	1.57	3,542,000	1.31	11,389,000	1.46	165,900
	Copper		0.57		0.70		0.50		0.61	69,900
	Cobalt		0.10		0.11		0.08		0.10	11,300

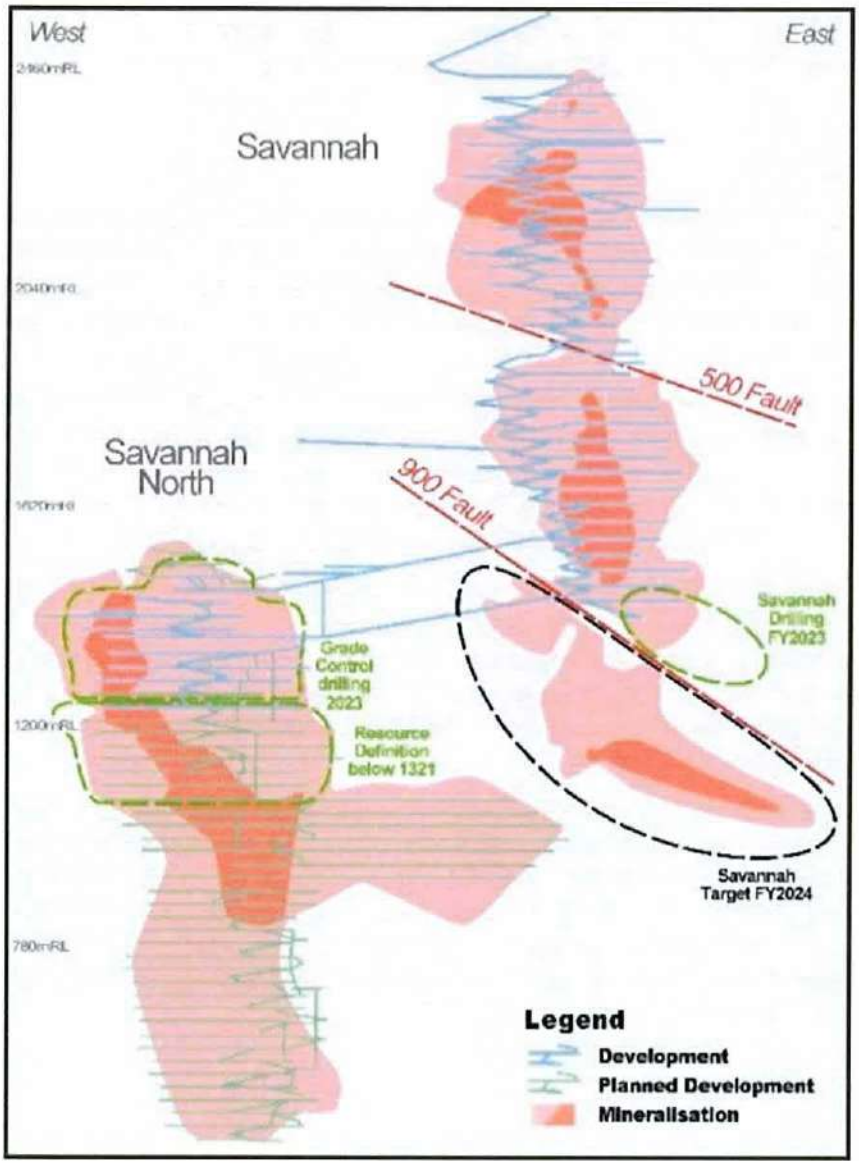
* Resource tonnes are rounded to the nearest 1,000t and contained metal tonnes to the nearest 100t. Therefore, rounding errors may cause individual column totals not to sum precisely.

The Savannah North Lower Zone relates to a discrete, consistent zone of slightly higher grade, massive sulphide mineralisation that is predominantly developed within the Tickalara Metamorphics below the Savannah North intrusion. It is interpreted to reflect a zone of remobilised mineralisation that originates from the Upper Zone mineralisation. The Lower Zone dips more steeply away to the north-northwest.

Underground development ore was first intersected from Savannah North in November 2019 with two development levels (1381 and 1361) developed into the western side of the orebody. Upon recommencing mining operations in 2021, Panoramic has further established level development at both Savannah and Savannah North. At Savannah, mining development has continued below previous levels (1440) with the first stopes into the Savannah extension (above the 900 Fault) due to commence in the first quarter FY2024. At Savannah North, 20m level development has continue up and down dip from the initial 1381 and 1361 levels to now encompass seven levels between 1421 to 1301mRL. Mining continues to propagate both up and down dip as infill drilling provides further confidence to the adjacent levels.

The Savannah North Upper Zone Resource is currently modelled over a strike length of 1,050m but could extend up to 2,000m based on the large, highly conductive on-hole and off-hole EM response identified in surface drill holes SMD164 on Section 5400mE, and SMD164 and SMD167A on Section 5100mE (*refer to the Company's ASX announcements of 25 August 2015 and 31 January 2017*). The Savannah North Lower Zone Mineral Resource remains open down dip to the north-northwest.

Figure 1: *Savannah and Savannah North long section showing location of FY2023 infill grade control and resource definition drill holes.*



Up to recently, the Savannah Mineral Resource and host intrusion below the 900 Fault has only been partially tested due to the paucity of suitable drill positions to target the deeper western extent of the resource. Two recently completed drill holes (KUD2050 and KUD2245) have for the first time now tested this position with both holes intersecting broad thicknesses of high-grade massive sulphide mineralisation (*refer to Company ASX announcements dated 8 May and 18 September 2023*).

The Sub 900 resource is not closed-off and remains open to the west especially along the "Western Splay", a zone of high-grade massive sulphide mineralisation that is known to extend up to 150m into the Tickalara Metamorphics west (below) the intrusion and is yet to be drill tested. At depth the Savannah intrusion is interpreted to close-out against the 900 Fault due to a change in orientation and then re-appear on the upper side of the Fault to the north of the Turkey Creek Gabbro (TCG). This off-set faulted position of the intrusion to the north of the TCG remains to be adequately explored.

Savannah MRE

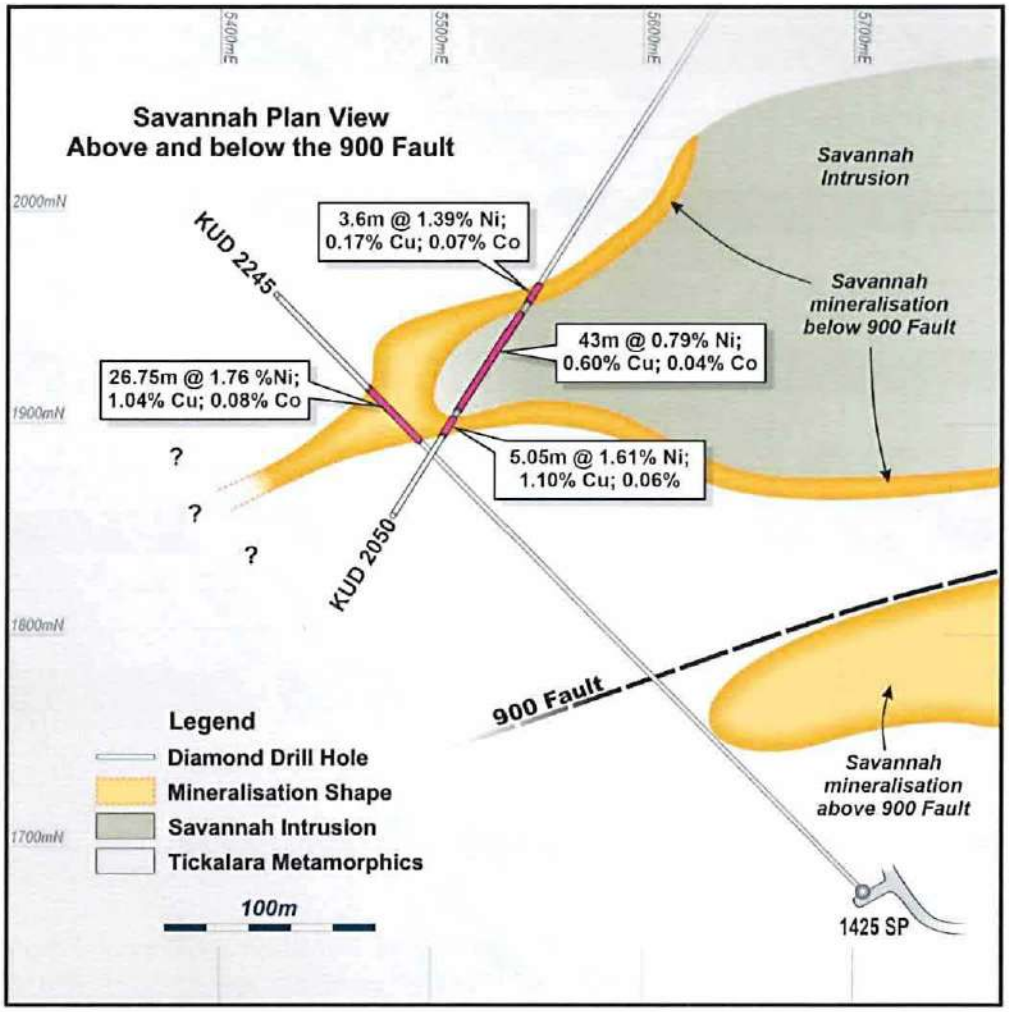
The Savannah Above 900 Fault MRE is 1.37 million tonnes at 1.48% Ni, 0.93% Cu and 0.09% Co for contained metal of 20,300t Ni, 12,800t Cu and 1,000t Co (*Table 1*). This is a decrease of 650t contained nickel from the 2022 MRE (*refer to Company ASX announcement of 29 September* 2022) and reflects the net difference between increases to the resource (immediately above the 900 Fault) against mining depletion.

The Savannah Sub 900 Fault MRE is 1.81 million tonnes at 1.70% Ni, 0.82% Cu and 0.09% Co for contained metal 30,600Ni, 14,900t Cu and 1,700t Co (*Table 1*). This is effectively double the contained nickel reported in the 2022 MRE (*refer to Company ASX announcement of 29 September* 2022) and is largely attributable to recent drilling targeting the western extents of the orebody below the Fault (*refer to the Company's ASX announcements dated 8 May and 18 September 2023*).

The drill programs have important ramifications for the Savannah orebody below the 900 Fault. The 2023 drilling results accurately positions the base of the orebody and provides the first clear indication that massive sulphide mineralisation is thickened and continuous about the basal contact of the intrusion as observed elsewhere in this position throughout the mine (Figure 2). Drilling at the western extent of the sub 900 mineralisation was effectively outside the 2022 Sub 900 Fault resource and have had a significant positive impact on the Sub 900 Fault MRE.

The impact of this recent drilling on the geological resource model below the 900 Fault now provides the opportunity to further increase the resource in this area by targeting the high-grade, massive sulphide rich "Western Splay" which is currently not modelled but is consistently observed throughout the mine to diverge from this area of the Savannah orebody and extend westward up to 200m metres from the intrusion. It also provides the confidence and justification to develop additional drill platforms in the current mining area to better target this important western end of the Savannah orebody below the 900 Fault, which remains largely untested.

Figure 2: *Plan view of the Savannah mineralisation and intrusion above and below the 900 Fault featuring drill holes KUD2245 and KUD2050*



Savannah North MRE

The Savannah North MRE continues to be updated by Cube Consulting. Table 4 compares the June 2022 MRE (depleted for mining to 30 June 2022) against the June 2023 MRE (depleted for mining to 30 June 2023). The key differences are a relative 2% reduction in global tonnes with a 4% decrease in Ni grade reflecting a 5% decrease in Ni metal tonnes above a 0.5% Ni cut-off grade. Measured category resources increased by approximately 20%, reflecting similar decreases to Indicated and Inferred categories. The

key reasons for minor differences relate to interpretation changes due to new drill data and a slightly lower de-clustered average grade for the new drill data.

Table 4: *Comparison table between Savannah and Savannah North 2022 and 2023 MRE*

Prospect	Category	Tonnes	Grade (% Ni)	Metal (t Ni)
Savannah Above 900F	Measured	-83,300	-0.01	-1,200
	Indicated	24,600	-0.08	50
	Inferred	29,900	1.82	550
Sub-Total		**-28,900**	**-0.01**	**-650**
Savannah Below 900F	Measured	-	0.00	0
	Indicated	206,900	0.16	4,950
	Inferred	695,300	-0.15	10,750
Sub-Total		**902,200**	**0.05**	**15,700**
Savannah North	Measured	382,800	0.01	5,550
	Indicated	-73,900	-0.10	-6,600
	Inferred	- 492,200	-0.05	-8,400
Sub-Total		**-183,300**	**-0.06**	**-9,450**
Total Savannah Project	Measured	299,500	0.00	4,350
	Indicated	157,500	-0.06	-1,600
	Inferred	233,000	-0.01	2,900
	Total	**690,000**	**-0.03**	**5,650**

* Resource tonnes are rounded to the nearest 1,00t and contained metal tonnes to the nearest 50t. Therefore, rounding errors may cause individual column totals not to sum precisely.

Summary of Mineral Resource Estimation Data and Methodology

Geology and Geological Interpretation

The Savannah sulphide orebody lies within a marginal norite unit which developed at the base of the Savannah Layered Intrusive Complex (**SI**). The SI was intruded into a metamorphosed sequence of sedimentary and igneous rocks called the Tickalara Metamorphics. The main Savannah orebody which has been exploited by mining is characterised by steeply dipping mineralisation dominated by pyrrhotite, pentlandite and chalcopyrite. The mode of sulphide occurrence varies from disseminated/matrix to stringer to massive sulphide, where typical massive sulphide will assay between 2.0 - 3.0% nickel.

The Savannah North mineralisation, which is identical to that developed in the SI, dips moderately (40-45 degrees) to the north-west and comprises two main zones and some minor sub-parallel domains. The Upper Zone is developed on the basal contact of the Savannah North Intrusion (**SNI**) (previously known as the North Olivine Gabbro), and the second Lower Zone is a consistent remobilised zone of massive sulphide mineralisation, in part associated with the 500 Fault. Both zones are well defined by the drilling and the interpretation is considered sufficiently robust for resource modelling.

Drilling Techniques

Exploration and resource definition and the more recent infill grade control drill holes at Savannah North are entirely diamond cored holes. For Savannah North, most have been drilled from underground and NQ2 sized diamond drilling has been used to obtain 100% of the data used in the estimate.

Sampling, Subsampling and Sample Analysis

All diamond core is photographed and geologically logged with samples (typically between 0.2 metre to 1 metre long) defined by geological contacts. Analytical core samples are half sawn NQ2 samples and are considered sufficient for this style of mineralisation.

Sample preparation and analysis was completed within the Savannah Nickel Mine (**SNM**) onsite laboratory. The onsite laboratory is currently run by Bureau Veritas but prior to August 2016 it was operated by SGS Laboratory Services. Prior to August 2016, sample preparation included pulverising to 90% passing 75 µm. The standard analytical technique was a three-acid digest with an AAS finish. This method best approaches total dissolution for most minerals. The onsite exploration sample analytical method for Ni, Cu, Co is AAS 22S. Exploration samples were sent off-site and analysed using a four-acid digest with either ICP OES or AAS finish (AAS for ore grade samples). Under Bureau Veritas, sample preparation and assaying involved crushing and pulverising the sample to 80% passing 75µm followed by Ni, Cu, Co, Fe, MgO and S analysis by XRF of metaborate fused glass beads. The XRF brand is a ZETIUM Pan-analytical instrument.

Estimation Methods

The mineralised domains for both Savannah and Savannah North are defined primarily by the presence of strong and continuous zones of logged massive sulphide mineralisation. Savannah consists of four domains constrained by the major faults of the Savannah Project. The Savannah North interpretation consists of two main zones, being the Upper and Lower Zones in addition to four minor domains (Other).

For each domain, 1m downhole composites were extracted for nickel, copper, cobalt and density. Variograms were modelled for all attributes for all domains to analyse the spatial continuity within the mineralised domains and to determine appropriate estimation inputs to the interpolation process. The search neighbourhoods were optimised by undertaking Kriging Neighbourhood Analysis, analysing estimation quality data such as Slope of Regression and Kriging weights for various search neighbourhoods and combining these with other primary considerations such as data spacing, the geometry of the mineralised domains and variogram models.

For both Savannah and Savannah North, a 3D block model was created with a parent block size of 20 mN x 20 mE x 4 mRL and sub-celling to 2.5 mN x 2.5 mE x 0.5 mRL. Ordinary Kriging (**OK**) of the 1m composite data was used for estimating nickel, copper, cobalt and density into a parent block size of either 20 mN x 20 mE x 4 mRL for areas of wider spaced drilling or 10 mN x 10 mE x 2 mRL for areas defined by the recent close spaced drilling. No top cuts were applied to the 1m composites. A minimum of four and maximum of 16 samples were specified as part of a two-pass search strategy which included a maximum of eight composites per drill hole. During estimation, a local rotation was applied to both the variogram model and search neighbourhood to account for undulations in the mineralisation morphology.

Inverse Distance Squared and Nearest Neighbour check estimates were completed for comparison and assist in validation of the OK estimates.

Cut-off Grade and Modifying Factors

The MRE is reported above a 0.5% Ni cut-off grade which is used by the Company for reporting of all underground resources at the Savannah Project which has a long history of underground mining. An increased net smelter return (NSR) cut-off of $153/t of ore mined (2022: $135/t) was applied to the Ore Reserve, reflecting the higher cost operating environment.

Other material modifying factors assumed for the Savannah MRE are:

- Continued underground mining using sub-level stoping
- Conventional crushing, grinding, flotation processing to make a saleable nickel concentrate
- Metallurgical recoveries of 83% for Ni, 97% for Cu and 85% for Co
- Current offtake agreements in place
- All approvals remaining in place to continue mining, processing and shipping operations.

Resource Classification Criteria

The resource classification has taken into account a number of factors such as database integrity, geological interpretation, estimation methodology and the history of mining at the Savannah Project. In addition to these considerations and based on the drill hole data spacing, the MRE has been classified as a combination of Measured, Indicated and Inferred.

Material classified as Measured only includes mineralisation defined by the recently drilled close spaced GC drilling within the domains. The drilling here is typically on a 20m x 20m spacing. Indicated resources include areas where the drilling spacing is greater than the close spaced 20m x 20m drilling but approximates 50m x 50m. Inferred areas are where the data density is greater than 50m x 50m spacing, typically around the periphery and depth extent of the Upper and Lower Zones plus some of the minor domains.

Competent Persons

The information in this release that relates to drilling at Savannah and Savannah North, and the Mineral Resources at Savannah is based on information compiled by Andrew Shaw-Stuart. Wireframing, interpretation and the drill hole database has been compiled by Andrew Shaw-Stuart, a member of the Australian Institute of Geoscientists (AIG) and is a full-time employee of Panoramic Resources Limited.

The information in this release that relates to Mineral Resources at Savannah North is based on information compiled by Mark Zammit. Mr Zammit is a member of the Australasian Institute of Geoscientists and is a Principal Consultant Geologist and full-time employee of Cube Consulting based in Perth, Western Australia.

The information in this release that relates to Ore Reserves for Savannah and Savannah North is based on information compiled by or reviewed by Adolf Koster. Mr Koster is a Member of the Australasian Institute of Mining and Metallurgy (AusIMM) and is a Mining Engineer and full-time employee of Panoramic Resources.

The aforementioned persons have sufficient experience that is relevant to the style of mineralisation and type of target/deposit under consideration and to the activity which he is undertaking to qualify as a

Competent Person as defined in the 2012 Edition of the Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Messrs Shaw-Stuart, Zammit and Koster consent to the inclusion in the release of the matters based on the information in the form and context in which it appears.

About Panoramic:

Panoramic Resources Limited (ASX: PAN) is a company headquartered in Perth, Western Australia, which owns the Savannah Nickel Project in the East Kimberley. Operations at Savannah were restarted in 2021 and the project was successfully recommissioned with first concentrate shipment achieved in December 2021. Savannah has a 12-year mine life with clear potential to further extend this through ongoing exploration. The asset provides excellent leverage to the nickel, copper and cobalt markets which are heavily linked to global decarbonisation and vehicle electrification.

Forward Looking Statements:

This announcement contains certain "forward-looking statements" and comments about future matters. Forward-looking statements can generally be identified by the use of forward-looking words such as, "expect", "anticipate", "likely", "intend", "should", "could", "may", "predict", "plan", "propose", "will", "believe", "forecast", "estimate", "target" "outlook", "guidance" and other similar expressions within the meaning of securities laws of applicable jurisdictions. Indications of, and guidance or outlook on, future earnings or financial position or performance are also forward-looking statements. You are cautioned not to place undue reliance on forward-looking statements. Any such statements, opinions and estimates in this announcement speak only as of the date hereof and are based on assumptions and contingencies subject to change without notice, as are statements about market and industry trends, projections, guidance and estimates. Forward-looking statements are provided as a general guide only. The forward-looking statements contained in this announcement are not indications, guarantees or predictions of future performance and involve known and unknown risks and uncertainties and other factors, many of which are beyond the control of the Company, and may involve significant elements of subjective judgement and assumptions as to future events which may or may not be correct.

There can be no assurance that actual outcomes will not differ materially from these forward-looking statements. A number of important factors could cause actual results or performance to differ materially from the forward-looking statements. The forward-looking statements are based on information available to the Company as at the date of this announcement.

Except as required by law or regulation (including the ASX Listing Rules), the Company undertakes no obligation to supplement, revise or update forward-looking statements or to publish prospective financial information in the future, regardless of whether new information, future events or results or other factors affect the information contained in this announcement.

This ASX announcement was authorised on behalf of the Panoramic Board by: Victor Rajasooriar, Managing Director & CEO

For further information contact:
Victor Rajasooriar, Managing Director & CEO
+61 8 6374 1700

Media inquiries:
Michael Vaughan, Fivemark Partners
+61 422 602 72

Appendix 1

Table 1- Summary of Savannah Drill Hole Data

Savannah									
Hole	East	North	RL	Dip	Azi	EOH	From	To	Intercept Label
	(m)	(m)	(m)	(°)	(°)	(m)	(m)	(m)	(m @ Ni%, Cu%, Co%)
KUD1915	395702.29	8081715.88	-575.86	15.60	351.60	67.90	43.40	46.30	KUD1915: 2.90m @ 0.30% Ni; 0.28% Cu; 0.02% Co
KUD1916	395702.10	8081715.79	-575.69	17.30	328.19	56.60	37.00	38.75	KUD1916: 1.75m @ 0.92% Ni; 11.13% Cu; 0.07% Co
KUD1917	395701.98	8081715.76	-575.88	17.14	309.43	65.00	35.40	55.15	KUD1917: 19.75m @ 1.49% Ni; 0.49% Cu; 0.07% Co
KUD1918A	395702.29	8081715.89	-576.05	-6.90	347.10	68.70	45.05	54.00	KUD1918A: 8.95m @ 2.36% Ni; 0.56% Cu; 0.11% Co
KUD1919	395701.99	8081715.79	-576.10	-6.70	328.42	71.80	57.85	60.00	KUD1919: 2.15m @ 2.42% Ni; 0.25% Cu; 0.11% Co
KUD1919	395701.99	8081715.79	-576.10	-6.70	328.42	71.80	49.75	52.80	KUD1919: 3.05m @ 3.23% Ni; 0.31% Cu; 0.15% Co
KUD1920	395701.98	8081715.77	-576.01	-4.59	313.98	77.00	61.80	62.80	KUD1920: 1.00m @ 1.03% Ni; 5.58% Cu; 0.06% Co
KUD1920	395701.98	8081715.77	-576.01	-4.59	313.98	77.00	50.80	55.30	KUD1920: 4.50m @ 2.25% Ni; 0.82% Cu; 0.10% Co
KUD1921	395702.17	8081715.86	-576.22	-21.03	335.93	109.30	62.95	82.40	KUD1921: 19.45m @ 1.99% Ni; 0.66% Cu; 0.09% Co
KUD1922	395702.01	8081715.79	-576.20	-17.02	322.17	95.40	73.30	76.00	KUD1922: 2.70m @ 0.57% Ni; 0.48% Cu; 0.03% Co
KUD1922	395702.01	8081715.79	-576.20	-17.02	322.17	95.40	62.50	64.90	KUD1922: 2.40m @ 1.02% Ni; 1.12% Cu; 0.05% Co
KUD1923	395707.70	8081676.81	-577.45	11.96	318.27	101.80	80.80	89.90	KUD1923: 9.10m @ 2.52% Ni; 1.10% Cu; 0.12% Co
KUD1924	395707.42	8081676.66	-577.73	11.00	307.89	104.70			NSI
KUD1925	395707.14	8081676.52	-577.79	10.03	299.50	110.60			NSI
KUD1926	395707.74	8081676.84	-577.90	-0.74	315.90	114.60	97.85	100.75	KUD1926: 2.90m @ 0.32% Ni; 0.05% Cu; 0.01% Co
KUD1927	395707.38	8081676.65	-577.83	1.90	305.10	156.70			NSI
KUD1928	395707.71	8081676.82	-578.03	-11.02	319.66	135.10	105.90	110.40	KUD1928: 4.50m @ 2.87% Ni; 0.95% Cu; 0.14% Co
KUD1929	395707.36	8081676.64	-578.12	-10.40	310.00	148.80	102.55	104.00	KUD1929: 1.45m @ 3.15% Ni; 0.69% Cu; 0.14% Co
KUD1931	395816.92	8081685.06	-572.28	5.60	316.00	129.90	97.20	126.10	KUD1931: 28.90m @ 1.16% Ni; 0.74% Cu; 0.06% Co
KUD1932	395816.70	8081684.50	-573.80	4.40	324.50	138.00	104.15	124.05	KUD1932: 19.90m @ 0.96% Ni; 0.71% Cu; 0.05% Co
KUD1932	395816.70	8081684.50	-573.80	4.40	324.50	138.00	77.10	78.80	KUD1932: 1.70m @ 1.70% Ni; 0.33% Cu; 0.09% Co
KUD1933	395817.13	8081685.41	-572.24	6.70	332.50	124.30	95.40	100.50	KUD1933: 5.10m @ 1.54% Ni; 1.19% Cu; 0.08% Co
KUD1933	395817.13	8081685.41	-572.24	6.70	332.50	124.30	88.80	91.30	KUD1933: 2.50m @ 1.45% Ni; 0.43% Cu; 0.07% Co
KUD1934	395817.28	8081685.56	-572.29	5.40	341.80	125.80	91.60	104.85	KUD1934: 13.25m @ 1.02% Ni; 0.76% Cu; 0.05% Co
KUD1935	395817.44	8081685.84	-572.53	-2.00	342.40	139.10	81.60	84.30	KUD1935: 2.70m @ 0.89% Ni; 0.26% Cu; 0.05% Co
KUD1936	395817.13	8081685.46	-572.80	-3.00	333.10	139.50	103.70	107.90	KUD1936: 4.20m @ 1.13% Ni; 1.10% Cu; 0.06% Co
KUD1937	395816.80	8081685.00	-572.52	-3.80	325.40	144.00	114.05	120.00	KUD1937: 5.95m @ 2.05% Ni; 0.70% Cu; 0.10% Co
KUD1937	395816.80	8081685.00	-572.52	-3.80	325.40	144.00	124.55	131.00	KUD1937: 6.45m @ 0.58% Ni; 0.38% Cu; 0.03% Co
KUD1937	395816.80	8081685.00	-572.52	-3.80	325.40	144.00	78.00	79.50	KUD1937: 1.50m @ 0.82% Ni; 4.50% Cu; 0.06% Co
KUD1938	395816.98	8081685.13	-572.49	-2.10	317.10	152.20	86.90	88.10	KUD1938: 1.20m @ 2.55% Ni; 4.64% Cu; 0.14% Co
KUD1938	395816.98	8081685.13	-572.49	-2.10	317.10	152.20	117.40	134.80	KUD1938: 17.40m @ 1.02% Ni; 1.38% Cu; 0.05% Co

KUD1940	395817.34	8081685.85	-573.02	-11.30	318.80	158.70	140.85	147.00	KUD1940: 6.15m @ 0.81% Ni; 0.17% Cu; 0.06% Co
KUD1941	395817.34	8081685.67	-572.70	-7.90	332.50	164.40	132.15	137.25	KUD1941: 5.10m @ 0.54% Ni; 1.58% Cu; 0.03% Co
KUD1942	395817.41	8081685.79	-572.56	-11.30	325.20	180.00	163.30	168.35	KUD1942: 5.05m @ 0.30% Ni; 0.38% Cu; 0.02% Co
KUD1943	395816.73	8081685.21	-572.86	-10.60	316.60	183.00	162.00	171.00	KUD1943: 9.00m @ 2.95% Ni; 0.62% Cu; 0.15% Co
KUD1945	395816.51	8081684.76	-573.01	-16.00	308.10	216.00	162.00	164.00	KUD1945: 2.00m @ 3.04% Ni; 0.98% Cu; 0.15% Co
KUD1945	395816.51	8081684.76	-573.01	-16.00	308.10	216.00	174.00	175.00	KUD1945: 1.00m @ 0.51% Ni; 0.29% Cu; 0.03% Co
KUD1945	395816.51	8081684.76	-573.01	-16.00	308.10	216.00	189.00	201.10	KUD1945: 12.10m @ 1.45% Ni; 0.64% Cu; 0.07% Co
KUD1945	395816.51	8081684.76	-573.01	-16.00	308.10	216.00	168.00	170.00	KUD1945: 2.00m @ 0.65% Ni; 0.52% Cu; 0.04% Co
KUD1950	395817.20	8081685.68	-572.93	-14.90	316.30	216.00			NSI
KUD2003	395816.70	8081684.40	-573.70	-16.92	324.88	200.40			NSI
KUD2008	395816.70	8081684.40	-573.70	-20.23	333.90	173.80	159.60	163.40	KUD2008: 3.80m @ 1.24% Ni; 0.54% Cu; 0.08% Co
KUD2034	396108.81	8082292.09	-525.82	-28.44	118.99	80.90			NSI
KUD2050	395857.53	8082458.70	-535.99	-23.79	211.99	846.30	193.00	194.00	KUD2050: 1.00m @ 0.57% Ni; 0.22% Cu; 0.02% Co
KUD2050	395857.53	8082458.70	-535.99	-23.79	211.99	846.30	628.00	634.45	KUD2050: 6.45m @ 1.05% Ni; 0.31% Cu; 0.05% Co
KUD2050	395857.53	8082458.70	-535.99	-23.79	211.99	846.30	652.00	657.75	KUD2050: 5.75m @ 1.67% Ni; 0.63% Cu; 0.08% Co
KUD2050	395857.53	8082458.70	-535.99	-23.79	211.99	846.30	708.65	713.70	KUD2050: 5.05m @ 1.61% Ni; 0.72% Cu; 0.08% Co
KUD2050	395857.53	8082458.70	-535.99	-23.79	211.99	846.30	661.45	663.60	KUD2050: 2.15m @ 1.45% Ni; 0.60% Cu; 0.07% Co
KUD2050	395857.53	8082458.70	-535.99	-23.79	211.99	846.30	671.00	695.00	KUD2050: 24.00m @ 0.80% Ni; 0.70% Cu; 0.04% Co
KUD2051	395704.77	8081674.89	-578.40	-10.86	288.40	221.70			NSI
KUD2162	395814.53	8081970.15	-469.02	-39.44	149.86	197.7			NSI
KUD2168	395814.42	8081970.11	-468.93	-36.28	174.1	207.9			NSI
KUD2169	395801.26	8081972.63	-468.94	-45.34	183.39	219			NSI
KUD2170	395800.64	8081972.71	-469.13	-51.92	199.65	253.1	234.6	241.7	KUD2170: 7.10m @ 0.89% Ni; 1.03% Cu; 0.06% Co
KUD2170	395800.64	8081972.71	-469.13	-51.92	199.65	253.1	230	231	KUD2170: 1.00m @ 0.98% Ni; 0.26% Cu; 0.06% Co
KUD2171	395801.10	8081972.68	-468.99	-44.05	211.39	283	270.4	274.5	KUD2171: 4.10m @ 0.93% Ni; 3.67% Cu; 0.07% Co
KUD2172	395801.12	8081972.64	-468.93	-49.65	210.04	293.9	280.3	283.55	KUD2172: 3.25m @ 1.27% Ni; 0.42% Cu; 0.08% Co
KUD2173	395801.09	8081972.69	-469.14	-58.54	203.2	281.6	247.5	270.1	KUD2173: 22.60m @ 1.54 %Ni; 0.56% Cu; 0.10% Co
KUD2174	395800.71	8081972.74	-469.17	-54.7	215.56	316.6	295.3	308.5	KUD2174: 13.20m @ 1.96% Ni; 0.97% Cu; 0.13% Co
KUD2245	395706.84	8081676.03	-579.18	-38.44	316.03	507.6	391.6	394.4	KUD2245: 2.80m @ 0.74% Ni; 0.13% Cu; 0.03% Co
KUD2245	395706.84	8081676.03	-579.18	-38.44	316.03	507.6	346.75	373.5	KUD2245: 26.75m @ 1.76% Ni; 1.04% Cu; 0.08% Co

Table 2- Summary of Savannah North Drill Hole Data

Savannah North									
Hole	East	North	RL	Dip	Azi	EOH	From	To	Intercept Label

	(m)	(m)	(m)	(°)	(°)	(m)	(m)	(m)	(m @ Ni%, Cu%, Co%)
KUD1835	396198.00	8082540.50	-611.60	15.10	139.90	218.90	148.25	149.35	KUD1835: 1.10m @ 1.92% Ni; 0.29% Cu; 0.13% Co
KUD1835	396198.00	8082540.50	-611.60	15.10	139.90	218.90	199.40	204.90	KUD1835: 5.50m @ 1.64% Ni; 0.27% Cu; 0.11% Co
KUD1835	396198.00	8082540.50	-611.60	15.10	139.90	218.90	114.00	115.00	KUD1835: 1.00m @ 0.59% Ni; 0.61% Cu; 0.04% Co
KUD1835	396198.00	8082540.50	-611.60	15.10	139.90	218.90	138.75	139.85	KUD1835: 1.10m @ 0.60% Ni; 0.33% Cu; 0.04% Co
KUD1835	396198.00	8082540.50	-611.60	15.10	139.90	218.90	55.25	57.45	KUD1835: 2.20m @ 1.28% Ni; 0.30% Cu; 0.09% Co
KUD1839	396198.00	8082540.50	-611.60	19.00	149.00	232.90	56.00	57.10	KUD1839: 1.10m @ 1.13% Ni; 0.38% Cu; 0.08% Co
KUD1839	396198.00	8082540.50	-611.60	19.00	149.00	232.90	61.50	80.40	KUD1839: 18.90m @ 1.68% Ni; 0.37% Cu; 0.12% Co
KUD1839	396198.00	8082540.50	-611.60	19.00	149.00	232.90	85.20	86.20	KUD1839: 1.00m @ 2.74% Ni; 0.20% Cu; 0.20% Co
KUD1839	396198.00	8082540.50	-611.60	19.00	149.00	232.90	140.35	143.40	KUD1839: 3.05m @ 2.31% Ni; 0.19% Cu; 0.17% Co
KUD1839	396198.00	8082540.50	-611.60	19.00	149.00	232.90	203.20	204.90	KUD1839: 1.70m @ 0.99% Ni; 0.22% Cu; 0.07% Co
KUD1840	396198.00	8082540.50	-611.60	12.90	132.00	230.90	124.50	129.00	KUD1840: 4.50m @ 2.35% Ni; 0.28% Cu; 0.15% Co
KUD1840	396198.00	8082540.50	-611.60	12.90	132.00	230.90	146.30	147.50	KUD1840: 1.20m @ 1.22% Ni; 0.15% Cu; 0.09% Co
KUD1840	396198.00	8082540.50	-611.60	12.90	132.00	230.90	56.40	60.80	KUD1840: 4.40m @ 1.78% Ni; 0.71% Cu; 0.13% Co
KUD1840	396198.00	8082540.50	-611.60	12.90	132.00	230.90	214.00	215.00	KUD1840: 1.00m @ 0.52% Ni; 0.40% Cu; 0.04% Co
KUD1841	396198.00	8082540.50	-611.60	19.60	136.00	281.80	59.75	70.30	KUD1841: 10.55m @ 1.60% Ni; 0.33% Cu; 0.11% Co
KUD1841	396198.00	8082540.50	-611.60	19.60	136.00	281.80	241.20	249.10	KUD1841: 7.90m @ 1.00% Ni; 0.27% Cu; 0.07% Co
KUD1841	396198.00	8082540.50	-611.60	19.60	136.00	281.80	122.00	125.00	KUD1841: 3.00m @ 0.61% Ni; 0.43% Cu; 0.04% Co
KUD1841	396198.00	8082540.50	-611.60	19.60	136.00	281.80	21.00	23.15	KUD1841: 2.15m @ 0.89% Ni; 0.21% Cu; 0.04% Co
KUD1841	396198.00	8082540.50	-611.60	19.60	136.00	281.80	131.15	132.15	KUD1841: 1.00m @ 2.18% Ni; 0.17% Cu; 0.14% Co
KUD1841	396198.00	8082540.50	-611.60	19.60	136.00	281.80	211.00	216.00	KUD1841: 5.00m @ 0.44% Ni; 0.18% Cu; 0.04% Co
KUD1842	396195.45	8082538.22	-610.56	21.60	138.30	278.70	263.00	264.10	KUD1842: 1.10m @ 0.88% Ni; 0.10% Cu; 0.06% Co
KUD1842	396195.45	8082538.22	-610.56	21.60	138.30	278.70	228.00	232.00	KUD1842: 4.00m @ 0.46% Ni; 0.21% Cu; 0.04% Co
KUD1842	396195.45	8082538.22	-610.56	21.60	138.30	278.70	62.65	80.10	KUD1842: 17.45m @ 2.29% Ni; 0.38% Cu; 0.16% Co
KUD1844	396195.46	8082538.29	-610.83	14.90	121.20	316.90	97.40	98.80	KUD1844: 1.40m @ 2.78% Ni; 0.43% Cu; 0.11% Co
KUD1844	396195.46	8082538.29	-610.83	14.90	121.20	316.90	225.50	228.60	KUD1844: 3.10m @ 1.09% Ni; 1.58% Cu; 0.07% Co
KUD1844	396195.46	8082538.29	-610.83	14.90	121.20	316.90	115.75	119.10	KUD1844: 3.35m @ 3.04% Ni; 0.62% Cu; 0.16% Co
KUD1844	396195.46	8082538.29	-610.83	14.90	121.20	316.90	235.40	238.60	KUD1844: 3.20m @ 0.45% Ni; 0.44% Cu; 0.03% Co
KUD1844	396195.46	8082538.29	-610.83	14.90	121.20	316.90	214.60	220.55	KUD1844: 5.95m @ 1.81% Ni; 0.29% Cu; 0.11% Co
KUD1946	396185.16	8082538.37	-613.04	-75.00	5.00	23.80	14.80	16.80	KUD1946: 2.00m @ 1.72% Ni; 0.07% Cu; 0.10% Co
KUD1946A	396185.26	8082538.59	-613.04	-75.00	5.00	133.90	98.20	100.00	KUD1946A: 1.80m @ 1.94% Ni; 0.66% Cu; 0.15% Co
KUD1946A	396185.26	8082538.59	-613.04	-75.00	5.00	133.90	13.50	21.00	KUD1946A: 7.50m @ 0.71% Ni; 0.13% Cu; 0.04% Co
KUD1947	396186.14	8082539.23	-612.63	-60.20	345.00	178.40			NSI
KUD1948	396184.68	8082538.90	-612.86	-60.00	315.00	222.00	102.50	103.50	KUD1948: 1.00m @ 1.50% Ni; 0.08% Cu; 0.07% Co
KUD1948	396184.68	8082538.90	-612.86	-60.00	315.00	222.00	178.30	179.85	KUD1948: 1.55m @ 0.89% Ni; 0.46% Cu; 0.06% Co
KUD1948	396184.68	8082538.90	-612.86	-60.00	315.00	222.00	183.00	189.95	KUD1948: 6.95m @ 1.49% Ni; 0.36% Cu; 0.11% Co
KUD1949	396183.09	8082538.27	-613.09	-60.40	289.50	256.50	79.05	91.70	KUD1949: 12.65m @ 0.98% Ni; 0.35% Cu; 0.07% Co
KUD1949	396183.09	8082538.27	-613.09	-60.40	289.50	256.50	167.90	184.15	KUD1949: 16.25m @ 2.41% Ni; 0.71% Cu; 0.19% Co
KUD1951	396199.25	8082541.05	-610.23	25.20	112.20	153.10	6.80	8.40	KUD1951: 1.60m @ 2.75% Ni; 0.29% Cu; 0.12% Co

KUD1951	396199.25	8082541.05	-610.23	25.20	112.20	153.10	16.00	17.00	KUD1951: 1.00m @ 0.55% Ni; 0.21% Cu; 0.02% Co
KUD1952	396193.91	8082537.77	-611.67	-12.80	132.80	131.00	94.75	96.70	KUD1952: 1.95m @ 1.13% Ni; 0.30% Cu; 0.08% Co
KUD1953	396193.90	8082537.74	-611.31	1.50	138.40	162.10	10.00	13.00	KUD1953: 3.00m @ 0.57% Ni; 0.14% Cu; 0.03% Co
KUD1953	396193.90	8082537.74	-611.31	1.50	138.40	162.10	17.40	21.15	KUD1953: 3.75m @ 1.03% Ni; 0.49% Cu; 0.05% Co
KUD1953	396193.90	8082537.74	-611.31	1.50	138.40	162.10	126.60	135.90	KUD1953: 9.30m @ 1.26% Ni; 0.87% Cu; 0.09% Co
KUD1954	396199.26	8082540.88	-611.65	-13.50	115.20	129.10	103.40	105.95	KUD1954: 2.55m @ 1.44% Ni; 0.12% Cu; 0.09% Co
KUD1954	396199.26	8082540.88	-611.65	-13.50	115.20	129.10	3.00	4.00	KUD1954: 1.00m @ 0.73% Ni; 0.40% Cu; 0.03% Co
KUD1955	396199.40	8082540.73	-612.11	-28.40	115.20	109.70	3.00	4.10	KUD1955: 1.10m @ 0.62% Ni; 0.10% Cu; 0.03% Co
KUD1955	396199.40	8082540.73	-612.11	-28.40	115.20	109.70	77.85	79.90	KUD1955: 2.05m @ 2.24% Ni; 0.21% Cu; 0.15% Co
KUD1956	396199.24	8082542.01	-611.21	0.90	99.80	231.10			NSI
KUD1957	396137.13	8082349.00	-574.32	1.29	305.00	59.50	26.60	32.80	KUD1957: 6.20m @ 1.50% Ni; 1.33% Cu; 0.11% Co
KUD1958	396137.08	8082349.01	-573.83	20.00	319.80	51.30	14.00	24.80	KUD1958: 10.80m @ 1.50% Ni; 0.64% Cu; 0.11% Co
KUD1959	396166.51	8082359.73	-572.91	30.63	289.59	51.50	17.70	28.50	KUD1959: 10.80m @ 1.48% Ni; 1.13% Cu; 0.11% Co
KUD1959	396166.51	8082359.73	-572.91	30.63	289.59	51.50	34.00	35.00	KUD1959: 1.00m @ 1.26% Ni; 0.10% Cu; 0.09% Co
KUD1959	396166.51	8082359.73	-572.91	30.63	289.59	51.50	40.80	42.00	KUD1959: 1.20m @ 1.45% Ni; 0.29% Cu; 0.10% Co
KUD1960	396167.09	8082359.94	-573.00	29.56	316.89	51.80	14.65	19.05	KUD1960: 4.40m @ 1.66% Ni; 0.50% Cu; 0.12% Co
KUD1961	396206.55	8082364.64	-575.30	15.69	302.04	79.90	35.00	39.00	KUD1961: 4.00m @ 0.90% Ni; 2.12% Cu; 0.07% Co
KUD1961	396206.55	8082364.64	-575.30	15.69	302.04	79.90	71.00	75.00	KUD1961: 4.00m @ 0.46% Ni; 0.18% Cu; 0.04% Co
KUD1962	396210.17	8082380.34	-574.99	8.68	321.09	83.20	40.40	41.75	KUD1962: 1.35m @ 0.74% Ni; 0.08% Cu; 0.05% Co
KUD1962	396210.17	8082380.34	-574.99	8.68	321.09	83.20	16.30	22.35	KUD1962: 6.05m @ 0.83% Ni; 0.68% Cu; 0.06% Co
KUD1963	396211.41	8082380.28	-574.99	9.82	339.90	58.90	15.30	28.50	KUD1963: 13.20m @ 0.67% Ni; 0.52% Cu; 0.05% Co
KUD1964	396212.34	8082380.29	-574.99	9.93	2.00	56.10	15.80	31.20	KUD1964: 15.40m @ 1.44% Ni; 0.47% Cu; 0.10% Co
KUD1965	396213.47	8082380.03	-575.00	10.13	21.82	69.00	23.30	27.70	KUD1965: 4.40m @ 1.82% Ni; 0.40% Cu; 0.13% Co
KUD1965	396213.47	8082380.03	-575.00	10.13	21.82	69.00	53.40	57.20	KUD1965: 3.80m @ 1.57% Ni; 1.01% Cu; 0.11% Co
KUD1965	396213.47	8082380.03	-575.00	10.13	21.82	69.00	42.65	49.35	KUD1965: 6.70m @ 1.10% Ni; 0.16% Cu; 0.08% Co
KUD1966	396223.13	8082342.29	-575.54	15.39	335.00	87.10	47.45	51.95	KUD1966: 4.50m @ 0.76% Ni; 0.24% Cu; 0.05% Co
KUD1967	396223.56	8082342.35	-575.93	2.46	11.79	97.60	81.95	84.80	KUD1967: 2.85m @ 2.31% Ni; 0.30% Cu; 0.16% Co
KUD1967	396223.56	8082342.35	-575.93	2.46	11.79	97.60	56.70	73.95	KUD1967: 17.25m @ 1.79% Ni; 0.57% Cu; 0.13% Co
KUD1968	396230.52	8082342.05	-575.71	4.80	27.90	88.80	57.25	67.60	KUD1968: 10.35m @ 1.26% Ni; 0.25% Cu; 0.09% Co
KUD1968	396230.52	8082342.05	-575.71	4.80	27.90	88.80	71.00	78.35	KUD1968: 7.35m @ 0.95% Ni; 0.18% Cu; 0.07% Co
KUD1969	396230.61	8082342.04	-575.71	6.03	40.02	91.60	76.80	77.85	KUD1969: 1.05m @ 0.62% Ni; 0.99% Cu; 0.04% Co
KUD1969	396230.61	8082342.04	-575.71	6.03	40.02	91.60	63.60	70.75	KUD1969: 7.15m @ 1.46% Ni; 0.44% Cu; 0.10% Co
KUD1970	395858.63	8082458.19	-535.52	-10.00	200.00	301.70			NSI
KUD1971	395858.35	8082458.43	-535.81	-18.81	220.39	333.10	222.85	224.00	KUD1971: 1.15m @ 0.90% Ni; 0.05% Cu; 0.03% Co
KUD1972	396052.65	8082508.01	-675.98	-9.70	158.70	75.00	57.55	67.35	KUD1972: 9.80m @ 1.67% Ni; 0.44% Cu; 0.13% Co
KUD1973	396052.64	8082508.13	-676.56	-27.55	158.22	86.90	54.10	55.80	KUD1973: 1.70m @ 1.52% Ni; 0.79% Cu; 0.12% Co
KUD1973	396052.64	8082508.13	-676.56	-27.55	158.22	86.90	46.75	50.70	KUD1973: 3.95m @ 0.90% Ni; 0.65% Cu; 0.07% Co
KUD1974	396052.81	8082508.87	-676.95	-60.13	155.68	86.70	49.10	55.85	KUD1974: 6.75m @ 0.71% Ni; 0.82% Cu; 0.05% Co
KUD1975	396050.96	8082507.20	-676.84	-9.02	138.10	75.40	50.10	51.55	KUD1975: 1.45m @ 1.22% Ni; 0.42% Cu; 0.10% Co

KUD1975	396050.96	8082507.20	676.84	-9.02	138.10	75.40	55.30	67.70	KUD1975: 12.40m @ 1.90% Ni; 0.53% Cu; 0.15% Co
KUD1976	396052.81	8082508.31	676.64	32.20	135.00	74.60	41.60	42.60	KUD1976: 1.00m @ 0.62% Ni; 0.11% Cu; 0.05% Co
KUD1976	396052.81	8082508.31	676.64	32.20	135.00	74.60	49.90	55.10	KUD1976: 5.20m @ 1.96% Ni; 0.91% Cu; 0.16% Co
KUD1977	396052.94	8082508.90	676.93	64.99	128.26	75.00	19.00	20.00	KUD1977: 1.00m @ 0.72% Ni; 0.01% Cu; 0.01% Co
KUD1977	396052.94	8082508.90	676.93	64.99	128.26	75.00	54.70	63.60	KUD1977: 8.90m @ 1.65% Ni; 0.53% Cu; 0.13% Co
KUD1978	396052.81	8082508.87	676.95	55.59	190.32	76.00	59.25	65.35	KUD1978: 6.10m @ 0.86% Ni; 0.50% Cu; 0.06% Co
KUD1979	396053.01	8082508.37	676.56	30.51	175.58	74.80	47.00	48.00	KUD1979: 1.00m @ 0.53% Ni; 0.43% Cu; 0.04% Co
KUD1979	396053.01	8082508.37	676.56	30.51	175.58	74.80	53.65	56.55	KUD1979: 2.90m @ 0.87% Ni; 0.37% Cu; 0.07% Co
KUD1980	396052.76	8082508.38	676.00	-5.98	119.89	80.00	57.70	76.05	KUD1980: 18.35m @ 1.56% Ni; 0.61% Cu; 0.13% Co
KUD1980	396052.76	8082508.38	676.00	-5.98	119.89	80.00	51.60	54.40	KUD1980: 2.80m @ 0.85% Ni; 0.36% Cu; 0.07% Co
KUD1981	396058.07	8082513.51	675.74	-7.65	115.37	88.90	59.20	83.00	KUD1981: 23.80m @ 2.03% Ni; 0.82% Cu; 0.16% Co
KUD1982	396058.07	8082513.52	675.60	-6.86	103.98	103.70	61.65	91.45	KUD1982: 29.80m @ 2.19% Ni; 0.93% Cu; 0.17% Co
KUD1982	396058.07	8082513.52	675.60	-6.86	103.98	103.70	94.50	97.20	KUD1982: 2.70m @ 1.62% Ni; 0.66% Cu; 0.12% Co
KUD1983	396001.63	8082510.35	675.67	-3.93	139.89	105.00	86.00	91.30	KUD1983: 5.30m @ 0.68% Ni; 0.10% Cu; 0.05% Co
KUD1984	396001.34	8082510.27	676.71	23.77	149.89	96.00	79.00	82.65	KUD1984: 3.65m @ 1.57% Ni; 0.34% Cu; 0.12% Co
KUD1984	396001.34	8082510.27	676.71	23.77	149.89	96.00	57.00	58.00	KUD1984: 1.00m @ 0.59% Ni; 0.23% Cu; 0.05% Co
KUD1985	396001.31	8082510.28	676.92	39.66	155.40	90.80	77.60	80.40	KUD1985: 2.80m @ 1.46% Ni; 0.09% Cu; 0.11% Co
KUD1985	396001.31	8082510.28	676.92	39.66	155.40	90.80	57.60	58.60	KUD1985: 1.00m @ 0.50% Ni; 0.19% Cu; 0.04% Co
KUD1986	396001.08	8082510.44	677.11	54.49	154.99	95.30	71.80	82.25	KUD1986: 10.45m @ 0.57% Ni; 0.35% Cu; 0.04% Co
KUD1987	396001.17	8082510.55	677.06	48.03	184.89	104.20	79.85	89.95	KUD1987: 10.10m @ 0.68% Ni; 0.27% Cu; 0.05% Co
KUD1988	396000.41	8082510.97	677.02	64.86	185.20	114.00	91.30	98.15	KUD1988: 6.85m @ 0.83% Ni; 0.66% Cu; 0.06% Co
KUD1989	395963.10	8082524.17	674.96	0.21	199.96	201.00			NSI
KUD1990	395963.05	8082524.15	675.06	-4.82	189.99	170.30	124.25	127.65	KUD1990: 3.40m @ 1.85% Ni; 0.31% Cu; 0.12% Co
KUD1990	395963.05	8082524.15	675.06	-4.82	189.99	170.30	135.65	141.80	KUD1990: 6.15m @ 0.85% Ni; 0.10% Cu; 0.05% Co
KUD1991	395962.86	8082523.99	675.93	21.54	190.21	153.00	112.10	117.50	KUD1991: 5.40m @ 1.60% Ni; 0.61% Cu; 0.12% Co
KUD1992	395963.10	8082524.22	675.07	-4.96	180.00	147.00	112.00	120.20	KUD1992: 8.20m @ 0.45% Ni; 0.64% Cu; 0.03% Co
KUD1993	395963.09	8082524.15	675.34	14.78	179.98	137.10	98.75	100.00	KUD1993: 1.25m @ 0.87% Ni; 0.15% Cu; 0.06% Co
KUD1993	395963.09	8082524.15	675.34	14.78	179.98	137.10	108.10	115.15	KUD1993: 7.05m @ 1.48% Ni; 0.46% Cu; 0.11% Co
KUD1994	395963.03	8082524.12	675.92	25.38	180.23	129.00	107.55	113.45	KUD1994: 5.90m @ 1.13% Ni; 0.27% Cu; 0.09% Co
KUD1994	395963.03	8082524.12	675.92	25.38	180.23	129.00	76.55	77.80	KUD1994: 1.25m @ 1.76% Ni; 0.76% Cu; 0.13% Co
KUD1995	395962.89	8082524.13	675.23	-5.38	220.13	350.50	176.00	177.00	KUD1995: 1.00m @ 0.56% Ni; 0.16% Cu; 0.03% Co
KUD1995	395962.89	8082524.13	675.23	-5.38	220.13	350.50	185.00	188.00	KUD1995: 3.00m @ 2.12% Ni; 0.09% Cu; 0.09% Co
KUD1995	395962.89	8082524.13	675.23	-5.38	220.13	350.50	203.00	204.00	KUD1995: 1.00m @ 0.72% Ni; 0.59% Cu; 0.03% Co
KUD1996	395962.81	8082524.02	675.58	16.66	214.67	218.70			NSI
KUD1997	395962.74	8082524.14	675.89	24.60	226.99	242.00			NSI
KUD1998	395959.89	8082525.73	676.05	35.32	241.67	253.80	205.00	206.00	KUD1998: 1.00m @ 0.59% Ni; 0.13% Cu; 0.04% Co
KUD1998	395959.89	8082525.73	676.05	35.32	241.67	253.80	190.00	191.00	KUD1998: 1.00m @ 0.59% Ni; 0.20% Cu; 0.04% Co
KUD2036	396052.88	8082508.40	676.75	43.90	164.10	71.50	41.20	43.00	KUD2036: 1.80m @ 1.05% Ni; 0.37% Cu; 0.08% Co
KUD2036	396052.88	8082508.40	676.75	43.90	164.10	71.50	46.95	50.00	KUD2036: 3.05m @ 0.59% Ni; 0.27% Cu; 0.04% Co

KUD2037	396052.78	8082508.26	-676.80	-49.29	130.77	73.60	36.85	38.40	KUD2037: 1.55m @ 1.33% Ni; 0.27% Cu; 0.11% Co
KUD2037	396052.78	8082508.26	-676.80	-49.29	130.77	73.60	49.40	57.30	KUD2037: 7.90m @ 0.80% Ni; 0.48% Cu; 0.06% Co
KUD2038	396052.86	8082508.01	-676.23	-19.82	131.01	73.20	51.50	59.80	KUD2038: 8.30m @ 1.38% Ni; 0.60% Cu; 0.11% Co
KUD2039	396057.79	8082513.32	-676.30	-21.53	115.99	85.30	45.30	72.00	KUD2039: 26.70m @ 1.77% Ni; 0.65% Cu; 0.14% Co
KUD2040	396057.97	8082514.08	-676.28	-23.02	97.99	99.90	77.50	85.90	KUD2040: 8.40m @ 1.72% Ni; 0.49% Cu; 0.13% Co
KUD2040	396057.97	8082514.08	-676.28	-23.02	97.99	99.90	16.00	18.00	KUD2040: 2.00m @ 0.59% Ni; 0.29% Cu; 0.05% Co
KUD2040	396057.97	8082514.08	-676.28	-23.02	97.99	99.90	48.90	65.00	KUD2040: 16.10m @ 1.97% Ni; 0.78% Cu; 0.15% Co
KUD2041	396057.67	8082513.96	-676.69	-38.35	98.49	102.00	45.30	49.30	KUD2041: 4.00m @ 1.81% Ni; 0.69% Cu; 0.14% Co
KUD2041	396057.67	8082513.96	-676.69	-38.35	98.49	102.00	34.00	35.00	KUD2041: 1.00m @ 0.58% Ni; 0.27% Cu; 0.02% Co
KUD2041	396057.67	8082513.96	-676.69	-38.35	98.49	102.00	63.20	73.00	KUD2041: 9.80m @ 1.73% Ni; 1.01% Cu; 0.13% Co
KUD2042	396057.87	8082514.02	-676.33	-22.50	83.30	114.40	52.00	53.00	KUD2042: 1.00m @ 0.65% Ni; 0.10% Cu; 0.05% Co
KUD2042	396057.87	8082514.02	-676.33	-22.50	83.30	114.40	66.30	72.30	KUD2042: 6.00m @ 0.78% Ni; 0.25% Cu; 0.06% Co
KUD2042	396057.87	8082514.02	-676.33	-22.50	83.30	114.40	92.30	103.00	KUD2042: 10.70m @ 1.51% Ni; 0.61% Cu; 0.12% Co
KUD2043	396057.73	8082513.99	-676.54	-33.38	83.71	111.00	40.00	41.00	KUD2043: 1.00m @ 0.57% Ni; 0.27% Cu; 0.02% Co
KUD2043	396057.73	8082513.99	-676.54	-33.38	83.71	111.00	55.80	57.70	KUD2043: 1.90m @ 0.92% Ni; 0.39% Cu; 0.07% Co
KUD2043	396057.73	8082513.99	-676.54	-33.38	83.71	111.00	60.80	90.05	KUD2043: 29.25m @ 1.83% Ni; 0.82% Cu; 0.14% Co
KUD2043	396057.73	8082513.99	-676.54	-33.38	83.71	111.00	49.75	52.00	KUD2043: 2.25m @ 2.44% Ni; 0.48% Cu; 0.19% Co
KUD2043	396057.73	8082513.99	-676.54	-33.38	83.71	111.00	93.35	95.40	KUD2043: 2.05m @ 2.43% Ni; 0.41% Cu; 0.19% Co
KUD2044	396057.85	8082514.14	-676.06	-14.91	73.23	176.20	51.00	57.00	KUD2044: 6.00m @ 1.08% Ni; 0.29% Cu; 0.07% Co
KUD2044	396057.85	8082514.14	-676.06	-14.91	73.23	176.20	121.80	127.00	KUD2044: 5.20m @ 1.61% Ni; 0.61% Cu; 0.12% Co
KUD2044	396057.85	8082514.14	-676.06	-14.91	73.23	176.20	130.60	134.80	KUD2044: 4.20m @ 1.44% Ni; 0.23% Cu; 0.11% Co
KUD2044	396057.85	8082514.14	-676.06	-14.91	73.23	176.20	92.20	93.20	KUD2044: 1.00m @ 1.57% Ni; 0.13% Cu; 0.12% Co
KUD2045	396057.83	8082514.04	-676.26	-23.42	68.69	133.20	44.00	48.35	KUD2045: 4.35m @ 0.48% Ni; 0.28% Cu; 0.03% Co
KUD2045	396057.83	8082514.04	-676.26	-23.42	68.69	133.20	89.70	91.10	KUD2045: 1.40m @ 0.60% Ni; 0.10% Cu; 0.04% Co
KUD2045	396057.83	8082514.04	-676.26	-23.42	68.69	133.20	120.20	123.75	KUD2045: 3.55m @ 0.36% Ni; 0.61% Cu; 0.03% Co
KUD2046	396057.74	8082514.00	-676.50	-33.15	68.26	124.70	107.75	114.70	KUD2046: 6.95m @ 1.55% Ni; 0.78% Cu; 0.12% Co
KUD2046	396057.74	8082514.00	-676.50	-33.15	68.26	124.70	42.00	44.65	KUD2046: 2.65m @ 0.54% Ni; 0.58% Cu; 0.04% Co
KUD2046	396057.74	8082514.00	-676.50	-33.15	68.26	124.70	75.30	76.80	KUD2046: 1.50m @ 1.82% Ni; 2.13% Cu; 0.14% Co
KUD2047	396057.74	8082513.42	-676.54	-35.40	110.88	83.90	34.30	40.20	KUD2047: 5.90m @ 1.04% Ni; 1.67% Cu; 0.08% Co
KUD2047	396057.74	8082513.42	-676.54	-35.40	110.88	83.90	46.60	53.10	KUD2047: 6.50m @ 1.17% Ni; 0.76% Cu; 0.09% Co
KUD2047	396057.74	8082513.42	-676.54	-35.40	110.88	83.90	58.00	67.85	KUD2047: 9.85m @ 1.75% Ni; 0.77% Cu; 0.14% Co
KUD2048	396049.50	8082514.50	-676.60	-65.40	20.00	169.00	116.50	129.40	KUD2048: 12.90m @ 1.35% Ni; 0.78% Cu; 0.11% Co
KUD2048	396049.50	8082514.50	-676.60	-65.40	20.00	169.00	63.00	65.00	KUD2048: 2.00m @ 0.60% Ni; 0.21% Cu; 0.02% Co
KUD2048	396049.50	8082514.50	-676.60	-65.40	20.00	169.00	100.90	105.90	KUD2048: 5.00m @ 1.35% Ni; 0.42% Cu; 0.11% Co
KUD2048	396049.50	8082514.50	-676.60	-65.40	20.00	169.00	83.85	96.95	KUD2048: 13.10m @ 1.41% Ni; 0.56% Cu; 0.11% Co
KUD2049	396050.40	8082514.54	-677.01	-54.93	4.99	211.10	117.55	119.40	KUD2049: 1.85m @ 1.57% Ni; 0.34% Cu; 0.12% Co
KUD2049	396050.40	8082514.54	-677.01	-54.93	4.99	211.10	163.40	180.20	KUD2049: 16.80m @ 2.30% Ni; 0.50% Cu; 0.18% Co
KUD2049	396050.40	8082514.54	-677.01	-54.93	4.99	211.10	85.85	90.00	KUD2049: 4.15m @ 0.51% Ni; 0.03% Cu; 0.01% Co
KUD2052	396057.25	8082514.89	-676.36	-24.69	55.20	155.30	101.35	103.30	KUD2052: 1.95m @ 2.40% Ni; 0.30% Cu; 0.18% Co

KUD2052	396057.25	8082514.89	-676.36	-24.69	55.20	155.30	144.20	147.60	KUD2052: 3.40m @ 1.59% Ni; 0.28% Cu; 0.12% Co
KUD2053	396057.22	8082514.88	-676.51	-33.71	46.80	158.60	138.65	143.65	KUD2053: 5.00m @ 2.27% Ni; 0.51% Cu; 0.18% Co
KUD2054	396057.18	8082514.74	-676.54	-34.02	57.33	140.30	48.00	49.00	KUD2054: 1.00m @ 0.64% Ni; 0.06% Cu; 0.04% Co
KUD2054	396057.18	8082514.74	-676.54	-34.02	57.33	140.30	127.00	132.00	KUD2054: 5.00m @ 0.87% Ni; 0.79% Cu; 0.07% Co
KUD2054	396057.18	8082514.74	-676.54	-34.02	57.33	140.30	91.00	93.70	KUD2054: 2.70m @ 0.60% Ni; 0.25% Cu; 0.05% Co
KUD2055	396057.06	8082514.85	-676.58	-44.64	67.30	119.00	81.80	84.60	KUD2055: 2.80m @ 2.51% Ni; 0.98% Cu; 0.20% Co
KUD2055	396057.06	8082514.85	-676.58	-44.64	67.30	119.00	101.00	108.00	KUD2055: 7.00m @ 1.94% Ni; 0.86% Cu; 0.15% Co
KUD2055	396057.06	8082514.85	-676.58	-44.64	67.30	119.00	50.50	54.00	KUD2055: 3.50m @ 0.63% Ni; 0.17% Cu; 0.05% Co
KUD2055	396057.06	8082514.85	-676.58	-44.64	67.30	119.00	44.00	47.20	KUD2055: 3.20m @ 2.26% Ni; 1.10% Cu; 0.18% Co
KUD2055	396057.06	8082514.85	-676.58	-44.64	67.30	119.00	64.70	75.00	KUD2055: 10.30m @ 2.14% Ni; 0.72% Cu; 0.17% Co
KUD2055	396057.06	8082514.85	-676.58	-44.64	67.30	119.00	89.40	93.00	KUD2055: 3.60m @ 1.74% Ni; 0.46% Cu; 0.14% Co
KUD2056	396057.18	8082514.72	-676.62	-48.85	84.80	98.10	35.00	40.00	KUD2056: 5.00m @ 0.45% Ni; 0.27% Cu; 0.02% Co
KUD2056	396057.18	8082514.72	-676.62	-48.85	84.80	98.10	54.00	59.30	KUD2056: 5.30m @ 1.35% Ni; 0.67% Cu; 0.10% Co
KUD2056	396057.18	8082514.72	-676.62	-48.85	84.80	98.10	81.20	87.90	KUD2056: 6.70m @ 1.27% Ni; 0.39% Cu; 0.10% Co
KUD2056	396057.18	8082514.72	-676.62	-48.85	84.80	98.10	64.00	78.00	KUD2056: 14.00m @ 1.59% Ni; 0.69% Cu; 0.12% Co
KUD2057	396056.96	8082514.69	-676.80	-64.55	88.60	94.60	53.00	80.00	KUD2057: 27.00m @ 1.86% Ni; 0.88% Cu; 0.15% Co
KUD2058	396056.87	8082514.80	-676.79	-69.12	54.59	115.50	56.90	92.30	KUD2058: 35.40m @ 1.59% Ni; 0.69% Cu; 0.13% Co
KUD2058	396056.87	8082514.80	-676.79	-69.12	54.59	115.50	49.00	50.00	KUD2058: 1.00m @ 0.81% Ni; 0.14% Cu; 0.04% Co
KUD2058	396056.87	8082514.80	-676.79	-69.12	54.59	115.50	99.70	105.00	KUD2058: 5.30m @ 1.40% Ni; 0.65% Cu; 0.11% Co
KUD2059	396055.96	8082512.98	-676.83	-80.77	115.79	89.80	54.55	77.80	KUD2059: 23.25m @ 1.80% Ni; 0.80% Cu; 0.14% Co
KUD2060	396050.11	8082508.43	-677.00	-74.37	182.60	106.60	67.00	71.35	KUD2060: 4.35m @ 1.00% Ni; 0.39% Cu; 0.07% Co
KUD2061	396048.39	8082508.15	-676.93	-70.36	232.58	111.00	88.80	90.00	KUD2061: 1.20m @ 0.62% Ni; 0.42% Cu; 0.04% Co
KUD2061	396048.39	8082508.15	-676.93	-70.36	232.58	111.00	20.00	21.00	KUD2061: 1.00m @ 0.51% Ni; 0.15% Cu; 0.04% Co
KUD2061	396048.39	8082508.15	-676.93	-70.36	232.58	111.00	78.00	79.00	KUD2061: 1.00m @ 0.88% Ni; 0.31% Cu; 0.07% Co
KUD2062	396002.23	8082510.42	-675.88	-12.12	138.69	100.80	80.00	86.35	KUD2062: 6.35m @ 0.79% Ni; 0.62% Cu; 0.06% Co
KUD2063	396002.23	8082510.36	-675.82	-10.48	147.19	100.40	66.00	67.00	KUD2063: 1.00m @ 0.56% Ni; 0.22% Cu; 0.04% Co
KUD2063	396002.23	8082510.36	-675.82	-10.48	147.19	100.40	77.00	86.00	KUD2063: 9.00m @ 0.50% Ni; 0.30% Cu; 0.03% Co
KUD2064	396001.62	8082510.33	-675.98	-14.12	162.79	102.30	77.45	87.00	KUD2064: 9.55m @ 1.21% Ni; 0.54% Cu; 0.09% Co
KUD2065	396001.48	8082510.30	-675.91	-9.58	176.99	105.20	69.00	70.25	KUD2065: 1.25m @ 1.02% Ni; 0.14% Cu; 0.08% Co
KUD2065	396001.48	8082510.30	-675.91	-9.58	176.99	105.20	88.20	95.10	KUD2065: 6.90m @ 1.46% Ni; 0.68% Cu; 0.11% Co
KUD2066	396000.82	8082510.24	-675.96	-14.75	182.00	104.60	82.75	95.60	KUD2066: 12.85m @ 0.93% Ni; 0.57% Cu; 0.07% Co
KUD2067	396000.78	8082510.27	-675.84	-9.35	196.60	119.90	100.50	106.60	KUD2067: 6.10m @ 1.52% Ni; 0.32% Cu; 0.11% Co
KUD2068	396110.40	8082294.50	-525.60	-25.99	115.99	81.20			NSI
KUD2069	396075.67	8082325.59	-572.87	-4.70	274.87	93.00	55.00	56.00	KUD2069: 1.00m @ 0.64% Ni; 0.05% Cu; 0.02% Co
KUD2070	396075.77	8082326.19	-572.50	-14.68	282.20	110.20	43.00	44.00	KUD2070: 1.00m @ 0.75% Ni; 0.06% Cu; 0.03% Co
KUD2070	396075.77	8082326.19	-572.50	-14.68	282.20	110.20	60.00	64.00	KUD2070: 4.00m @ 0.71% Ni; 0.19% Cu; 0.03% Co
KUD2071	396075.84	8082326.76	-572.67	-12.64	308.00	50.50	35.00	40.00	KUD2071: 5.00m @ 0.80% Ni; 0.35% Cu; 0.05% Co
KUD2072	396077.08	8082327.66	-572.03	-20.61	339.99	45.00	24.95	26.40	KUD2072: 1.45m @ 1.52% Ni; 0.29% Cu; 0.10% Co
KUD2073	396107.14	8082337.81	-572.92	-14.87	333.59	53.20	21.20	22.80	KUD2073: 1.60m @ 1.62% Ni; 0.25% Cu; 0.11% Co

KUD2073	396107.14	8082337.81	-572.92	14.87	333.59	53.20	52.00	53.00	KUD2073: 1.00m @ 0.58% Ni; 0.16% Cu; 0.03% Co
KUD2074	395961.22	8082524.81	-675.91	-28.12	163.96	129.10	101.10	111.00	KUD2074: 9.90m @ 1.36% Ni; 0.68% Cu; 0.10% Co
KUD2075	395961.29	8082524.84	-675.96	-39.60	176.60	129.60	107.60	109.10	KUD2075: 1.50m @ 1.94% Ni; 0.20% Cu; 0.15% Co
KUD2076	395961.29	8082524.90	-676.11	-53.85	170.60	131.80	61.80	63.00	KUD2076: 1.20m @ 0.68% Ni; 0.09% Cu; 0.05% Co
KUD2076	395961.29	8082524.90	-676.11	-53.85	170.60	131.80	106.00	107.75	KUD2076: 1.75m @ 0.65% Ni; 0.18% Cu; 0.05% Co
KUD2076	395961.29	8082524.90	-676.11	-53.85	170.60	131.80	111.15	115.60	KUD2076: 4.45m @ 1.27% Ni; 0.35% Cu; 0.10% Co
KUD2077	395961.34	8082525.17	-676.43	-69.09	160.10	136.60	62.60	69.00	KUD2077: 6.40m @ 0.62% Ni; 0.54% Cu; 0.05% Co
KUD2077	395961.34	8082525.17	-676.43	-69.09	160.10	136.60	119.15	123.00	KUD2077: 3.85m @ 0.81% Ni; 0.37% Cu; 0.06% Co
KUD2078	395960.87	8082524.58	-675.41	-14.73	195.20	178.60	112.50	114.15	KUD2078: 1.65m @ 0.70% Ni; 1.04% Cu; 0.05% Co
KUD2078	395960.87	8082524.58	-675.41	-14.73	195.20	178.60	161.90	163.20	KUD2078: 1.30m @ 1.48% Ni; 0.14% Cu; 0.10% Co
KUD2079	395961.23	8082524.87	-676.01	-34.29	194.90	154.30	116.70	120.10	KUD2079: 3.40m @ 2.39% Ni; 0.90% Cu; 0.19% Co
KUD2079	395961.23	8082524.87	-676.01	-34.29	194.90	154.30	128.80	130.85	KUD2079: 2.05m @ 1.09% Ni; 0.26% Cu; 0.07% Co
KUD2079	395961.23	8082524.87	-676.01	-34.29	194.90	154.30	137.00	139.80	KUD2079: 2.80m @ 1.00% Ni; 0.19% Cu; 0.07% Co
KUD2080	395961.25	8082524.93	-676.25	-45.80	199.73	160.80	125.80	136.40	KUD2080: 10.60m @ 0.48% Ni; 0.60% Cu; 0.04% Co
KUD2081	395960.96	8082524.53	-675.37	-14.80	190.10	141.00	119.10	120.20	KUD2081: 1.10m @ 2.36% Ni; 0.16% Cu; 0.19% Co
KUD2081	395960.96	8082524.53	-675.37	-14.80	190.10	141.00	125.00	127.20	KUD2081: 2.20m @ 0.57% Ni; 0.38% Cu; 0.04% Co
KUD2081	395960.96	8082524.53	-675.37	-14.80	190.10	141.00	113.50	115.00	KUD2081: 1.50m @ 0.70% Ni; 0.31% Cu; 0.05% Co
KUD2082	395960.85	8082524.55	-675.17	-9.17	196.82	204.80			NSI
KUD2083	395960.17	8082525.09	-674.83	0.62	211.30	213.40			NSI
KUD2084	395960.06	8082525.45	-675.79	-22.08	201.24	640.90	131.80	133.85	KUD2084: 2.05m @ 2.53% Ni; 0.51% Cu; 0.19% Co
KUD2084	395960.06	8082525.45	-675.79	-22.08	201.24	640.90	125.00	126.60	KUD2084: 1.60m @ 1.56% Ni; 0.31% Cu; 0.10% Co
KUD2085	395960.23	8082525.27	-675.41	-14.67	217.70	56.60			NSI
KUD2090	395960.20	8082525.78	-676.34	-64.79	219.55	170.70	146.20	147.20	KUD2090: 1.00m @ 0.77% Ni; 0.07% Cu; 0.06% Co
KUD2091	395961.86	8082526.73	-676.37	-52.29	202.09	147.10	124.80	135.15	KUD2091: 10.35m @ 1.57% Ni; 1.32% Cu; 0.13% Co
KUD2091	395961.86	8082526.73	-676.37	-52.29	202.09	147.10	138.50	139.55	KUD2091: 1.05m @ 0.79% Ni; 0.16% Cu; 0.06% Co
KUD2092	395960.06	8082525.55	-676.18	-52.29	202.09	80.90			NSI
KUD2093	396002.57	8082510.70	-676.87	-44.75	141.34	95.20	65.00	66.00	KUD2093: 1.00m @ 0.56% Ni; 0.14% Cu; 0.03% Co
KUD2093	396002.57	8082510.70	-676.87	-44.75	141.34	95.20	72.00	78.95	KUD2093: 6.95m @ 0.71% Ni; 0.44% Cu; 0.05% Co
KUD2094	396001.98	8082510.45	-676.55	-31.93	169.19	95.80	69.60	74.75	KUD2094: 5.15m @ 0.64% Ni; 0.12% Cu; 0.05% Co
KUD2094	396001.98	8082510.45	-676.55	-31.93	169.19	95.80	79.20	80.95	KUD2094: 1.75m @ 2.22% Ni; 0.35% Cu; 0.17% Co
KUD2095	396001.95	8082510.44	-676.56	-23.35	186.99	107.30	84.00	92.10	KUD2095: 8.10m @ 1.32% Ni; 0.47% Cu; 0.10% Co
KUD2096	396001.90	8082510.45	-676.64	-25.97	198.19	115.40	94.20	100.65	KUD2096: 6.45m @ 0.97% Ni; 0.17% Cu; 0.07% Co
KUD2097	396000.72	8082510.20	-676.03	-8.84	205.68	140.70	110.00	111.00	KUD2097: 1.00m @ 0.73% Ni; 0.32% Cu; 0.05% Co
KUD2098	396000.68	8082510.25	-676.09	-10.61	210.39	161.80			NSI
KUD2099	396217.52	8082496.92	-612.01	6.53	114.30	141.60	92.40	93.50	KUD2099: 1.10m @ 0.68% Ni; 0.13% Cu; 0.03% Co
KUD2099	396217.52	8082496.92	-612.01	6.53	114.30	141.60	127.00	133.30	KUD2099: 6.30m @ 1.31% Ni; 0.12% Cu; 0.08% Co
KUD2099	396217.52	8082496.92	-612.01	6.53	114.30	141.60	111.00	112.00	KUD2099: 1.00m @ 0.57% Ni; 0.17% Cu; 0.03% Co
KUD2100	396218.05	8082497.05	-612.97	12.01	116.72	78.40	65.80	67.20	KUD2100: 1.40m @ 0.70% Ni; 1.37% Cu; 0.04% Co
KUD2101	396217.48	8082496.87	-612.14	6.30	118.99	137.10	94.30	95.60	KUD2101: 1.30m @ 1.81% Ni; 0.19% Cu; 0.14% Co

KUD2101	396217.48	8082496.87	-612.14	6.30	118.99	137.10	112.20	128.00	KUD2101: 15.80m @ 0.93% Ni; 0.24% Cu; 0.06% Co
KUD2102	396217.63	8082496.99	-612.45	-0.36	119.38	28.90			NSI
KUD2102a	396217.53	8082496.91	-612.45	-2.90	120.10	107.20			NSI
KUD2103	396217.71	8082496.69	-612.74	-7.77	123.25	77.50			NSI
KUD2104	396217.43	8082496.82	-612.25	4.60	126.50	124.50	107.00	111.00	KUD2104: 4.00m @ 1.87% Ni; 0.15% Cu; 0.12% Co
KUD2105	396217.39	8082496.79	-612.11	8.40	126.80	143.10	116.10	130.00	KUD2105: 13.90m @ 1.38% Ni; 0.13% Cu; 0.09% Co
KUD2106	396217.26	8082496.61	-612.44	0.10	129.39	94.60	74.70	82.30	KUD2106: 7.60m @ 1.33% Ni; 0.91% Cu; 0.09% Co
KUD2107	396217.49	8082496.52	-612.97	-15.08	129.80	65.70	45.70	52.20	KUD2107: 6.50m @ 1.17% Ni; 1.43% Cu; 0.09% Co
KUD2109	396217.42	8082496.83	-612.07	10.71	134.34	128.00	93.55	109.00	KUD2109: 15.45m @ 1.87% Ni; 0.72% Cu; 0.14% Co
KUD2109	396217.42	8082496.83	-612.07	10.71	134.34	128.00	114.75	116.70	KUD2109: 1.95m @ 1.83% Ni; 0.21% Cu; 0.13% Co
KUD2111	396217.31	8082496.75	-612.20	7.09	142.85	102.20	71.70	80.95	KUD2111: 9.25m @ 1.93% Ni; 0.45% Cu; 0.14% Co
KUD2112	396217.26	8082496.67	-611.98	13.90	147.81	121.50	35.50	37.90	KUD2112: 2.40m @ 1.92% Ni; 0.58% Cu; 0.14% Co
KUD2112	396217.26	8082496.67	-611.98	13.90	147.81	121.50	71.65	95.70	KUD2112: 24.05m @ 1.78% Ni; 0.63% Cu; 0.13% Co
KUD2113	396216.95	8082496.45	-611.88	18.30	141.09	126.20	105.50	124.00	KUD2113: 18.50m @ 1.10% Ni; 0.43% Cu; 0.08% Co
KUD2113	396216.95	8082496.45	-611.88	18.30	141.09	126.20	79.20	88.50	KUD2113: 9.30m @ 2.35% Ni; 0.84% Cu; 0.17% Co
KUD2147	396253.09	8082424.67	-595.85	-3.87	323.06	92.50	27.50	28.95	KUD2147: 1.45m @ 2.17% Ni; 0.74% Cu; 0.16% Co
KUD2147	396253.09	8082424.67	-595.85	-3.87	323.06	92.50	0.00	13.20	KUD2147: 13.20m @ 1.19% Ni; 0.59% Cu; 0.09% Co
KUD2147	396253.09	8082424.67	-595.85	-3.87	323.06	92.50	16.65	18.20	KUD2147: 1.55m @ 0.78% Ni; 0.10% Cu; 0.06% Co
KUD2147	396253.09	8082424.67	-595.85	-3.87	323.06	92.50	47.80	49.00	KUD2147: 1.20m @ 0.50% Ni; 0.13% Cu; 0.03% Co
KUD2147	396253.09	8082424.67	-595.85	-3.87	323.06	92.50	38.40	40.95	KUD2147: 2.55m @ 1.70% Ni; 0.40% Cu; 0.12% Co
KUD2147	396253.09	8082424.67	-595.85	-3.87	323.06	92.50	56.85	80.80	KUD2147: 23.95m @ 1.73% Ni; 0.28% Cu; 0.12% Co
KUD2148	396253.80	8082424.72	-594.42	28.17	345.05	75.00	0.00	16.60	KUD2148: 16.60m @ 1.46% Ni; 0.81% Cu; 0.11% Co
KUD2148	396253.80	8082424.72	-594.42	28.17	345.05	75.00	47.90	48.95	KUD2148: 1.05m @ 0.60% Ni; 1.13% Cu; 0.04% Co
KUD2148	396253.80	8082424.72	-594.42	28.17	345.05	75.00	54.10	56.50	KUD2148: 2.40m @ 1.61% Ni; 0.08% Cu; 0.11% Co
KUD2149	396253.95	8082424.94	-595.14	12.91	2.69	99.10	0.00	10.00	KUD2149: 10.00m @ 2.26% Ni; 0.58% Cu; 0.16% Co
KUD2149	396253.95	8082424.94	-595.14	12.91	2.69	99.10	72.00	73.00	KUD2149: 1.00m @ 1.34% Ni; 0.37% Cu; 0.05% Co
KUD2150	396252.93	8082424.54	-593.64	33.80	315.90	59.00	0.00	14.00	KUD2150: 14.00m @ 1.66% Ni; 0.77% Cu; 0.12% Co
KUD2150	396252.93	8082424.54	-593.64	33.80	315.90	59.00	24.90	39.00	KUD2150: 14.10m @ 0.93% Ni; 0.44% Cu; 0.07% Co
KUD2153	396253.04	8082424.73	-595.15	13.13	330.05	87.00	48.00	53.90	KUD2153: 5.90m @ 1.65% Ni; 0.18% Cu; 0.12% Co
KUD2153	396253.04	8082424.73	-595.15	13.13	330.05	87.00	0.00	12.95	KUD2153: 12.95m @ 2.28% Ni; 0.94% Cu; 0.16% Co
KUD2153	396253.04	8082424.73	-595.15	13.13	330.05	87.00	26.90	31.90	KUD2153: 5.00m @ 1.07% Ni; 0.24% Cu; 0.08% Co
KUD2153	396253.04	8082424.73	-595.15	13.13	330.05	87.00	35.50	42.00	KUD2153: 6.50m @ 1.57% Ni; 0.40% Cu; 0.11% Co
KUD2153	396253.04	8082424.73	-595.15	13.13	330.05	87.00	59.90	61.90	KUD2153: 2.00m @ 0.95% Ni; 0.18% Cu; 0.07% Co
KUD2153	396253.04	8082424.73	-595.15	13.13	330.05	87.00	79.00	82.20	KUD2153: 3.20m @ 0.71% Ni; 0.03% Cu; 0.04% Co
KUD2154	396198.72	8082491.82	-693.80	20.80	325.29	74.80	35.00	38.00	KUD2154: 3.00m @ 0.85% Ni; 0.40% Cu; 0.06% Co
KUD2154	396198.72	8082491.82	-693.80	20.80	325.29	74.80	60.20	67.60	KUD2154: 7.40m @ 1.84% Ni; 0.56% Cu; 0.14% Co
KUD2155	396199.19	8082491.83	-694.63	4.62	335.10	125.00	42.80	48.30	KUD2155: 5.50m @ 1.11% Ni; 0.31% Cu; 0.09% Co
KUD2177	396047.40	8082513.20	-676.80	69.94	356.19	180.70	93.45	98.80	KUD2177: 5.35m @ 1.03% Ni; 0.24% Cu; 0.08% Co
KUD2177	396047.40	8082513.20	-676.80	69.94	356.19	180.70	163.00	164.00	KUD2177: 1.00m @ 0.50% Ni; 0.25% Cu; 0.03% Co

KUD2177	396047.40	8082513.20	-676.80	-69.94	356.19	180.70	75.00	76.00	KUD2177: 1.00m @ 0.51% Ni; 0.20% Cu; 0.02% Co
KUD2177	396047.40	8082513.20	-676.80	-69.94	356.19	180.70	113.10	153.00	KUD2177: 39.90m @ 1.71% Ni; 0.63% Cu; 0.13% Co
KUD2178	396055.80	8082517.70	-675.60	-46.84	5.59	221.90			NSI
KUD2180	396088.35	8082424.62	-615.25	-12.10	64.10	66.70			NSI
KUD2181	396087.99	8082425.52	-615.43	-12.70	64.00	65.90	64.05	65.90	KUD2181: 1.85m @ 1.06% Ni; 0.78% Cu; 0.08% Co

Notes:
1. *Intervals are down-hole lengths, not true-widths.*
2. *Parameters: 0.5% Ni lower-cut off, with a minimum reporting interval of 1m and with discretionary internal waste to a maximum of 3.0 consecutive metres.*
3. *SG calculated by immersion method.*
4. *For core loss intervals, reported intercept grades are calculated using the length weighted average from samples immediate above and below core loss interval*

Appendix 2

Appendix 2 – 2012 JORC Disclosures

Savannah Project - Table 1, Section 1 - Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • Aspects of the determination of mineralisation that are Material to the Public Report.	• The Savannah mine and surrounding exploration areas are typically sampled by diamond drilling techniques. Over 1600 holes have been drilled within the mine for a total in-excess of 220,000m. The majority of holes were drilled from underground platforms. • Initial Resource definition drilling is conducted on a nominal 50 x 50 metre grid spacing with subsequent infill grade control drilling conducted on a nominal 25 x 25 metre grid spacing. • Historically, all drill hole collars were surveyed using Leica Total Station survey equipment by a registered surveyor. Down hole surveys are typically performed every 30 metres using either "Reflex EZ Shot" or "Flexit Smart Tools".

Criteria	JORC Code explanation	Commentary
	• In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	• All diamond core is geologically logged with samples (typically between 0.2 metre to 1 metre long) defined by geological contacts. Analytical samples are dominantly sawn half core samples.
Drilling techniques	• Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	• Greater than 90% of the mine drill hole database consists of LTK60 and NQ2 size diamond holes. Exploration and Resource definition drill holes are typically NQ2 size. Infill grade control holes are typically LTK60. Historically, some RC holes were drilled about the upper part of the mine. • The diamond drill holes pertaining to this announcement were a combination of NQ2 and LTK60 size.
Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure representative nature of the samples. • Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	• Diamond core recoveries are logged and recorded in the database. Overall recoveries are typically >99% and there are no apparent core loss issues or significant sample recovery problems. • Hole depths are verified against core blocks. • Regular rod counts are performed by the drill contractor. • There is no apparent relationship between sample recovery and grade.
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. • The total length and percentage of the relevant intersections logged.	• All diamond holes pertaining to this announcement were geologically logged in full. • Geotechnical logging was carried out for recovery and RQD. The number of defects (per interval) and their roughness were recorded about ore zones. • Details of structure type, alpha angle, infill, texture and healing is also recorded for most holes and stored in the structure table of the mine drill hole database. • Logging protocols dictate lithology, colour, mineralisation, structural (DDH only) and other features are routinely recorded. • All diamond core was photographed wet.
Sub-sampling techniques and sample preparation	• If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique.	• Analytical core samples pertaining to this announcement were half core. • Sample sizes are considered appropriate to represent the Savannah North style of mineralisation. • SG determinations by water immersion technique are restricted to Resource definition and Exploration holes at Savannah and are

Criteria	JORC Code explanation	Commentary
	• Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	not performed on grade control holes. • All core sampling and sample preparation follow industry best practice. • QC involves the addition of purchased CRM and Savannah derived CRM assay standards, blanks, and duplicates. At least one form of QC is inserted in most sample batches on average one in every 20 samples. • Original versus duplicate assay results have always shown strong correlation due to the massive sulphide rich nature of the Savannah North mineralisation.
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. • Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	• Prior to 2019 all sample preparation included pulverising to 90% passing 75 µm followed by either a 3-acid digest & AAS finish at the Savannah onsite laboratory or a total 4 acid digest with an ICP OES finish if the samples are analysed off-site. • Since 2019 Bureau Veritas has operated the on-site laboratory. Sample preparation and assaying of all drill samples now involves crushing and pulverizing the sample to 80% passing 75µm followed by Ni, Cu, Co, Fe, MgO and S analysis by XRF of metaborate fused glass beads. The XRF brand is a ZETIUM Pan-analytical instrument. • No other analytical tools or techniques are employed. • The onsite laboratory uses internal standards, duplicates, replicates, blanks and repeats and carries out all appropriate sizing checks. • External laboratory checks are performed monthly by ALS Geochemistry Australia. No analytical bias has been identified.
Verification of sampling and assaying	• The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data.	• Drilling and sampling procedures at SNM have been inspected by many stakeholders since the project began. • Throughout the life of the mine, there have been several instances where holes have been twinned to confirm intersections and continuity. • In respect to the drill holes pertaining to this announcement, no holes were twinned. • Holes are logged into OCRIS software on Toughbook laptop computers before the data is transferred to SQL server databases. • All drill hole and assay data is routinely validated by site personnel. • No adjustments are made to assay data.
Location of data points	• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	• All diamond drill hole collars are picked-up using Leica TS15, R1000 instrument by a registered mine surveyor. • Downhole surveys are performed using an Axis Champ North Seeking Gyro instrument.

Criteria	JORC Code explanation	Commentary
	• Specification of the grid system used. • Quality and adequacy of topographic control.	Survey interval no more than 30m. • Visual checks to identify any obvious errors regarding the spatial position of drill holes collars or downhole surveys are routinely performed in a 3D graphics environment using Surpac software. • The mine grid is a truncated 4 digit (MGA94) grid system. • Conversion from local grid to MGA GDA94 Zone 52 is calculated by applying truncated factor to local coordinates is E: +390000, N: +8080000. • High quality topographic control is established across the mine site. RL equals AHD + 2,000m.
Data spacing and distribution	• Data spacing for reporting of Exploration Results. • Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. • Whether sample compositing has been applied.	• The Savannah and Savannah North Project nominal underground Resource Definition drill hole spacing is 25m (E) by 25m (RL) but does range from 50m (E) by 50m (RL) to 5m (E) by 5m (RL). • The mineralized domains delineated by the drill hole spacing show enough continuity to support the classification applied under the JORC Coe (2012 Edition). • No sample compositing is undertaken.
Orientation of data in relation to geological structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. • If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	• Where possible drill holes are designed to be drilled perpendicular to the target area being tested. • No orientation sampling bias has been identified.
Sample security	• The measures taken to ensure sample security.	• Drill samples are collected and transported to the on-site laboratory by SNM staff. Samples sent off site are road freighted.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• No recent audits/reviews of the Savannah drill sampling protocols have been undertaken. The procedures are considered to be of the highest industry standard. Mine to mill reconciliation records throughout the life of the Savannah Project provide confidence in the sampling procedures employed at the mine.

Savannah North Project - Table 1, Section 2 - Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and	• Type, reference name/number, location and ownership including agreements or material	• The Savannah Nickel Mine (SNM), incorporating the Savannah North Project is an

Criteria	JORC Code explanation	Commentary
land tenure status	issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. • The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	operating mine secured by five contiguous Mining Licences, ML's 80/179 to 80/183 inclusive. All tenure is current and in good standing. SNM has the right to explore for and mine all commodities within the mining tenements. • SNM has all statutory approvals and licences in place to operate. The mine has a long standing off-take agreement to mine and deliver nickel sulphide concentrate to the Jinchuan Group Co., LTD which finishes 13th February 2023. From the 14th February 2023 SNM entered a new agreement with Trafigura Pte. Ltd.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	• Since commissioning in 2004, SNM has conducted all surface and underground exploration and drilling related activities on the site.
Geology	• Deposit type, geological setting and style of mineralisation.	• The SNM is based on mining ore associated with the Savannah and Savannah North palaeo-proterozoic mafic/ultramafic intrusions. The "Savannah-style" Ni-Cu-Co rich massive sulphide mineralisation occurs as "classic" magmatic breccias developed about the more primitive, MgO rich basal parts of the two intrusions.
Drill hole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length. • If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	• All in-mine drilling at SNM is conducted on the Savannah mine grid, which is a "4 digit" truncated MGA grid. Conversion from local to MGA GDA94 Zone 52 is calculated by applying truncated factor to local coordinates of: E: +390000, N: +8080000. RL equals AHD + 2,000m. • Additional drill hole information pertaining to this announcement includes: • All diamond holes were either NQ2 or LTK60. • All core is oriented and photographed prior to logging, cutting and sampling. • All intersection intervals are reported as down-hole lengths and not true widths. • All reported assay results were performed by the on-site laboratory.
Data aggregation methods	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. • Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	• All analytical drill intercepts pertaining to reporting exploration results are based on sample length by grade weighted averages using a 0.5% lower cut-off, a minimum reporting length of 1m and maximum of 2m on consecutive internal waste. No top-cuts have been applied. • Cu and Co grades are determined for the same Ni interval defined above using the same procedures.

Criteria	JORC Code explanation	Commentary
	• The assumptions used for any reporting of metal equivalent values should be clearly stated.	
Relationship between mineralisation widths and intercept lengths	• These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. • If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	• All exploration results intersection lengths are reported as down hole lengths and not true widths. • Where reported, estimates of True Width are stated only when the geometry of the mineralisation with respect to the drill hole angle is sufficiently well established.
Diagrams	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	• Refer to figures in the document.
Balanced reporting	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	• Results from all drill-holes in the Mineral Resource have been reported and their context discussed and considered to be sufficiently balanced.
Other substantive exploration data	• Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	• No other data is considered material to this release at this stage.
Further work	• The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling). • Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	• The infill Resource Definition drill results reported herein for the Savannah North orebody are part of an ongoing program. Further results will be reported when they become available.

Savannah North Project - Table 1, Section 3 – Estimation and Reporting of Mineral Resources

Criteria	JORC Code explanation	Commentary
Database integrity	• Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. • Data validation procedures used.	• An Excel logging template with lookup tables and fixed formatting is used for logging and data collection. • Data validation checks are performed every

Criteria	JORC Code explanation	Commentary
		time a drill hole is entered into the database using a checklist.
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• Mr Mark Zammit, Principal Geologist at Cube Consulting Pty Ltd is the Competent Person for preparing the estimate and has undertaken a number of site visits to the Savannah Nickel Project with the most recent being for two days on 27th and 28th June 2015. • Mr Andrew Shaw-Stuart, Manager Geology & Exploration at Panoramic Resources is the Competent Person for data collection, is a full time employee of the Company and has undertaken numerous site visits.
Geological interpretation	• Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	• The Savannah North mineralisation dips moderately (40-45 degrees) to the north-west and comprises two main zones, the Upper Zone is developed on the basal contact of the North Olivine Gabbro, the second Lower Zone is a consistent remobilised zone of massive sulphide mineralisation, in part associated with the 500 Fault. Both zones are well defined by the drilling and the interpretation is considered sufficiently robust for resource modelling. • The confidence of the Savannah geological interpretation is high which has been confirmed by mapping and plus18 years of operational experience. No other interpretations have been considered as the current model is demonstrably robust. Geological controls were used to create the domains, namely, lithology, massive sulphide content, major structures. One of the main domains is affected by 2 major cross-cutting mafic dykes, the geometry and thickness of which are well understood.
	• Nature of the data used and of any assumptions made.	• Additional minor mineralised zones in Savannah North include one as an NE extending basal contact domain and nine domains in the hangingwall position to the Upper Zone.
	• The effect, if any, of alternative interpretations on Mineral Resource estimation.	• No other interpretations have been considered as the current model is demonstrably robust. Recent extension and infilling drilling has confirmed the geological interpretation.
	• The use of geology in guiding and controlling Mineral Resource estimation.	• Geological controls were used to create the mineralised domains in both Savannah and Savannah North. The interpretation has been defined by the presence of strong and continuous zones of massive sulphide mineralisation.
	• The factors affecting continuity both of grade and geology.	• Post mineralisation faulting and barren dykes have been interpreted and accounted for in both orebodies.
Dimensions	• The extent and variability of the Mineral	• The Savannah North mineralisation has been

Criteria	JORC Code explanation	Commentary
	Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	defined over a strike length of approximately 1km. The Savannah North Resource reported herein relates to an area with a strike length of 1,125m from 5,300mE to 6,425mE and extends from 615m to 1,575m below surface with an average domain thickness of approximately 4 to 5 metres. • The Savannah mineralisation is 350m along strike (east), varies in thickness from 1 to 50m and averages 8m thick, from the surface to 1100m depth. The Savannah Resource reported herein relates to an area within 5,400mE to 6,300mE.
Estimation and modelling techniques	• The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used. • The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data. • The assumptions made regarding recovery of by-products. • Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation). • In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. • Any assumptions behind modelling of selective mining units. • Any assumptions about correlation between variables. • Description of how the geological interpretation was used to control the resource estimates. • Discussion of basis for using or not using grade cutting or capping. • The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if	• Ordinary Kriging of 1m downhole composites was used to estimate Ni, Cu Co and density for all mineralised domains. • The parent estimation block dimensions used in the model were 20m(Y) x 20m(X) x 4(Z). A parent block size of 10m(Y) x 10m(X) x 4(Z) and 5m(Y) x 5m(X) x 2(Z) was also used for areas defined by closer spaced drilling. The parent block size(s) were selected on the basis of being approximately 50% of the average drill hole spacing in the deposit. Block descretisation points were set to 5(Y) x 5(X) x 2(Z) points. The final 3D block dimensions used for volume definition were 1.25 m (Y) x 1.25m(X) x 0.5m(Z). • Top cut analysis was undertaken for each domain using grade histograms, log-probability plots and spatial review and no extreme values were detected and therefore no top cuts were applied. A search radius of 65m (Ni), 45m (Cu), 55m (Co) and 206m (Density) was used, with a minimum of 4 and a maximum of 16 1m composites. A second pass strategy was used with between 2 and 3.7x search distance and the same minimum and maximum composites. Dynamic anisotropy using local rotations was used to reflect the general trend for each domain. • Check estimates using Inverse Distance and Nearest Neighbour methods are comparable. These estimates supported the OK estimate and yielded similar characteristics. • By-product credits for Cu and Co have formed part of the previous off-take agreement. • No deleterious elements have been modelled in the Mineral Resource estimate; the Savannah orebodies have low MgO and negligible arsenic levels. • No selective mining units were assumed in the estimate. • Ni and Co show a very strong correlation. Nickel and copper are much more variable.

Criteria	JORC Code explanation	Commentary
	available.	Variography and search neighborhoods were modelled separately for the grade attributes Ni, Cu and Co based on 1m composites for the Upper 1 domain and these models were adopted to the remaining domains. • The mineralisation interpretation was based on a combination of grade and geological characteristics such as massive sulphide content, lithology and structural boundaries. These were wireframed and used as hard boundaries to flag sample data for estimation. • Statistical analysis of the grade populations indicated no extreme values and a low coefficient of variation. • Validation has included comparing the raw data statistics to block estimates, volumes of wireframes to block model volumes, drill holes and block model value plots were produced for a visual checking of the grades. Good reconciliation data exists between mined and milled figures.
Moisture	• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	• Tonnages are estimated on a dry basis.
Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	• The presence of logged massive sulphide in addition to an approximate 0.5%Ni cut-off was used when defining the mineralised wireframes.
Mining factors or assumptions	• Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	• Mining at Savannah has been ongoing since 2004. Underground, sub-level open stoping is used effectively to extract the ore. No further assumptions were made on mining factors. Mining factors are applied during Ore Reserve conversion. Similar mining assumptions have been made and are in progress at the Savannah North Project.
Metallurgical factors or assumptions	• The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	• Savannah ore has been successfully treated through a 1Mtpa SAG mill and flotation circuit since commissioning in 2004. The metallurgical nature of the mineral resource in this estimate has not changed. Metallurgical factors are addressed in Ore Reserve conversion.

Criteria	JORC Code explanation	Commentary
Environmental factors or assumptions	• Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	• Savannah operates under the conditions set out by an environmental license to operate.
Bulk density	• Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples. • The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit. • Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	• Bulk density is determined using the water displacement method where possible for all resource definition samples. Where density measurements are missing, a regression formula incorporating S% is used such that a density value is present for all samples. • Voids within the mineralised zones are not common. • Density assignment for all mineralised domains was via Ordinary Kriging of 1m composites with variography and search parameters based on the density data. Waste material was assigned a value of 2.88.
Classification	• The basis for the classification of the Mineral Resources into varying confidence categories. • Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). • Whether the result appropriately reflects the Competent Person's view of the deposit.	• The classification adopted is based largely on drill data density and an understanding of the contact, and fault related mineralisation. Measured resources only includes mineralisation defined within the close spaced GC drilling domains. The drilling here ranges from 5 m x 5 m up to 20 m x 20 m spacing. Indicated resources include areas where the drilling spacing is greater than the close spaced GC drilling but approximates 50 m x 50 m. Inferred resources – includes areas are where the data density is greater than 50 m x 50 m spacing, typically around the periphery of the domains. • Overall, the confidence in the continuity of mineralisation and the quality of the input data is high. • The estimate and classification appropriately reflects the view of the Competent Person.
Audits or reviews	• The results of any audits or reviews of Mineral Resource estimates.	• The Mineral Resource estimate has been peer reviewed by the Panoramic corporate technical team.
Discussion of relative	• Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or	• The relative accuracy of the Mineral Resource estimate is considered robust as it has been compiled in accordance with the guidelines of

Criteria	JORC Code explanation	Commentary
accuracy/ confidence	procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. • The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. • These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	the 2012 JORC Code, and knowledge gained from extensive operational history of the mine. • The statement relates to global estimates of tonnes and grade. • Mine to mill reconciliation records throughout the life of the Savannah Project provide confidence in the accuracy of the Mineral Resource estimate.

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	• Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve. • Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	• The Mineral Resource used as the basis for this Ore Reserve was estimated by independent geology consultants Cube Consulting with an effective date of 04 August 2023. • These models were updated due to mining depletion, sterilization, and geological interpretations based on results from ore development, face sampling, drive mapping and pre-production drilling. • Mineral Resources are reported inclusive of Ore Reserves
	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• The Competent Person works onsite full time
Study status	• The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves. • The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	• The current mine design, mining method, operating parameters, modifying factors, actual costs and knowledge gained from over 10 years of production are used in the Ore Reserve estimate. • The work completed for this estimate utilized the assumptions from the 2017 Feasibility Study (FS) and recent updates including contracted mining services costs. All these assumptions were reviewed and updated at a Pre-Feasibility Study level or better. • The update indicates that that the Ore Reserve mine plan is technically achievable and

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>economically viable.</td></tr>
<tr><td>Cut-off parameters</td><td>• The basis of the cut-off grade(s) or quality parameters applied.</td><td>• The mine Mineral Resource block model was updated with a block value field (Net Smelter Return (NSR) $/t) after consideration of the contained metal, smelter/refining payability, concentrate transport cost, and WA state government and traditional owner royalties.
• Cut-off grades were calculated as a dollar per ore tonne, based on the forecast operating costs in the current financial model.
• Economic analysis is carried out for each planned stope and only stopes with a positive return are included in the Ore Reserve estimate.
• Cut-off NSR values were calculated to be
o Fully costed stoping – $153/t ore;
o Incremental stoping – $115/t ore; and
o Ore development – $43/t ore.</td></tr>
<tr><td>Mining factors or assumptions</td><td>• The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).
• The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.
• The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc), grade control and pre-production drilling.
• The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).
• The mining dilution factors used.
• The mining recovery factors used.
• Any minimum mining widths used
• The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.
• The infrastructure requirements of the selected mining methods.</td><td>• Mining at Savannah North will utilise long-hole open stoping with paste fill. This mining method has been utilized successfully at the Savannah operation.
• Stopes were designed on 5 m sections utilizing Datamine's Mine Stope Optimizer (MSO) software. The stopes were optimized on the fully costed cut-off grade.
• As a part of the FS, Beck Engineering Pty Ltd was engaged to undertake a geotechnical study to forecast mine-scale stability and deformation. The method of analysis was Discontinuum Finite Modelling using geological structures on a mine scale. This method has previously been used by Beck Engineering (August 2015) to accurately model rock damage and seismic activity at Savannah. This analysis coupled with historical performance formed the basis of the geotechnical assumptions for the mine design.
• The primary mine design inputs are noted below. Blocks A, B and D are above the 1270 mRL (730 mbs) and Block D is below.
<table>
<tr><th>Optimisation Parameter</th><th>Unit</th><th>Blocks A, B and D</th><th>Block C</th></tr>
<tr><td>Stope Cut-off Grade</td><td>$ NSR</td><td>153</td><td>153</td></tr>
<tr><td>Min. Mining Width (True Width)</td><td>m</td><td>3</td><td>3</td></tr>
<tr><td>Vertical Level Interval</td><td>m</td><td>20</td><td>20</td></tr>
<tr><td>Section Length</td><td>m</td><td>5</td><td>5</td></tr>
<tr><td>HW Dilution (True Width)</td><td>m</td><td>1.0</td><td>2.0</td></tr>
<tr><td>FW Dilution (true Width)</td><td>m</td><td>0.5</td><td>0.5</td></tr>
</table></td></tr>
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<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>Min. Parallel Waste Pillar Width</td><td>m</td><td>10</td><td>10</td></tr>
<tr><td>Min. FW Dip Angle</td><td>deg</td><td>50</td><td>50</td></tr>
</table>
Infrastructure requirements (other than future capital development) for the selected mining method are established or currently being installed.
</td></tr>
<tr><td>Metallurgical factors or assumptions</td><td>The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.
Whether the metallurgical process is well-tested technology or novel in nature.
The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.
Any assumptions or allowances made for deleterious elements.
The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.
For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?</td><td>The metallurgical process is a conventional sulphide flotation technique involving crushing, grinding and flotation to produce a bulk nickel, copper, and cobalt concentrate.
Savannah ore has been successfully treated through the 1Mtpa SAG mill and flotation circuit first commissioned in 2004.
The metallurgical nature of the Savannah North deposit is characterized by an upper zone and a lower zone, separated at 1270 mRL horizon, and which exhibit slight performance difference in average metallurgical recovery. Savannah North Upper Zone averages nickel recovery of 81.7%, copper recovery of 98.8% and cobalt recovery of 92.0% for a concentrate grade of 8% Ni.
Savannah North Lower Zone averages nickel recovery of 83.7%, copper recovery of 99.3% and cobalt recovery of 95.2% for a concentrate grade of 8% Ni.
Metallurgical recoveries for the Savannah deposit are calculated from plant feed grades in the LOM plan and are based on over 10 years of historical plant performance. Average recoveries exhibited are 85% for Nickel, 95% for Copper and 88% for Cobalt.
Savannah produces a clean bulk nickel, copper, and cobalt concentrate and since commissioning in 2004 there have been no deleterious material penalties. As such no allowance has been made for deleterious material.
The Ore Reserve estimate has been based on appropriate mineralogy and metallurgical factors to meet the existing concentrate off-take specifications.</td></tr>
<tr><td>Environmental</td><td>The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.</td><td>Savannah operates under the conditions set out by an environmental license to operate.
Waste is placed on approved waste dumps or used as backfill in mined voids.
The existing tailings storage facility (TSF1) has an estimated three years of capacity to the final approved height at the modelled production rates.
An additional tailing storage facility (TSF2) will be required from Year 3 of Savannah North production. Coffey Mining Pty Ltd undertook an</td></tr>
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<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>options study, and a preferred option has been selected, designed and costed for a life-of-mine tailings facility.
• Discussions have been held with relevant regulatory bodies, and the Company expects no issues with the approvals process for TSF2.</td></tr>
<tr><td>Infrastructure</td><td>• The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided or accessed.</td><td>• The Savannah mine has substantial infrastructure in place including a paste fill plant, major electrical and pumping networks, a 1Mtpa processing plant, a fully equipped laboratory, extensive workshop, administration facilities, a 215 single person quarters village and tailings storage facility.</td></tr>
<tr><td>Costs</td><td>• The derivation of, or assumptions made, regarding projected capital costs in the study.
• The methodology used to estimate operating costs.
• Allowances made for the content of deleterious elements.
• The source of exchange rates used in the study.
• Derivation of transportation charges.
• The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.
• The allowances made for royalties payable, both Government and private.</td><td>• Costs are based on a combination of actual costs occurred in processing, and transportation over the FY2023 financial year and mining costs based on contract rates established under a 3-year mining services agreement awarded in July 2021.
• Capital underground development costs are derived from the LOM plan and actual costs as per above.
• Other capital costs are related to equipment and infrastructure costs and are based on quotes or historical actual costs.
• Closure costs have not been included.
• Metal prices and exchange rate assumptions are based on the median of a range of external market analysts medium term forecasts.
• Flat rate metal prices for nickel, copper, and cobalt as per the table below.
<table>
<tr><th>Item</th><th>Unit</th><th>Value</th></tr>
<tr><td>Nickel Price</td><td>A$/t</td><td>27,143</td></tr>
<tr><td>Copper Price</td><td>A$/t</td><td>10,714</td></tr>
<tr><td>Cobalt Price</td><td>A$/t</td><td>71,429</td></tr>
<tr><td>Exchange Rate</td><td>USD: AUD</td><td>0.70</td></tr>
</table>
• Net Smelter Return (NSR) factors were sourced from the existing concentrate offtake contract.
• WA government and Traditional Owner royalty costs are included in the NSR calculation.</td></tr>
<tr><td>Revenue factors</td><td>• The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.
• The derivation of assumptions made of metal or commodity price(s), for the</td><td>• Revenue factors are based on metal production in concentrate from the LOM plan, flat metal prices for nickel, copper, and cobalt (above), flat rate A$:US$ exchange rate (above) and the NSR factors in the existing concentrate offtake contract.</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
	principal metals, minerals and co-products.	
Market assessment	• The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future. • A customer and competitor analysis along with the identification of likely market windows for the product. • Price and volume forecasts and the basis for these forecasts. • For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	• The concentrate is contracted for sale to Jinchuan Group of China until February 2023 and to Trafigura from March 2023 to February 2028. The Savannah concentrate is being trucked to Wyndham Port and then shipped to Jinchuan's smelter/refinery in the Gansu province, northwest China.
Economic	• The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc. • NPV ranges and sensitivity to variations in the significant assumptions and inputs.	• Internal cash flow estimates apply an 8% real discount rate for NPV analysis and only economically viable ores are considered for mining based on a stope only cut-off grade. • Sensitivity analysis of key financial and physical parameters is applied to the LOM plan.
Social	• The status of agreements with key stakeholders and matters leading to social licence to operate.	• The Savannah Mine is fully permitted and has a coexistence agreement in place with Traditional Owners.
Other	• To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves: • Any identified material naturally occurring risks. • The status of material legal agreements and marketing arrangements • The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	• No significant unresolved material matters relating to naturally occurring risks, third party agreements or governmental/statutory approvals currently exist.
Classification	• The basis for the classification of the Ore Reserves into varying confidence categories. • Whether the result appropriately reflects the Competent Person's view of the deposit. • The proportion of Probable Ore Reserves that have been derived from Measured	• The classification adopted is based on the level of confidence as set out in the 2012 JORC guidelines • Proved Ore Reserves are based on Measured Mineral Resources subject to economic viability. • Probable Ore Reserves are based on Indicated Mineral Resources subject to the economic viability. • The estimate appropriately reflects the view of the

Criteria	JORC Code explanation	Commentary
	Mineral Resources (if any).	competent person.
Audits or reviews	• The results of any audits or reviews of Ore Reserve estimates.	• The Ore Reserve estimate, along with the mine design and life of mine plan, cost and revenue modelling has been peer-reviewed by Panoramic technical and management staff.

Discussion of relative accuracy/ confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.
	• The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.
	• Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.
	• It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.
		• The relative accuracy of the Ore Reserve estimate is considered robust as it is based on the knowledge gained from extensive operational history of the mine. Design and scheduling have been completed to a feasibility standard.
		• All currently reported Ore Reserve estimations are considered representative on a global scale.
		• Mine to mill reconciliation records throughout the life of the Savannah Mine provide confidence in the accuracy of the Ore Reserve
		• Considerations that may result in a lower confidence in the Ore Reserves include:
		  • There is a degree of uncertainty associated with geological estimates. The Ore Reserve classifications reflect the levels of geological confidence in the estimate;
		  • Nickel price and exchange rate assumptions are subject to market forces and present an area of uncertainty; and
		  • There is a degree of uncertainty regarding estimates of impacts of natural phenomena including geotechnical assumptions, hydrological assumptions, and the modifying mining factors, commensurate with the FS level of detail of the study.
		• Considerations in favour of a higher confidence in the Ore Reserves include:
		  • The mine plan assumes a low complexity mechanised mining method that has been successfully previously implemented by PAN at the site for over 10 years.
		  • Costs are based on historical data, underground contractor awarded rates, and a current offtake agreement.
		• The Ore Reserve is based on a global estimate. Modifying factors have been applied at a local scale.

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PANORAMIC
RESOURCES LTD
(Administrators Appointed)

31 January 2024

Quarterly Activities Report
for the period ending 31 December 2023

Summary

SAVANNAH NICKEL OPERATIONS

- On 14 December 2023, Panoramic Resources Limited (ASX:PAN) ("**Panoramic**" or "**the Company**") commenced formal insolvency proceedings with the appointment of Daniel Woodhouse, Hayden White and Kate Warwick from FTI Consulting as joint and several voluntary administrators ("**Administrators**").
- On 8 January 2024, the Administrators, having consulted with major creditors, key suppliers and other stakeholders, concluded to suspend production at the Savannah Nickel Project ("**Savannah**"), with the result that circa 140 of the site workforce were stood down and made redundant. Several positions within Panoramic's Perth office have, consequently, also been made redundant.
- Suspension of operations is now complete, with the asset left in a production ready state.
- Depressed nickel prices over the quarter, and continuing post quarter end, were a primary contributor to the Board's decision to appoint Voluntary Administrators, and subsequently the Administrators' decision to suspend production.
- A dual track strategy to sell or recapitalise the Panoramic business is underway, and will look to realise the full value of the defined ore bodies, extensive infrastructure, and exploration potential of Savannah.
- The December 2024 quarter delivered the highest quarterly volume of ore through the processing plant since the restart of operations at Savannah:
    - Ore mined decreased 13% quarter-on-quarter to 160,927t;
    - Ore milled increased by 2% to 187,943t;
    - Concentrate production was down 17% to 19,543dmt, with:
        - Contained nickel production down 15% to 1,435t nickel;
        - Contained copper production down 10% to 836t copper; and
        - Contained cobalt production down 26% to 99t cobalt;
- Two shipments of nickel-copper-cobalt concentrate were completed in the quarter:
    - Concentrate shipments were down 23% to 14,991dmt with:
        - Contained nickel shipped down 19% to 1,129t;
        - Contained copper shipped down 14% to 660t; and
        - Contained cobalt shipped down 35% to 72t.

Panoramic Resources Limited
Level 9, 553 Hay St
Perth, Western Australia 6000

Telephone: +61 8 6374 1700
Website:
www.panoramicresources.com

- The third ship which arrived at the Port of Wyndham on 26 December, did not depart until 4 January 2024 due to delays caused by third-party stevedoring activities. The cargo totalling 10,070wmt of concentrate largely comprised December production, and has been recorded as a post quarter shipment.
- Unit costs saw a quarter-on-quarter increase across C1, AISC and AIC metrics due to lower payable nickel production, higher operating costs and the inclusion of planned capital expenditure on a wall lift at tailing storage facility.

		Units	Dec Qtr 2023	Sep Qtr 2023	Change Qtr on Qtr
Unit Costs	C1	A$/lb	13.93	10.15	+37.2%
	AISC	A$/lb	16.62	11.96	+38.9%
	AIC	A$/lb	16.97	12.52	+35.5%

- FY24 Guidance for the March and June 2024 quarters together with the full year guidance has been withdrawn following the suspension of operations at Savannah .

SAVANNAH NICKEL EXPLORATION

- Drilling during the quarter focused on infill drilling the Savannah Extension below the 900 Fault, significantly de-risking future development of the Savannah orebody.
- Underground diamond drilling finished with the drilling contractor demobilised on 23 November 2023.

CORPORATE

- Cash at the end of the quarter totalled $27.3 million.
- Debt repayments for the quarter totalled A$1.7 million.

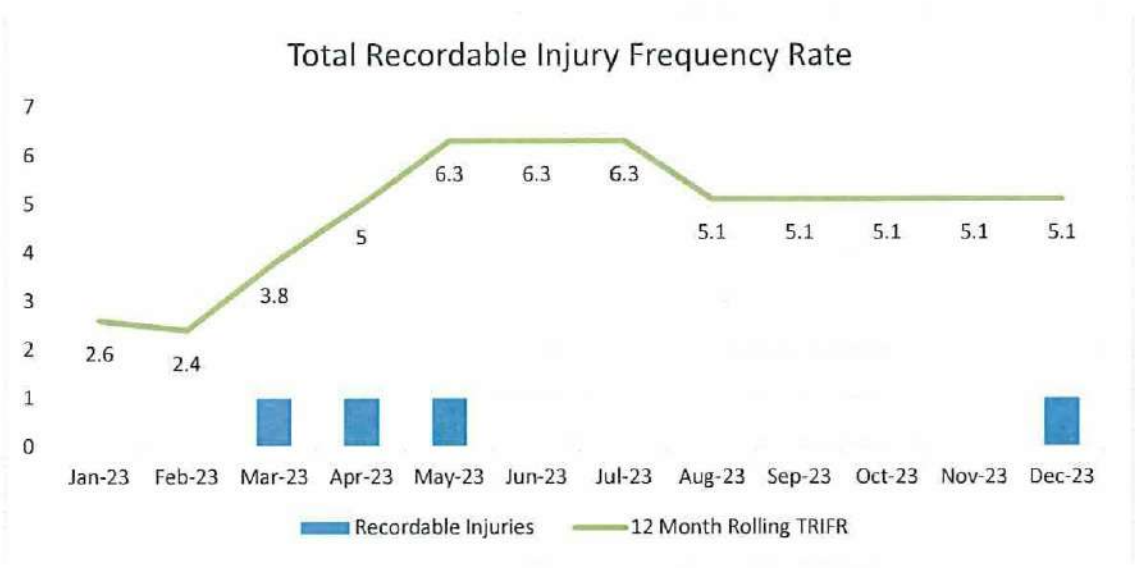
Savannah Nickel Project – Operations

Safety

A significant focus for the quarter was to realign safety and training systems for the processing and maintenance teams to work under one Panoramic system. This followed the cessation of Primero providing contracting services for the processing operations and the associated onboarding of Primero personnel to the Panoramic workforce.

The total recordable injury frequency rate ("**TRIFR**") remained at 5.1 with one recordable injury sustained in December, and prior to the Administrators' appointment, where an employee received lime burns to their lower legs and feet whilst working in the processing plant.

Significant effort was placed on protecting the operation from bushfires during October, including through proactive back burning programs which proved effective when fires developed later in the quarter, preventing any major damage to plant or associated infrastructure.



Environment

During the quarter, operations at Savannah maintained compliance with all regulatory and operating license requirements.

Construction of the Stage 6 Lift of the Savannah Tails Storage Facility ("**TSF**") commenced in early October and completed during the quarter, with a 2.5 metre lift to the TSF wall. This is expected to provide disposal capacity for an estimated 2 further years of mine life.

Primary environmental focus during the reporting period was housekeeping and contaminated water containment in the mill area.

Underground Mining

Underground mining activities continued throughout the quarter with ROM stock levels maintained in excess of 25,000t. Ore extraction from the mine was de-prioritised in favour of matching plant processing rates, to avoid ore oxidising on the ROM pad and resultant poor metallurgical recoveries. Ore mined for the quarter was 160,927t which was a 13% decrease on the previous quarter.

Stoping continued as planned in Savannah North with production delivered across 5 levels. December ore production from Savannah North was impacted due to the re-establishment of an escapeway on the 1341 level impacting production from that level.

During the quarter the first stope from the Savannah Extension was successfully mined and paste filled. Infrastructure works were carried out in the Savannah Extension, allowing for a substation and underground chiller plant to be installed when required.

Paste placement reliability continued to improve during the quarter, with a record 52,000m^3 of paste poured. At the time of suspension of operations paste fill was not considered to remain as a significant constraint in the Savannah North mining sequence.

Lateral development for the quarter was 768m, which was a 7% reduction on the previous quarter. Development is well advanced, providing the opportunity to utilise a single jumbo development drill fleet to achieve the previously planned production profile in the near term.

Figure A: Long Section of development and stoping at Savannah North

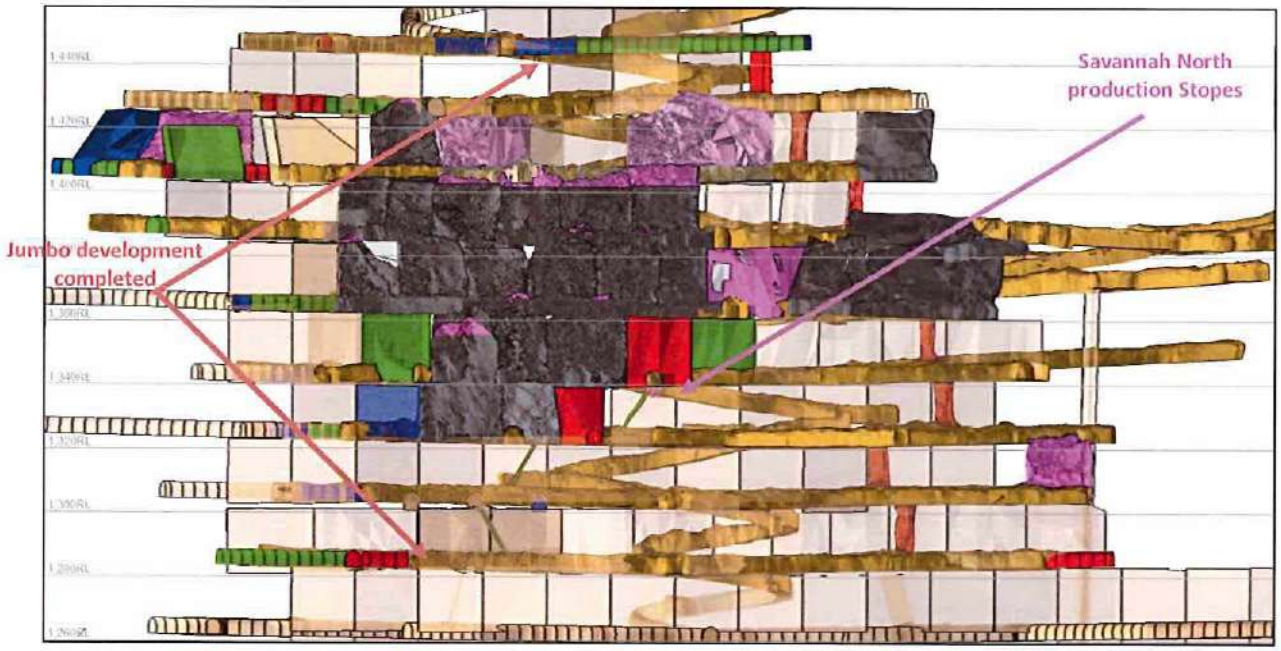


Figure B: Long Section of development and stoping at Savannah

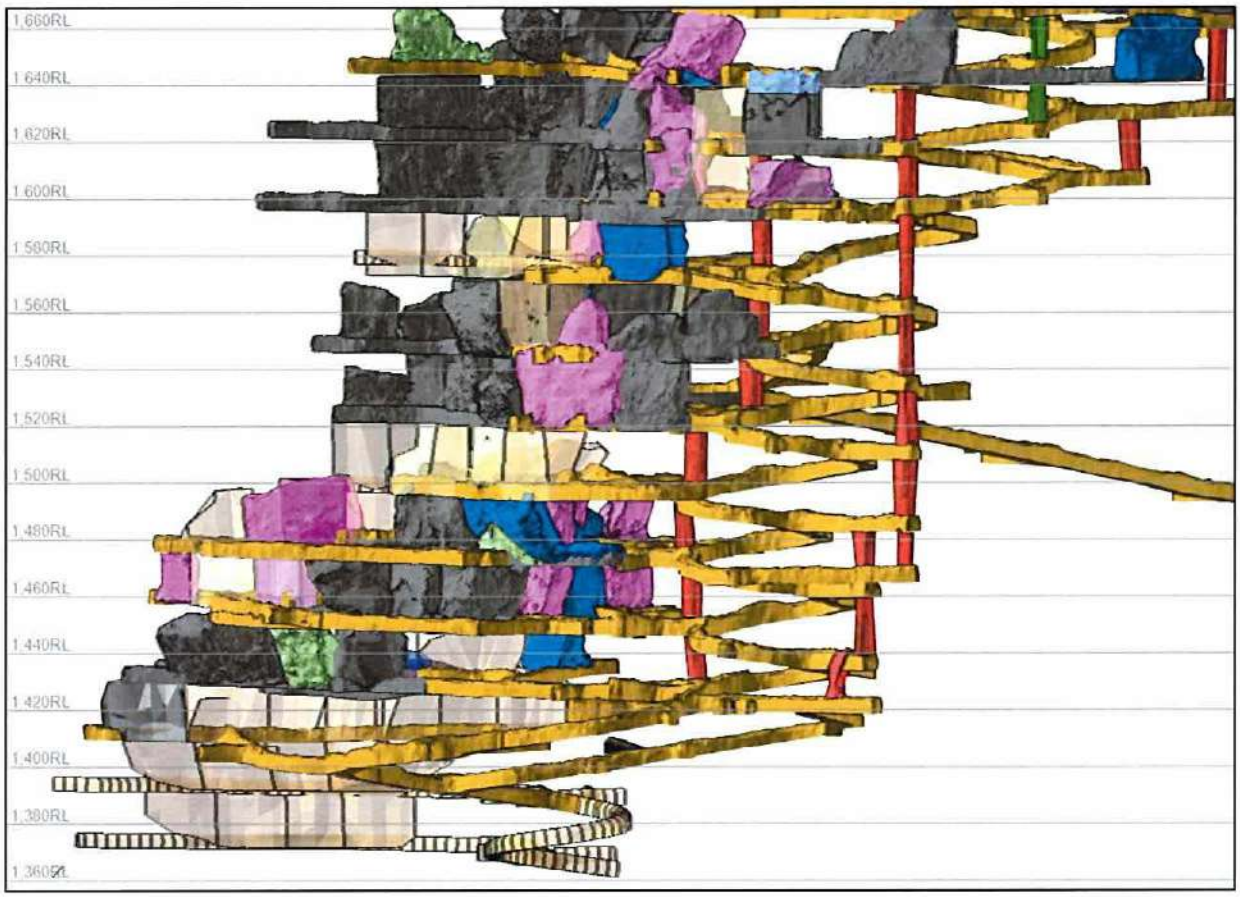


Table 1: Mining physicals achieved at Savannah

Area	Details	Units	Dec Qtr 2023	Sep Qtr 2023	Variance
Mining	Jumbo development	m	768	829	-7%
	Ore mined	dmt	160,927	185,213	-13%
	Ni grade	%	1.06	1.18	-10%
	Ni Metal contained	dmt	1,707	2,178	-22%
	Cu grade	%	0.50	0.55	-9%
	Co grade	%	0.07	0.08	-6%

Processing and Concentrate Production

187,943 tonnes of ore were processed in the quarter, representing a 2% increase on the previous quarter and the best quarterly throughput achieved since the restart of operations in 2021.

The quarter included a 2-day unplanned shutdown in October as a result of a bushfire which required resources to be diverted to protecting critical infrastructure. The bushfire was successfully contained and damage caused was negligible and limited to some outside services infrastructure which was readily repaired.

The transition to the owner processing model was executed early in the quarter as discussed above, with unplanned downtime at the processing plant continuing from the previous quarter. The focus on retaining and training the inexperienced processing team was a priority with positive outcomes evident by the end of the quarter.

Metallurgical recoveries were lower than previous quarters reflecting a number of factors including oxidation of ore on the ROM, operational inconsistencies and the relatively poor quality of processing water introduced into the plant. Changes were made at the end of the quarter to improve the quality of the process water which resulted in immediate metallurgical recoveries improvement.

Table 2: Processing physicals achieved at Savannah and Savannah North

Area	Details	Units	Dec Qtr 2023	Sep Qtr 2023	Variance
Milling	Ore milled	dmt	187,943	184,009	2%
	Ni grade	%	1.04	1.17	-11%
	Cu grade	%	0.49	0.55	-9%
	Co grade	%	0.07	0.08	-15%
	Ni recovery	%	73.59	78.36	-6%
	Cu recovery	%	89.87	92.70	-3%
	Co recovery	%	75.01	89.04	-16%
Concentrate Production	Concentrate	dmt	19,543	23,411	-17%
	Ni grade	%	7.34	7.19	2%
	Ni Metal contained	dmt	1,435	1,684	-15%
	Cu grade	%	4.28	3.98	7%
	Cu Metal contained	dmt	836	932	-10%
	Co grade	%	0.51	0.58	-12%
	Co Metal contained	dmt	99	135	-26%
Concentrate Shipments	Concentrate	dmt	14,991	19,344	-23%
	Ni grade	%	7.53	7.17	5%
	Ni Metal contained	dmt	1,129	1,388	-19%
	Cu grade	%	4.40	3.98	11%
	Cu Metal contained	dmt	660	770	-14%
	Co grade	%	0.48	0.57	-16%
	Co Metal contained	dmt	72	110	-35%

Port Operations and Shipments

Two concentrate shipments were completed during the December quarter. At the end of the quarter, produced / unsold concentrate on hand at the port and mine site totaled 9,589dmt.

A third ship arrived and commenced loading 26 December 2023, departing on 4 January 2024 with 10,070wmt of concentrate, after delays caused by third party stevedoring.

Costs

Table 3: Cost outcomes achieved during the December quarter 2023

		Units	Dec Qtr 2023	Sep Qtr 2023	Change Qtr on Qtr
Unit Costs	C1	A$/lb	13.93	10.15	+37.2%
	AISC	A$/lb	16.62	11.96	+38.9%
	AIC	A$/lb	16.97	12.52	+35.5%

Total site expenditure for the quarter net of by-product credits was $41.7 million, up 14% from the previous quarter.

Savannah operating C1 expenditure (cash basis net of by-product credits) for the quarter was $34.2 million, which results in a C1 cash cost per pound of payable nickel of $13.93/lb. Lower quarter-on-quarter payable nickel production contributed to the result together with higher energy/diesel costs (seasonal consumption), increased paste costs (higher volumes delivered) and increased sea freight costs (market conditions).

By-product credits were down 7% (A$0.24/lb) on forecast during the quarter as a result of lower realised copper and cobalt prices.

Sustaining capital expenditure inclusive of plant, equipment and mine development totaled $6.6 million being an increase against planned spend for the quarter. The result includes capital expenditure for wall lift works at the TSF that were commenced and completed (ahead of plan) in the quarter. This resulted in a AISC unit cost per pound of payable nickel of $16.62/lb.

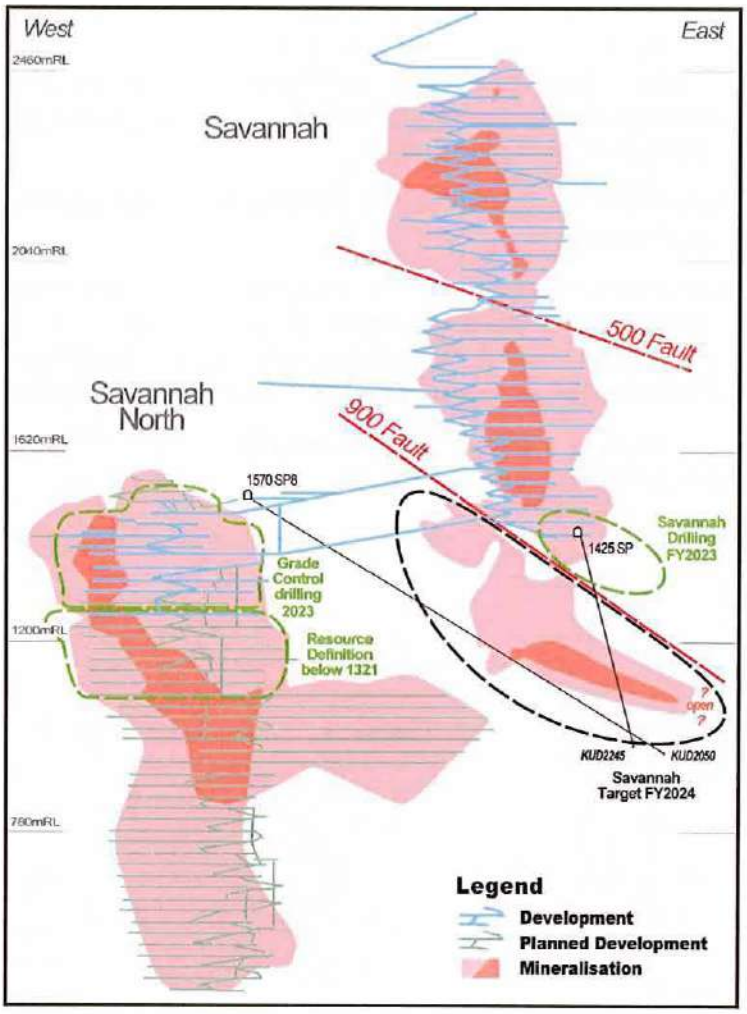
Growth expenditure and in-mine exploration costs reduced to $0.8 million in the quarter, with a resulting AIC unit cost of payable nickel of $16.97/lb.

Exploration – Savannah Mine

Savannah Drilling and DHEM Program Update

Drilling of the Savannah Sub 900 Fault orebody commenced during the quarter. Drilling focused from east to west along the southern contact of the intrusion immediately below the 900 Fault. The drilling, accompanied by the previously updated geological / resource models based on the KUD2050 and KUD2245 results continues to de-risk development to the base of the intrusion at approximately 5450mE and possibly further if the future Western Splay targeting is positive.

Figure C: Long section view of Savannah and Savannah North mineralisation above and below the 900 Fault featuring drill holes KUD2245 and KUD2050



Corporate

Concentrate Revenue

Revenue received in the quarter from the Company's offtake partner Trafigura totaled US$18.1 million (A$27.8 million), following the issue of provisional invoices covering 14,991dmt of concentrate containing 1,129t of contained nickel.

Two shipments from previous quarters were finalised in the period resulting in a favorable QP cash inflow adjustment (net of hedges settled) of US$0.08 million (A$0.12 million).

All payments received are inclusive of all three metals contained in the concentrate.

Hedging

During the quarter, the Company entered into new hedges totaling 312t of nickel at an average price of US$16,770/t. Hedges from the previous quarter totaling 360t of nickel were settled in the quarter at an average price of US$18,118/t.

As a result of the appointment of the Administrators to the business in December, all outstanding hedges at that time were required to be settled ahead of term, in accordance with conditions of the underlying hedging facility. A total of 312t of nickel metal hedging was consequently settled, resulting in a small cash gain.

At the end of the December quarter, there were no nickel or other hedges in place.

Trafigura Finance Facility

During the quarter the Company made two scheduled debt repayments to the Prepayment Loan Facility (PLF) totaling US$1.10 million. Debt repayments since initial drawdown total US$8.50 million.

Total drawn debt (PLF and RCF) as at 31 December 2023 was US$36.5 million.

Group Cash

Group cash as at 31 December 2023 totaled A$27.3 million.

Exploration Drilling

The information in this release that relates to exploration drilling at Savannah was last reported in the announcement "Savannah Nickel Project 2023 Mineral Resource and Ore Reserve Statement" dated 5 October 2023. The Company is not aware of any new information or data that materially affects the information included in that announcement.

Forward Looking Statements:

This announcement contains certain "forward-looking statements" and comments about future matters. Forward-looking statements can generally be identified by the use of forward-looking words such as, "expect", "anticipate", "likely", "intend", "should", "could", "may", "predict", "plan", "propose", "will", "believe", "forecast", "estimate", "target" "outlook", "guidance" and other similar expressions within the meaning of securities laws of applicable jurisdictions. Indications of, and guidance or outlook on, future earnings or financial position or performance are also forward-looking statements. You are cautioned not to place undue reliance on forward-looking statements. Any such statements, opinions and estimates in this announcement speak only as of the date hereof and are based on assumptions and contingencies subject to change without notice, as are statements about market and industry trends, projections, guidance and estimates. Forward-looking statements are provided as a general guide only. The forward-looking statements contained in this announcement are not indications, guarantees or predictions of future performance and involve known and unknown risks and uncertainties and other factors, many of which are beyond the control of the Company and the Administrators, and may involve significant elements of subjective judgement and assumptions as to future events which may or may not be correct.

There can be no assurance that actual outcomes will not differ materially from these forward-looking statements. A number of important factors could cause actual results or performance to differ materially from the forward-looking statements. The forward-looking statements are based on information available to the Company and the Administrators as at the date of this announcement.

Except as required by law or regulation (including the ASX Listing Rules), the Company and the Administrators undertake no obligation to supplement, revise or update forward-looking statements or to publish prospective financial information in the future, regardless of whether new information, future events or results or other factors affect the information contained in this announcement.

This ASX announcement was authorised by the Voluntary Administrators of Panoramic.

For further information contact:

Shane Murphy, FTI Consulting

+61 8 6430 1379

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ABN: 47 095 792 288
Level 9, 553 Hay St
Perth, WA 6000
T: +61 8 6374 1700
E: info@panres.com

ASX ANNOUNCEMENT
18 September 2023

Broad, high-grade extension of mineralisation at Savannah below 900 Fault

KEY POINTS

- Follow-up drill hole KUD2245 returns impressive **26.75m grading 1.76% Ni, 1.04% Cu and 0.08% Co** from 346.8m below the 900 Fault at Savannah
- The location and thickness of the intersection confirms the geological model and will support an upgrade to the Savannah Mineral Resource below the 900 Fault
- The high-grade massive sulphide mineralisation intersected in drill hole KUD2245 remains open down plunge parallel to the 900 Fault and further extensions will be targeted in future drilling
- Underground mining of the Savannah orebody has recently recommenced and the expected resource upgrade will significantly de-risk future development of the Savannah orebody below the 900 Fault

Panoramic Resources Limited (ASX:PAN) ("**Panoramic**" or the "**Company**") is pleased to provide an update on exploration targeting, resource extensions and ongoing underground drilling at the Company's Savannah Nickel Project in Western Australia.

Following a recent underground drill and DHEM survey campaign below the 900 Fault at Savannah, Panoramic has drilled follow-up hole KUD2245 intersecting 26.75m grading 1.76% Ni, 1.04% Cu and 0.08% Co from 346.8m. The intersections are located at a critical geological junction within the Savannah orebody which will have important ramifications for the next iteration of the Savannah Sub 900 Fault Mineral Resource Estimate (MRE) and ongoing targeting opportunities in this area of the orebody.

Commenting on the latest drill results, Managing Director and CEO, Victor Rajasooriar said:
"The thickness and grade of the KUD2245 intersection is very pleasing and a credit to the perseverance of our geological team to target this area of the Savannah intrusion below the 900 Fault. The geological information gleaned from KUD2245 confirms our theory of the Savannah orebody and the potential extension below the 900 fault. We are therefore confident it will result in a positive upgrade to our existing Savannah Sub 900 Fault resource which in turn will significantly de-risk the future development of the Savannah orebody below the fault.

Details

As part of a recent three-hole underground drill program to establish a DHEM platform to test for possible extensions to the Savannah orebody around the 900 Fault, Panoramic reported on the significant mineralisation encountered in KUD2050 below the fault (*refer to Company ASX announcement dated 8 May 2023*). The broad mineralised zones intersected by KUD2050 (Figure 1 & 2), which importantly included well developed massive sulphide mineralisation on both the northern and southern contacts of the Savannah intrusion, indicated the intersection was close to the base of the Savannah intrusion. This is an area of the orebody that has consistently exhibited substantially thickened zones of massive sulphides and from where the massive sulphide rich 'Western Splay" diverges from the orebody, extending up to 200m into the Tickalara Metamorphics west of the intrusion.

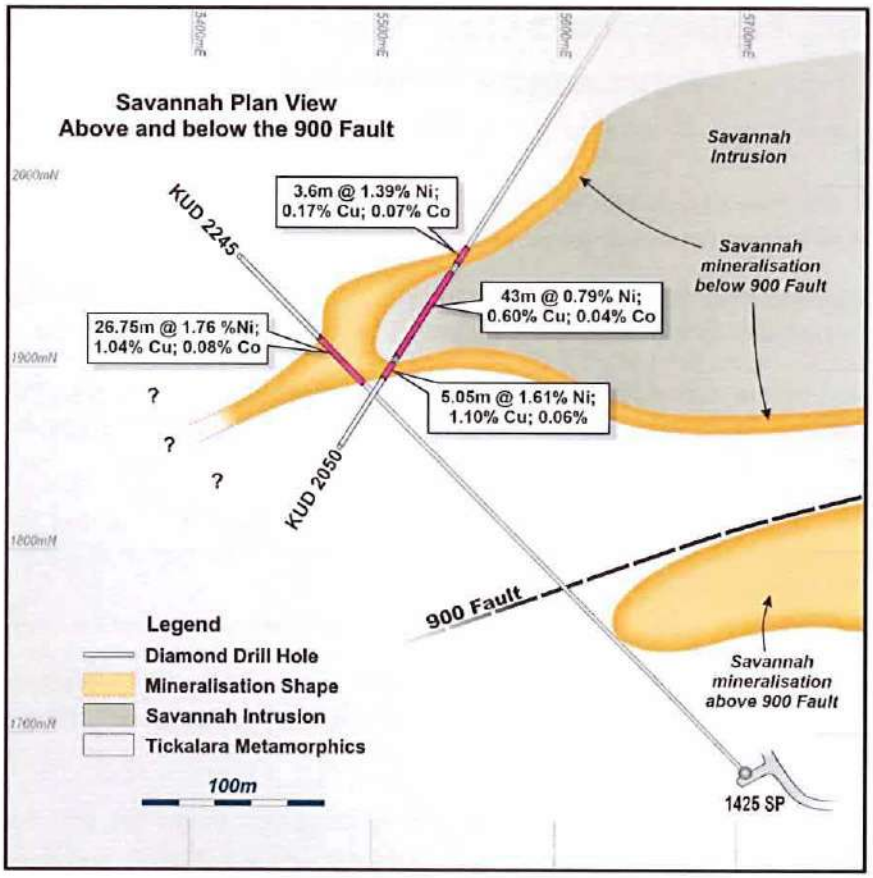


Figure 1: Plan view of the Savannah mineralisation and intrusion above and below the 900 Fault featuring drill holes KUD2245 and KUD2050

The divergence of the Western Splay from the area of thickened massive sulphide development around the base of the intrusion has been a consistent feature of the Savannah orebody throughout the mine, extending over a distance of approximately 900 metres from surface down to the 900 Fault.

Due to the presence of massive sulphide in KUD2050 interpretation of the DHEM data was complicated with very strong conductors identified, however geophysical processing could not accurately define the conductor source. Inhouse interpretation suggested further mineralisation to the west of KUD2050 and, through a combination of geological modelling and DHEM interpretation, warranted the drilling of KUD2245 to the west of KUD2050.

KUD2245 was collared from the Savannah 1425 SP located below the 900 Fault. The hole tracked below the fault on an azimuth of 316 degrees before intersecting the 26.75m of Savannah mineralisation from 346.8m.

Commentary

The KUD2245 intersection has important ramifications for the Savannah orebody below the 900 Fault. In conjunction with KUD2050, it accurately positions the base of the orebody and provides the first clear indication that massive sulphide mineralisation is thickened and continuous about the basal contact of the intrusion as observed elsewhere in this position throughout the mine. Both holes are effectively outside the current Sub 900 Fault resource and therefore when fully incorporated into the Savannah geological model they will have a significant positive impact on the next iteration of the Sub 900 Fault MRE.

The KUD2245 intersection will also provide future opportunities to further increase the resource by targeting the high-grade, massive sulphide rich "Western Splay" which is currently not modelled but is consistently observed throughout the mine to diverge from this area of the Savannah orebody and extends westward up to 200m metres of the intrusion. It also provides the confidence and justification to develop additional drill platforms in the current mining area to better target this important western end of the Savannah orebody below the 900 Fault, which still remains largely untested.

Development of the Savannah Sub 900 Fault orebody is scheduled to soon commence east to west along the southern contact of the intrusion immediately below the 900 Fault. The updated geological / resource models based on the KUD2050 and KUD2245 results with additional supporting drilling will de-risk continuing development to the base of the intrusion at approximately 5450mE and possibly further if the future Western Splay targeting is positive.

Figure 2: Long section view of the Savannah and Savannah North mineralisation above and below the 900 Fault featuring drill holes KUD2245 and KUD2050

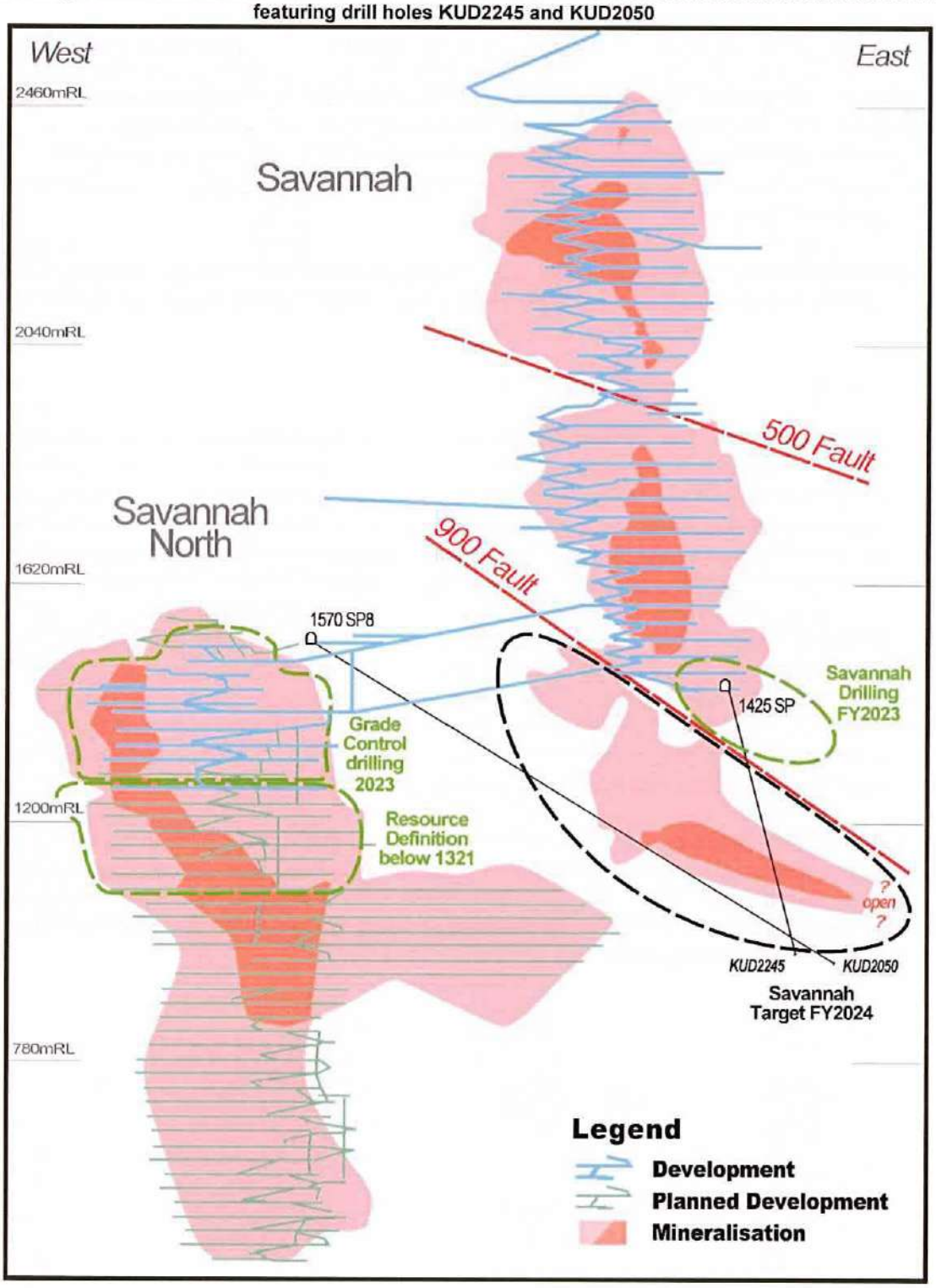


Figure 3: KUD2245 Core




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Competent Person

The information in this release that relates to Exploration Drilling at Savannah is based on information compiled by Andrew Shaw-Stuart. Andrew Shaw-Stuart is a member of the Australian Institute of Geoscientists (AIG) and is a full-time employee of Panoramic Resources Limited.

The aforementioned has sufficient experience that is relevant to the style of mineralisation and type of target/deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Shaw-Stuart consents to the inclusion in the release of the matters based on the information in the form and context in which it appears.

About Panoramic:

Panoramic Resources Limited (ASX: PAN) is a company headquartered in Perth, Western Australia, which owns the Savannah Nickel Project in the East Kimberley. Operations at Savannah were restarted in 2021 and the project was successfully recommissioned with first concentrate shipment achieved in December 2021. Savannah has a 12-year mine life with clear potential to further extend this through ongoing exploration. The asset provides excellent leverage to the nickel, copper and cobalt markets which are heavily linked to global decarbonisation and vehicle electrification.

Forward Looking Statements:

This announcement contains certain "forward-looking statements" and comments about future matters. Forward-looking statements can generally be identified by the use of forward-looking words such as, "expect", "anticipate", "likely", "intend", "should", "could", "may", "predict", "plan", "propose", "will", "believe", "forecast", "estimate", "target" "outlook", "guidance" and other similar expressions within the meaning of securities laws of applicable jurisdictions. Indications of, and guidance or outlook on, future earnings or financial position or performance are also forward-looking statements. You are cautioned not to place undue reliance on forward-looking statements. Any such statements, opinions and estimates in this announcement speak only as of the date hereof and are based on assumptions and contingencies subject to change without notice, as are statements about market and industry trends, projections, guidance and estimates. Forward-looking statements are provided as a general guide only. The forward-looking statements contained in this announcement are not indications, guarantees or predictions of future performance and involve known and unknown risks and uncertainties and other factors, many of which are beyond the control of the Company, and may involve significant elements of subjective judgement and assumptions as to future events which may or may not be correct.

There can be no assurance that actual outcomes will not differ materially from these forward-looking statements. A number of important factors could cause actual results or performance to differ materially from the forward-looking statements. The forward-looking statements are based on information available to the Company as at the date of this announcement.

Except as required by law or regulation (including the ASX Listing Rules), the Company undertakes no obligation to supplement, revise or update forward-looking statements or to publish prospective financial information in the future, regardless of whether new information, future events or results or other factors affect the information contained in this announcement.

This ASX announcement was authorised on behalf of the Panoramic Board by: Victor Rajasooriar, Managing Director & CEO

For further information contact:
Victor Rajasooriar, Managing Director & CEO
+61 8 6374 1700

Media inquiries:
Michael Vaughan, Fivemark Partners
+61 422 602 72

Appendix 1

Table 1- Summary of Drill Hole Data

Hole	East (m)	North (m)	RL (m)	Dip (°)	Azi (°)	EOH (m)	From (m)	To (m)	InterceptLabel (m@%Ni,%Cu,%Co)
KUD2245	395710	8081678	1421	-38.5	316	507.6	346.75	373.50	KUD2245: 26.75m @ 1.76% Ni; 1.04% Cu; 0.08% Co

Notes:
1. *Intervals are down-hole lengths, not true-widths.*
2. *Parameters: 0.5% Ni lower-cut off, with a minimum reporting interval of 1m and with discretionary internal waste to a maximum of 3.0 consecutive metres.*
3. *SG calculated by immersion method.*
4. *For core loss intervals, reported intercept grades are calculated using the length weighted average from samples immediate above and below core loss interval*

Appendix 2

Appendix 2 – 2012 JORC Disclosures

Savannah Project - Table 1, Section 1 - Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • Aspects of the determination of mineralisation that are Material to the Public Report. • In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	• The Savannah mine and surrounding exploration areas are typically sampled by diamond drilling techniques. Over 1600 holes have been drilled within the mine for a total in-excess of 220,000m. The majority of holes were drilled from underground platforms. • Initial Resource definition drilling is conducted on a nominal 50 x 50 metre grid spacing with subsequent infill grade control drilling conducted on a nominal 25 x 25 metre grid spacing. • Historically, all drill hole collars were surveyed using Leica Total Station survey equipment by a registered surveyor. Down hole surveys are typically performed every 30 metres using either "Reflex EZ Shot" or "Flexit Smart Tools". • All diamond core is geologically logged with samples (typically between 0.2 metre to 1 metre long) defined by geological contacts. Analytical samples are dominantly sawn half core samples.

Criteria	JORC Code explanation	Commentary
Drilling techniques	• Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	• Greater than 90% of the mine drill hole database consists of LTK60 and NQ2 size diamond holes. Exploration and Resource definition drill holes are typically NQ2 size. Infill grade control holes are typically LTK60. Historically, some RC holes were drilled about the upper part of the mine. • The diamond drill holes pertaining to this announcement were a combination of NQ2 and LTK60 size.
Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure representative nature of the samples. • Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	• Diamond core recoveries are logged and recorded in the database. Overall recoveries are typically >99% and there are no apparent core loss issues or significant sample recovery problems. • Hole depths are verified against core blocks. • Regular rod counts are performed by the drill contractor. • There is no apparent relationship between sample recovery and grade.
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. • The total length and percentage of the relevant intersections logged.	• All diamond holes pertaining to this announcement were geologically logged in full. • Geotechnical logging was carried out for recovery and RQD. The number of defects (per interval) and their roughness were recorded about ore zones. • Details of structure type, alpha angle, infill, texture and healing is also recorded for most holes and stored in the structure table of the mine drill hole database. • Logging protocols dictate lithology, colour, mineralisation, structural (DDH only) and other features are routinely recorded. • All diamond core was photographed wet.
Sub-sampling techniques and sample preparation	• If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	• Analytical core samples pertaining to this announcement were half core. • Sample sizes are considered appropriate to represent the Savannah North style of mineralisation. • SG determinations by water immersion technique are restricted to Resource definition and Exploration holes at Savannah and are not performed on grade control holes. • All core sampling and sample preparation follow industry best practice. • QC involves the addition of purchased CRM and Savannah derived CRM assay standards, blanks, and duplicates. At least one form of QC is inserted in most sample batches on average one in every 20 samples. • Original versus duplicate assay results have always shown strong correlation due to the massive sulphide rich nature of the Savannah

Criteria	JORC Code explanation	Commentary
		North mineralisation.
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. • Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	• Prior to 2019 all sample preparation included pulverising to 90% passing 75 µm followed by either a 3 acid digest & AAS finish at the Savannah onsite laboratory or a total 4 acid digest with an ICP OES finish if the samples are analysed off-site. • Since 2019 Bureau Veritas has operated the on-site laboratory. Sample preparation and assaying of all drill samples now involves crushing and pulverizing the sample to 80% passing 75µm followed by Ni, Cu, Co, Fe, MgO and S analysis by XRF of metaborate fused glass beads. The XRF brand is a ZETIUM Pan-analytical instrument. • No other analytical tools or techniques are employed. • The onsite laboratory uses internal standards, duplicates, replicates, blanks and repeats and carries out all appropriate sizing checks. • External laboratory checks are occasionally performed by ALS Geochemistry Australia. No analytical bias has been identified.
Verification of sampling and assaying	• The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data.	• Drilling and sampling procedures at SNM have been inspected by many stakeholders since the project began. • Throughout the life of the mine, there have been several instances where holes have been twinned to confirm intersections and continuity. • In respect to the drill holes pertaining to this announcement, no holes were twinned. • Holes are logged into OCRIS software on Toughbook laptop computers before the data is transferred to SQL server databases. • All drill hole and assay data is routinely validated by site personnel. • No adjustments are made to assay data.
Location of data points	• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. • Specification of the grid system used. • Quality and adequacy of topographic control.	• All diamond drill hole collars are picked-up using Leica TS15, R1000 instrument by a registered mine surveyor. • Downhole surveys are performed using an Axis Champ North Seeking Gyro instrument. Survey interval no more than 30m. • Visual checks to identify any obvious errors regarding the spatial position of drill holes collars or downhole surveys are routinely performed in a 3D graphics environment using Surpac software. • The mine grid is a truncated 4 digit (MGA94) grid system. • Conversion from local grid to MGA GDA94 Zone 52 is calculated by applying truncated factor to local coordinates is E: +390000, N:

Criteria	JORC Code explanation	Commentary
		+8080000. • High quality topographic control is established across the mine site. RL equals AHD + 2,000m.
Data spacing and distribution	• Data spacing for reporting of Exploration Results. • Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. • Whether sample compositing has been applied.	• The Savannah and Savannah North Project nominal underground Resource Definition drill hole spacing is 25m (E) by 25m (RL) but does range from 50m (E) by 50m (RL) to 5m (E) by 5m (RL). • The mineralized domains delineated by the drill hole spacing show enough continuity to support the classification applied under the JORC Coe (2012 Edition). • No sample compositing is undertaken.
Orientation of data in relation to geological structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. • If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	• Where possible drill holes are designed to be drilled perpendicular to the target area being tested. • No orientation sampling bias has been identified.
Sample security	• The measures taken to ensure sample security.	• Drill samples are collected and transported to the on-site laboratory by SNM staff. Samples sent off site are road freighted.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• No recent audits/reviews of the Savannah drill sampling protocols have been undertaken. The procedures are considered to be of the highest industry standard. Mine to mill reconciliation records throughout the life of the Savannah Project provide confidence in the sampling procedures employed at the mine.

Savannah North Project - Table 1, Section 2 - Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. • The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	• The Savannah Nickel Mine (SNM), incorporating the Savannah North Project is an operating mine secured by five contiguous Mining Licences, ML's 80/179 to 80/183 inclusive. All tenure is current and in good standing. SNM has the right to explore for and mine all commodities within the mining tenements. • SNM has all statutory approvals and licences in place to operate. The mine has a long standing off-take agreement to mine and deliver nickel sulphide concentrate to the Jinchuan Group Co., LTD which finished 13th February 2023. From the 14th February 2023 SNM entered a new agreement with Trafigura Pte. Ltd.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	• Since commissioning in 2004, SNM has conducted all surface and underground exploration and drilling related activities on the site.
Geology	• Deposit type, geological setting and style of mineralisation.	• The SNM is based on mining ore associated with the Savannah and Savannah North palaeo-proterozoic mafic/ultramafic intrusions. The "Savannah-style" Ni-Cu-Co rich massive sulphide mineralisation occurs as "classic" magmatic breccias developed about the more primitive, MgO rich basal parts of the two intrusions.
Drill hole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length. • If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	• All in-mine drilling at SNM is conducted on the Savannah mine grid, which is a "4 digit" truncated MGA grid. Conversion from local to MGA GDA94 Zone 52 is calculated by applying truncated factor to local coordinates of: E: +390000, N: +8080000. RL equals AHD + 2,000m. • Additional drill hole information pertaining to this announcement includes: • All diamond holes were either NQ2 or LTK60. • All core is oriented and photographed prior to logging, cutting and sampling. • All intersection intervals are reported as down-hole lengths and not true widths. • All reported assay results were performed by the on-site laboratory.
Data aggregation methods	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. • Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some	• All analytical drill intercepts pertaining to reporting exploration results are based on sample length by grade weighted averages using a 0.5% lower cut-off, a minimum reporting length of 1m and maximum of 2m on consecutive internal waste. No top-cuts have been applied. • Cu and Co grades are determined for the same Ni interval defined above using the same

Criteria	JORC Code explanation	Commentary
	typical examples of such aggregations should be shown in detail. • The assumptions used for any reporting of metal equivalent values should be clearly stated.	procedures.
Relationship between mineralisation widths and intercept lengths	• These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. • If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	• All exploration results intersection lengths are reported as down hole lengths and not true widths. • Where reported, estimates of True Width are stated only when the geometry of the mineralisation with respect to the drill hole angle is sufficiently well established.
Diagrams	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	• Refer to figures in the document.
Balanced reporting	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	• Results from all drill-holes in the Mineral Resource have been reported and their context discussed and considered to be sufficiently balanced.
Other substantive exploration data	• Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	• No other data is considered material to this release at this stage.
Further work	• The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling). • Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	• The infill Resource Definition drill results reported herein for the Savannah North orebody are part of an ongoing program. Further results will be reported when they become available.

PJD-21

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ABN: 47 095 792 288
Level 9, 553 Hay St
Perth, WA 6000
T: +61 8 6374 1700
E: info@panres.com

ASX ANNOUNCEMENT

8 May 2023

Savannah Drilling and DHEM Program Update

KEY POINTS

- Significant nickel-copper-cobalt mineralisation intersected in a three-hole drill program to establish new DHEM survey platforms testing both below and above the 900 Fault at Savannah
- Massive sulphide intersections returned on both the northern and southern contacts of the Savannah intrusion with results from drill hole KUD2050 including:
  - 3.6m @ 1.39% Ni, 0.17% Cu and 0.07% Co from 628m (northern contact)
  - 43.0m @ 0.79% Ni, 0.60% Cu and 0.04% Co from 652m (Savannah), including:
    - 5.75m @ 1.67% Ni, 0.63% Cu and 0.08% Co from 652m and
    - 15.80m @ 1.01% Ni, 0.74% Cu and 0.05% Co from 670.2m
  - 5.0m @ 1.61% Ni, 1.10% Cu and 0.06% Co from 708.6m (southern contact)
- DHEM surveying to commence late May and include several surface exploration holes completed in 2022

Panoramic Resources Limited (ASX:PAN) ("**Panoramic**" or the "**Company**") is pleased to provide an update on exploration targeting, resource extensions and ongoing underground drilling at the Company's Savannah Nickel Project in Western Australia.

Recent underground development at both Savannah and Savannah North has provided more optimal locations from which to drill target and further evaluate the Savannah orebody below the 900 Fault. As part of this objective, three platform downhole electromagnetic ("**DHEM**") drill holes, two below and one above the 900 Fault, have been completed in preparation for DHEM surveying.

In the continuing search for new and extensions to existing massive sulphide mineralisation at Savannah, DHEM surveying is a very useful and successful exploration method due to the inherent resistive nature of the Savannah intrusions and the absence of problematic sulphidic sediments in the immediate surrounds of the mine area that can return false positive results.

The DHEM drill program has been designed to cover areas down plunge and along strike from known massive sulphide mineralisation from which the modelled EM output can then be used to target further drilling and position new underground development from which the Savannah resource below the 900 Fault can be fully delineated.

Commenting on the drill program, Managing Director and CEO, Victor Rajasooriar said:

"The DHEM program now underway at Savannah is the first step in our goal to fully understand the potential of the Savannah orebody below the 900 Fault. Our current understanding of the geology and resource in this area is based largely from a single drill program completed in 2012 from a position much higher up in the mine that provided only very sub-optimal drill angles. The intersection of significant mineralisation in KUD2050, which is currently the deepest and western most into the Savannah orebody below the 900 Fault, is an added bonus. While not the aim of the DHEM platform drill program, it is testament to the potential of the orebody below the 900 Fault and what improved drill angles might discover in the future. I look forward to providing ongoing updates on this exciting phase of work in the future."

Details

Three diamond drill holes designed as platforms for DHEM surveying were recently drilled from a position above the Savannah orebody. Holes KUD2050 and KUD2084 targeted below the 900 Fault and hole KUD2051 targeted above the Fault (Figures 1 & 2). Below the 900 Fault, KUD2084 and KUD2050 are approximately 250m apart and are designed to target beneath and to the west of the currently known extents of the Savannah intrusion respectively. Above the 900 Fault, KUD2051 is a short 220m length hole designed to explore for possible westward extensions on the orebody.

Whilst being drilled, KUD2050 unexpectedly deviated slightly against rotation and also lifted above design. As a result, the hole intersected the Savannah intrusion below the 900 Fault rather than below the intrusion as initially designed. Importantly, when traversing through the intrusion KUD2050 intersected several significant zones of mineralisation, including well developed massive sulphide mineralisation on both the northern and southern contact of the intrusion (Figure 3). Assayed results for these mineralised zones are:

- 6.45m @ 1.05% Ni, 0.31% Cu and 0.05% Co from 628m on the Northern Contact, including:
    - 3.6m @ 1.39% Ni, 0.17% Cu and 0.07% Co from 628.95m and
- 43m @ 0.79% Ni, 0.60% Cu and 0.04% Co from 652m within the Savannah orebody, including:
    - 11.60m @ 1.16% Ni, 0.54% Cu and 0.06% Co from 652m, including
        - 5.75m @ 1.67% Ni, 0.63% Cu and 0.08% Co from 652m
    - 15.80m @ 1.01% Ni, 0.74% Cu and 0.05% Co from 670.2m including
        - 7.5m @ 1.22% Ni, 1.10% Cu and 0.06% Co from 678.5m
- 5.05m @ 1.61% Ni, 1.10% Cu and 0.06% Co from 708.65m on the Southern Contact

Whilst close to the existing Savannah Resource below the 900 Fault, the KUD2050 mineralisation will improve on the width and grade of the known mineralisation in this area and thereby will build on the existing Savannah Resource in in the future.

The presence of the extensive mineralisation in KUD2050 will undoubtably impact the future DHEM survey results in this area, potentially complicating the interpretation and modelling of the data. However, given the location of KUD2050 at the very known western extent of the intrusion below the 900 Fault, a large, strong modelled EM response below and west of the hole will be a very positive outcome and will justify and direct further drilling in these directions.

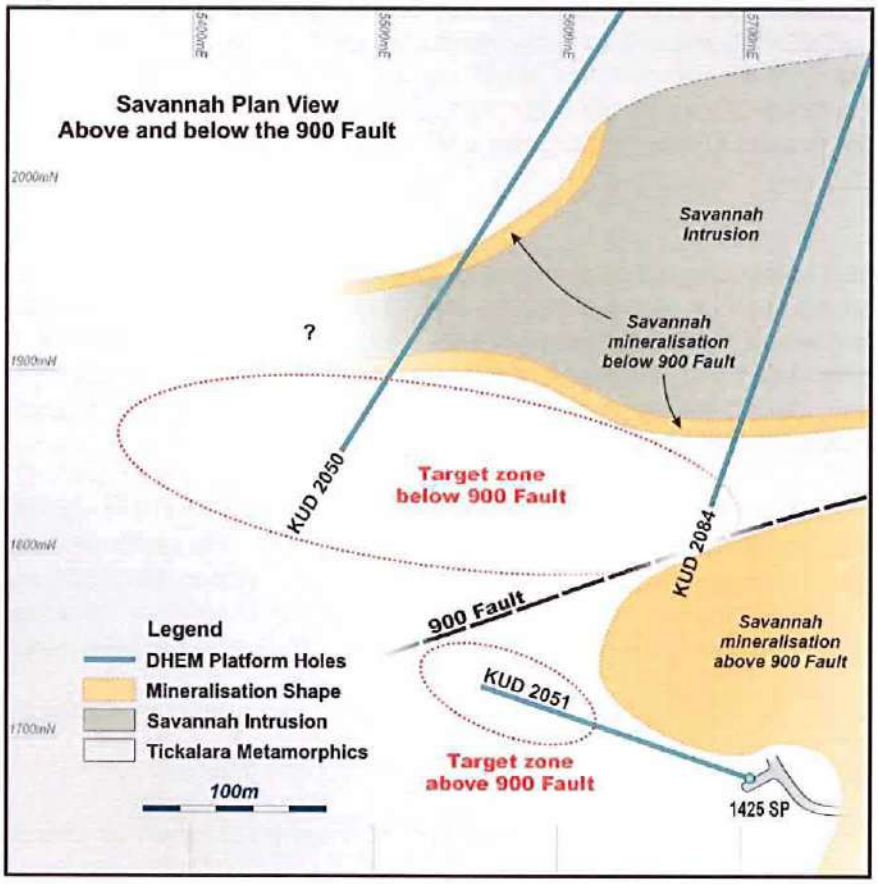


Figure 1: Plan view of the DHEM platform holes targeting Savannah above and below the 900 Fault

Drillhole KUD2084 was initially completed as a Resource definition hole targeting the western margin of the Savannah North intrusion (see ASX release *Positive Savannah North Drill Results Below 1321 Level* 7 March 2023) but was successfully extended as part of this DHEM program to target below and further to the east along the Savannah intrusion.

On passing through the Turkey Creek Gabbro and 900 Fault, KUD2084 also intersected the Savannah Intrusion deeper and approximately 250m further towards the east from KUD2050. In this position the intrusion was initially noritic in character before grading into typical olivine rich Savannah peridotites containing blebby sulphides (below cut-off grade) towards the south before exiting the southern contact of the intrusion. KUD2084 is the deepest hole in this part of the Savannah intrusion and provides an ideal DHEM platform to search for conductive sulphide mineralisation below the drill hole.

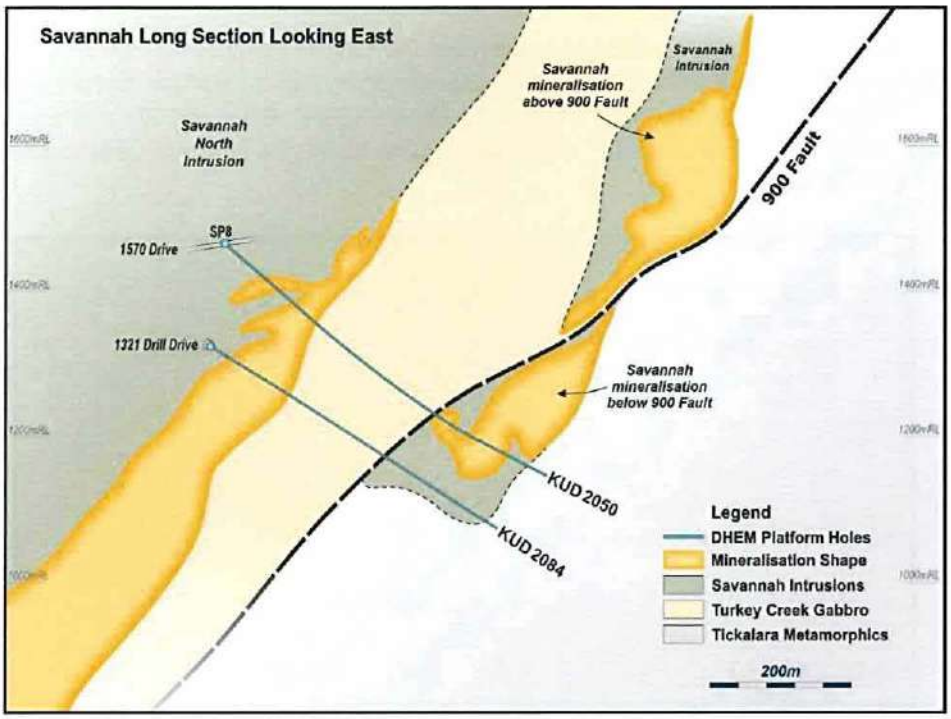


Figure 2: Long section of DHEM platform holes targeting Savannah below the 900 Fault

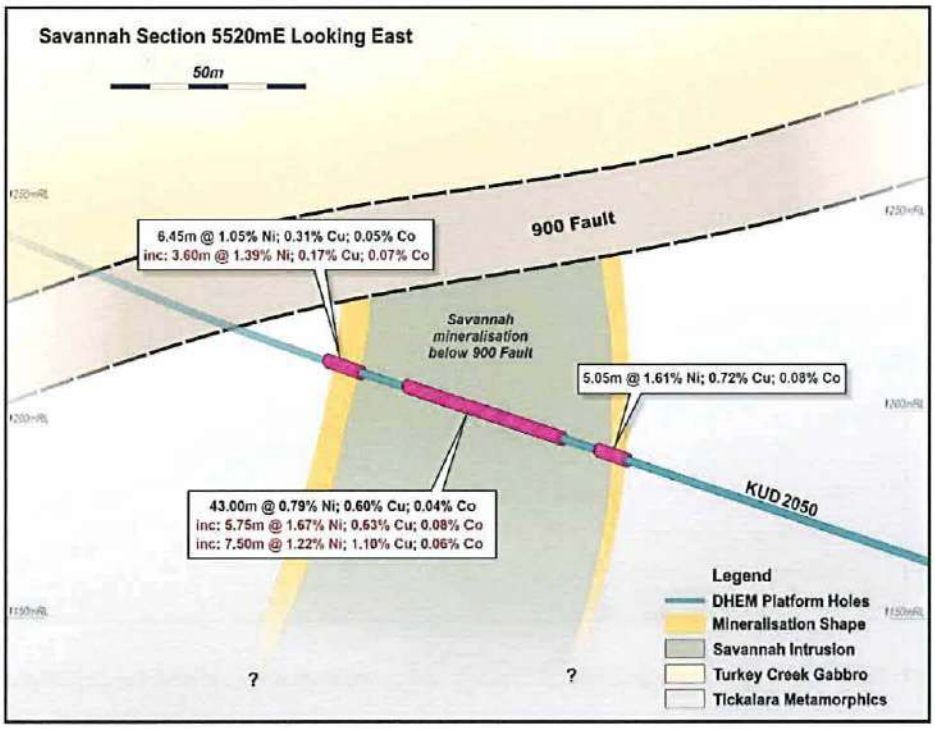


Figure 3: Section 5520E of KUD2050 through the Savannah intrusion and mineralisation below the 900 Fault

Vortex Geophysics has been commissioned to conduct the DHEM program at Savannah during May. In addition to the three underground holes about the Savannah intrusion, surface diamond drill holes from the 2022 drill campaigns the Northern Ultramafic Granulite (SMD191 and 192) and the Stoney Creek Intrusion (SMD188 and 190) will also be surveyed (Figure 4). All holes have been cased with PVC in advance of the DHEM program.

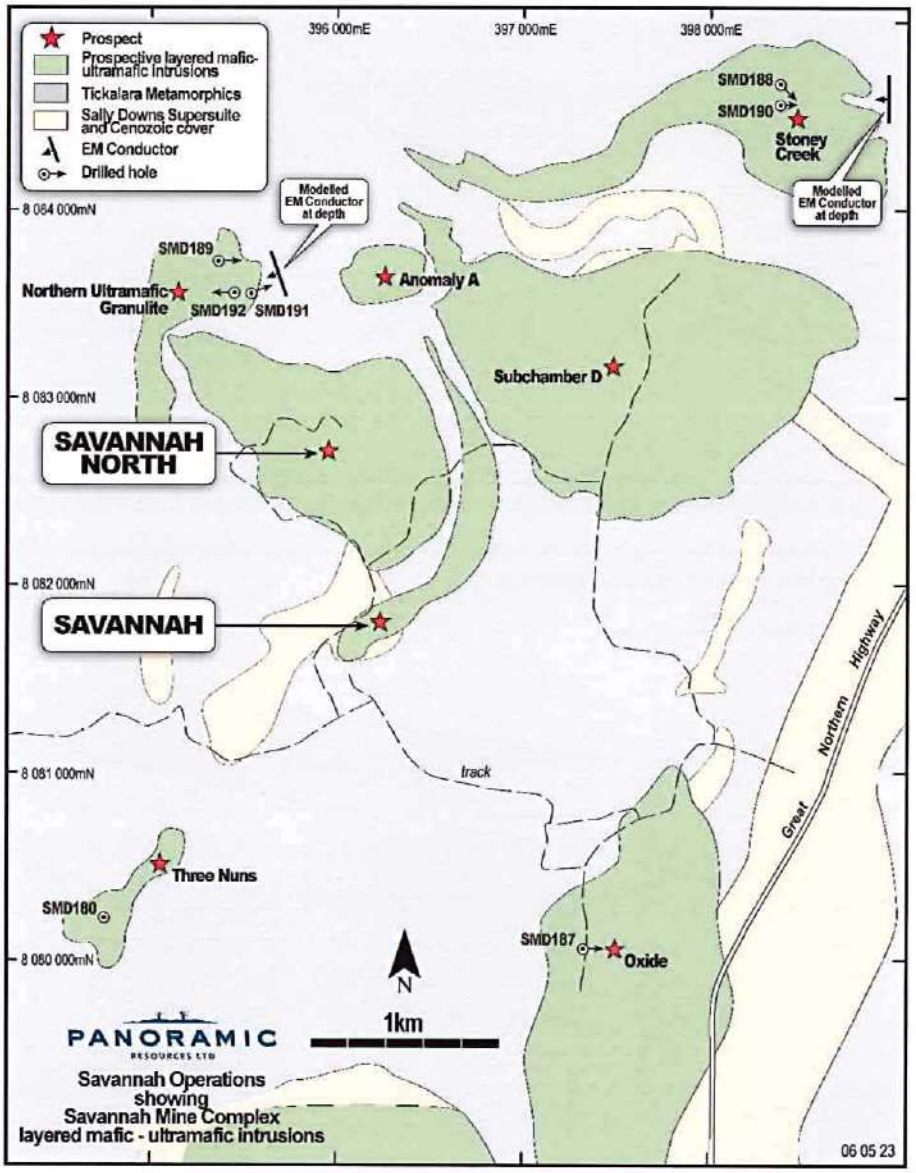


Figure 4: Plan showing Savannah area intrusions with surface hole locations for DHEM surveying

Details of the drill holes mentioned in the announcement, including assay results, are contained in Table 1 (Summary of Drill Hole Data) Appendix 1. The appropriate JORC 2012 Compliance Tables for the announcement are in Appendix 2.

Competent Person

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This ASX announcement was authorised on behalf of the Panoramic Board by: Victor Rajasooriar, Managing Director & CEO

For further information contact:
Victor Rajasooriar, Managing Director & CEO
+61 8 6374 1700

Media inquiries:
Michael Vaughan, Fivemark Partners
+61 422 602 72

Appendix 1

Table 1- Summary of Drill Hole Data

DHEM Platform Drilling at Savannah									
Hole	East (m)	North (m)	RL (m)	Dip (°)	Azi (°)	EOH (m)	From (m)	To (m)	InterceptLabel (m@%Ni,%Cu,%Co)
KUD2050	395858	8082459	1464	-25	212	842.30	628.00	634.45	KUD2050: 6.45m @ 1.05% Ni; 0.31% Cu; 0.05% Co
KUD2050	395858	8082459	1464	-25	212	842.30	628.98	632.55	KUD2050: 3.60m @ 1.39% Ni; 0.17% Cu; 0.07% Co
KUD2050	395858	8082459	1464	-25	212	842.30	652.00	695.00	KUD2050: 43.00m @ 0.79% Ni; 0.60% Cu; 0.04% Co
KUD2050	395858	8082459	1464	-25	212	842.30	652.00	663.60	KUD2050: 11.60m @ 1.16% Ni; 0.54% Cu; 0.06% Co
KUD2050	395858	8082459	1464	-25	212	842.30	652.00	657.75	KUD2050: 5.75m @ 1.67% Ni; 0.63% Cu; 0.08% Co
KUD2050	395858	8082459	1464	-25	212	842.30	670.20	686.00	KUD2050: 15.80m @ 1.01% Ni; 0.74% Cu; 0.05% Co
KUD2050	395858	8082459	1464	-25	212	842.30	678.50	679.10	KUD2050: 7.50m @ 1.22% Ni; 1.10% Cu; 0.06% Co
KUD2050	395858	8082459	1464	-25	212	842.30	708.65	713.70	KUD2050: 5.05m @ 1.61% Ni; 0.72% Cu; 0.08% Co
KUD2051	395705	8081675	1422	-11	288	221.70	142.00	151.00	KUD2051: 9.00m @ 0.33% Ni; 0.72% Cu; 0.002% Co
KUD2051	395705	8081675	1422	-11	288	221.70	142.00	146.00	KUD2051: 4.00m @ 0.64% Ni; 0.82% Cu; 0.004% Co
KUD2051	395705	8081675	1422	-11	288	221.70	148.60	151.00	KUD2051: 2.40m @ 0.07% Ni; 1.07% Cu; 0.002% Co
KUD2084	395960	8082525	1324	-22	201	640.90	125.00	126.60	KUD2084: 1.60m @ 1.56% Ni; 0.31% Cu; 0.10% Co
KUD2084	395960	8082525	1324	-22	201	640.90	131.80	133.85	KUD2084: 2.05m @ 2.53% Ni; 0.51% Cu; 0.19% Co

Notes:
1. *Intervals are down-hole lengths, not true-widths.*
2. *Parameters: 0.5% Ni lower-cut off, with a minimum reporting interval of 1m and with discretionary internal waste to a maximum of 3.0 consecutive metres.*
3. *SG calculated by immersion method.*
4. *For core loss intervals, reported intercept grades are calculated using the length weighted average from samples immediate above and below core loss interval*

Appendix 2

Appendix 2 – 2012 JORC Disclosures

Savannah Project - Table 1, Section 1 - Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • Aspects of the determination of mineralisation that are Material to the Public Report. • In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	• The Savannah mine and surrounding exploration areas are typically sampled by diamond drilling techniques. Over 1600 holes have been drilled within the mine for a total in-excess of 220,000m. The majority of holes were drilled from underground platforms. • Initial Resource definition drilling is conducted on a nominal 50 x 50 metre grid spacing with subsequent infill grade control drilling conducted on a nominal 25 x 25 metre grid spacing. • Historically, all drill hole collars were surveyed using Leica Total Station survey equipment by a registered surveyor. Down hole surveys are typically performed every 30 metres using either "Reflex EZ Shot" or "Flexit Smart Tools". • All diamond core is geologically logged with samples (typically between 0.2 metre to 1 metre long) defined by geological contacts. Analytical samples are dominantly sawn half core samples.
Drilling techniques	• Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	• Greater than 90% of the mine drill hole database consists of LTK60 and NQ2 size diamond holes. Exploration and Resource definition drill holes are typically NQ2 size. Infill grade control holes are typically LTK60. Historically, some RC holes were drilled about the upper part of the mine. • The diamond drill holes pertaining to this announcement were a combination of NQ2 and LTK60 size.
Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure representative nature of the samples. • Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	• Diamond core recoveries are logged and recorded in the database. Overall recoveries are typically >99% and there are no apparent core loss issues or significant sample recovery problems. • Hole depths are verified against core blocks. • Regular rod counts are performed by the drill contractor. • There is no apparent relationship between sample recovery and grade.

Criteria	JORC Code explanation	Commentary
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. • The total length and percentage of the relevant intersections logged.	• All diamond holes pertaining to this announcement were geologically logged in full. • Geotechnical logging was carried out for recovery and RQD. The number of defects (per interval) and their roughness were recorded about ore zones. • Details of structure type, alpha angle, infill, texture and healing is also recorded for most holes and stored in the structure table of the mine drill hole database. • Logging protocols dictate lithology, colour, mineralisation, structural (DDH only) and other features are routinely recorded. • All diamond core was photographed wet.
Sub-sampling techniques and sample preparation	• If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	• Analytical core samples pertaining to this announcement were half core. • Sample sizes are considered appropriate to represent the Savannah North style of mineralisation. • SG determinations by water immersion technique are restricted to Resource definition and Exploration holes at Savannah and are not performed on grade control holes. • All core sampling and sample preparation follow industry best practice. • QC involves the addition of purchased CRM and Savannah derived CRM assay standards, blanks, and duplicates. At least one form of QC is inserted in most sample batches on average one in every 20 samples. • Original versus duplicate assay results have always shown strong correlation due to the massive sulphide rich nature of the Savannah North mineralisation.
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. • Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	• Prior to 2019 all sample preparation included pulverising to 90% passing 75 µm followed by either a 3 acid digest & AAS finish at the Savannah onsite laboratory or a total 4 acid digest with an ICP OES finish if the samples are analysed off-site. • Since 2019 Bureau Veritas has operated the on-site laboratory. Sample preparation and assaying of all drill samples now involves crushing and pulverizing the sample to 80% passing 75µm followed by Ni, Cu, Co, Fe, MgO and S analysis by XRF of metaborate fused glass beads. The XRF brand is a ZETIUM Pan-analytical instrument. • No other analytical tools or techniques are employed. • The onsite laboratory uses internal standards, duplicates, replicates, blanks and repeats and carries out all appropriate sizing checks. • External laboratory checks are occasionally

Criteria	JORC Code explanation	Commentary
		performed by ALS Geochemistry Australia. No analytical bias has been identified.
Verification of sampling and assaying	• The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data.	• Drilling and sampling procedures at SNM have been inspected by many stakeholders since the project began. • Throughout the life of the mine, there have been several instances where holes have been twinned to confirm intersections and continuity. • In respect to the drill holes pertaining to this announcement, no holes were twinned. • Holes are logged into OCRIS software on Toughbook laptop computers before the data is transferred to SQL server databases. • All drill hole and assay data is routinely validated by site personnel. • No adjustments are made to assay data.
Location of data points	• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. • Specification of the grid system used. • Quality and adequacy of topographic control.	• All diamond drill hole collars are picked-up using Leica TS15, R1000 instrument by a registered mine surveyor. • Downhole surveys are performed using an Axis Champ North Seeking Gyro instrument. Survey interval no more than 30m. • Visual checks to identify any obvious errors regarding the spatial position of drill holes collars or downhole surveys are routinely performed in a 3D graphics environment using Surpac software. • The mine grid is a truncated 4 digit (MGA94) grid system. • Conversion from local grid to MGA GDA94 Zone 52 is calculated by applying truncated factor to local coordinates is E: +390000, N: +8080000. • High quality topographic control is established across the mine site. RL equals AHD + 2,000m.
Data spacing and distribution	• Data spacing for reporting of Exploration Results. • Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. • Whether sample compositing has been applied.	• The Savannah and Savannah North Project nominal underground Resource Definition drill hole spacing is 25m (E) by 25m (RL) but does range from 50m (E) by 50m (RL) to 5m (E) by 5m (RL). • The mineralized domains delineated by the drill hole spacing show enough continuity to support the classification applied under the JORC Coe (2012 Edition). • No sample compositing is undertaken.
Orientation of data in relation to geological structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	• Where possible drill holes are designed to be drilled perpendicular to the target area being tested. • No orientation sampling bias has been identified.

Criteria	JORC Code explanation	Commentary
	• If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	
Sample security	• The measures taken to ensure sample security.	• Drill samples are collected and transported to the on-site laboratory by SNM staff. Samples sent off site are road freighted.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• No recent audits/reviews of the Savannah drill sampling protocols have been undertaken. The procedures are considered to be of the highest industry standard. Mine to mill reconciliation records throughout the life of the Savannah Project provide confidence in the sampling procedures employed at the mine.

Savannah North Project - Table 1, Section 2 - Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. • The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	• The Savannah Nickel Mine (SNM), incorporating the Savannah North Project is an operating mine secured by five contiguous Mining Licences, ML's 80/179 to 80/183 inclusive. All tenure is current and in good standing. SNM has the right to explore for and mine all commodities within the mining tenements. • SNM has all statutory approvals and licences in place to operate. The mine has a long standing off-take agreement to mine and deliver nickel sulphide concentrate to the Jinchuan Group Co., LTD which finished 13th February 2023. From the 14th February 2023 SNM entered a new agreement with Trafigura Pte. Ltd.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	• Since commissioning in 2004, SNM has conducted all surface and underground exploration and drilling related activities on the site.
Geology	• Deposit type, geological setting and style of mineralisation.	• The SNM is based on mining ore associated with the Savannah and Savannah North palaeo-proterozoic mafic/ultramafic intrusions. The "Savannah-style" Ni-Cu-Co rich massive sulphide mineralisation occurs as "classic" magmatic breccias developed about the more primitive, MgO rich basal parts of the two intrusions.
Drill hole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length. • If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	• All in-mine drilling at SNM is conducted on the Savannah mine grid, which is a "4 digit" truncated MGA grid. Conversion from local to MGA GDA94 Zone 52 is calculated by applying truncated factor to local coordinates of: E: +390000, N: +8080000. RL equals AHD + 2,000m. • Additional drill hole information pertaining to this announcement includes: • All diamond holes were either NQ2 or LTK60. • All core is oriented and photographed prior to logging, cutting and sampling. • All intersection intervals are reported as down-hole lengths and not true widths. • All reported assay results were performed by the on-site laboratory.
Data aggregation methods	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. • Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some	• All analytical drill intercepts pertaining to reporting exploration results are based on sample length by grade weighted averages using a 0.5% lower cut-off, a minimum reporting length of 1m and maximum of 2m on consecutive internal waste. No top-cuts have been applied. • Cu and Co grades are determined for the same Ni interval defined above using the same

Criteria	JORC Code explanation	Commentary
	typical examples of such aggregations should be shown in detail. • The assumptions used for any reporting of metal equivalent values should be clearly stated.	procedures.
Relationship between mineralisation widths and intercept lengths	• These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. • If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	• All exploration results intersection lengths are reported as down hole lengths and not true widths. • Where reported, estimates of True Width are stated only when the geometry of the mineralisation with respect to the drill hole angle is sufficiently well established.
Diagrams	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	• Refer to figures in the document.
Balanced reporting	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	• Results from all drill-holes in the Mineral Resource have been reported and their context discussed and considered to be sufficiently balanced.
Other substantive exploration data	• Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	• No other data is considered material to this release at this stage.
Further work	• The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling). • Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	• The infill Resource Definition drill results reported herein for the Savannah North orebody are part of an ongoing program. Further results will be reported when they become available.

PJD-22
1210



PANORAMIC
RESOURCES LTD

19 October 2023

Quarterly Activities Report
for the period ending 30 September 2023

Summary

SAVANNAH NICKEL OPERATIONS

- Strong improvements across all metrics in the September quarter following repair of the filter head press. Mining and processing at the highest quarterly level since the restart in 2021
    - Ore mined increased 5% quarter-on-quarter to 185,213t
    - Ore milled increased by 25% to 184,009t
    - Concentrate production up 56% to 23,411dmt, with:
        - Contained nickel production up 56% to 1,684t nickel
        - Contained copper production up 42% to 932t copper
        - Contained cobalt production up 76% to 135t cobalt
- Mutual agreement reached with Primero to transition to an owner-operator processing and maintenance model
- Two shipments of nickel-copper-cobalt concentrate completed in the quarter
    - Concentrate shipments up 28% to 19,344dmt with:
        - Contained nickel shipped up 27% to 1,388t
        - Contained copper shipped up 15% to 770t
        - Contained cobalt shipped up 43% to 110t
- Unit cost performance for the quarter improved across C1, AISC and AIC metrics due to increased production following the resumption of normal operations from early July
- Costs still being impacted by steadily declining by-product commodity prices but partially offset by favourable FX movements

		Units	Sep Qtr 2023	Jun Qtr 2023	Change Qtr on Qtr
Unit Costs	C1	A$/lb	10.15	17.49	-41.9%
	AISC	A$/lb	11.96	19.59	-38.9%
	AIC	A$/lb	12.52	22.33	-44.0%

- September quarter C1 costs currently tracking in line with FY24 guidance of A$10.05 - $11.25/lb, demonstrating the improved operating performance following the resumption of full processing operations. The FY24 Guidance continues to be retained.

Panoramic Resources Limited
Level 9, 553 Hay St
Perth, Western Australia 6000

Telephone: +61 8 6374 1700
Website:
www.panoramicresources.com

2023 MINERAL RESOURCE AND ORE RESERVE STATEMENT

- Savannah Project Mineral Resources (including Savannah North) as at 1 September 2023 increased to 14.57Mt @ 1.49% Ni, 0.67% Cu and 0.10% Co for 216.9kt Ni, 97.6kt Cu and 14.0kt Co contained metal
- The focused drilling carried out in Savannah (above and below the 900 fault), resulted in a 42% increase of contained nickel metal in Mineral Resources at Savannah (excluding Savannah North)
- Total Savannah Project Ore Reserve (including Savannah North) as at 1 September 2023 stands at 8.7Mt @ 1.23% Ni, 0.56% Cu and 0.08% Co for 106.8kt Ni, 48.7kt Cu and 7.4kt Co contained metal
- Incorporates the addition of 133 (17,754m) new infill grade control and resource definition holes at Savannah North and the addition of 43 (7,778m) holes at Savannah

SAVANNAH NICKEL EXPLORATION

- High-grade massive sulphide intersection of 26.75m grading 1.76% Ni, 1.04% Cu and 0.08% Co from 346.8m in drill hole KUD2245 indicates Savannah is open down plunge parallel to the 900 Fault and supports the Mineral Resource upgrade
- Underground mining of the Savannah orebody recommenced, and the potential demonstrated by KUD2245 significantly de-risks future development of the Savannah orebody below the 900 Fault

CORPORATE

- Cash at the end of the quarter of $42.6 million, following successful completion of Placement and Share Purchase Plan
- Debt repayments for the quarter total A$3.43 million

Panoramic Managing Director and CEO, Victor Rajasooriar commented:

"We are pleased to have had a strong start in FY24. Operational performance has improved across the board with concentrate production at a level not seen since the restart of Savannah in 2021.I am pleased that while our operations ramped back up, our safety performance was not compromised and continued to improve. Again, I extend my appreciation to our team who worked to bring Savannah back on track, as well as to our investors who have supported us during the capital raising completed during the quarter."

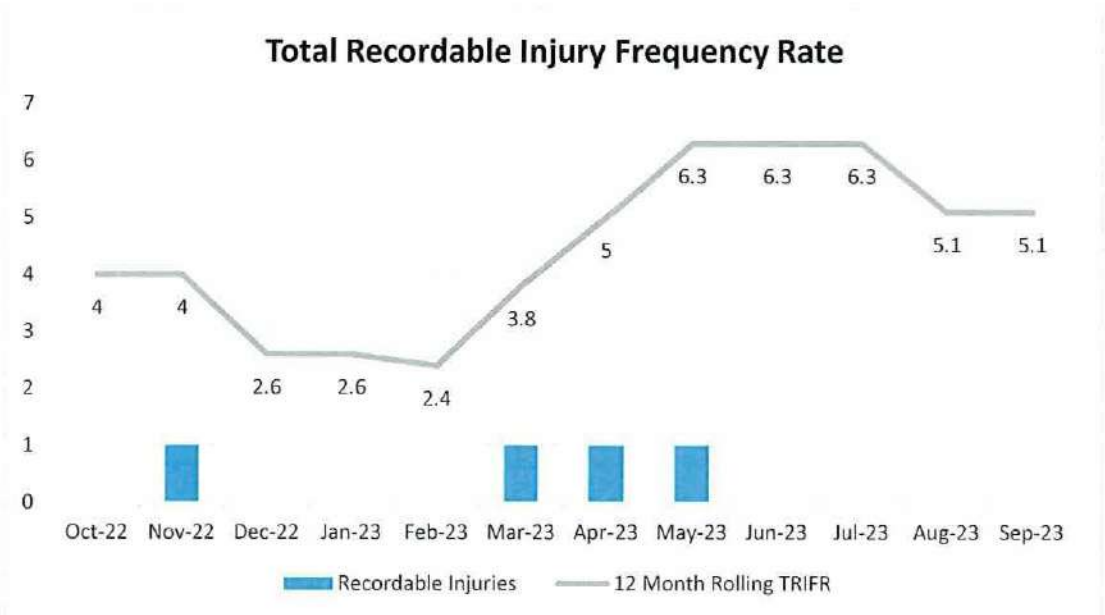
Savannah Nickel Project – Operations

Safety

The site safety culture has continued to develop with an increase in reporting for lead indicators and improved incident reporting processes with contractor groups.

The TRIFR improved by 19% during the quarter to 5.1 with no recordable injuries reported during the period.

Emergency response related courses were completed on site with a continued focus on upskilling current volunteers and recruiting new members.



Environment

During the quarter, the Savannah operations maintained compliance with all regulatory and operating license requirements.

The primary environmental focus for the quarter was completing a tender process and site setup for the Stage 6 Lift of the Savannah tails storage facility (TSF). Preparatory works on the TSF area and infrastructure were carried out during the quarter, ensuring a smooth start to construction works which commenced in the first week of October. To date, works are progressing well, with construction of the 4-metre lift expected to be completed, on schedule, before Christmas.

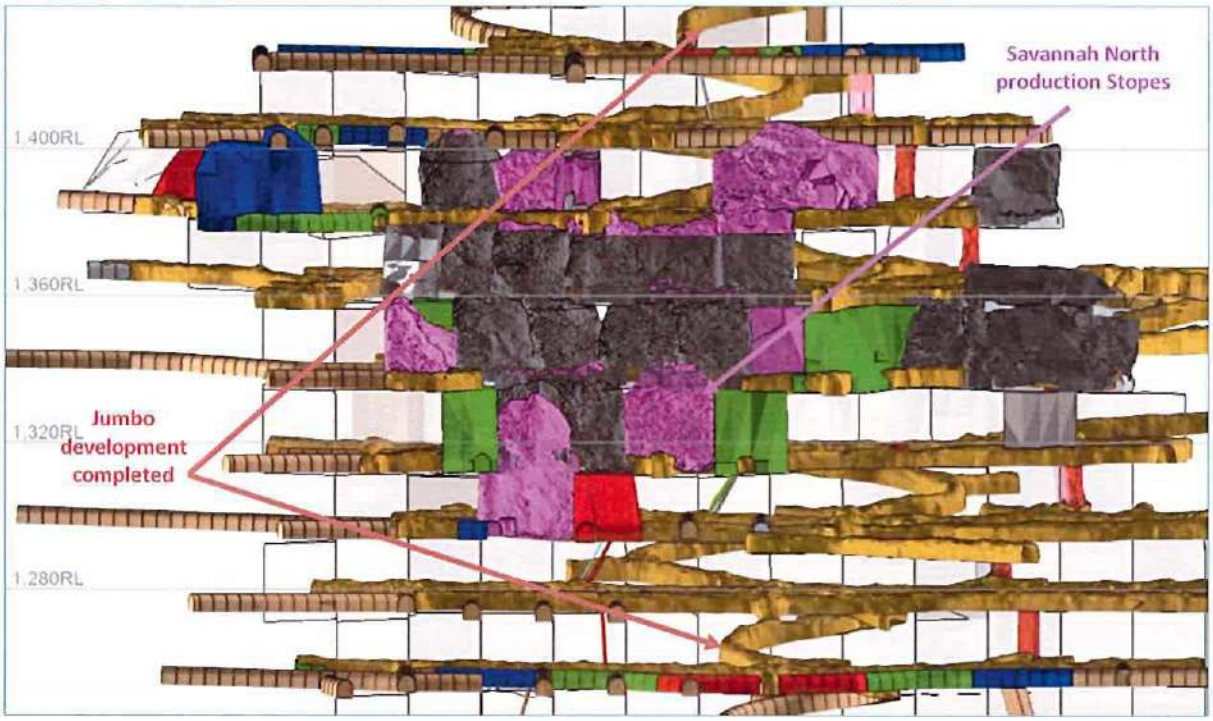
Underground Mining

Underground production activities resumed from the start of the quarter following a temporary suspension during the second half of the June quarter following the failure of the filter press head plate. Ore mined for the quarter amounted to 185,213t, which was a 5% increase on the previous quarter and the best quarter since the restart of the operation in 2021.

The stoping front continues to advance in Savannah North with production activities taking place across 5 levels and the development front is 3 levels ahead of production activities. The focus has shifted from remnant mining in the Savannah orebody to establishing a new mining front at the bottom of the Savannah orebody with the first stope being blasted and brought online in October.

Lateral development for the quarter was 829m which was a 10% reduction on the previous quarter. However, development is well advanced providing the opportunity utilise a one jumbo development drill fleet to achieve the required development metres for the remaining year. Paste delivery underground for the quarter exceeded 45,000m^3 which was a 55% increase on the previous quarter. Skill levels in underground production and technical teams have continued to build with an improvement in the stability of the underground workforce. An ore stockpile of approximately 35,000t remained on the surface at the end of the quarter.

Figure A: Long Section of development and stoping at Savannah North



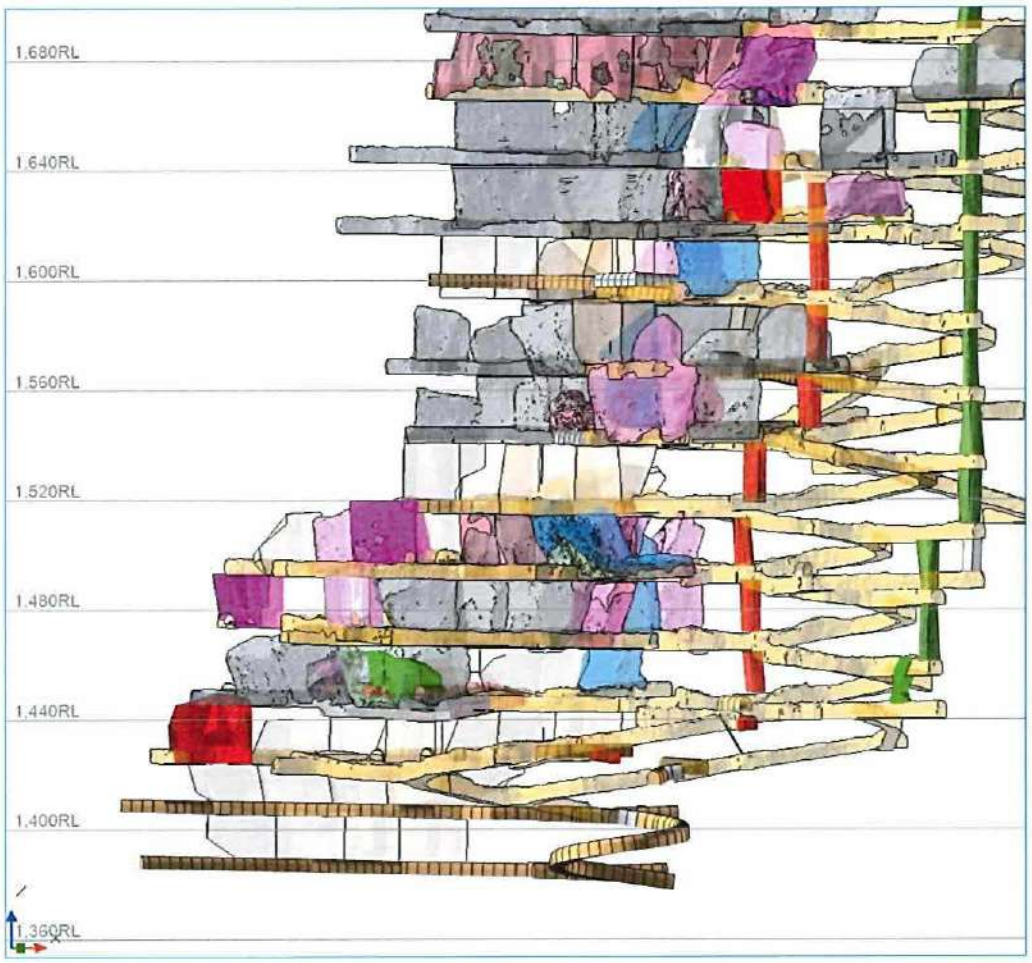


Table 1: Mining physicals achieved at Savannah

Area	Details	Units	Sep Qtr 2023	Jun Qtr 2023	Variance
Mining	Jumbo development	m	829	922	-10%
	Ore mined	dmt	185,213	176,229	5%
	Ni grade	%	1.18	0.93	27%
	Ni Metal contained	dmt	2,178	1,631	33%
	Cu grade	%	0.55	0.48	16%
	Co grade	%	0.08	0.06	24%

Processing and Concentrate Production

The processing physicals for the quarter were significantly higher than the June quarter following the resumption of activities on 10 July. The process plant was offline for a total of 14 days during the September quarter due to the completion of repairs to the filter press head plate at the start of the quarter and a planned four-day shut in September.

Mining and milling rates subsequently built momentum and consistency through August and September, in line with the Company's planned processing schedule.

Recoveries were largely in line with the previous quarter and have demonstrated consistent performance since the restart in 2021.

During the quarter the Company agreed with Primero Group Limited ("Primero") to conclude the agreement under which Primero operates and maintains the process plant at the Savannah Nickel Mine ("OM Agreement").

Savannah made offers of employment to approximately 70 Primero employees who have been providing operational and maintenance services and 93% of employees accepted the offer and are now Panoramic employees. Early termination of the OM Agreement (which would otherwise have 12 months to run) did not incur a penalty and the transition was completed at an immaterial cost.

Table 2: Processing physicals achieved at Savannah and Savannah North

Area	Details	Units	Sep Qtr 2023	Jun Qtr 2023	Variance
Milling	Ore milled	dmt	184,009	146,678	25%
	Ni grade	%	1.17	0.94	25%
	Cu grade	%	0.55	0.48	14%
	Co grade	%	0.08	0.06	39%
	Ni recovery	%	78.36	78.62	–
	Cu recovery	%	92.70	93.81	-1%
	Co recovery	%	89.04	87.98	1%
Concentrate Production	Concentrate	dmt	23,411	15,039	56%
	Ni grade	%	7.19	7.19	–
	Ni Metal contained	dmt	1,684	1,081	56%
	Cu grade	%	3.98	4.38	-9%
	Cu Metal contained	dmt	932	658	42%
	Co grade	%	0.58	0.51	13%
	Co Metal contained	dmt	135	76	76%
Concentrate Shipments	Concentrate	dmt	19,344	15,147	28%
	Ni grade	%	7.17	7.20	–
	Ni Metal contained	dmt	1,388	1,091	27%
	Cu grade	%	3.98	4.41	-10%
	Cu Metal contained	dmt	770	668	15%
	Co grade	%	0.57	0.51	12%
	Co Metal contained	dmt	110	77	43%

Port Operations and Shipments

Two concentrate shipments were completed during the September quarter, with volumes up by 28% from the June quarter. The next shipment will be completed in the coming days.

At the end of the quarter, produced / unsold concentrate on hand at the port and mine site totaled 5,549wmt.

Costs

Table 3: Cost outcomes achieved during the September quarter 2023

		Units	Sep Qtr 2023	Jun Qtr 2023	Change Qtr on Qtr
Unit Costs	C1	A$/lb	10.15	17.49	-41.9%
	AISC	A$/lb	11.96	19.59	-38.9%
	AIC	A$/lb	12.52	22.33	-44.0%

Total site expenditure for the quarter net of by-product credits was $36.6 million, down by 13% from the previous quarter.

Savannah operating C1 expenditure (cash basis net of by-product credits) for the quarter was $29.7 million, which results in a C1 cash cost per pound of payable nickel of $10.15/lb.

By-product credits compared to forecast were down 2% (A$0.06/lb) during the quarter as a result of lower realised copper and cobalt prices.

While unit costs are still being affected by steadily declining by-product commodity prices, this has been partially offset by favourable FX movements. Unit costs also reflect the continuation of ramp-up activities towards design production volumes within the underground mine and processing plant.

Expenditure on sustaining capital inclusive of plant, equipment and mine development totaled $5.3 million being a reduction against planned spend for the quarter. The result reflects the ongoing focus on reducing development rates and costs. This resulted in a AISC unit cost per pound of payable nickel of $11.96/lb.

Growth expenditure and in-mine exploration costs reduced to $1.7 million in the quarter which results in an AIC unit cost per pound of payable nickel of $12.52/lb.

2023 Mineral Resource and Ore Reserve Statement

The updated 2023 Mineral Resource and Ore Reserve Statement was released during the quarter, incorporating drilling and mining activities completed up until 1 September 2023.

The Mineral Resource Estimate (MRE) for the Savannah Nickel Project is 14.57 million tonnes grading 1.49% Ni, 0.67% Cu and 0.10% Co for a total contained metal in Resource of 216,900t Ni, 97,600t Cu and 14,000t Co (Table 4).

The MRE for the Project is reported to 2012 JORC standards and at a cut-off grade of 0.50% Ni. Details regarding the preparation of the MRE and associated 2012 JORC reporting requirements are included in Appendix 2.

The MRE summarised in Table 4 forms the basis of the Ore Reserve for the Savannah Nickel Operation.

Table 4: 2023 Savannah Project MRE

Resource	Metal	MRE Date	Measured		Indicated		Inferred		Total		Metal
			Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	Tonnes
Savannah Above 900F	Nickel	Jan-23	817,000	1.36	523,000	1.66	30,000	1.82	1,370,000	1.48	20,300
	Copper			0.77		1.18		1.14		0.93	12,800
	Cobalt			0.069		0.08		0.09		0.07	1,000
Savannah Below 900F	Nickel	Sep-23	0	0.00	987,000	1.80	820,000	1.57	1,807,000	1.70	30,600
	Copper			0.00		0.86		0.78		0.82	14,900
	Cobalt			0.000		0.11		0.07		0.09	1,700
Savannah North	Nickel	Jun-23	2,381,000	1.42	5,466,000	1.57	3,542,000	1.31	11,389,000	1.46	165,900
	Copper			0.57		0.70		0.50		0.61	69,900
	Cobalt			0.10		0.11		0.08		0.10	11,300
Total Savannah Project	Nickel		3,198,000	1.40	6,976,000	1.61	4,392,000	1.36	14,566,000	1.49	216,900
	Copper			0.62		0.76		0.56		0.67	97,600
	Cobalt			0.09		0.11		0.08		0.10	14,000

* Resource tonnes are rounded to the nearest 1,000t and contained metal tonnes to the nearest 100t. Therefore, rounding errors may cause individual column totals not to sum precisely.

The Savannah Nickel Project Ore Reserve (including Savannah North) stands at 8.7Mt grading 1.23% Ni, 0.56% Cu and 0.08% Co for total contained metal of 106,800t Ni, 48,700t Cu and 7,400t Co (Table 5). All key assumptions and modifying factors applied during preparation of the Ore Reserve and associated 2012 JORC reporting requirements are included in Appendix 2.

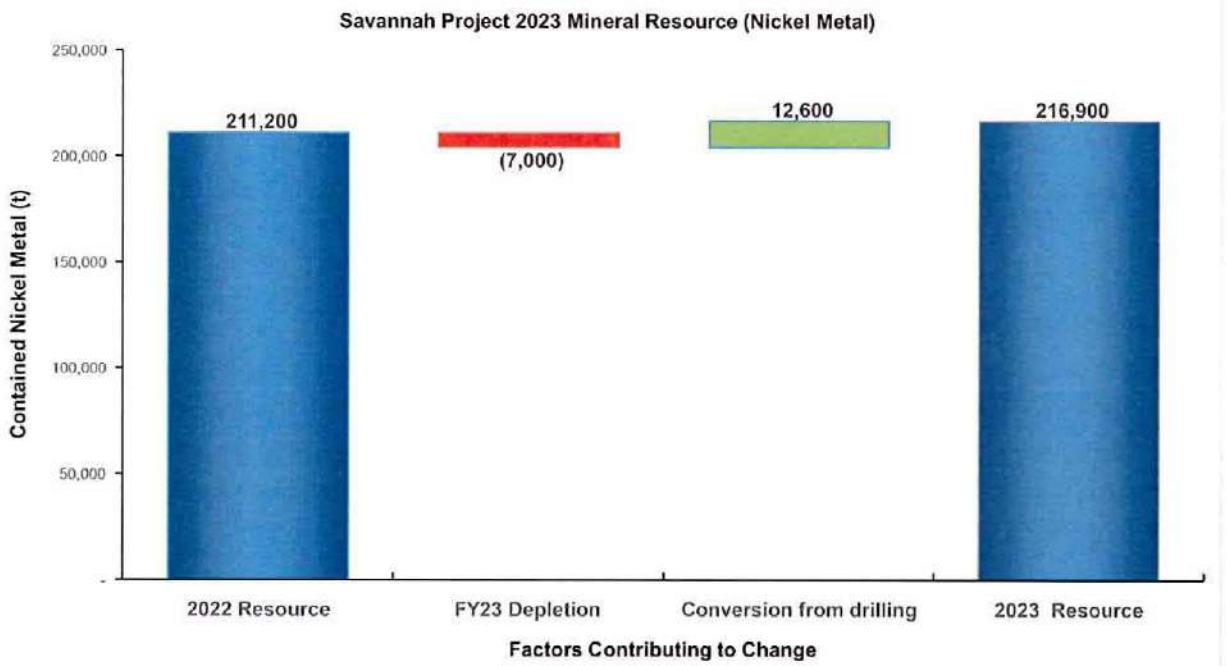
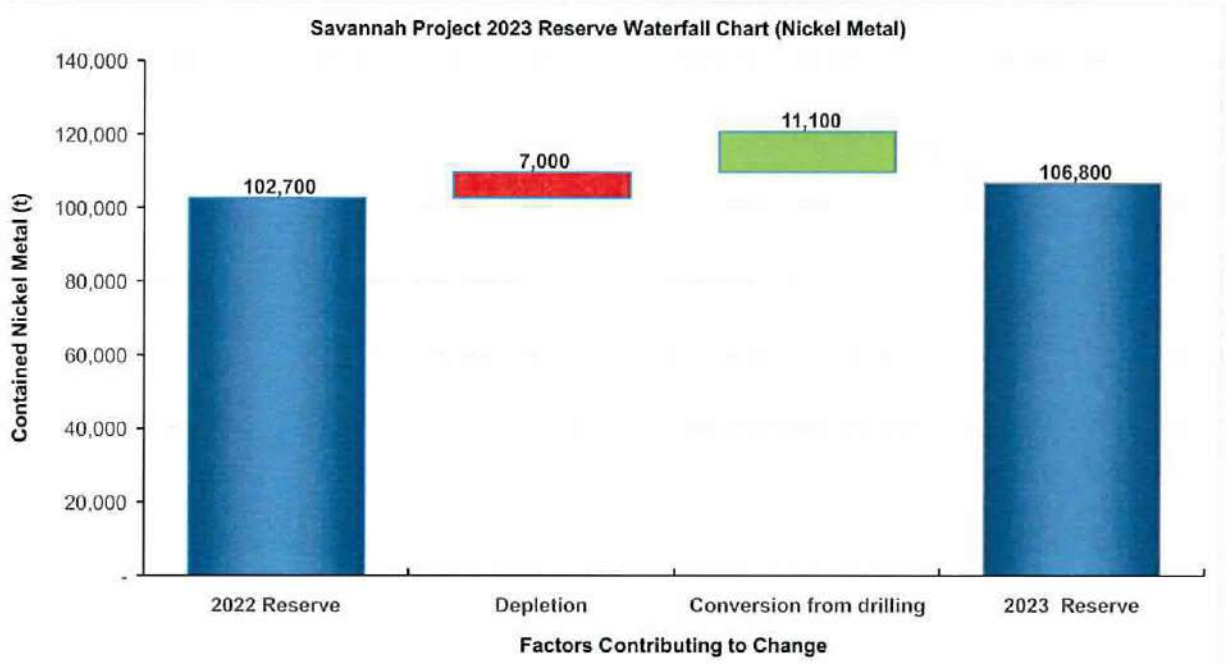


Table 5: 2023 Savannah Nickel Project Ore Reserve

Ore Reserve	Metal	Proved		Probable		Total		Metal Tonnes
		Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	
Savannah	Nickel	318,000	1.37	1,047,000	1.48	1,365,000	1.45	19,800
	Copper		0.65		0.79		0.76	10,300
	Cobalt		0.07		0.08		0.08	1,100
Savannah North	Nickel	1,897,000	1.29	5,437,000	1.15	7,334,000	1.19	87,000
	Copper		0.53		0.52		0.52	38,400
	Cobalt		0.10		0.08		0.09	6,300
Total	Nickel	2,215,000	1.30	6,483,000	1.20	8,698,000	1.23	106,800
	Copper		0.55		0.56		0.56	48,700
	Cobalt		0.09		0.08		0.08	7,400

* Resource tonnes are rounded to the nearest 1,000t and contained metal tonnes to the nearest 100t. Therefore, rounding errors may cause individual column totals not to sum precisely.



The largely undeveloped Savannah North orebody and the area below the historic workings at Savannah remain open along strike and at depth. This provides the potential to bring more material into the Mine Plan with future exploration and underground drilling which will be carried out as mine development advances in FY24.

The Savannah North Mineral Resource is composed predominantly of two discrete zones of mineralisation: the Upper and Lower Zones. The Savannah North Upper Zone relates to mineralisation developed on or about the basal contact of the Savannah North intrusion. The Upper Zone strikes northeast-southwest and dips moderately to the northwest. Multiple, smaller discrete lenses of mineralisation that are developed just above the Upper Zone inside the intrusion have been modelled as "Other" (Table 6).

Table 6: 2023 Modelled Domains of the Savannah North MRE

Domain	Variable	Measured		Indicated		Inferred		Total		
		Tonnes	Grade (%)	Tonnes	Grade (%)	Tonnes	Grade (%)	Tonnes	Grade (%)	Metal (t)
Upper	Nickel	2,088,000	1.44	2,111,000	1.41	1,569,000	1.25	5,767,000	1.38	79,800
	Copper		0.58		0.59		0.41		0.54	31,300
	Cobalt		0.11		0.11		0.07		0.10	5,500
Lower	Nickel	-		2,882,000	1.73	849,000	1.56	3,730,000	1.70	63,500
	Copper				0.84		0.72	-	0.82	30,500
	Cobalt				0.12		0.10	-	0.12	4,300
Other	Nickel	294,000	1.25	474,000	1.32	1,125,000	1.21	1,892,000	1.19	22,600
	Copper		0.52		0.38		0.47		0.43	8,100
	Cobalt		0.09		0.08		0.08		0.08	1,400
Total	Nickel	2,381,000	1.42	5,466,000	1.57	3,542,000	1.31	11,389,000	1.46	165,900
	Copper		0.57		0.70		0.50		0.61	69,900
	Cobalt		0.10		0.11		0.08		0.10	11,300

* Resource tonnes are rounded to the nearest 1,000t and contained metal tonnes to the nearest 100t. Therefore, rounding errors may cause individual column totals not to sum precisely.

The Savannah Mineral Resource and host intrusion below the 900 Fault has only been partially tested due to the paucity of suitable drill positions to target the deeper western extent of the resource. Two recently completed drill holes (KUD2050 and KUD2245) have intersected broad thicknesses of high-grade massive sulphide mineralisation (refer to Company ASX announcements dated 8 May and 18 September 2023).

The Sub 900 resource is not closed-off and remains open to the west especially along the "Western Splay", a zone of high-grade massive sulphide mineralisation that is known to extend up to 200m into the Tickalara Metamorphics west (below) the intrusion and is yet to be drill tested. At depth the Savannah intrusion is interpreted to close-out against the 900 Fault due to a change in orientation and then re-appear on the upper side of the Fault to the north of the Turkey Creek Gabbro (TCG). This off-set faulted position of the intrusion to the north of the TCG remains to be adequately explored.

Table 7: Comparison table between Savannah and Savannah North 2022 and 2023 MRE

Prospect	Category	Tonnes	Grade (% Ni)	Metal (t Ni)
Savannah Above 900F	Measured	-83,300	-0.01	-1,200
	Indicated	24,600	-0.08	50
	Inferred	29,900	1.82	550
Sub-Total		**-28,900**	**-0.01**	**-650**
Savannah Below 900F	Measured	-	0.00	0
	Indicated	206,900	0.16	4,950
	Inferred	695,300	-0.15	10,750
Sub-Total		**902,200**	**0.05**	**15,700**
Savannah North	Measured	382,800	0.01	5,550
	Indicated	-73,900	-0.10	-6,600
	Inferred	- 492,200	-0.05	-8,400
Sub-Total		**-183,300**	**-0.06**	**-9,450**
Total Savannah Project	Measured	299,500	0.00	4,350
	Indicated	157,500	-0.06	-1,600
	Inferred	233,000	-0.01	2,900
	Total	**690,000**	**-0.03**	**5,650**

* Resource tonnes are rounded to the nearest 100t and contained metal tonnes to the nearest 50t. Therefore, rounding errors may cause individual column totals not to sum precisely.

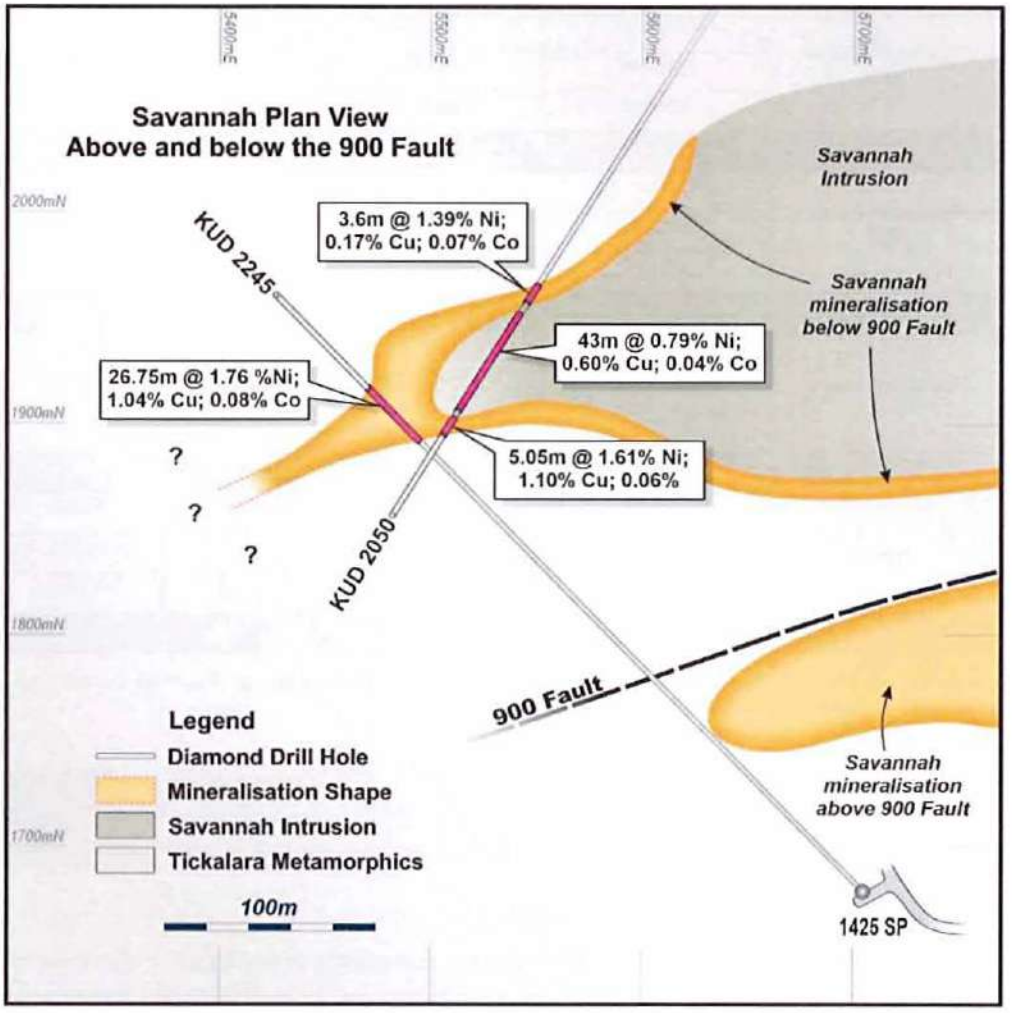
Exploration – Savannah Mine

Savannah Drilling and DHEM Program Update

Following the underground drilling and DHEM survey campaign completed in the previous quarter below the 900 Fault at Savannah, Panoramic drilled follow-up hole KUD2245 intersecting 26.75m grading 1.76% Ni, 1.04% Cu and 0.08% Co from 346.8m. The intersections are located at a critical geological junction within the Savannah orebody resulted in an increased MRE in this area of the orebody.

As part of a recent three-hole underground drill program to establish a DHEM platform to test for possible extensions to the Savannah orebody around the 900 Fault, Panoramic reported on the significant mineralisation encountered in KUD2050 below the fault (refer to Company ASX announcement dated 8 May 2023). The broad mineralised zones intersected by KUD2050 (Figure 1 & 2), which importantly included well developed massive sulphide mineralisation on both the northern and southern contacts of the Savannah intrusion, indicated the intersection was close to the base of the Savannah intrusion. This is an area of the orebody that has consistently exhibited substantially thickened zones of massive sulphides and from where the massive sulphide rich 'Western Splay" diverges from the orebody, extending up to 200m into the Tickalara Metamorphics west of the intrusion.

Figure 1: Plan view of the Savannah mineralisation and intrusion above and below the 900 Fault featuring drill holes KUD2245 and KUD2050



The divergence of the Western Splay from the area of thickened massive sulphide development around the base of the intrusion has been a consistent feature of the Savannah orebody throughout the mine, extending over a distance of approximately 900 metres from surface down to the 900 Fault.

Due to the presence of massive sulphides in KUD2050, interpretation of the DHEM data was complicated with very strong conductors identified, however geophysical processing could not accurately define the conductor source. Inhouse interpretation suggested further mineralisation to the west of KUD2050 and, through a combination of geological modelling and DHEM interpretation, warranted the drilling of KUD2245 to the west of KUD2050.

KUD2245 was collared from the Savannah 1425 SP located below the 900 Fault. The hole tracked below the fault on an azimuth of 316 degrees before intersecting the 26.75m of Savannah mineralisation from 346.8m.

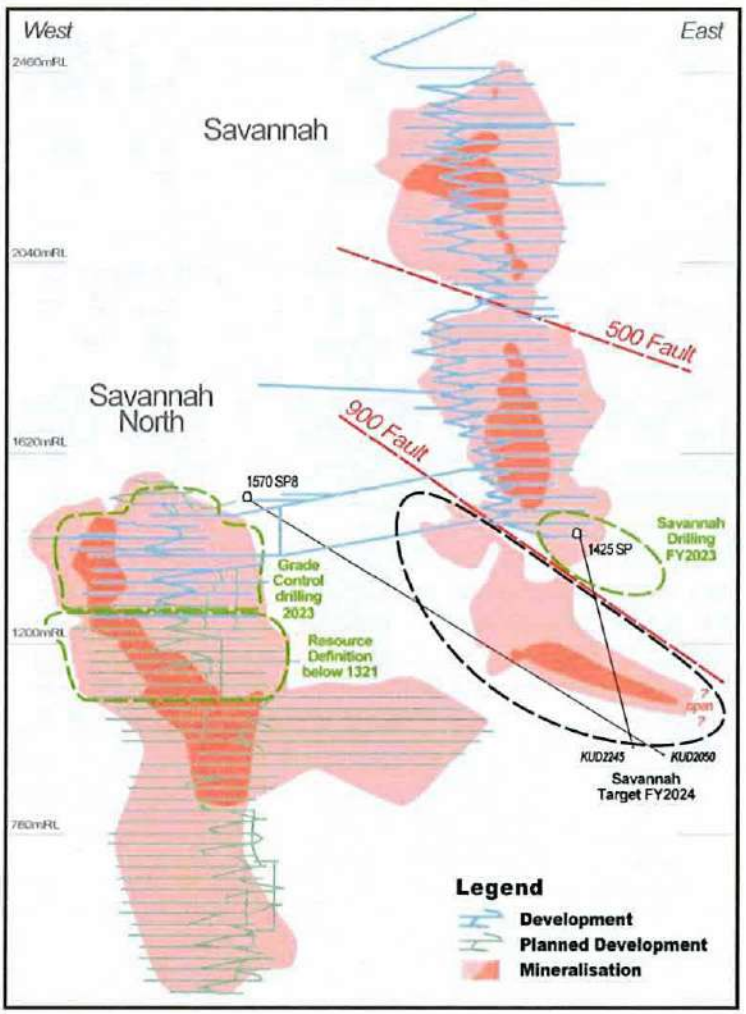
The KUD2245 intersection has important ramifications for the Savannah orebody below the 900 Fault. In conjunction with KUD2050, it accurately positions the base of the orebody and provides the first clear indication that massive sulphide mineralisation is thickened and continuous about the basal

contact of the intrusion as observed elsewhere in this position throughout the mine. Both holes were effectively outside the FY23 Sub 900 Fault resource and have had a significant positive impact on the next iteration of the Sub 900 Fault MRE.

The KUD2245 intersection will also provide future opportunities to further increase the resource by targeting the high-grade, massive sulphide rich "Western Splay" which is currently not modelled but is consistently observed throughout the mine to diverge from this area of the Savannah orebody and extends westward up to 200m metres of the intrusion. It also provides the confidence and justification to develop additional drill platforms in the current mining area to better target this important western end of the Savannah orebody below the 900 Fault, which still remains largely untested.

Development of the Savannah Sub 900 Fault orebody is scheduled to soon commence east to west along the southern contact of the intrusion immediately below the 900 Fault. The updated geological / resource models based on the KUD2050 and KUD2245 results with additional supporting drilling will de-risk continuing development to the base of the intrusion at approximately 5450mE and possibly further if the future Western Splay targeting is positive.

Figure 2: Long section view of the Savannah and Savannah North mineralisation above and below the 900 Fault featuring drill holes KUD2245 and KUD2050



Corporate

Two-Tranche Equity Placement and Share Purchase Plan

During the quarter, Panoramic launched and successfully completed a fully underwritten two-tranche placement of new fully paid ordinary shares ("New Shares") to raise A$40 million (before costs) at a fixed offer price of $0.05 per New Share ("Placement"). The Company also completed a non-underwritten share purchase plan targeting an additional A$5 million in funds.

The Placement received strong support from both new and existing shareholders based domestically and offshore, with a number of new high-quality institutional investors joining the Panoramic share register; several Panoramic Directors also committed to participate in Tranche 2 of the Placement.

The Placement comprised the issue of approximately 800 million New Shares at a fixed offer price of A$0.05 to raise total proceeds of A$40 million (before costs). The Placement was fully underwritten in two tranches:

- Tranche 1 to raise approximately A$15.4 million via the issue of approximately 307.6 million New Shares utilising the Company's existing placement capacity under ASX Listing Rule 7.1 ("Tranche 1"); and
- Tranche 2 to raise approximately A$24.6 million via the issue of approximately 492.4 million New Shares. Tranche 2 was subject to shareholder approval which was granted at a General Meeting held on 4 September.

The Share Purchase Plan closed on 5 September with valid applications for a total of A$5.9 million were received from a total of 625 eligible shareholders. All valid applications received from Eligible Shareholders under the SPP were accepted in full and no scale back was undertaken.

A total of 118,448,910 New Shares and 59,224,455 New Options were issued in relation to the SPP on Friday, 8 September 2023, together with approximately 153,818,550 New Options in relation to tranche one of the Placement and 492,362,901 New Shares and approximately 246,181,450 New Options in relation to tranche two of the Placement.

Proceeds from the Placement and SPP were used to strengthen the Company's balance sheet, removing the short-term working capital pressure caused by the delay of revenue resulting from the filter press head plate failure and disruptions caused by a one-off, severe weather event in the previous quarter. The broken filter press head plate was replaced and has been fully operational since 9 July 2023. The equity raising ensures that the Company is sufficiently capitalised to support the ongoing ramp-up of the Savannah Nickel Project to steady state operations and provides a robust platform for future growth.

Transition to Owner Operated Processing Model

Panoramic's wholly owned subsidiary Savannah Nickel Mines Pty Ltd and Primero Group Limited (Primero) mutually agreed to conclude the agreement under which Primero operates and maintains the process plant at the Savannah Nickel Mine ("OM Agreement").

The transition to an owner operated model for the processing plant is anticipated to deliver operating cost savings and a higher retention rate of personnel. Barminco will continue to manage underground mining at Savannah under a contract model.

Concentrate Revenue

Revenue / cash flow was received in the quarter from the Company's offtake partner's Trafigura totaling US$27.0 million (A$41.9 million) following the issue of provisional invoices covering 19,344dmt of concentrate containing 1,388t of contained nickel.

Six shipments from previous quarters were finalised in the period resulting in a unfavorable QP cash outflow adjustment (net of hedges settled) of US$2.8 million (A$4.4 million).

All payments received are inclusive of all three metals contained in the concentrate.

Hedging

During the quarter, no new hedging was undertaken by the Company. Hedges from the previous quarter totaling 347t of nickel were settled in the quarter at an average price of US$24,509/t.

At the end of the September quarter there were no nickel or other hedges in place.

Trafigura Finance Facility

During the quarter the Company made three scheduled debt repayments to the Prepayment Loan Facility (PLF) totaling US$1.90 million. Debt repayments since initial drawdown total US$7.40 million.

Total drawn debt (PLF and RCF) as at 30 September 2023 is US$37.6 million.

During the quarter, the Company secured from Trafigura Pte Ltd a twelve month extension of the RCF maturity date from 31 December 2023 to 31 December 2024. The extension was subject to a number of conditions which include;

- The successful completion of a A$40.0 million equity raising by 15 September 2023.
- RCF interest margin to increase by 1.0% from 1 August 2023.
- Commencing 1 January 2024, 80% of any group cash balance greater than A$20.0 million at the end of the month before each calendar quarter is to be applied to the RCF (cash sweep).
- Trafigura receives an option to extend its existing concentrate offtake contract by two years, on the same terms. The option must be exercised by 31 December 2025.

As at 30 September, all conditions necessary to secure the extension of the RCF maturity date had been met.

Group Cash

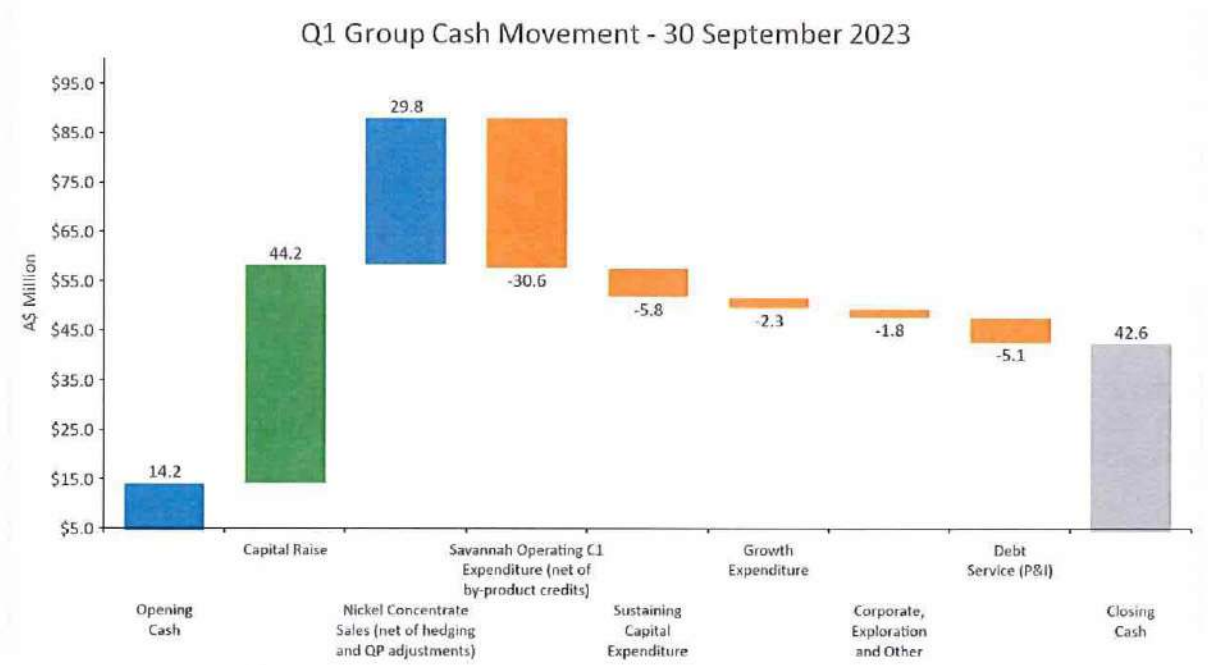
Group cash as at 30 September 2023 totaled A$42.6 million. The movement in the cash position during the quarter included the following key items:

Inflows

- Receipts totalling A$29.8 million (US$19.2 million) from the sale of nickel in concentrate net of hedge settlements and QP adjustments for nickel only.
- Proceeds from the two-tranche equity placement (net of costs) totalling A$38.3 million.
- Proceeds of A$5.9 million received from the completion of the share purchase plan.

Outflows

- A$30.6 million Savannah operating expenditure including sea freight, royalties and by-product credits inclusive of QP adjustments (copper and cobalt only).
- A$5.8 million Savannah sustaining capital expenditure and mine development.
- A$2.3 million Savannah growth expenditure and on-mine exploration.
- A$1.8 million corporate, regional exploration, and other working capital expenditure.
- A$5.1 million debt service inclusive of interest and scheduled debt repayments.



Competent Person

The information in this release that relates to Exploration Drilling at Savannah is based on information compiled by Andrew Shaw-Stuart. Andrew Shaw-Stuart is a member of the Australian Institute of Geoscientists (AIG) and is a full-time employee of Panoramic Resources Limited.

The aforementioned has sufficient experience that is relevant to the style of mineralisation and type of target/deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Shaw-Stuart consents to the inclusion in the release of the matters based on the information in the form and context in which it appears.

About Panoramic:

Panoramic Resources Limited (ASX: PAN) is a company headquartered in Perth, Western Australia, which owns the Savannah Nickel Project in the East Kimberley. Operations at Savannah were restarted in 2021 and the project was successfully recommissioned with first concentrate shipment achieved in December 2021. Savannah has a 12-year mine life with clear potential to further extend this through ongoing exploration. The asset provides excellent leverage to the nickel, copper and cobalt markets which are heavily linked to global decarbonisation and vehicle electrification.

Forward Looking Statements:

This announcement contains certain "forward-looking statements" and comments about future matters. Forward-looking statements can generally be identified by the use of forward-looking words such as, "expect", "anticipate", "likely", "intend", "should", "could", "may", "predict", "plan", "propose", "will", "believe", "forecast", "estimate", "target" "outlook", "guidance" and other similar expressions within the meaning of securities laws of applicable jurisdictions. Indications of, and guidance or outlook on, future earnings or financial position or performance are also forward-looking statements. You are cautioned not to place undue reliance on forward-looking statements. Any such statements, opinions and estimates in this announcement speak only as of the date hereof and are based on assumptions and contingencies subject to change without notice, as are statements about market and industry trends, projections, guidance and estimates. Forward-looking statements are provided as a general guide only. The forward-looking statements contained in this announcement are not indications, guarantees or predictions of future performance and involve known and unknown risks and uncertainties and other factors, many of which are beyond the control of the Company, and may involve significant elements of subjective judgement and assumptions as to future events which may or may not be correct.

There can be no assurance that actual outcomes will not differ materially from these forward-looking statements. A number of important factors could cause actual results or performance to differ materially from the forward-looking statements. The forward-looking statements are based on information available to the Company as at the date of this announcement.

Except as required by law or regulation (including the ASX Listing Rules), the Company undertakes no obligation to supplement, revise or update forward-looking statements or to publish prospective financial information in the future, regardless of whether new information, future events or results or other factors affect the information contained in this announcement.

This ASX announcement was authorised on behalf of the Panoramic Board by: Victor Rajasooriar, Managing Director & CEO

For further information contact:

Victor Rajasooriar, Managing Director & CEO

+61 8 6266 8600

Media inquiries:

Michael Vaughan, Fivemark Partners

+61 422 602 720

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PANORAMIC
RESOURCES LTD

26 July 2023

Quarterly Activities Report
for the period ending 30 June 2023

Summary

SAVANNAH NICKEL OPERATIONS

- Mining and processing outcomes at Savannah reflect a challenging quarter due to a one-off weather event in the Kimberly region and the failure of the filter press head plate at the Savannah processing plant during the quarter:
  - Ore mined increased 1% quarter-on-quarter to 176,229t.
  - Ore milled decreased by 14% to 146,678t.
  - Concentrate production down 24% to 15,039dmt, with:
    - Contained nickel production down 26% to 1,081t nickel
    - Contained copper production down 20% to 658t copper
    - Contained cobalt production down 23% to 76t cobalt
- Three shipments of nickel-copper-cobalt concentrate completed:
  - Concentrate shipments down 32% to 15,147dmt with:
    - Contained nickel shipped down 34% to 1,091t
    - Contained copper shipped down 27% to 668t
    - Contained cobalt shipped down 31% to 77t
  - All concentrate shipments during the quarter sent to Trafigura under the new offtake agreement with improved payability compared to the previous agreement.
- Unit cost performance for the quarter was higher across C1, AISC and AIC metrics due to the operational issues which reduced production.

		Units	Jun Qtr 2023	Mar Qtr 2022	Change Qtr on Qtr	Total FY23
Unit Costs	C1	A$/lb	$17.49	$12.78	37%	$13.25
	AISC	A$/lb	$19.59	$13.65	44%	$14.90
	AIC	A$/lb	$22.33	$15.55	44%	$17.64

- FY23 production C1 costs in line with revised FY23 guidance issued on 14 June 2023 following the failure of the filter press head plate.

Panoramic Resources Limited
Level 9, 553 Hay St
Perth, Western Australia 6000

Telephone: +61 8 6374 1700
Website:
www.panoramicresources.com

FY24 GUIDANCE

- FY24 guidance forecasts an increase in production for nickel of 26% – 41%, for copper of 36% – 52% and for cobalt of 9% – 36% compared to FY23 outcomes.
- Significant lift in production also expected to be accompanied by a year-on-year reduction in C1 costs per pound of nickel in FY24.
- Improved FY24 performance to be driven by a range of factors including the opening of new mining levels in Savannah North, first production from the Savannah extension, the sourcing of additional spares at site and greater equipment/manning availability.

SAVANNAH NICKEL EXPLORATION

- Three-hole drill program to establish new underground DHEM survey platforms testing extensions at Savannah intersects massive sulphide intrusions.
- Surface DHEM surveying undertaken at the regional Stoney Creek and Northern Ultramafic Granulite prospects.
- Surface exploration diamond drilling completed at the Dave Hill / Wilsons Intrusion and Keller Creek Graphite targets.

CORPORATE

- Cash at the end of the quarter of A$14.2 million, down by 57% from the end of the prior quarter.
- Debt repayments for the quarter total $2.5 million.

Panoramic Managing Director and CEO, Victor Rajasooriar commented:

"The operations staff and our business partners battled hard in FY23 to achieve this outcome in the face of periods of adversity, largely due to equipment failure. We were able to get through these challenges, undertake preventative maintenance and build mine stocks to lay the foundation for a much stronger FY24 financial year, as reflected in our guidance."

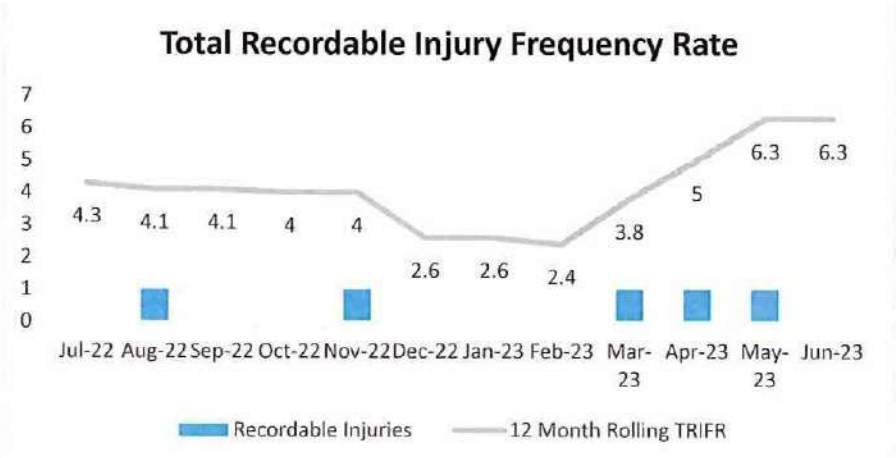
Savannah Nickel Project – Operations

Safety

The site safety culture has continued to develop, there has been a focus on increasing the standard of incident investigations with emphasis on ensuring quality actions from investigations to prevent re-occurrence of similar incidents.

Unfortunately, the Total Recordable Injury Frequency Rate (TRIFR) increased during the quarter to 6.3 due to two medically treated hand injuries.

Mental Health First Aid training was carried out during the quarter with site-based employees and contractors attending. The training was very well received and further courses are being planned.



Environment

During the quarter, the operations maintained compliance with all regulatory and operating licence requirements.

Planning and preparation of tender documents to construct a tailings storage facility wall lift commenced. This has been approved by relevant authorities and is planned for the first half of FY2024.

Cultural Heritage training was undertaken on site during the quarter.

Underground Mining

The mining physicals reflect a challenging quarter due to a number of issues. The effects of the one-off weather event from the March quarter continued to impact the logistics route to site in early April with the Fitzroy Crossing bridge being washed out creating delays in getting supplies to site.

At the start of the quarter, production from the mine was affected due to blockages in the paste fill line servicing the mine. This resulted in a re-sequence of lower grade stopes being brought online which were independent of paste fill requirements.

Compounding this issue was the failure of the filter press head plate in the processing plant in June. This hampered the operation of the processing plant which, in turn, led to a reduced amount of paste being supplied to the underground mine.

As a result of the filter press head plate failure and the suspension of concentrate production, a decision was made to restrict underground ore production activities in order to minimise oxidation of newly mined ore on the surface stockpile. In total approximately 34,000t of ore was stockpiled on the surface during the June quarter, with the underground mine holding back approximately 55,000t of ore which was otherwise ready to be blasted and mined. These activities set the operation up for a positive start in FY24.

Figure A: Long Section of Savannah North

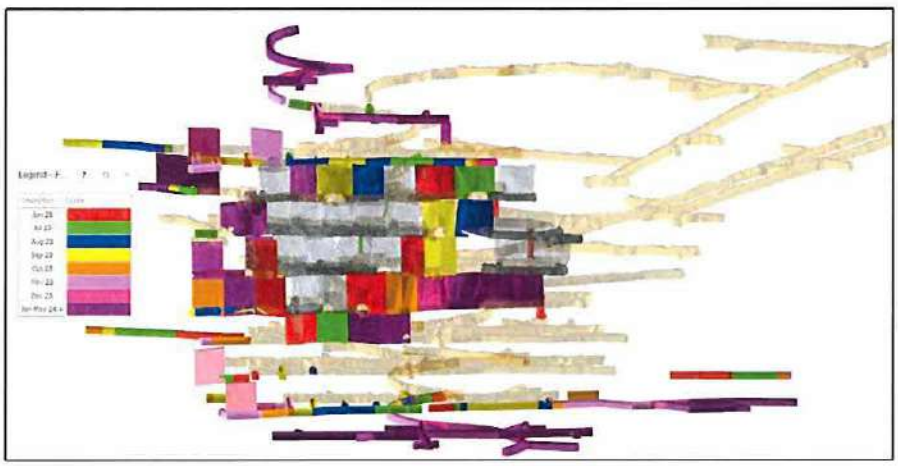


Figure B: Long Section of Savannah

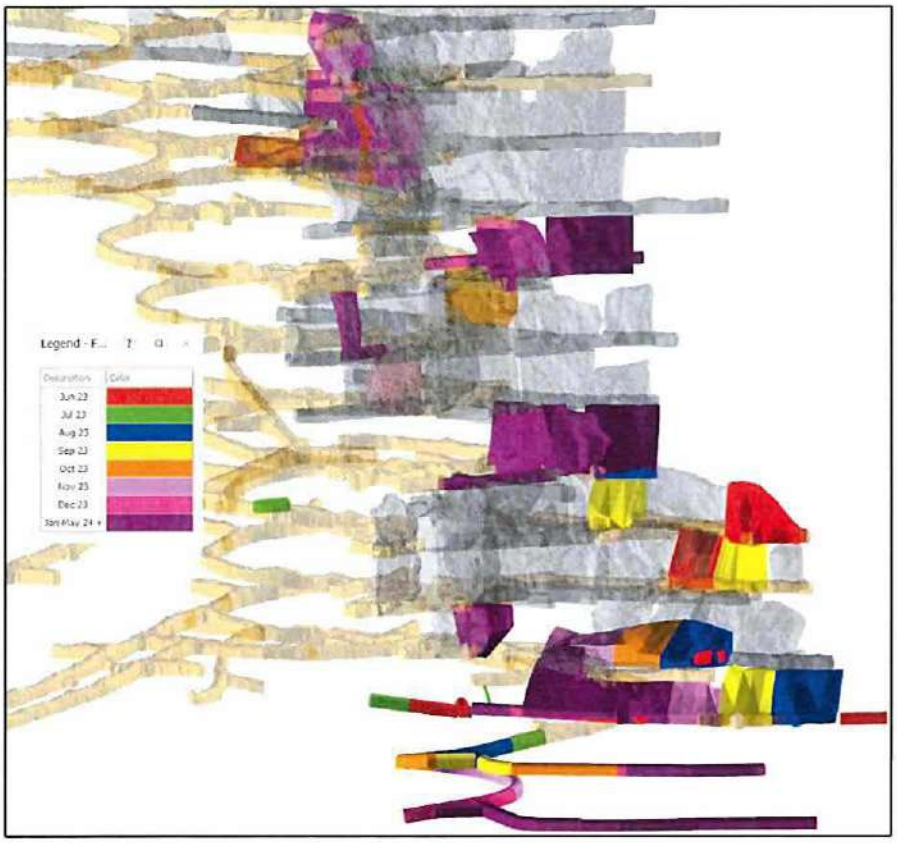


Table 1: Mining physicals achieved at Savannah

Area	Details	Units	Jun Qtr 2023	Mar Qtr 2023	Variance	FY23 Actuals
Mining	Jumbo development	m	922	803	15%	4,171
	Ore mined	dmt	176,229	174,924	1%	680,438
	Ni grade	%	0.93	1.03	-10%	1.02
	Ni Metal contained	dmt	1,631	1,803	-10%	6,973
	Cu grade	%	0.48	0.50	-4%	0.51
	Co grade	%	0.06	0.07	-14%	0.07

Processing and Concentrate Production

The processing physicals for the quarter were materially lower than the March quarter's result, mainly driven by the lower grade ore mined at the start of the quarter (resulting in lower recoveries) and the filter press failure in June at the processing plant.

A new filter press head unit was fabricated and successfully commissioned on 9 July 2023 with concentrate production quickly returning to full production capacity.

Table 2: Processing physicals achieved at Savannah and Savannah North

Area	Details	Units	Jun Qtr 2023	Mar Qtr 2023	Variance	FY23 Actuals
Milling	Ore milled	dmt	146,678	170,562	-14%	648,324
	Ni grade	%	0.94	1.05	-10%	1.04
	Cu grade	%	0.48	0.51	-6%	0.52
	Co grade	%	0.06	0.06	0%	0.06
	Ni recovery	%	78.62	81.46	-3%	80.34
	Cu recovery	%	93.81	93.90	0%	93.67
	Co recovery	%	87.98	89.59	-2%	87.90
Concentrate Production	Concentrate	dmt	15,039	19,764	-24%	73,088
	Ni grade	%	7.19	7.41	-3%	7.39
	Ni Metal contained	dmt	1,081	1,465	-26%	5,402
	Cu grade	%	4.38	4.17	5%	4.28
	Cu Metal contained	dmt	658	825	-20%	3,129
	Co grade	%	0.51	0.50	2%	0.50
	Co Metal contained	dmt	76	99	-23%	368

Area	Details	Units	Jun Qtr 2023	Mar Qtr 2023	Variance	FY23 Actuals
Concentrate Shipments	Concentrate	dmt	15,147	22,217	-32%	77,300
	Ni grade	%	7.20	7.39	-3%	7.32
	Ni Metal contained	dmt	1,091	1,642	-34%	5,658
	Cu grade	%	4.41	4.13	7%	4.21
	Cu Metal contained	dmt	668	917	-27%	3,253
	Co grade	%	0.51	0.50	2%	0.51
	Co Metal contained	dmt	77	112	-31%	393

Port Operations and Shipments

Three concentrate shipments were completed during the June quarter, however volumes were 32% lower than the March quarter. The impact of the lower mined grades combined with the filter press failure resulted in the equivalent of a full concentrate shipment being missed in June, impacting revenues and cash flow by an estimated $20M. The cash at the end of the quarter was 57% lower than the March quarter at $14.2M.

At the end of the quarter, produced/unsold concentrate on hand at the port and mine site totaled 1,154wmt.

Costs

Table 3: Cost outcomes achieved during the June quarter 2023

		Units	Jun Qtr 2023	Mar Qtr 2022	Change Qtr on Qtr	Total FY23
Unit Costs	C1	A$/lb	$17.49	$12.78	37%	$13.25
	AISC	A$/lb	$19.59	$13.65	44%	$14.90
	AIC	A$/lb	$22.33	$15.55	44%	$17.64

Total site expenditure for the quarter net of by-product credits was $42.2 million, up by 7% from the previous quarter.

Savannah operating C1 expenditure (cash basis net of by-product credits) for the quarter was $33.1 million, which results in a C1 cash cost per pound of payable nickel of $17.49/lb.

Expenditure on sustaining capital inclusive of plant and equipment and mine development increased to $4.0 million in the quarter, reflecting a rescheduling of activities in June to increase underground development work and reduce stope production following the filter press failure. This resulted in an AISC unit cost per pound of payable nickel of $19.59/lb.

Growth expenditure and in-mine exploration costs were $5.2 million which results in an AIC unit cost per pound of payable nickel of $22.33/lb.

FY23 Summary of Guidance vs Actual

FY23 production and C1 guidance was updated on 14 June 2023 when it became clear the lower end of guidance could not be achieved after attempts to repair the filter press head plate had failed. Sustaining and mine development capital expenditure and growth expenditure variances (when compared to guidance) are due to higher jumbo development activities carried out in Savannah North advancing areas more than 12 months in front of production but providing drilling platforms for resource definition drilling.

Table 3: FY23 Guidance Vs Actual

Metric	FY23 Guidance	FY23 Actual
Nickel in concentrate production	5,400 – 5,800t	**5,402t**
Copper in concentrate production	3,100 – 3,400t	**3,129t**
Cobalt in concentrate production	350 – 400t	**368t**
C1[1] cost per pound of payable nickel	A$13.00 – $13.50/lb	**A$13.25/lb**
Sustaining & Mine Development Capital	A$20 – 28M	**A$15.5M**
Growth Expenditure	A$14 – 18M	**A$25.6M**

[1] *C1 costs includes operating cash costs that are directly incurred in producing concentrate and includes grade control drilling, road haulage, port, shipping, royalties and by-product credits net of treatment charges.*

FY24 Guidance

Production and cost guidance for Savannah in FY24 has now been completed and reflects a significant improvement from FY23. This is founded on an expected significant increase in productivity from the underground mine. In FY24 five working levels will be open at Savannah North compared to two at the start of FY23. In addition, the Savannah extension (an area below the historical Savannah workings) will come into production for the very first time. The recent appointment of a specialised paste fill contractor to manage the paste plant is also expected to improve paste fill reliability and positively influence mining productivity. Underground mining contractor Barminco has all the equipment and people required to meet the FY24 targets in place from the start of the period and has also increased its inventory holdings on site to mitigate any maintenance delays due to parts unavailability as experienced in FY23. Full details are contained in Table 4.

Table 4: FY24 Guidance

Metric	FY24 Guidance
Nickel in concentrate production	**6,800 – 7,600t**
Copper in concentrate production	**4,250 – 4,750t**
Cobalt in concentrate production	**400 – 500t**
C1[1] cost per pound of payable Ni	**A$10.05 – 11.25/lb**[2]
Sustaining Capital & Mine Development	**A$22 – 26M**
Growth Expenditure	**A$10 – 12M**

[1] *C1 costs includes operating cash costs that are directly incurred in producing concentrate and includes grade control drilling, road haulage, port, shipping, royalties and by-product credits net of treatment charges.*

[2] *By-product based on exchange rate of AUD:USD 0.70 and commodity prices of US$8,000/t Cu and US$40,000/t Co.*

The FY24 guidance contains assumptions for future commodity prices, exchange rates, costs and mine scheduling. Achievement of this guidance is dependent on the mine schedule at Savanah North and Savannah being executed as planned. Unit cash costs will continue to vary quarter on quarter and will be influenced by the relative proportions of nickel coming from ore development and stope production. The guidance range provided reflects a forecast average for the year.

Nickel in Concentrate – FY24 production guidance reflects a blended production of ore from Savannah (Extension & remnants) and Savannah North (new mine). Savannah North provides approximately 52% of the ore feed, with Savannah providing the balance.

C1 Costs – Includes operating cash costs that are directly incurred in producing concentrate and includes grade control drilling, road haulage, port, shipping, royalties and by-product credits net of treatment charges.

Sustaining Capital & Mine Development – The productive benefits of this capital expenditure are realised over the following 12 months and includes sustaining mine development expenditure which is carried out in both Savannah and Savannah North during the year.

Growth Expenditure – is investment/startup/improvement expenditure where the productive benefits are derived over a period exceeding 12 months and includes advance lateral development expenditure where production in the developed area commences in a period exceeding 12 months. This expenditure also includes resource definition drilling carried out at both Savannah and Savannah North.

Exploration – Savannah Mine

Savannah Drilling and DHEM Program Update

Three diamond drill holes designed as platforms for DHEM surveying were drilled from a position above the Savannah orebody. Holes KUD2050 and KUD2084 targeted below the 900 Fault and hole KUD2051 targeted above the Fault (Figure A). Below the 900 Fault, KUD2084 and KUD2050 are approximately 250m apart and are designed to target beneath and to the west of the currently known extents of the Savannah intrusion respectively. Above the 900 Fault, KUD2051 is a short 220m length hole designed to explore for possible westward extensions on the orebody.

Whilst being drilled, KUD2050 unexpectedly deviated slightly against rotation and also lifted above design.

As a result, the hole intersected the Savannah intrusion below the 900 Fault rather than below the intrusion as initially designed. Importantly, when traversing through the intrusion, KUD2050 intersected several significant zones of mineralisation including well-developed massive sulphide mineralisation on both the northern and southern contact of the intrusion (Figure B). Assayed results for these mineralised zones are:

- 6.45m @ 1.05% Ni, 0.31% Cu and 0.05% Co from 628m on the Northern Contact, including:
  - 3.6m @ 1.39% Ni, 0.17% Cu and 0.07% Co from 628.95m and
- 43m @ 0.79% Ni, 0.60% Cu and 0.04% Co from 652m within the Savannah orebody, including:
  - 11.60m @ 1.16% Ni, 0.54% Cu and 0.06% Co from 652m, including
    - 5.75m @ 1.67% Ni, 0.63% Cu and 0.08% Co from 652m
  - 15.80m @ 1.01% Ni, 0.74% Cu and 0.05% Co from 670.2m including
    - 7.5m @ 1.22% Ni, 1.10% Cu and 0.06% Co from 678.5m
- 5.05m @ 1.61% Ni, 1.10% Cu and 0.06% Co from 708.65m on the Southern Contact

Whilst close to the existing Savannah Resource below the 900 Fault, the KUD2050 mineralisation will improve on the width and grade of the known mineralisation in this area and thereby will build on the existing Savannah Resource in in the future.

Downhole surveying of these holes has been completed and the modelling of plates is underway. Additional drilling in this area is planned during FY24.

Figure A: Long section of DHEM platform holes targeting Savannah above and below the 900 Fault

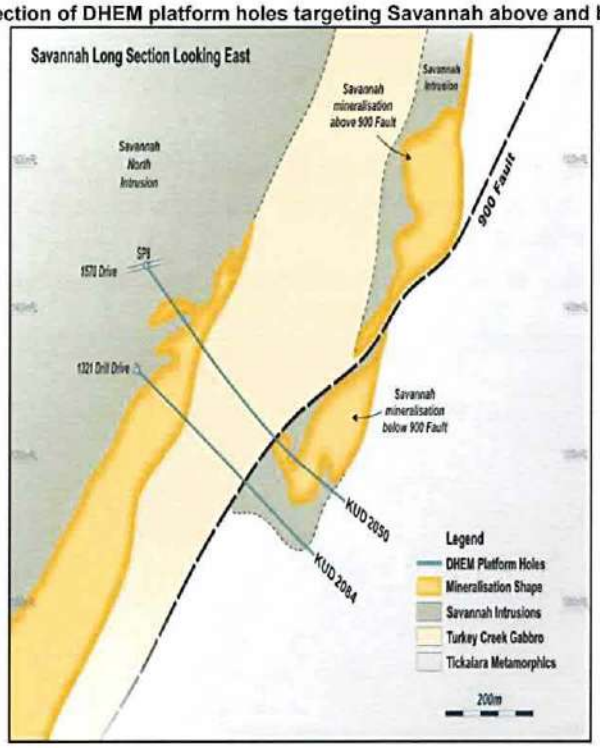
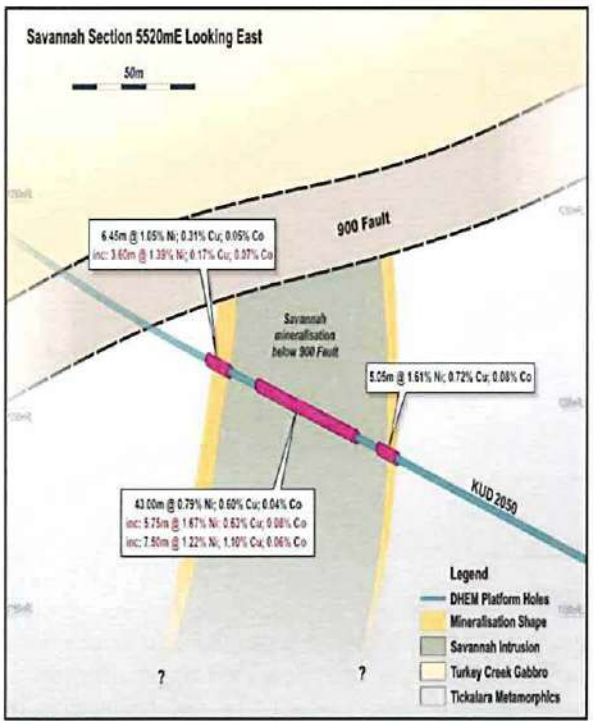


Figure B: KUD2050 through the Savannah intrusion and mineralisation below the 900 Fault

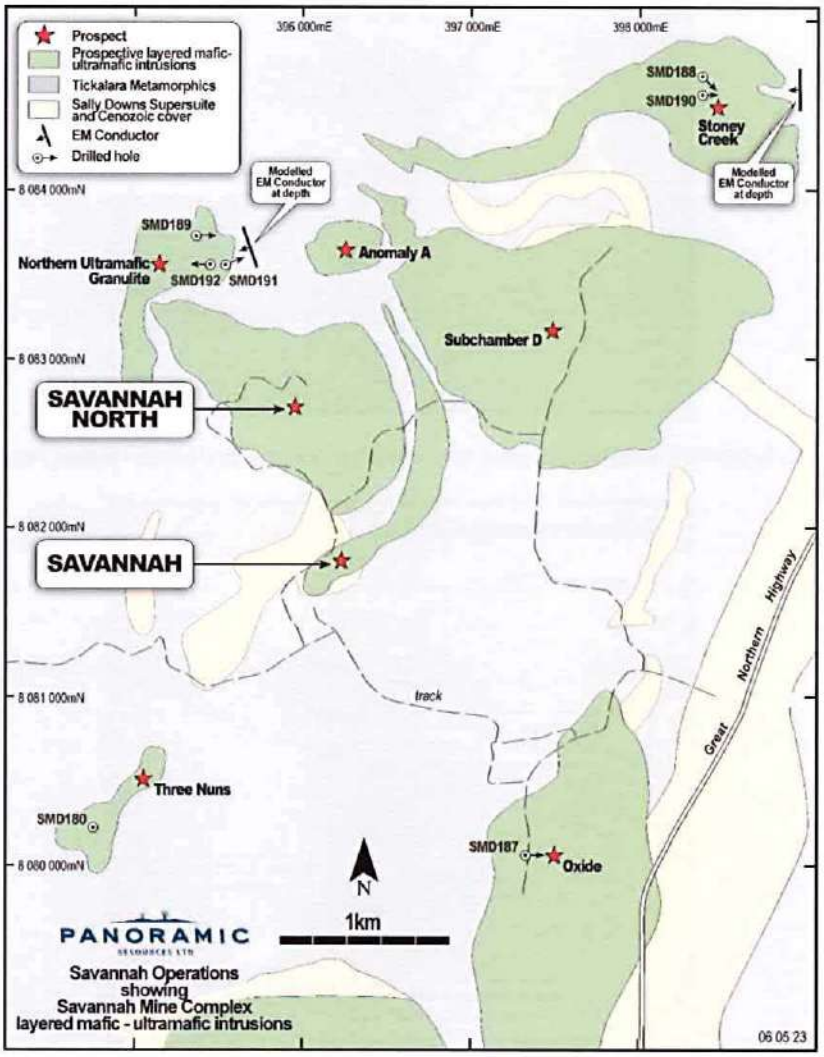


Exploration – Surface

Surface DHEM Surveys

DHEM surveys in previously drilled holes SMD188 and SMD190 in the Stoney Creek Intrusion and SMD191 and SMD192 in the Northern Ultramafic Granulite Intrusion were completed during the quarter and modelling is underway (Figure C).

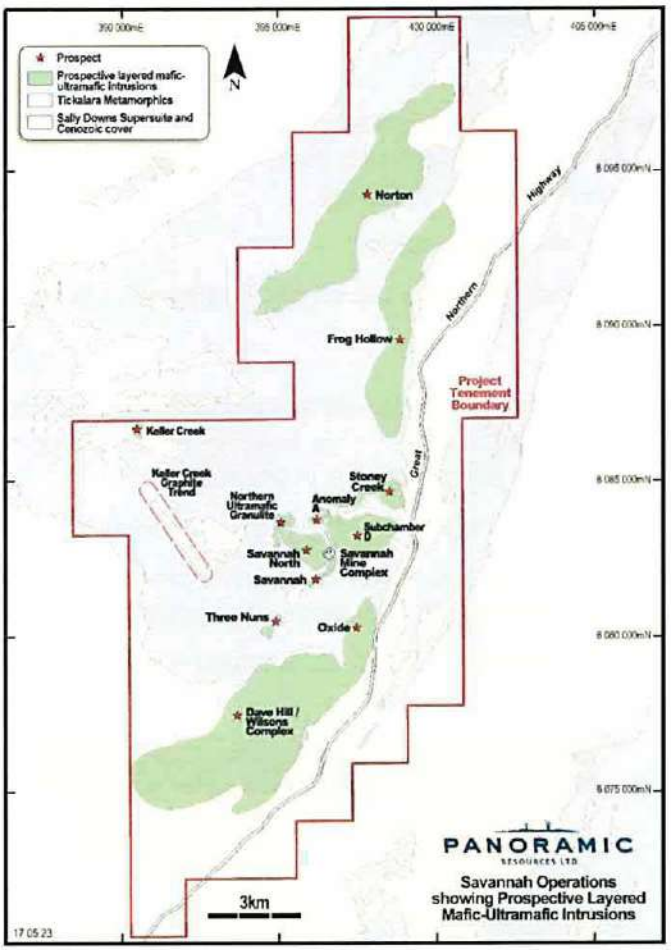
Figure C: Ultramafic intrusions of the Savannah Intrusive Complex highlighting recent drilling to be DHEM surveyed in May 2023



Surface Drilling at Savannah

The return of the Kimberley dry season enabled the resumption of diamond drilling. DDH1 Drilling was contracted and completed three surface diamond holes for approximately 1,500m. The focus of the drill program was testing the southeastern contact of the Dave Hill intrusion and follow up holes at the Keller Creek Graphite prospect (Figure D).

Figure D: Ultramafic intrusions of the Savannah Intrusive Complex highlighting surface exploration targets and ultramafic lithology



The Dave Hill/Wilson Creek Complex is located immediately to the south of Savannah. The Dave Hill and Wilson Creek layered cumulate bodies were previously considered to be two separate intrusions, however mapping, drilling and other studies by Panoramic indicate they belong to a single complex intrusion. A renewed focus on surface mapping has found a secondary area prospective for ultramafic rocks on the southeastern margin of the intrusion. Drilling tested this contact area at depths previously impenetrable by surficial geophysical techniques.

The Keller Creek Graphite prospect is located immediately to the west of Savannah. Regional airborne electromagnetic surveys conducted by the Company in search of nickel sulfide mineralisation, identified several large stratigraphic horizons of graphite bearing meta-sediments (Tickalara Metamorphics) across the entire Keller Creek tenement. The aim of the 2023 diamond drilling program is to improve on the RC program and determine the true thickness and Total Graphitic Carbon content of the graphite bearing horizon. The option to further understand the lithogeochemistry, graphite flake potential and complete metallurgical testwork will also be available following the drilling program.

Results from the three drill holes are expected in the September quarter 2023.

Corporate

Concentrate Revenue

Revenue/cash flow was received in the quarter from the Company's offtake partner Trafigura totaled US$23.33 million (A$34.85 million) following the issue of provisional invoices covering 15,147dmt of concentrate containing 1,091t of contained nickel.

No shipments were finalised during the quarter.

All payments received are inclusive of all three metals contained in the concentrate.

Hedging

During the quarter, the Company executed US dollar forward hedge contracts for 347t of nickel metal achieving an average price of US$24,509/t. This hedging protects a portion of the nickel revenue received from the provisional sale of concentrate in the quarter.

Hedges totaling 1,182t of nickel were settled in the quarter at an average price of US$26,889/t.

Outstanding hedges as at 30 June 2023 total 347t and represent 93% of the contained metal in shipments that have not been finalised. The average price achieved for this hedging is US$24,509/t.

The following table shows the delivery profile for unsettled hedges as at 30 June 2023.

Nickel hedging	Units	July 2023
Volume	t	347
Settlement price	US/t	24,509

At the end of the quarter there were no other hedges in place.

Trafigura Finance Facility

During the quarter the Company made three scheduled debt repayments to the Prepayment Loan Facility (PLF) totaling US$1.62 million. Debt repayments since initial drawdown total US$5.22 million.

Total drawn debt (PLF and RCF) as at 30 June is US$39.78 million.

Group Cash

Group cash as at 30 June 2023 totaled A$14.2 million, a decrease of 57% from the end of the previous quarter.

The movement in the cash position during the quarter included the following key items:

Inflows

- Receipts totalling A$34.9 million (US$22.9 million) from the sale of nickel in concentrate net of hedge settlements and QP adjustments for nickel only.

Outflows

- A$37.4 million Savannah operating expenditure including sea freight, royalties and by-product credits inclusive of QP adjustments (copper and cobalt only).
- A$3.1 million Savannah sustaining capital expenditure and mine development.
- A$5.9 million Savannah growth expenditure and on-mine exploration.
- A$2.2 million corporate, regional exploration, and other working capital expenditure.
- A$4.6 million debt service inclusive of interest and scheduled debt repayments.



2024 Incentive Arrangements

As at 1 July 2023, the Managing Director and four senior executives are entitled to a further grant of 12,928,374 performance rights for FY2024 (in aggregate). These performance rights will have a three-year service and performance period.

The Managing Director's short term incentive opportunity has also been increased to 80% of his total fixed remuneration, which with periodic reviews is now $660,000 per annum (inclusive of superannuation). The Managing Director's grant of 6,748,466 performance rights and an additional proposed grant of up to 10,000,000 Conditional Retention Rights (CRRs) is subject to shareholder approval. The CRRs will be performance rights issued in 2 tranches of 5,000,000, and will vest on 30 June 2025 and 30 June 2027 respectively, subject to achieving strategic objectives set by the Board and a service vesting condition.

Competent Person

The information in this release that relates to Exploration Drilling at Savannah is based on information compiled by Andrew Shaw-Stuart. Andrew Shaw-Stuart is a member of the Australian Institute of Geoscientists (AIG) and is a full-time employee of Panoramic Resources Limited.

The aforementioned has sufficient experience that is relevant to the style of mineralisation and type of target/deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Shaw-Stuart consents to the inclusion in the release of the matters based on the information in the form and context in which it appears.

About Panoramic:

Panoramic Resources Limited (ASX: PAN) is a company headquartered in Perth, Western Australia, which owns the Savannah Nickel Project in the East Kimberley. Operations at Savannah were restarted in 2021 and the project was successfully recommissioned with first concentrate shipment achieved in December 2021. Savannah has a 12-year mine life with clear potential to further extend this through ongoing exploration. The asset provides excellent leverage to the nickel, copper and cobalt markets which are heavily linked to global decarbonisation and vehicle electrification.

Forward Looking Statements:

This announcement contains certain "forward-looking statements" and comments about future matters. Forward-looking statements can generally be identified by the use of forward-looking words such as, "expect", "anticipate", "likely", "intend", "should", "could", "may", "predict", "plan", "propose", "will", "believe", "forecast", "estimate", "target" "outlook", "guidance" and other similar expressions within the meaning of securities laws of applicable jurisdictions. Indications of, and guidance or outlook on, future earnings or financial position or performance are also forward-looking statements. You are cautioned not to place undue reliance on forward-looking statements. Any such statements, opinions and estimates in this announcement speak only as of the date hereof and are based on assumptions and contingencies subject to change without notice, as are statements about market and industry trends, projections, guidance and estimates. Forward-looking statements are provided as a general guide only. The forward-looking statements contained in this announcement are not indications, guarantees or predictions of future performance and involve known and unknown risks and uncertainties and other factors, many of which are beyond the control of the Company, and may involve significant elements of subjective judgement and assumptions as to future events which may or may not be correct.

There can be no assurance that actual outcomes will not differ materially from these forward-looking statements. A number of important factors could cause actual results or performance to differ materially from the forward-looking statements. The forward-looking statements are based on information available to the Company as at the date of this announcement.

Except as required by law or regulation (including the ASX Listing Rules), the Company undertakes no obligation to supplement, revise or update forward-looking statements or to publish prospective financial information in the future, regardless of whether new information, future events or results or other factors affect the information contained in this announcement.

This ASX announcement was authorised on behalf of the Panoramic Board by: Victor Rajasooriar, Managing Director & CEO

For further information contact:

Victor Rajasooriar, Managing Director & CEO

+61 8 6266 8600

Media inquiries:

Michael Vaughan, Fivemark Partners

+61 422 602 720

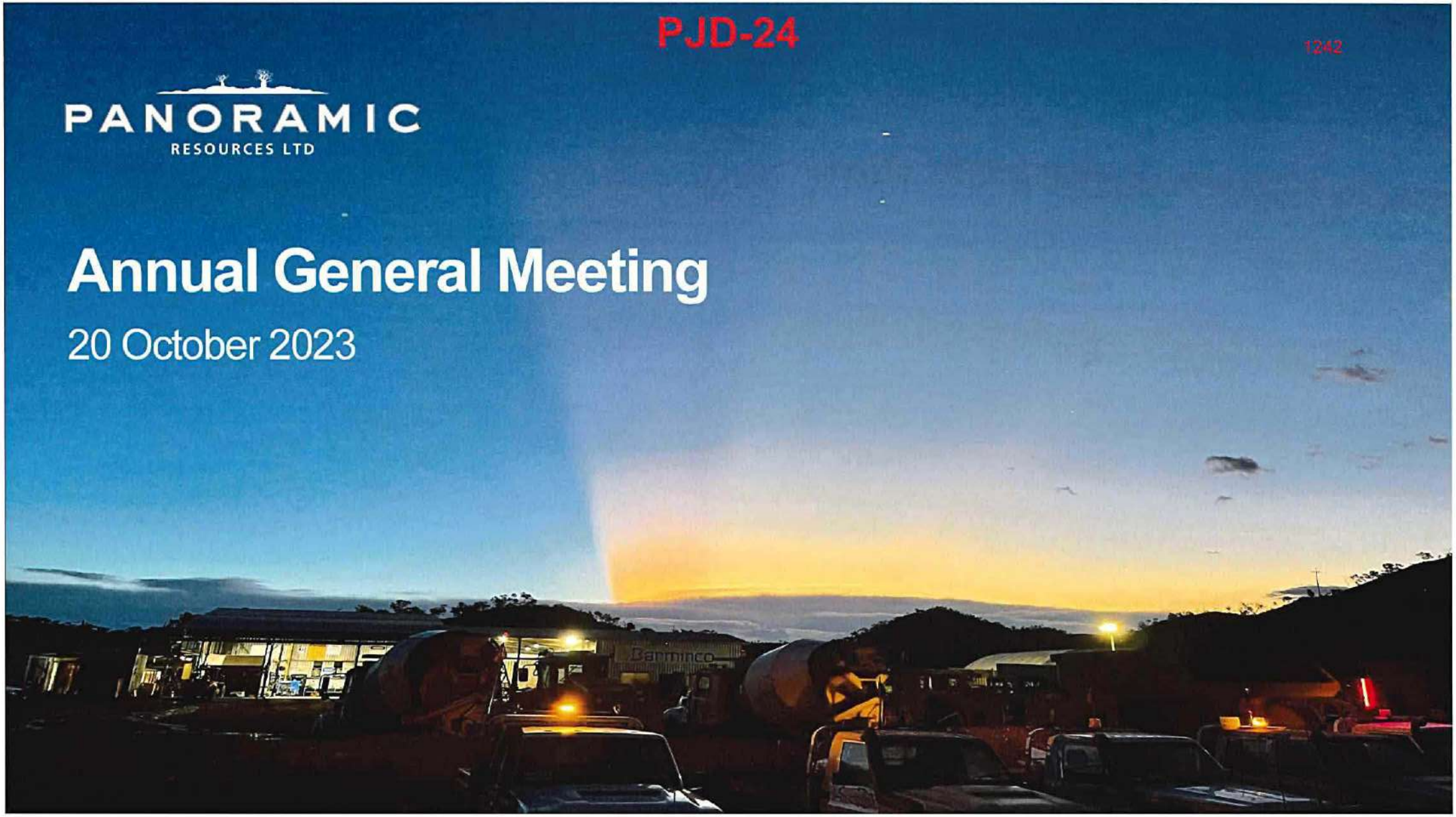
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PANORAMIC
RESOURCES LTD

Annual General Meeting

20 October 2023



Important Notices and Disclaimer

PANORAMIC RESOURCES LTD

Forward-looking statements

This Presentation contains forward looking statements about the Company. Often, but not always, forward looking statements can be identified by the use of forward looking words such as "may", "will", "expect", "propose", "believe", "intend", "plan", "estimate", "anticipate", "target", "continue", and "guidance", or other similar words and may include, without limitation, statements regarding the Company's intent, belief or expectations, plans, strategies and objectives of management, future anticipated exploration and project development, production, processing or expected costs, the outcome and effects of the Equity Raising and the future operations of the Company. To the extent that these materials contain forward looking information, the forward looking information is subject to a number of risk factors, including those generally associated with the nickel industry and as set out Key Risks section of this Presentation.

Any such forward looking statement also inherently involves known and unknown risks, uncertainties and other factors that may cause actual results, performance and achievements to be materially greater or less than estimated. These factors may include, but are not limited to, changes in commodity prices, foreign exchange fluctuations and general economic factors, increased capital costs and operating costs, the speculative nature of exploration and project development (including estimations of resources and reserves, mining and processing, general mining and development operation risks, changes to the regulatory framework within which the Company operates or may in the future operate, environmental conditions including extreme weather conditions, geological and geotechnical events, the recruitment and retention of key personnel, industrial relations issues and litigation).

Any such forward looking statements are also based on assumptions and contingencies which are subject to change and which may ultimately prove to be materially incorrect, as are statements about market and industry trends, which are based on interpretations of current market conditions. Investors should consider the forward looking statements contained in this Presentation in light of those disclosures and not place undue reliance on such statements. The forward looking statements in this Presentation are not guarantees or predictions of future performance and may involve significant elements of subjective judgment, assumptions as to future events that may not be correct, known and unknown risks, uncertainties and other factors, many of which are outside the control of the Company. The forward looking statements are based on information available to the Company as at the date of this Presentation. Except as required by law or regulation (including the ASX Listing Rules), the Company undertakes no obligation to provide any additional or updated information whether as a result of new information, future events or results or otherwise.

No liability

The information contained in this Presentation has been prepared in good faith by the Company. Neither the Underwriters, nor any of their or the Company's respective affiliates, related bodies corporate, directors, officers, partners, advisers, employees and agents (each a Party and together the Parties) have authorised, permitted or caused the issue, lodgement, submission, dispatch or provision of this Presentation in a final form and none of them makes or purports to make any binding statement in this Presentation and there is no statement in this Presentation which is based on any statement by them.

To the maximum extent permitted by law, the Company, the Underwriters and their respective advisers, affiliates, related bodies corporate, directors, officers, partners, advisers, employees and agents:

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The Parties take no responsibility for any part of this Presentation, and there is no statement in this Presentation which is based on any statement by any of these persons (except for references to an Underwriters' name), or the Equity Raising and make no recommendations as to whether you or your related parties should participate in the Equity Raising nor do they make any representations or warranties to you concerning the Equity Raising, and you represent, warrant and agree that you have not relied on any statements by the Parties in relation to the Equity Raising.

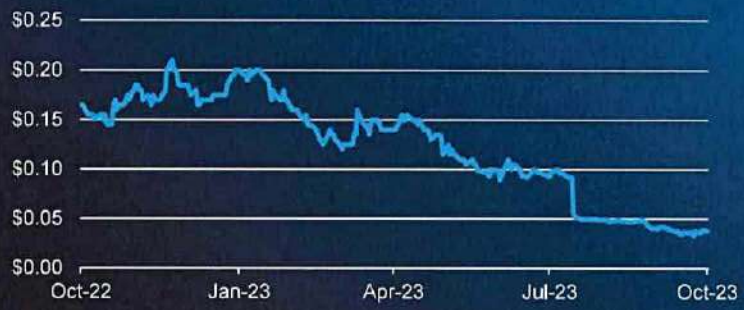
You undertake that you will not seek to sue or hold the Parties liable in any respect in connection with this Presentation or the Equity Raising (to the maximum extent permitted by law.



Corporate Overview

PANORAMIC RESOURCES LTD

Share price performance



Capital structure	Current
Shares on Issue	2,969m
Share Price	A$0.041
Market Capitalisation	$121.7m
Cash (30 Sep 2023)	$42.6m
Debt Drawn[1] (30 Sep 2023)	US$37.6m
Enterprise Value	$137.3m

[1] A$ 58.2m, based on AUD:USD of 0.6458 as at 30 Sep 2023

Experienced Board and Management Team



Nicholas Cernotta
Non-Executive Chair



Victor Rajasooriar
Managing Director and CEO



Gillian Swaby
Non-Executive Director



Peter Sullivan
Non-Executive Director

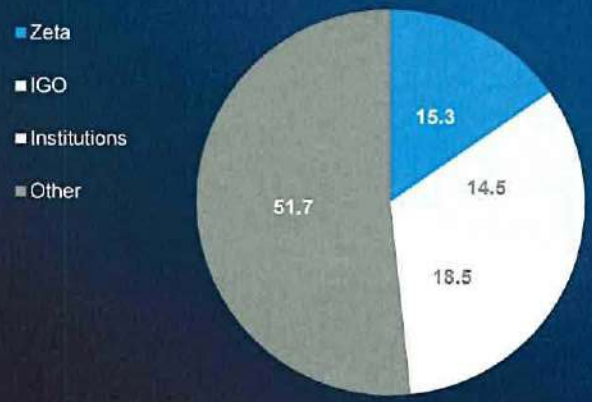


Rebecca Hayward
Non-Executive Director



Grant Dyker
Chief Financial Officer

Shareholder composition[2]



[2] As at 30 September 2023



FY23 – A Year of Progress

PANORAMIC RESOURCES LTD

- Updated Savannah Life of Mine, showing a 12+ year operation
- Results of drilling show extensions below the historical workings of Savannah, paving the way for a new mining front
- Successful replacement of Ore Reserves following FY23 mining depletion
- Final shipment from Savannah to Jinchuan completed in February 2023
- Commencement of shipments to Trafigura under a new offtake agreement with improved payment terms
- Filter press head plate failure and replacement within a one-month window
- FY23 production of 5,402t of nickel, 3,129t of copper and 368t of cobalt in concentrate at a C1 cost of A$13.25/lb of payable nickel
- Successful completion of Placement and SPP to raise $45M (before costs)
- Maturity date of the Revolving Credit Facility with Trafigura extended by 12 months to 31 December 2024 and Option to extend concentrate offtake agreement by two years to February 2030 (on same attractive terms)

FY23 – Short-Term Setbacks Resolved

PANORAMIC RESOURCES LTD

Fitzroy Crossing bridge failure after heavy rain in the March quarter 2023

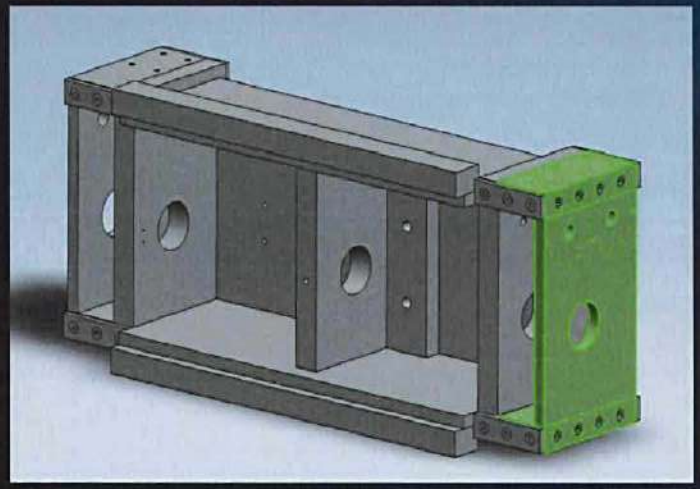
New Fitzroy Crossing Bridge expected to be operating by the end of December, six months ahead of schedule





Failure of the filter press head plate caused the suspension of concentrate production

New head plate fabricated, replaced and working well





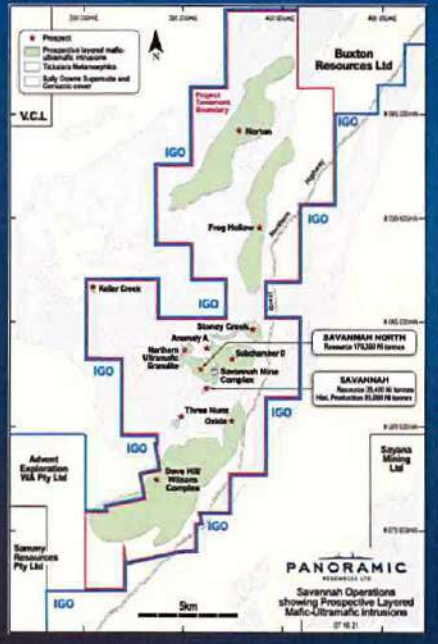
Savannah Nickel-Copper-Cobalt Project

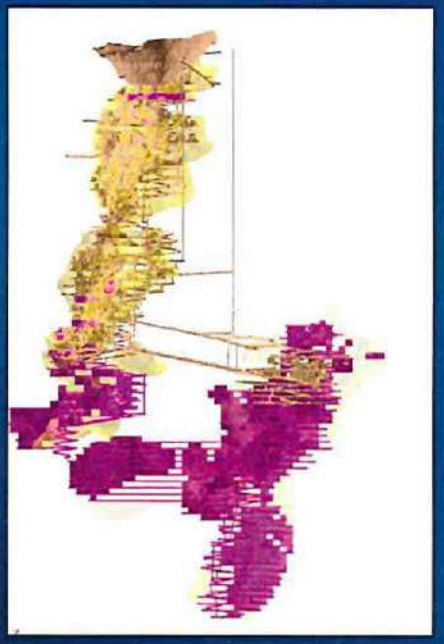
PANORAMIC RESOURCES LTD

Sulphide rich nickel, copper and cobalt orebody in the Kimberley region of northern Western Australia

Operating Summary	
Mineral Resource[1]	14.57Mt @ 1.49% Ni, 0.67% Cu and 0.10% Co
Ore Reserve[1]	8.7Mt @ 1.23% Ni, 0.56% Cu and 0.08% Co
Process Plant Capacity	1Mtpa
Mine Life	12+ years
Ni production[2]	9,383tpa
Cu production[2]	5,056tpa
Co production[2]	710tpa
All-in cost[2, 3]	A$9.07/lb payable Ni (US$6.35/lb payable Ni)[4]







- Mining is largely focused on the Savannah North deposit
- Underground mining undertaken by leading underground mining contractor Barminco
- Conventional processing flowsheet (crushing, grinding, flotation), owner processing model from 9 October 2023
- Produces a bulk nickel-copper-cobalt concentrate

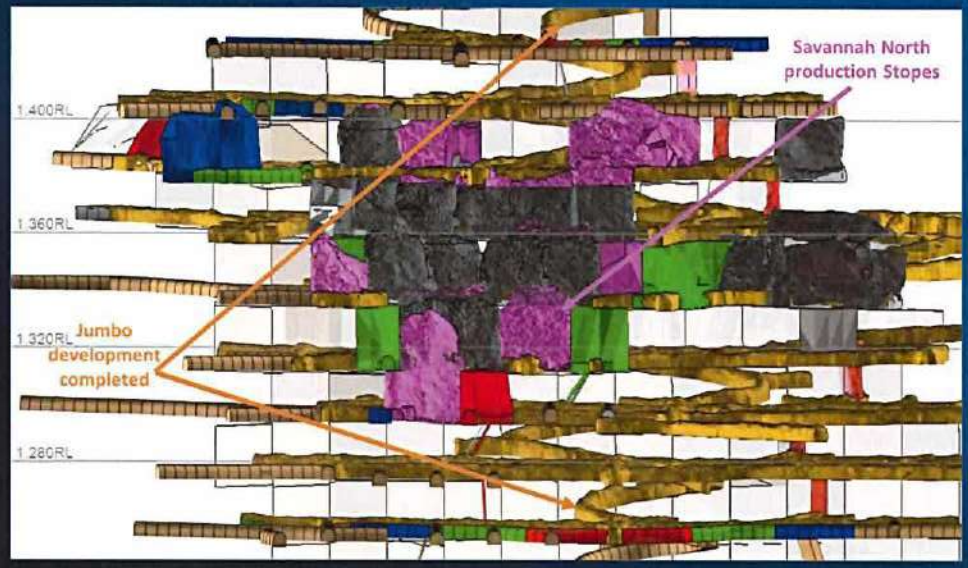
[1] Refer to ASX announcement dated 5 October 2023 covering the Savannah Project Mineral Resource and Ore Reserve Statement for detailed assumptions and estimation methodologies.
[2] Mine Plan based from 1 July 2023 and reflects current costs. All other material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed, including mining method, geotechnical parameters and ore processing.
[3] Includes all mining, processing, general & administrative, freight, concentrate handling, capital expenditure, royalties and by-product credits net of treatment charges.
[4] By-product based on exchange rate of AUD:USD 0.70 and commodity prices of US$8,000/t Cu and US$40,000/t Co.

Mining Operations (Q1 FY24)

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- Decline development at Savannah North well in front of production levels
- September quarter saw an increase in ore tonnes mined of 5% compared to June quarter
  - Production was constrained due to the large stockpile on the surface (to minimise surface oxidation of ore)
- Mined grade performed better than geological modelled grade
- Paste plant quarterly volume exceeded 45,000m^3 – a record
- Mining overall on track with equipment and people

Area	Details	Units	Sep Qtr 2023	Jun Qtr 2023	Variance
Mining	Ore mined	dmt	185,213	176,229	5%
	Ni grade	%	1.18	0.93	27%
	Ni Metal contained	dmt	2,178	1,631	33%



Processing Operations (Q1 FY24)

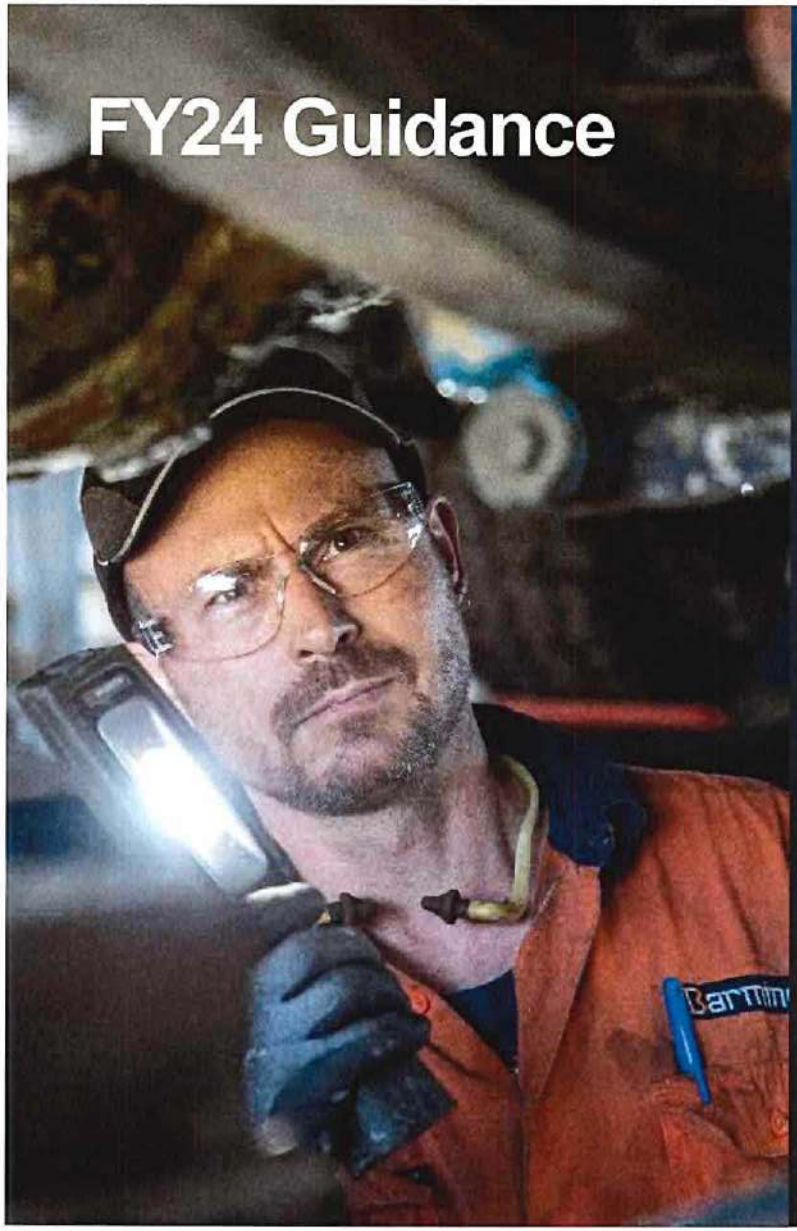
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- September quarter saw an improvement of 25% in ore processed (including 14 days of being offline)
- Works underway to increase quarterly throughput to ~220kt
- Two shipments in the quarter and a ship is expected next week (~9,500wmt)
- Owner processing model implemented in October, with 93% of Primero team converting to Panoramic employees
- New processing management team recruited with historical knowledge of Savannah plant



Area	Details	Units	Sep Qtr 2023	Jun Qtr 2023	Variance
Milling	Ore milled	dmt	184,009	146,678	25%
	Ni grade	%	1.17	0.94	25%
	Ni recovery	%	78.4	78.6	–
Concentrate Production	Concentrate	dmt	23,411	15,039	56%
	Ni grade	%	7.19	7.19	0%
	Ni Metal contained	dmt	1,684	1,081	56%
Concentrate Shipments	Concentrate	dmt	19,344	15,147	28%
	Ni grade	%	7.17	7.20	–
	Ni Metal contained	dmt	1,388	1,091	27%

FY24 Guidance



PANORAMIC RESOURCES LTD

Metric	FY24 Guidance[3]	Q1 FY24
Nickel in concentrate production	6,800 – 7,600t	1,684t
Copper in concentrate production	4,250 – 4,750t	932t
Cobalt in concentrate production	400 – 500t	135t
C1[1] cost per pound of payable Ni	A$10.05 – 11.25/lb[2]	A$10.15/lb
Sustaining Capital & Mine Development	A$22 – 26M	A$5.3M A$11.96/lb
Growth Expenditure	A$10 – 12M	A$1.7M A$12.52/lb

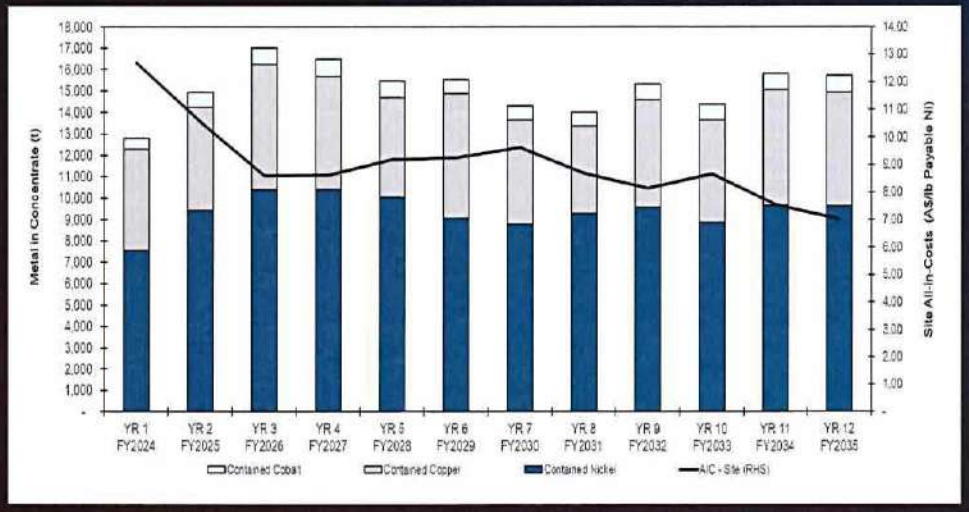
- FY24 production and cost guidance shows continued progress of the ramp-up and operational improvement expected as part of the 12+ year mine plan
- Costs escalations are being seen on fuel, rise and fall - (mining contract) and consumables. These are being offset by prudent cost management and deferral of expenditure where feasible
- Guidance retained for FY24

1. C1 costs includes operating cash costs that are directly incurred in producing concentrate and includes grade control drilling, road haulage, port, shipping, royalties and by-product credits net of treatment charges.
2. By-product based on exchange rate of AUD:USD 0.70 and commodity prices of US$8,000/t Cu and US$40,000/t Co.
3. Refer to the Company's ASX announcement 'Quarterly Activities Report for the period ending 30 June 2023' dated 26 July 2023 for further details, including the material assumptions contained in the FY24 guidance.

An Improving 12+ Year Mine Life

PANORAMIC RESOURCES LTD

- Mine plan[1] updated in 2023
- Mine plan consists of 11.4Mt @ 1.19% Ni, 0.54% Cu and 0.08% Co
- FY24 and FY25 includes one-off capital projects and a higher capital development intensity, before turning into a production mine
- Key outcomes of the mine plan include a longer mine life, higher average annual metal production and improved financial outcomes using Base Case[2] and Consensus Case[3] macroeconomic assumptions



Key highlights (average from FY24 onwards)	
Ni production	**9,383t p.a.**
Cu production	**5,056t p.a.**
Co production	**710t p.a.**
All-in cost[4]	**A$9.07/lb payable Ni** (US$6.35/lb payable Ni)[5]

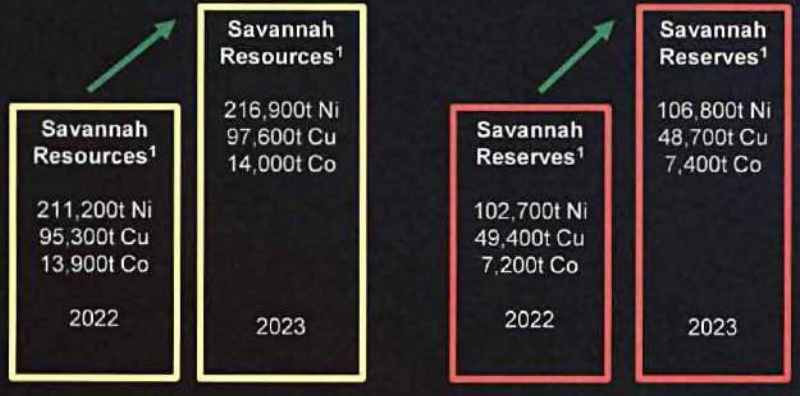
Site Costs	**Base Case[2] A$M**	**Consensus Case[3] A$M**
Life of Mine Capital Costs	234	234
Life of Mine Operating Costs[6]	1,771	1,771
Total Life of Mine Site Costs[6]	**2,005**	**2,005**
Site Unit Costs (Life of Mine Average)	**A$/lb payable Ni**	**A$/lb Payable Ni**
Capital Costs	$1.18	$1.19
Operating Costs[7]	$9.95	$10.02
By Product Credits	($2.90)	($3.52)
Site All-in Costs[4]	**$9.07**	**$8.50**
Financial Summary	**A$M**	**A$M**
Gross Revenue (Ni + Cu + Co)	$3,659	$3,364
Cashflow (pre-financing)	$1,259	$974
Pre-tax NPV_8 (pre-financing)	$761	$576
Post-tax NPV_8 (pre-financing)	$667	$531

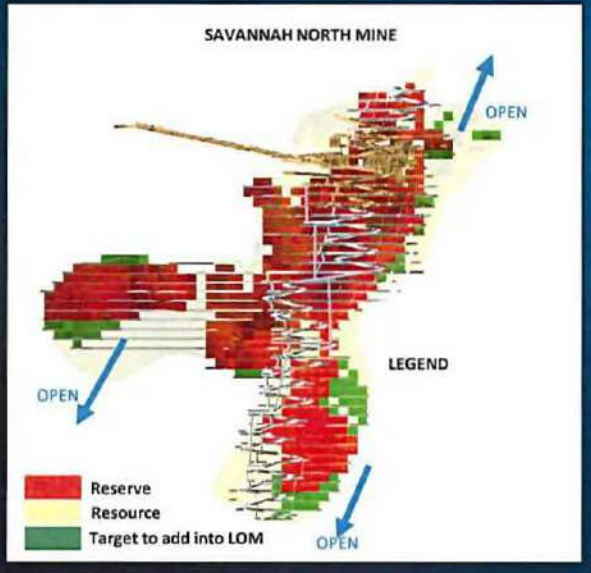
1 The updated Mine Plan contains 72.7% Ore Reserve and 27.3% Inferred Mineral Resource.
2 Base Case financials of the Mine Plan based on exchange rate of AUD:USD 0.70 and commodity prices of US$24,000/t Ni, US$8,000/t Cu and US$40,000/t Co.
3 Consensus Case financials of the Mine Plan based on exchange rate of AUD:USD 0.70 and commodity prices provided by Consensus Economics, February 2023 (ASX announcement 16 March 2023).
4 Includes all mining, processing, general & administrative, freight, concentrate handling, capital expenditure, royalties and by-product credits net of treatment charges.
5 Assuming Base Case commodity prices and exchange rate. 6 Excludes royalties and freight. 7 Excludes royalties.

Savannah Exploration Upside

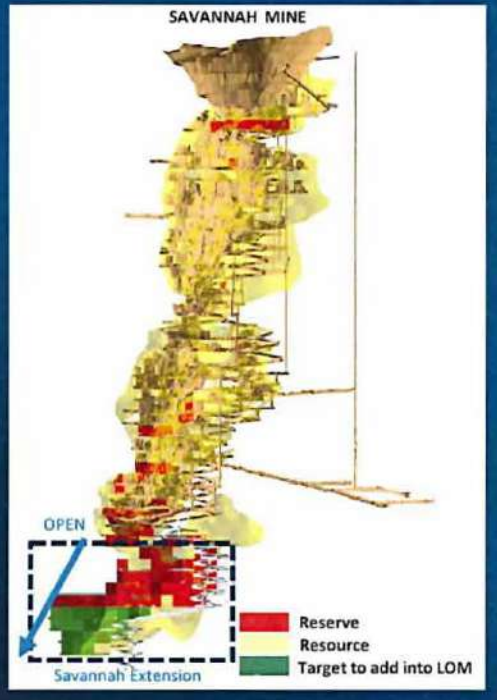
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- In FY23 a $3M drill program added to the Mineral Resources and Ore Reserves after depletion
  - Includes a 42% increase increase in contained nickel at Savannah below historic workings
- Underground diamond drilling continues at site with one rig operating on day shifts only
  - Grade control drilling at Savannah North
  - Savannah below historical workings
  - Savannah North North (a new target)





Savannah North Long Section View



Savannah Long Section View

1 Refer to the Company's ASX announcement 'Savannah 2023 Mineral Resource & Ore Reserve Statement' dated 5 October 2023.

Long-Term Nickel Leverage

PANORAMIC RESOURCES LTD

Panoramic is now the only pure nickel producer listed on the ASX with Australian-based assets

AIC at Savannah forecast to steadily reduce through to FY26 before consolidating for LOM

Nickel price is down ~45% in the past 18 months due to increased supply from Indonesia

Potential for EVs on the road to increase by 20x in 2030 which would require 5x today's annual nickel consumption to produce[1]

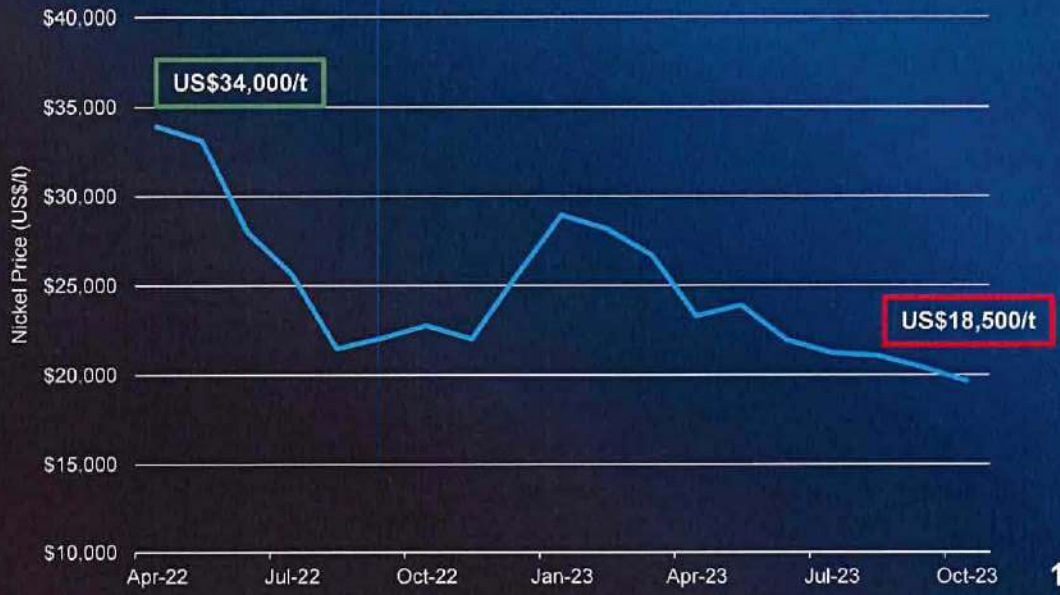
Continuing consolidation and corporate interest

WYLOO METALS → MINCOR RESOURCES NL

WYLOO METALS → NORONT RESOURCES LTD.

BHP → OZ MINERALS

igo → WESTERN AREAS LTD



1. BHP WA Mining Club presentation at the WA Mining Club August 2023

Building Sustainability into the Business

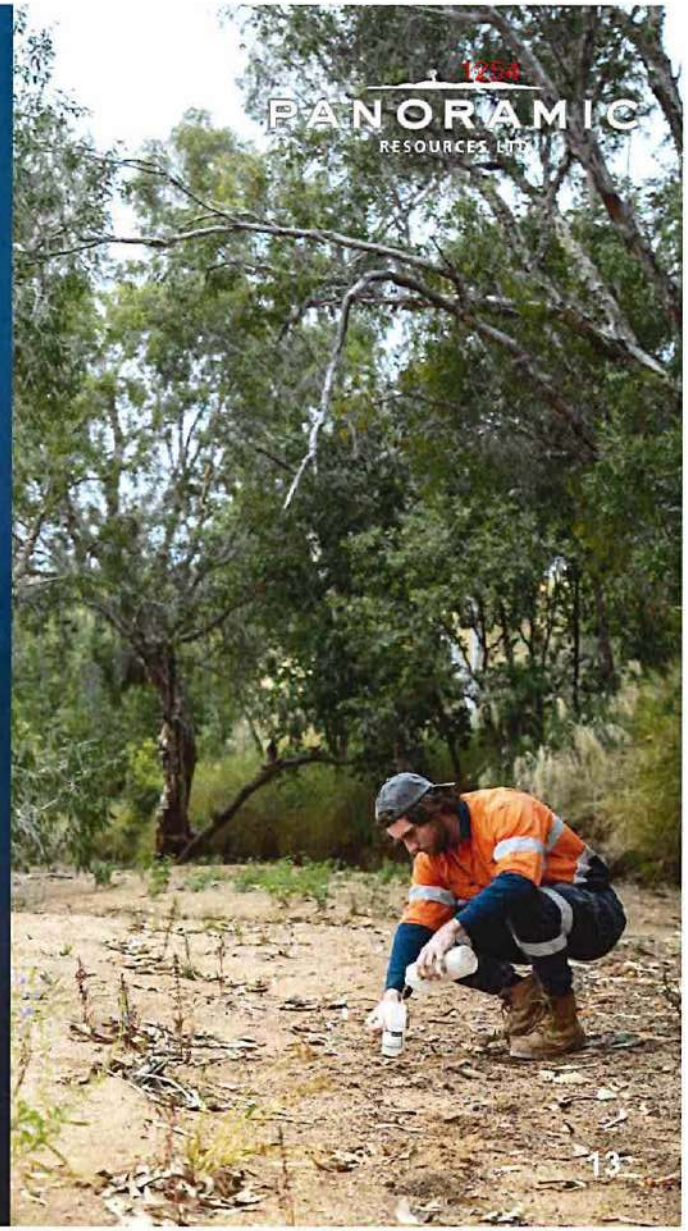
- A focus on supporting our people and community
- "Bridge the Gap" rural education partnership with Teach Learn Grow (a WA not-for-profit)
- Focusing on local employment within the community
- "Spread Your Wings Fund" sponsoring local Aboriginal community members on business and sporting aspirations
- Royalties to Traditional Owners of $18M since mining commenced and $2.2M in FY23

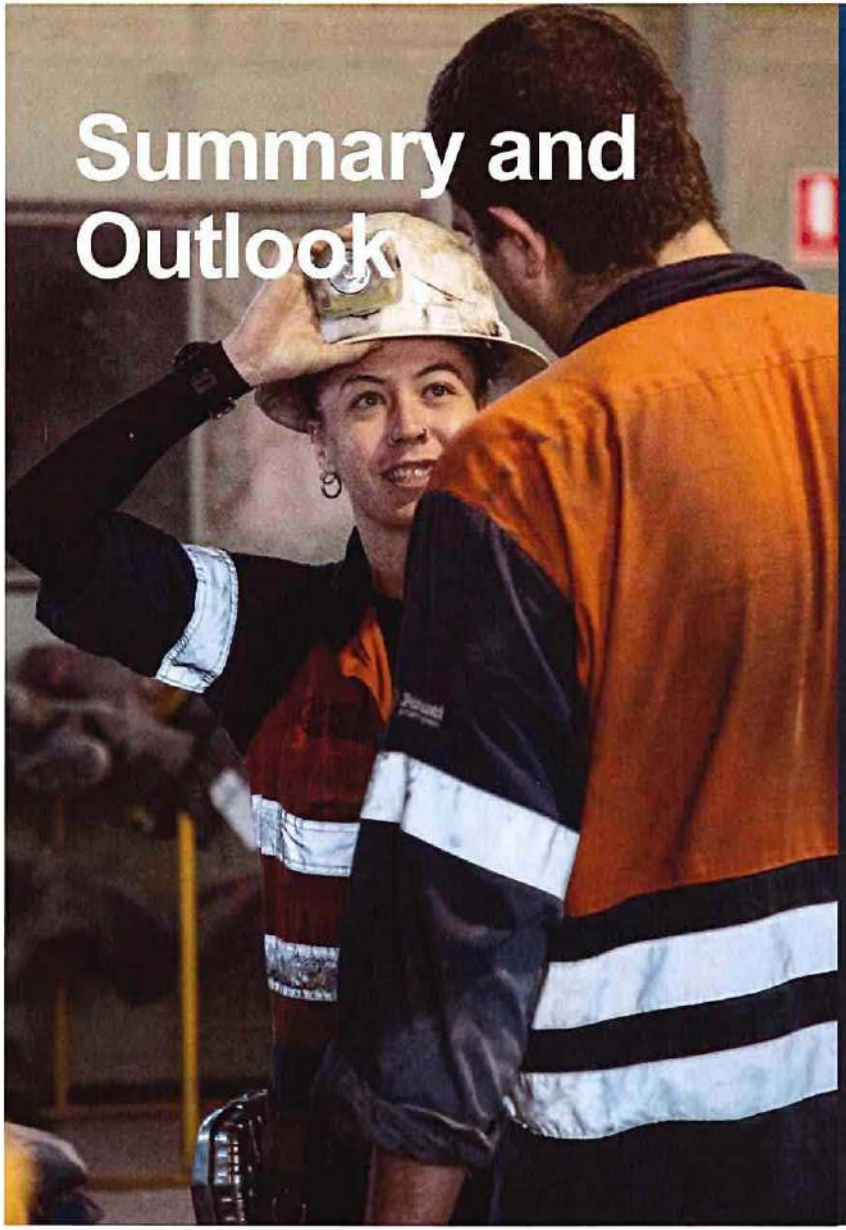


Teach Learn Grow at East Kimberley College



Traditional smoking ceremony at site





Summary and Outlook

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Safe ramp-up of Savannah continuing, with personnel and equipment now on-site to deliver on the asset's potential

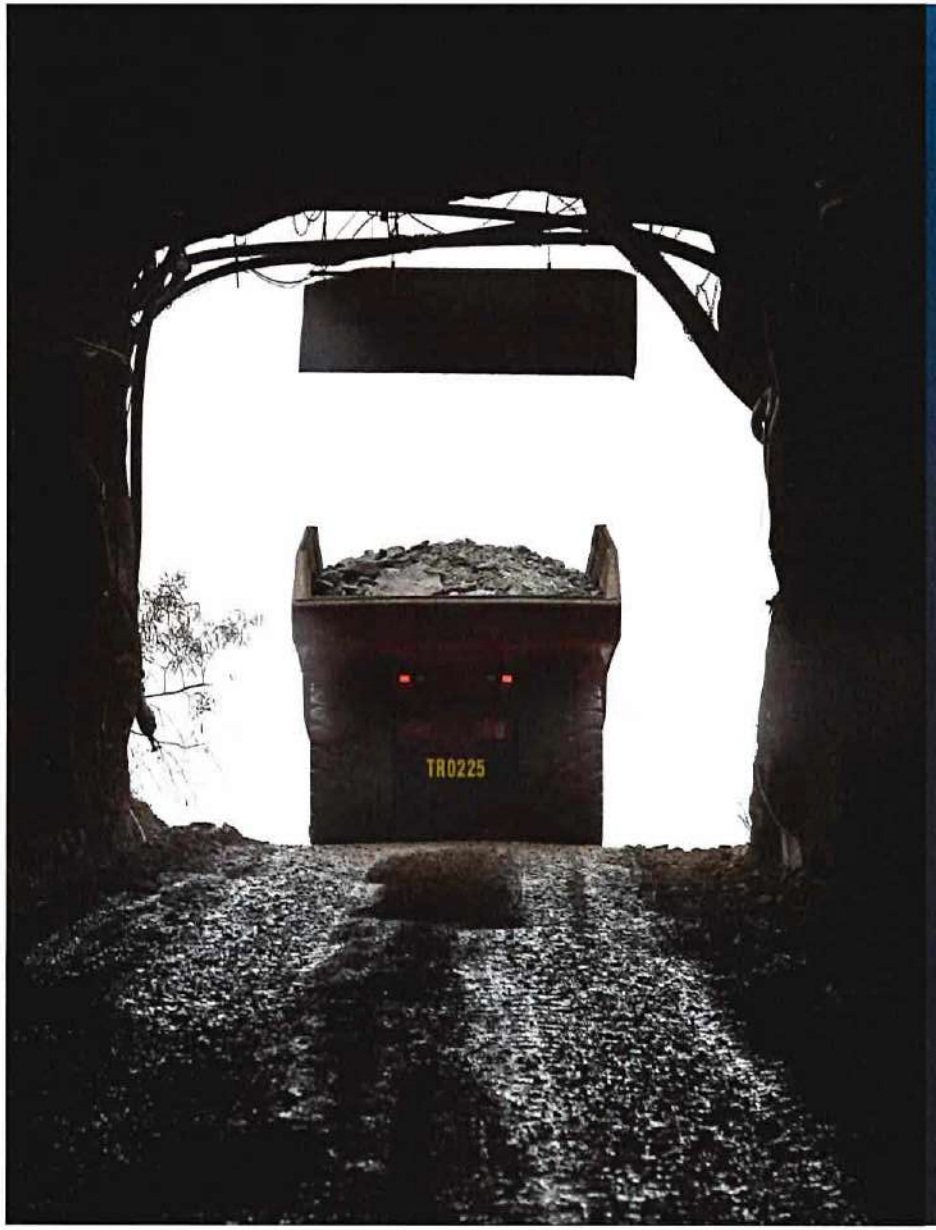
Strong improvement in production and unit operating costs forecast in FY24

Offtake agreement with Trafigura in place until 2028 (+ a 2-year option), with improved payabilities versus previous offtake

Attractive LOM financial outcomes, including cashflow of $1.26 billion and post-tax NPV_8 of $667 million[1]

High quality nickel sulphide asset with 12+ year mine life, near-mine Resource extension potential and strong leverage to the expected strong increase in future nickel demand

[1] Assumes Base Case financials of the Mine Plan based on exchange rate of AUD:USD 0.70 and commodity prices of US$24,000/t Ni, US$8,000/t Cu and US$40,000/t Co.
[2] Includes all mining, processing, general & administrative, freight, concentrate handling, capital expenditure, royalties and by-product credits net of treatment charges.



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Appendices

Appendix 1 - Mineral Resource Estimate

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Resource	Resource Date	Metal	Measured		Indicated		Inferred		Total		Metal
			Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	Tonnes
Savannah Above 900F	Jan-23	Nickel	817,000	1.36	523,000	1.66	30,000	1.82	1,370,000	1.48	20,300
		Copper		0.77		1.18		1.14		0.93	12,800
		Cobalt		0.069		0.08		0.09		0.07	1,000
Savannah Below 900F	Sep-23	Nickel	-	0.00	987,000	1.80	820,000	1.57	1,807,000	1.70	30,600
		Copper		0.00		0.86		0.78		0.82	14,900
		Cobalt		0.00		0.11		0.07		0.09	1,700
Savannah North	Jun-23	Nickel	2,381,000	1.42	5,466,000	1.57	3,542,000	1.31	11,389,000	1.46	165,900
		Copper		0.57		0.70		0.50		0.61	69,900
		Cobalt		0.10		0.11		0.08		0.10	11,300
Total		Nickel	3,198,000	1.40	6,976,000	1.61	4,392,000	1.36	14,566,000	1.49	216,900
		Copper		0.62		0.76		0.56		0.67	97,600
		Cobalt		0.09		0.11		0.08		0.10	14,000

Qualifying Statements and Notes:

Refer to ASX announcement dated 05 October 2023 covering the Savannah Project Mineral Resource update for detailed assumptions and estimation methodologies.
Figures have been rounded and therefore may not add up exactly to the reported totals.
All Mineral Resources are inclusive of Ore Reserves.
Mineral Resource cut-off grade is 0.50% Ni.

No New Information or Data

The Mineral Resource estimate tabled above for Savannah, have been previously reported and the relevant market announcements cross referenced. Except where stated otherwise, the Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcements and, in the case of estimate of Mineral Resources, that all material assumptions and technical parameters underpinning the estimate in the relevant market announcement continue to apply and have not materially changed.

Ni Equivalent References

References to Ni equivalent contained metal in Mineral Resources and Ore Reserves is based on assumed metal prices as noted in footnotes and calculated using the formula Ni Eq kt = (Ni kt * Ni price + Cu kt * Cu price + Co kt * Co price) / Ni price. Ni equivalent grade % in Mineral Resources are calculated using the formula Ni Eq % = Ni Eq kt / Total Mineral Resource tonnes. It is the Company's opinion that all elements included in the metal equivalent calculation have a reasonable potential of being recovered and sold. Metallurgical recoveries for all metals are assumed to be equal.

Competent Person Statement

The information in this release that relates to drilling at Savannah and Savannah North, and the Mineral Resources at Savannah is based on information compiled by Andrew Shaw-Stuart. Wireframing, interpretation and the drill hole database has been compiled by Andrew Shaw-Stuart, a member of the Australian Institute of Geoscientists (AIG) and is a full-time employee of Panoramic Resources Limited.
The information in this release that relates to Mineral Resources at Savannah North is based on information compiled by Mark Zammit. Mr Zammit is a member of the Australasian Institute of Geoscientists and is a Principal Consultant Geologist and full-time employee of Cube Consulting based in Perth, Western Australia.

Appendix 2 – Ore Reserve Estimate

PANORAMIC RESOURCES LTD

Resource	Resource Date	Metal	Proved		Probable		Total		Metal Tonnes
			Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	
Savannah	Sep-23	Nickel	318,000	1.37	1,047,000	1.48	1,365,000	1.45	19,800
		Copper		0.65		0.79		0.76	10,300
		Cobalt		0.07		0.08		0.08	1,100
Savannah North	Jun-23	Nickel	1,897,000	1.29	5,437,000	1.15	7,334,000	1.19	87,000
		Copper		0.53		0.52		0.52	38,400
		Cobalt		0.10		0.08		0.09	6,300
Total		Nickel	2,215,000	1.30	6,483,000	1.20	8,698,000	1.23	106,800
		Copper		0.55		0.56		0.56	48,700
		Cobalt		0.09		0.08		0.08	7,400

Qualifying Statements and Notes:

Calculations have been rounded to the nearest 1,000t of ore, 0.01% Metal grade and 100t of metal.

Savannah & Savannah North Ore Reserve average cut-off (NSR) of $153/t.

No New Information or Data

The Mineral Reserve estimate tabled above for Savannah has been previously reported on 05 October 2023. The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcement and, in the case of estimate of Mineral Reserves, that all material assumptions and technical parameters underpinning the estimate in the relevant market announcement continue to apply and have not materially changed.

Ni Equivalent References

References to Ni equivalent contained metal in Mineral Resources and Ore Reserves is based on assumed metal prices as noted in footnotes and calculated using the formula Ni Eq kt = (Ni kt * Ni price + Cu kt * Cu price + Co kt * Co price) / Ni price. Ni equivalent grade % in Mineral Resources are calculated using the formula Ni Eq % = Ni Eq kt / Total Mineral Resource tonnes. It is the Company's opinion that all elements included in the metal equivalent calculation have a reasonable potential of being recovered and sold. Metallurgical recoveries for all metals are assumed to be equal.

Competent Person Statement

The information in this release that relates to Ore Reserves for Savannah and Savannah North is based on information compiled by or reviewed by Adolf Koster. Mr Koster is a Member of the Australasian Institute of Mining and Metallurgy (AusIMM) and is a Mining Engineer and full-time employee of Panoramic Resources.

The aforementioned persons have sufficient experience that is relevant to the style of mineralisation and type of target/deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves.

News Release

PJD-25

1259

PANORAMIC RESOURCES LTD

26 August 2015



VISION | COMMITMENT | RESULTS

ASX:PAN

Savannah North – potential strike extent could be 2km

Highlights

- The most recent hole targeting the Lower Zone of the Savannah North mineralisation intersected an impressive **25.95 metres of massive sulphide mineralisation grading 2.55% Ni, 1.49% Cu and 0.17% Co**
- The potential strike extent of the Savannah North mineralisation is now approaching **2 km and is open to the west**
- A new and highly conductive horizon has been identified to the east of Savannah North mineralisation with geophysical properties similar to that of Savannah North
- Interim Mineral Resource estimate **of 3.15 million tonnes @ 1.75% Ni for 55,200t Ni announced**
- **Total Resource Inventory at the Savannah Project increased by 72,500t Ni to 128,800t Ni**

Details

Panoramic Resources Limited **("Panoramic")** (**ASX:PAN**) has been conducting exploration and Resource definition drill programs at Savannah over the past 12 months. Importantly, the latest down-hole electromagnetic (DHEM) data has significantly increased the potential strike extent of the Savannah North mineralisation. In addition, the most recently completed drill hole (KUD1562) into the Savannah North Lower Zone horizon intersected **25.95m of massive sulphide mineralisation grading 2.55% Ni, 1.49% Cu and 0.17% Co** (*Figures 1 and 2*). This intersection is not included in the Interim Savannah North Resource estimate.

Recent Exploration Drill and DHEM results

Earlier this year the Company drilled four new Savannah North surface holes, one to the west and three to the east of the known extent of the Savannah North mineralisation at that time (*refer to ASX announcement of 17 April 2015*).

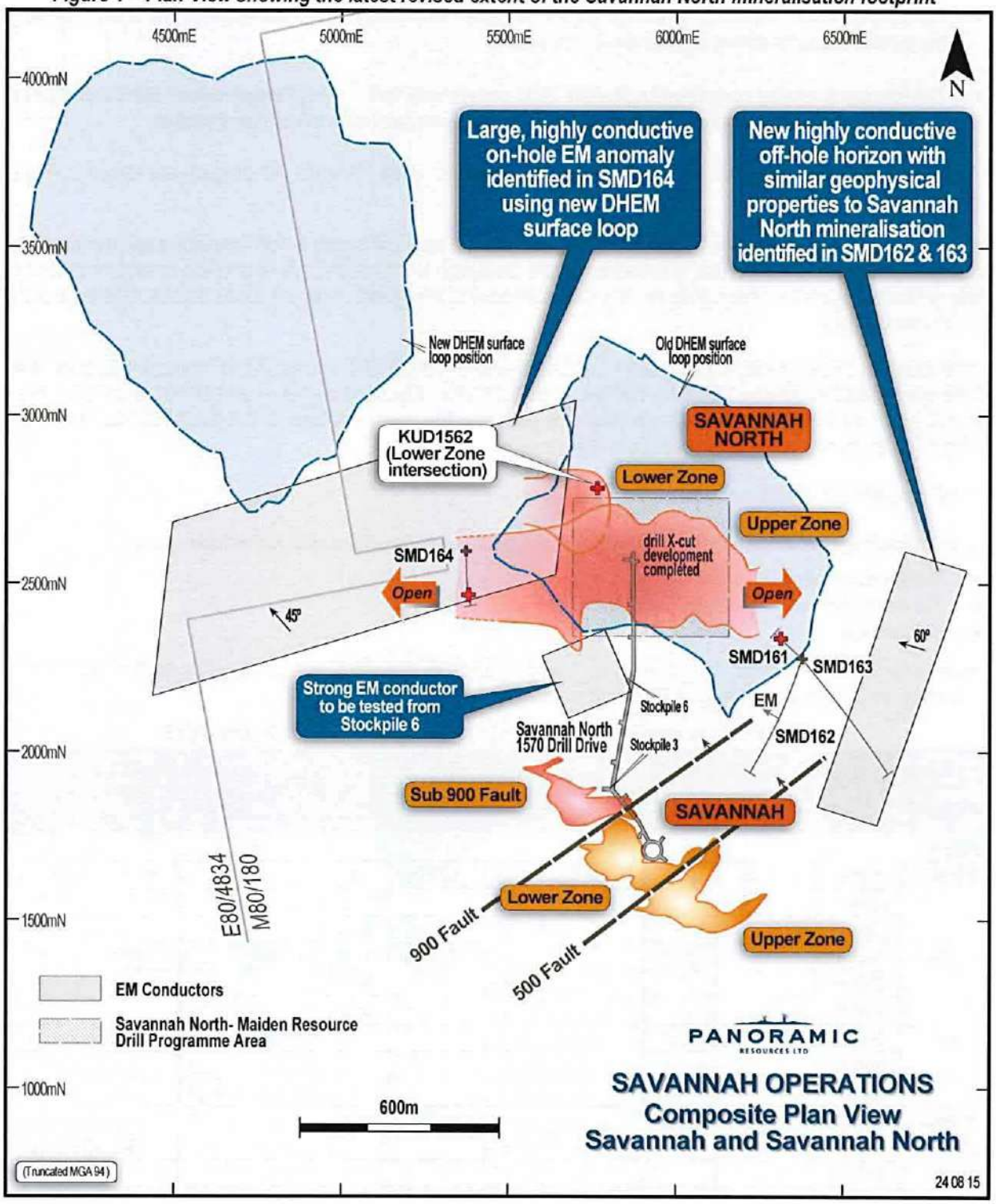
- The western surface hole, SMD164 (Section 5400mE) intersected **5.05m @ 2.62% Ni, 0.16% Cu and 0.10% Co,** extending the previous western limit of the Savannah North mineralisation by at least 250m to the west and beyond the limit of detection of the original DHEM fixed surface loop (*Figure 1*). Drill hole SMD164 has now been DHEM surveyed using a larger and better positioned EM surface loop and has substantially increased the potential western extent of the Savannah North mineralisation. **Based on the new EM data, the total strike extent of the Savannah North mineralised horizon is approximately 2 km.** This interpretation projects the mineralised horizon to the west, across the boundary of ML80/180 (100% Panoramic) and onto E80/4834 which is a joint venture tenement owned 80% Panoramic/20% Thundelarra Limited (ASX: THX) (*Figure 1*).

- Indications of a deeper off-hole conductor were also recognised in the SMD164 data and may be attributed to the nearby presence of the mineralised Savannah North Lower Zone.

- According to the Company's consultant geophysicist, ..."*modelling indicates the mineralisation responding to hole SMD164 is likely to have dimensions greater than the present plate (Figure 1) which extends 1,400m along strike (approximately east-west) and 700m down dip. This plate does not encompass the entire (known) mineralised horizon to the east and is likely to be limited to the west by deteriorating primary-field coupling to the new loop, analogous to what occurred with the coupling to the old loop*".

- Drill holes SMD162 and 163 (two of the three surface holes drilled to the east of Savannah North) have simultaneously **identified an entirely new highly conductive horizon** with similar geophysical properties to the Savannah North mineralisation (*Figure 1*). The source of the new conductive horizon is unclear and will require further drilling to determine its origin.

Figure 1 – Plan View showing the latest revised extent of the Savannah North mineralisation footprint



Savannah North Project – maiden Resource drill program

The Savannah North maiden Resource drill program is currently the main exploration focus on site. The program commenced in April 2015 and at 30 June 2015, the Company had defined an Interim Resource estimate of **3.15 million tonnes at 1.75% Ni for 55,200t Ni,** covering a strike length of approximately 300m, between 5700mE to 6000mE (*refer to ASX announcement of 11 August 2015*).

As stated in the 11 August 2015 announcement, it should be noted that:

- the Savannah North Resource Inventory reported in Table 1 is an interim Resource estimate and is expected to grow as the maiden Resource drilling program continues; and
- **The Resource drilling completed to 30 June 2015 covers only 50% of the planned maiden Resource test area and only 15% of the new potential 2 km strike extent of the Savannah North mineralised system.**

The latest updated drill plan and drill results for the Savannah North maiden Resource drill program are shown in Figure 2 and Table 2, respectively.

Figure 3 is a geological cross section (Section 5900mE) showing the most completely drilled Resource section to-date. Based on this and other sections, there is increasing evidence that the Savannah North Lower Zone horizon is a consistent zone of massive sulphide mineralisation that has been detached from the main body of mineralisation (Upper Zone) located at the base of the North Olivine Gabbro Complex.

The most recently completed hole to intersect the Lower Zone horizon (KUD1562) intersected an impressive **25.95m of massive sulphide mineralisation grading 2.55% Ni, 1.49% Cu and 0.17% Co (*Figures 1 and 2*).** The KUD1562 Lower Zone intersection is not included in the Interim Savannah North Resource estimate. The relative position of the KUD1562 intersection has been projected 180m to the south onto Section 2600mN (*Figure 4*).

Savannah Project Mineral Resource Inventory

Resource drilling programs at Savannah during FY2015 have been focused on three main mineralised areas:

- The Western Splay Zone above the 900 Fault;
- The mineralisation below the 900 Fault (the "Sub 900 Zone"); and
- Savannah North.

Upgrades to the Savannah Project Mineral Resource Inventory as at 30 June 2015, incorporating this latest resource drilling, was announced by the Company on 11 August 2015, and are summarised in Table 1.

Table 1: Savannah Project Mineral Resource Inventory as at 30 June 2015

Resource	Metal	Resource Date	JORC	Measured		Indicated		Inferred		Total		Metal Tonnes
				Tonnes	Ni (%)	Tonnes	Ni (%)	Tonnes	Ni (%)	Tonnes	Ni (%)	
Savannah												
Above 900	Nickel	Jun-15	2012	2,346,000	1.46	927,000	1.67			3,273,000	1.52	49,700
	Copper				0.81		1.26				0.94	30,700
	Cobalt				0.08		0.08				0.08	2,700
Below 900	Nickel		2012			780,000	1.64	125,000	1.72	905,000	1.65	14,900
	Copper				0.76		0.75				0.76	6,900
	Cobalt				0.10		0.09				0.10	900
North	Nickel		2012					**3,155,000**	**1.75**	**3,155,000**	**1.75**	**55,200**
	Copper								0.78		0.78	**24,600**
	Cobalt								0.12		0.12	**3,800**
Copernicus												
Open Pit	Nickel	Jun-15	2004	184,000	1.20					184,000	1.20	2,200
	Copper				0.74						0.74	1,400
	Cobalt				0.05						0.05	100
Underground	Nickel	Jul-10	2004			508,000	1.30	25,000	0.98	532,000	1.29	6,800
	Copper						0.91		0.69		0.90	4,800
	Cobalt						0.05		0.02		0.05	300
Total	Nickel											**128,800**
	Copper											**68,400**
	Cobalt											**7,800**

Commentary

The Company is very pleased with the latest exploration developments at Savannah. The significantly expanded potential footprint of the Savannah North mineralisation, coupled with the recently announced upgraded Resources at Savannah and the interim maiden Resource for Savannah North, support the Company's view that there is potential to add significant mine life at Savannah.

The three FY2015 Resource drill programs at Savannah have resulted in a 72,500t Ni increase in the total Savannah Project Mineral Resource inventory to 128,800t Ni. Further Resource drilling at Savannah North is expected to result in increases to the Savannah North Resource with the inclusions of drill holes such as KUD1562.

Importantly, both the Upper and Lower Zones of the Savannah North mineralisation are open to the east and west. The discovery of Savannah North and the recent discovery of the highly conductive horizon (similar to Savannah North) to the east of Savannah North highlight the prospectivity of the North Olivine Gabbro area and the potential to find other sources of mineralisation at the Savannah Project.

The Company's geological understanding of the Savannah area and its prospectivity is continuing to evolve. Critical to this understanding will be more precise knowledge of the timing and emplacement mechanisms of the Savannah and Savannah North mineralised (magma conduit) systems and whether they are part of the same intrusion or are separate intrusions. In order to answer these, and other geological, questions the Company has entered into a partnership with the CSIRO Mineral Resources Flagship in Perth. The Company believes this partnership will improve the understanding of the Savannah geology and could lead to future discoveries.

About the Company

Panoramic Resources Limited (**ASX code: PAN**) is a Western Australian mining company formed in 2001 for the purpose of developing the Savannah Nickel Project in the East Kimberley. Panoramic successfully commissioned the $65 million Savannah Project in late 2004 and then in 2005 purchased and restarted the Lanfranchi Nickel Project, near Kambalda. In FY2014, the Company produced a record 22,256t contained nickel and produced 19,301t contained nickel in FY2015.

Following the successful development of the nickel projects, the Company diversified its resource base to include gold and platinum group metals (PGM). The Gold Division consists of the Gidgee Project located near Wiluna, which is for sale. The Company announced on 31 July 2015 the sale of its interest in the Mt Henry Project to Metals X Limited. The PGM Division consists of the Panton Project, located 60km south of the Savannah Project and the Thunder Bay North Project in Northern Ontario, Canada, in which Rio Tinto is earning 70% by spending up to C$20 million over five years.

Panoramic has been a consistent dividend payer and has paid out a total of $114.3 million in fully franked dividends since 2008. At 30 June 2015, Panoramic had $54 million in cash and no bank debt.

The Company's vision is to broaden its exploration and production base, with the aim of becoming a major, diversified mining company in the S&P/ASX 100 Index. The growth path will include developing existing resources, discovering new ore bodies, acquiring additional projects and is being led by an experienced exploration-to-production team with a proven track record.

For further information contact:
Peter Harold, Managing Director
+61 8 6266 8600

Competent Person

The information in this release that relates to Exploration Targets and Exploration Results is based on information compiled by John Hicks. Mr Hicks is a member of the Australasian Institute of Mining and Metallurgy (AusIMM) and is a full-time employee and shareholder of Panoramic Resources Limited. Mr Hicks also holds performance rights in relation to Panoramic Resources Limited.

The information in this release that relates to Mineral Resources is based on information compiled by Paul Hetherington.

Mr Hetherington is a member of the Australasian Institute of Mining and Metallurgy (AusIMM) and is a full-time employee and shareholder of Panoramic Resources Limited.

The aforementioned have sufficient experience that is relevant to the style of mineralisation and type of target/deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Both Mr Hicks and Mr Hetherington consent to the inclusion in the release of the matters based on the information in the form and context in which it appears.

Figure 2 – Plan view of the Savannah North Project Maiden Resource drill program area

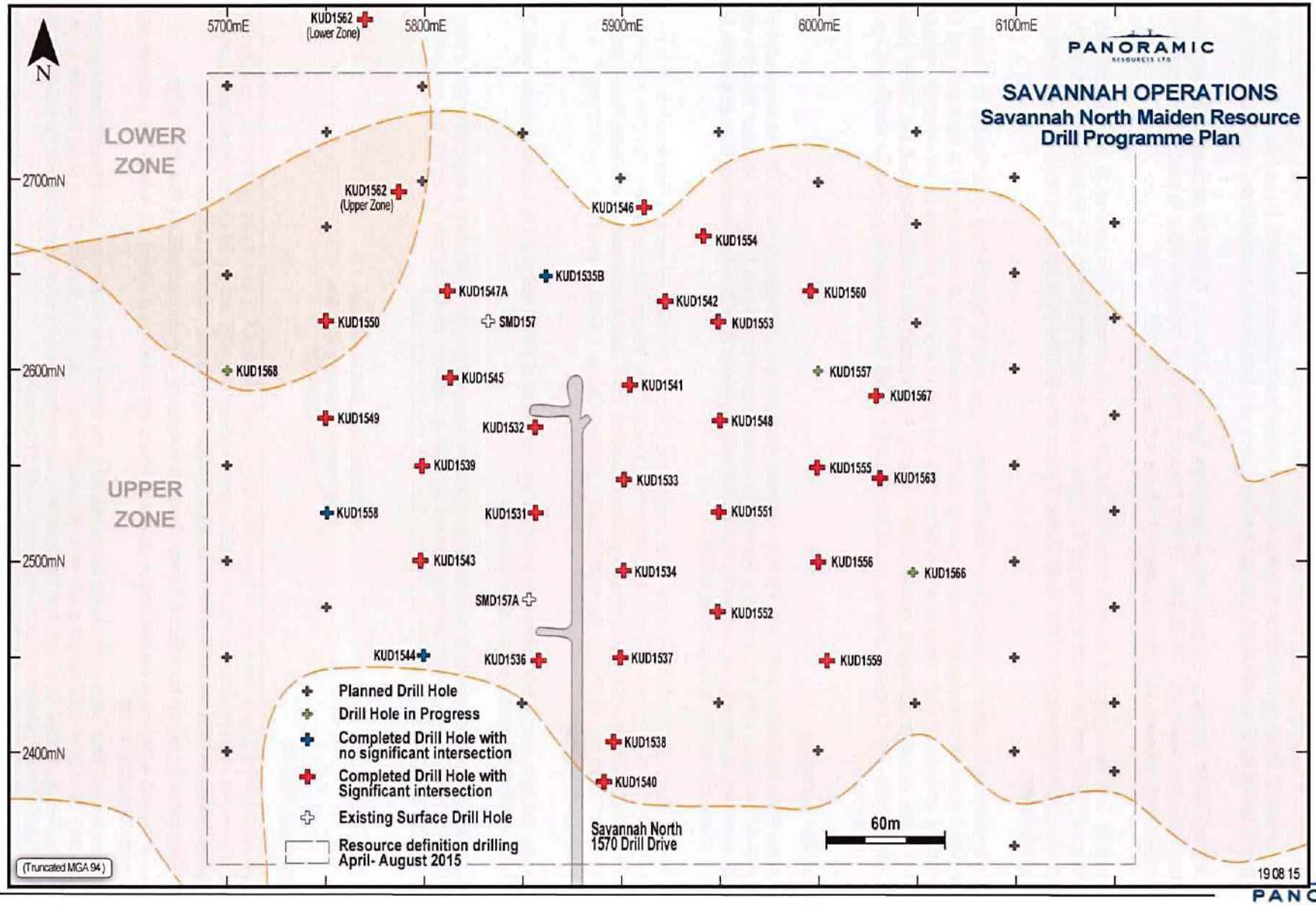


Figure 3 – Savannah North Maiden Resource Drill Section 5900mE

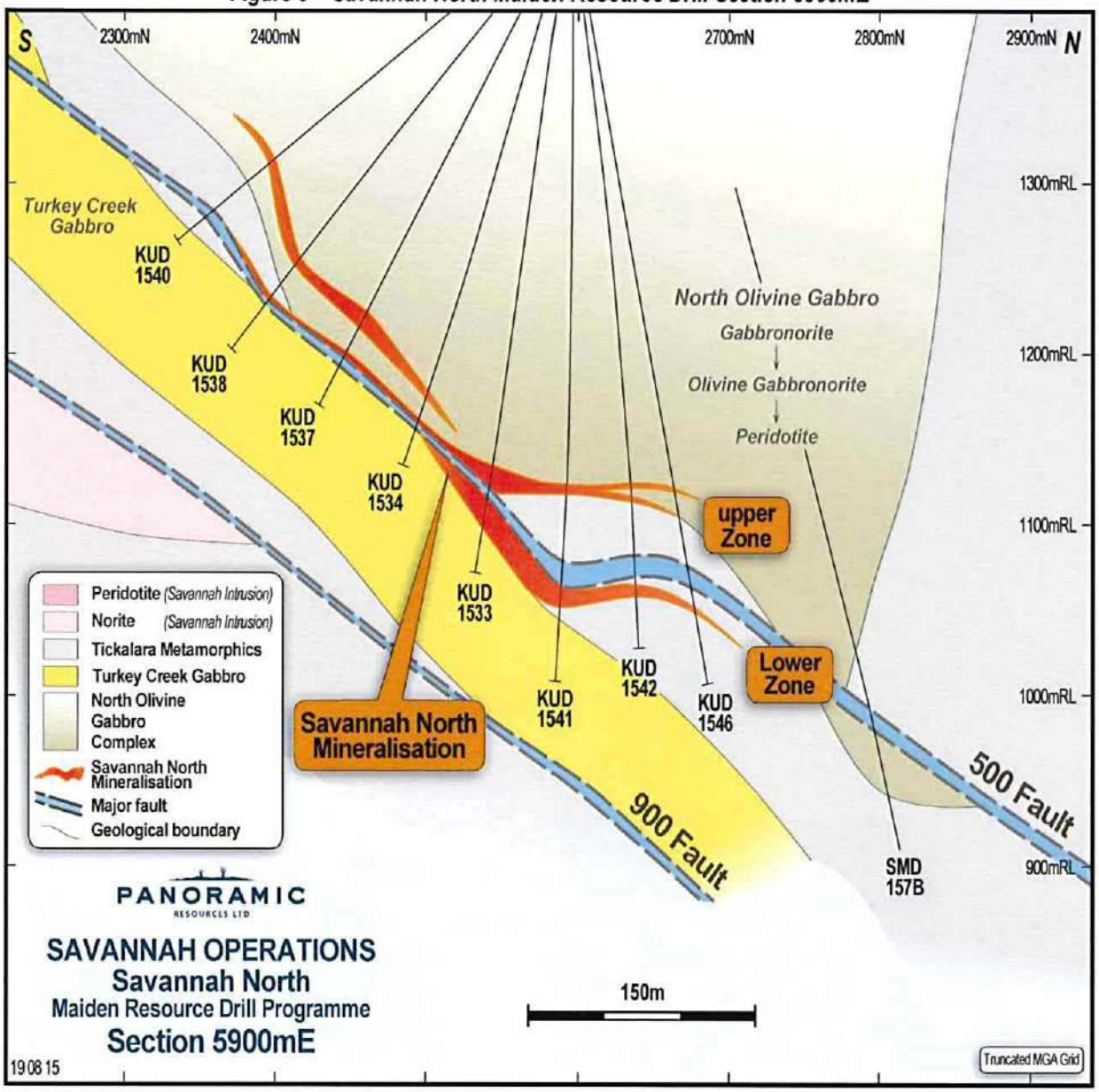


Figure 4 – Savannah North Drill Section 2600mN showing projected position of KUD1562

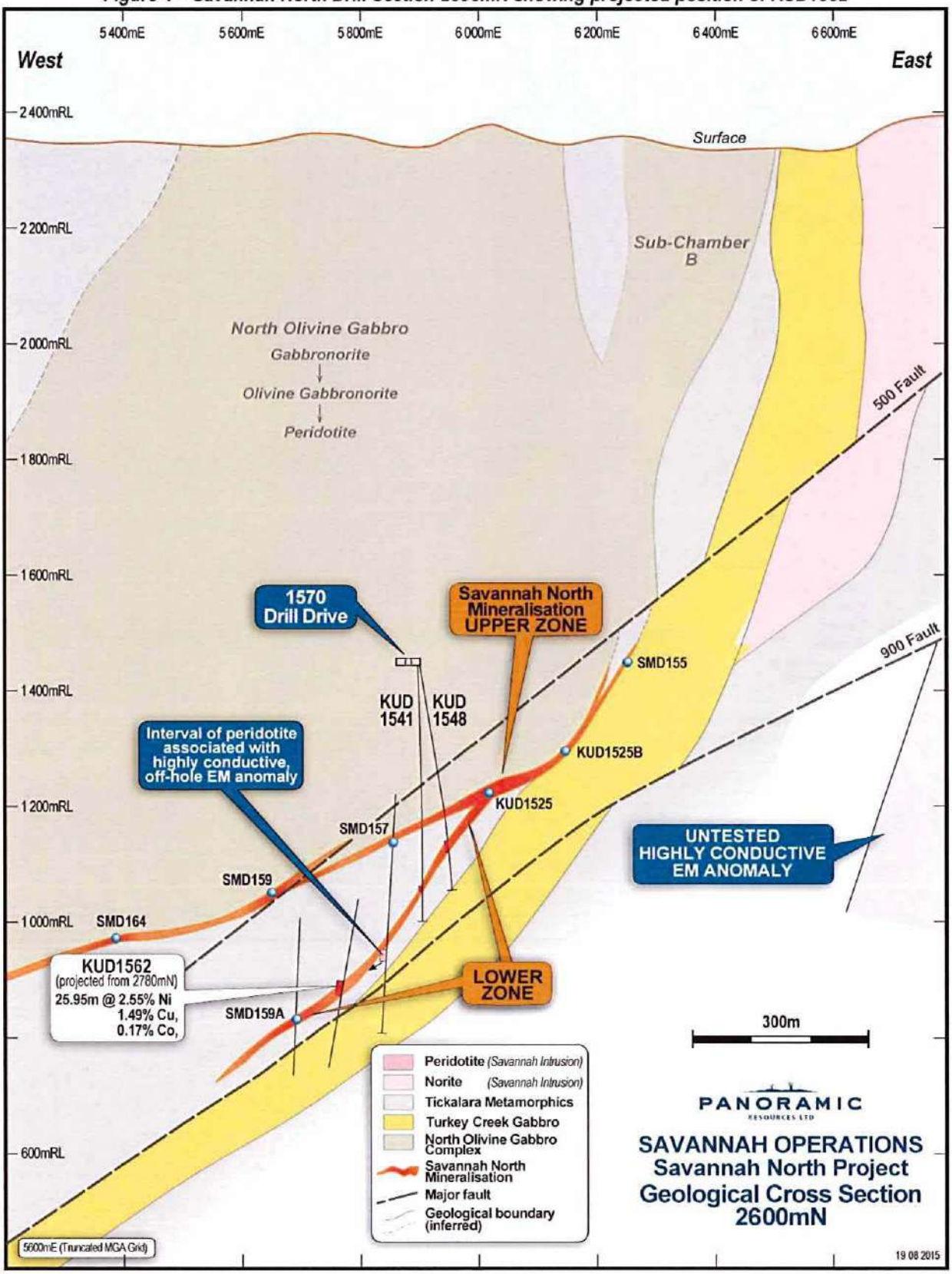


Table 2 - Summary of most recent 2015 Savannah North Drill Results

Hole	East (m)	North (m)	RL (m)	Dip (°)	Azi (°)	EOH (m)	From (m)	To (m)	Intercept	Cu (%)	Co (%)
KUD1531	395864.0	8082571.6	1449.4	-82.1	192.4	425.50	278.00	279.00	1.00m @ 0.75 %	0.91	0.05
							282.60	286.47	3.87m @ 0.66 %	0.11	0.04
							334.80	336.15	1.35m @ 2.22 %	1.18	0.16
							394.50	395.80	1.30m @ 1.14 %	0.45	0.09
KUD1532	395862.8	8082573.4	1449.3	-88.2	299.4	404.50	359.00	369.70	10.70m @ 2.12 %	0.46	0.16
							383.30	385.02	1.72m @ 1.20 %	0.75	0.09
KUD1533	395883.3	8082590.8	1449.9	-82.5	158.0	383.60	318.70	355.90	37.20m @ 1.58 %	0.67	0.12
KUD1534	395883.0	8082590.6	1449.8	-72.3	171.5	332.60	286.95	289.30	2.35m @ 2.39 %	0.40	0.15
							303.65	304.95	1.30m @ 2.20 %	0.30	0.16
KUD1535	395864.2	8082575.0	1449.4	-76.8	355.1	30.00			Abandoned		
KUD1535A	395864.2	8082575.0	1449.4	-76.2	357.4	30.00			Faulted Contact		
KUD1535B	395864.2	8082575.0	1449.4	-76.7	355.4	452.90	373.00	374.00	1.00m @ 0.57 %	0.58	0.04
KUD1536	395864.2	8082571.2	1449.3	-63.6	187.2	325.30	288.50	293.50	5.00m @ 0.68 %	0.34	0.05
KUD1537	395882.8	8082590.0	1449.8	-59.3	174.9	323.00	244.00	246.75	2.75m @ 2.19 %	0.43	0.14
							253.00	269.75	16.75m @ 1.97 %	0.19	0.12
							285.30	290.00	4.70m @ 2.74 %	0.75	0.19
KUD1538	395882.9	8082589.5	1449.8	-46.0	174.0	329.70	238.20	239.40	1.20m @ 2.35 %	0.37	0.15
							253.00	255.10	2.10m @ 1.10 %	0.56	0.07
							259.95	272.00	12.05m @ 1.50 %	0.69	0.10
							284.50	291.85	7.35m @ 1.16 %	0.32	0.08
KUD1539	395862.9	8082572.6	1449.4	-77.7	250.9	395.50	343.60	347.55	3.95m @ 1.24 %	0.48	0.07
							359.00	371.35	12.35m @ 1.30 %	0.89	0.10
KUD1540	395882.7	8082589.1	1449.8	-33.1	177.1	314.30	233.70	238.15	4.45m @ 1.79 %	0.33	0.09
							281.90	283.25	1.35m @ 0.72 %	0.12	0.05
KUD1541	395884.1	8082593.1	1450.0	-84.6	66.6	443.60	327.10	330.83	3.73m @ 1.52 %	0.41	0.11
							389.50	400.00	10.50m @ 1.73 %	0.63	0.13
							412.35	414.94	2.59m @ 1.29 %	0.16	0.09
KUD1542	395883.0	8082594.1	1450.0	-80.3	18.5	426.00	329.60	331.60	2.00m @ 1.27 %	0.72	0.10
							336.72	339.60	2.88m @ 2.19 %	0.42	0.17
							388.75	395.12	6.37m @ 2.50 %	0.97	0.17
KUD1543	395863.2	8082571.8	1449.4	-72.1	221.9	368.90	304.55	305.80	1.25m @ 0.98 %	0.30	0.05
							322.00	327.16	5.16m @ 0.45 %	0.07	0.03
							331.26	332.35	1.09m @ 2.38 %	0.54	0.17
KUD1544	395863.5	8082571.3	1449.3	-61.8	209.2	332.90	304.65	306.00	1.35m @ 0.89 %	0.08	0.05
KUD1545	395863.0	8082573.9	1449.3	-80.1	299.4	420.00	375.65	385.55	9.90m @ 1.07 %	0.40	0.08
							393.25	397.56	4.31m @ 1.62 %	0.46	0.12
KUD1546	395883.0	8082594.1	1450.0	-76.4	1.7	456.00	409.20	410.25	1.05m @ 2.30 %	0.41	0.16
KUD1547	395863.1	8082574.4	1449.4	-75.3	321.3	15.00			Abandoned		
KUD1547A	395863.1	8082574.4	1449.4	-76.3	311.5	437.30	402.10	403.85	1.75m @ 1.84 %	0.78	0.15
							409.50	421.16	11.66m @ 1.47 %	1.02	0.12
KUD1548	395884.5	8082592.4	1449.9	-75.1	91.0	396.00	300.60	303.00	2.40m @ 0.51 %	0.13	0.04
							348.20	366.40	18.20m @ 2.41 %	0.99	0.17
KUD1549	395862.7	8082574.0	1449.4	-69.3	264.2	596.60	342.00	355.00	13.00m @ 0.65 %	0.47	0.04
							362.00	366.00	4.00m @ 0.91 %	0.40	0.05
KUD1551	395884.3	8082591.3	1450.0	-69.8	125.4	333.00	243.00	251.15	8.15m @ 0.62 %	0.19	0.05
							264.00	267.00	3.00m @ 1.40 %	0.22	0.11
							279.16	295.40	16.24m @ 0.94 %	1.40	0.07
KUD1552	395883.7	8082590.7	1449.8	-60.9	148.7	317.90	278.00	279.00	1.00m @ 1.22 %	0.56	0.08
KUD1553	395883.6	8082593.6	1450.0	-77.5	42.0	391.30	314.05	316.10	2.05m @ 2.65 %	0.72	0.19
							366.90	371.90	5.00m @ 2.37 %	1.02	0.15
KUD1554	395883.1	8082594.2	1449.9	-74.2	20.4	411.00	386.75	388.72	1.97m @ 1.76 %	0.67	0.13
KUD1555	395884.5	8082592.1	1449.9	-65.0	100.5	335.80	276.00	281.00	5.00m @ 0.62 %	0.15	0.03
							285.40	287.00	1.60m @ 1.16 %	0.47	0.09
							302.90	310.90	8.00m @ 1.92 %	1.24	0.14
KUD1556	395884.4	8082591.5	1449.8	-58.6	116.6	308.80	275.10	284.42	9.32m @ 1.30 %	1.13	0.10
KUD1557	395884.2	8082592.8	1449.9	69.5	78.4	365.90	341.60	347.40	5.80m @ 2.64 %	0.84	0.19
KUD1559	395884.4	8082590.7	1449.9	-47.2	137.6	283.00	251.00	256.50	5.50m @ 0.50 %	0.22	0.04
							260.50	262.80	2.30m @ 1.85 %	0.93	0.14

Hole	East (m)	North (m)	RL (m)	Dip (°)	Azi (°)	EOH (m)	From (m)	To (m)	Intercept	Cu (%)	Co (%)
KUD1560	395884.0	8082593.2	1449.9	-71.4	61.0	435.00	348.10	351.70	3.60m @ 1.39 %	0.96	0.10
KUD1562	395863.1	8082574.4	1449.4	-69.0	312.3	708.00	451.10	454.84	3.74m @ 0.74 %	0.23	0.06
							667.60	693.55	25.95m @ 2.55 %	1.49	0.17
KUD1563	395883.8	8082590.8	1449.8	-56.9	102.9	335.80	296.00	310.13	14.13m @ 1.88 %	1.35	0.14
KUD1567	395883.8	8082591.4	1449.9	-61.5	86.8	374.80	329.96	337.70	7.74m @ 0.92 %	1.61	0.07

Notes:
1. *Intervals are down-hole lengths, not true-widths*
2. *Parameters: 0.5% Ni lower-cut off, with discretionary internal waste to a maximum of 7.50m*
3. *Intercepts < 1.5 % m not included*

Disclosure - Table 2 is a summary of the Savannah North Project resource definition drill hole results as described in the main body of this announcement. The 2012 JORC Compliance Tables for the reporting of exploration results (Section 1 and Section 2), relating to this announcement are provided in Appendix 1. JORC Compliance Tables relating to Savannah Project resources mentioned in this announcement have previously been released (refer to ASX announcements of 30 September 2014 and 11 August 2015).

Appendix 1 – JORC 2012 Disclosures

Savannah North Project - Table 1, Section 1 - Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • Aspects of the determination of mineralisation that are Material to the Public Report. • In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	• Exploration & resource definition holes at Savannah North are entirely diamond cored holes. Most are drilled from underground. The deposit to date has been defined by 24 surface & UG exploration holes, totalling 20,150m. UG resource definition holes completed to 30 June 2015 total 30 holes for 10,386m. • The resource definition drill hole spacing is a nominal 50 x 50 metre grid spacing over the extent of the resource reported in the release accompanying this Table. • All drill hole collars were surveyed using Leica Total Station survey equipment by a registered surveyor. Down-hole surveys are typically performed every 30 metres using either "Reflex EZ Shot" or "Flexit Smart Tools". • All diamond core is geologically logged with samples (typically between 0.2 metre to 1 metre long) defined by geological contacts. Analytical samples are dominantly sawn half core samples. Sample preparation includes pulverising to 90% passing 75 µm followed by either a 3 acid digest & AAS finish at the Savannah onsite laboratory or a total 4 acid digest with an ICP OES finish if the samples are analysed off-site.
Drilling techniques	• Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	• NQ2 sized diamond drilling has been used to obtain 100% of the data used in the estimate.
Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure representative nature of the samples. • Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	• Diamond core recoveries are logged and recorded in the database. Overall recoveries are >99% and there are no apparent core loss issues or significant sample recovery problems. • Depths checked against core blocks, regular rod counts, driller breaks checked by fitting core together. • No relationship exists between sample recovery and grade
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. • The total length and percentage of the relevant intersections logged.	• All diamond holes have been geologically logged in full. Geotechnical logging is carried out on all diamond drill holes for recovery and RQD. Number of defects (per interval) and roughness was carried out around the ore zones. Structure type, alpha angle, infill, texture and healing is recorded in most holes and stored in the structure table of the database. • Recorded core logging attributes include lithology, colour, mineralisation, structural and other features. • All drill core is photographed.
Sub-sampling techniques and sample preparation	• If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	• Analytical core samples are dominantly sawn half NQ2 samples. • All resource definition samples are diamond core only. • All core sampling and sample preparation follow industry best practice. • QC involves the addition of purchased CRM and Savannah derived CRM assay standards, blanks, and duplicates. At least one form of QC is inserted in most sample batches. • Original versus duplicate assay results have always shown strong correlation due to massive sulphide rich nature of the Savannah North mineralisation. • Sample sizes are considered appropriate to represent the Savannah North style of mineralisation.
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	• The Savannah Nickel Mine (SNM) onsite laboratory standard analytical technique is a 3-acid digest with an AAS finish. The method best approaches total

Criteria	JORC Code explanation	Commentary
	• For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. • Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	dissolution for most minerals The onsite exploration sample analytical method for Ni,Cu,Co is AAS 22S. Exploration samples sent off-site are analysed using a 4-acid digest with either ICP OES or AAS finish (AAS for ore grade samples). • No other analytical tools or techniques are employed. • The onsite laboratory is run by SGS Laboratory Services • The onsite laboratory carries out sizing checks, uses internal standards, duplicates, replicates, blanks and repeats. A selection of roughly 10% of pulps was sent to external laboratories for repeat analysis and sizing checks. No bias has been identified.
Verification of sampling and assaying	• The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data.	• Drilling and sampling procedures at SNM have been inspected by many stakeholders since the project began. • The practice of twinning holes is not employed at Savannah North. • Holes are logged into Excel templates on laptops. The data is then entered into a SQL server database via a DataShed front end. Data is then replicated to the Perth office. Data periodically validated by site personnel. • No adjustments have been made to assay data.
Location of data points	• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. • Specification of the grid system used. • Quality and adequacy of topographic control.	• All diamond drill hole collars are surveyed using Leica Total Station survey equipment by a registered surveyor. "Reflex EZ Shot" or "Flexit Smart Tool" was used for down-hole surveys at approximately every 30m. • The mine grid is a truncated 4 digit (MGA94) grid system. • Conversion from local grid to MGA GDA94 Zone 52 is calculated by applying truncated factor to local coords: • E: +390000, N: +8080000N • Topographic control is well established, RL equals AHD + 2,000m.
Data spacing and distribution	• Data spacing for reporting of Exploration Results. • Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. • Whether sample compositing has been applied.	• Exploration drill holes are spaced on a geological basis as opposed to a nominal drill hole spacing. • For the most part drilling is typically conducted on a regular spacing, sufficient to achieve the objectives of the drill program. For the current Savannah North resource definition program the nominal spacing is 50m x 50m. • The mineralized domains delineated by the drill spacing show enough continuity to support the classification applied under the 2012 JORC Code. • No sample compositing has been undertaken.
Orientation of data in relation to geological structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. • If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	• The geometry of the Savannah and Savannah North mineralisation to most drill positions is nearly always oblique. For this reason all SNM drill results are reported as down-hole intersection lengths and not true widths. • No orientation sampling bias has been identified.
Sample security	• The measures taken to ensure sample security.	• Samples transported to onsite lab by PAN staff. Samples sent off site are road freighted (Nexus transport) and tracked using spreadsheets onsite.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• No audits/reviews of the sampling techniques have been undertaken in recent time. The procedures used are considered to be industry standard. Mine to mill reconciliation records throughout the life of the Savannah Project provide confidence in the sampling procedures.

Savannah North Project - Table 1, Section 2 – Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. • The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	• The Savannah Nickel Mine (SNM) is an operating mine secured by five contiguous Mining Licences, ML's 80/179 to 80/183 inclusive. All tenure is current and in good standing. SNM has the right to explore for and mine all commodities within the mining tenements, being. • SNM has all statutory approvals and licences in place to operate. The mine has a long standing off-take agreement to mine and deliver nickel sulphide concentrate to the Jinchuan Group in China.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	• Since commissioning in 2004, SNM has conducted all recent exploration on the mine tenements.
Geology	• Deposit type, geological setting and style of mineralisation.	• The SNM is based on mining ore associated with the Savannah Intrusion; a palaeo-proterozoic mafic/ultramafic magma conduit. The Ni-Cu-Co rich massive sulphide mineralisation occurs as "classic" magmatic breccias developed about the more primitive, MgO rich basal parts of the conduit.
Drill hole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length. • If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	• All exploration at SNM is conducted on the Savannah mine grid, which is a "4 digit" truncated MGA grid. Conversion from local to MGA GDA94 Zone 52 is calculated by applying truncated factor to local coords: E: +390000, N: +8080000. RL equals AHD + 2,000m • Surface holes are generally cored from surface commencing with PQ, reducing to HQ and completed NQ2. RC precollars may also be used. • Most underground holes are drilled NQ2 size. Some LTK60 holes have been drilled in the past. Occasionally HQ and BQ size holes have been drilled for specific purposes. • For hole details pertaining to this release including collar and setup details, see Tables within the body of the main release. • The design and interpretation of EM surveys conducted at Savannah for Panoramic is undertaken by Newexco Services Pty Ltd in Perth.
Data aggregation methods	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. • Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. • The assumptions used for any reporting of metal equivalent values should be clearly stated.	• All assay intersections for the Savannah Project are reported based on a weighted average grade for the intersection using parameters of 0.5% Ni lower cut-off, SG, minimum reporting length of 1m and maximum internal waste of up to 7m. • Cu and Co grades were determined by the defined Ni grade interval, ie they were not calculated independently.
Relationship between mineralisation widths and intercept lengths	• These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. • If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	• The geometry of the Savannah and Savannah North mineralisation to most drill positions is nearly always oblique. For this reason all drill results are always reported as down-hole intersection lengths and not true widths.
Diagrams	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	• Based on the limited level of data currently available for the Savannah Sub 900 Fault resource definition drill programme and the Savannah North Project area Panoramic believe that a simplified plan and sectional view showing the location of the exploration drill results in relation to the main areas of the SNM operation is appropriate.
Balanced reporting	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	• Based on the fact that exploration results reported for the Savannah North Project to date are at an early stage, involving broadly spaced drill holes and EM survey data, (located well away from the mine), the report is considered

Criteria	JORC Code explanation	Commentary
		to be sufficiently balanced.
Other substantive exploration data	• Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	• No other exploration data is considered material to this release at this stage.
Further work	• The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling). • Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	• The exploration results reported herein form part of an ongoing exploration programme by Panoramic to explore the Savannah orebody at depth and the Savannah North Project area following the discovery of significant "Savannah Style" Ni-Cu-Co mineralisation at Savannah North in January 2014. Details of the Company's plans for the Savannah North Project were outline in ASX announcement dated 28 February 2014 and updated herein this document. Further results will be reported when they become available.

PJD-26

1272

PANORAMIC
RESOURCES LTD

31 January 2017



VISION | COMMITMENT | RESULTS

ASX:PAN

Quarterly Report for the period ending 31 December 2016

Significant Points

GROUP

- Safety – **no LTIs recorded**
- Cash Position – **$15.3 million**

NICKEL

Savannah

- Project on care and maintenance
- **Surface drilling program completed, significant new anomaly detected**
- Restart Plan – the Savannah Feasibility Study on track for completion and release to market in early February 2017

Lanfranchi

- Project on care and maintenance

GOLD

Gum Creek (51% indirect)

- **Horizon Gold successfully listed (ASX Code: HRN) raising $15M (before costs of IPO) to fund aggressive exploration program and development studies**
- Exploration activities now underway
- Drilling planned for Q1 2017, subject to obtaining all necessary approvals
- Management provided by Panoramic staff

PGM

Panton

- Research work by Curtin University ongoing

Thunder Bay North (TBN)

- Rio has confirmed the minimum spend of C$5 million on the Project has been achieved

CORPORATE

- Perth Office – downsizing of the office and reduction in corporate overheads continued
- Horizon Gold recharge - Management Agreement with Horizon Gold will result in shared resources and a reduction in corporate costs for both Horizon and Panoramic

Group Summary

Safety

No lost time injuries (LTI).

Environment

There were no significant environmental incidents recorded and the operations were maintained within all statutory, regulatory and licence conditions.

Nickel – Savannah Project

General

The Savannah and Copernicus operations were placed onto care and maintenance in late May 2016 with the last two shipments of concentrate leaving for China in the September 2016 quarter. Approximately 530wmt of concentrate is stockpiled in Wyndham (packed in two tonne bags) and will be sold during the March 2017 quarter. The value of this bagged concentrate is circa US$350,000 at the current US$ Ni price.

During the quarter, the care and maintenance team were focused on training in underground pumping, surface water management, environmental sampling, administrative duties and fixed plant and mobile equipment maintenance. The water management strategy is a key component of the ongoing environmental monitoring regime and has performed as planned during the wet season.

The review and sale of redundant mobile equipment and spares continued during the quarter and resulted in a further $144,000 in sundry income. In addition, $458,000 in revenue was received following the finalisation of the two final concentrate shipments.

Table 1 – Savannah Project Operating Statistics (including Copernicus)

Area	Details	Units	3 mths ending 31 Dec 2016	3 mths ending 30 Sep 2016	2016/17 YTD	2015/16 Full Year
Mining	Ore mined	dmt	-	-	-	847,638
	Ni grade	%	-	-	-	1.33
	Ni metal contained	dmt	-	-	-	11,274
	Cu grade	%	-	-	-	0.75
	Co grade	%	-	-	-	0.06
Milling	Ore milled	dmt	-	-	-	870,542
	Ni grade	%	-	-	-	1.32
	Cu grade	%	-	-	-	0.74
	Co grade	%	-	-	-	0.06
	Ni Recovery	%	-	-	-	85.8
	Cu Recovery	%	-	-	-	93.5
	Co Recovery	%	-	-	-	88.6
Concentrate Production	Concentrate	dmt	-	-	-	131,789
	Ni grade	%	-	-	-	7.47
	Ni metal contained	dmt	-	-	-	9,845
	Cu grade	%	-	-	-	4.56
	Cu metal contained	dmt	-	-	-	6,011
	Co grade	%	-	-	-	0.36
	Co metal contained	dmt	-	-	-	476
Concentrate Shipments	Concentrate	dmt	-	10,227	10,227	124,962
	Ni grade	%	-	8.67	8.67	7.46
	Ni metal contained	dmt	-	886	886	9,316
	Cu grade	%	-	4.86	4.86	4.58
	Cu metal contained	dmt	-	497	497	5,728
	Co grade	%	-	0.41	0.41	0.35
	Co metal contained	dmt	-	42	42	436

Restart Plan

The Savannah Ore Reserve at 30 June 2016 remains readily accessible with minimal capital development required to resume mining. **The updated Savannah Ore Reserve has been included in the Savannah Feasibility Study**, which is due for release in early February 2017.

The objectives during the care and maintenance period are to:

- complete the combined Savannah and Savannah North ("Savannah") Feasibility Study;
- grow the Resource base by undertaking additional exploration;
- continue studying the technical viability and economics of producing a higher nickel grade bulk concentrate (+9% Ni), separate nickel and copper concentrates, and/or nickel/copper/cobalt matte; and
- identify the optimum mining and milling rates, recognising the existing mill has the capacity to treat approximately 1.0Mtpa, through the use of new mining and haulage technologies to enhance productivity and reduce unit costs.

Savannah Feasibility Study

The Savannah Feasibility Study is due for completion in early February 2017. Major tasks completed or commenced during the quarter, included:

- An independent consultant metallurgist peer reviewed the Savannah processing history and improvement opportunities
- BECK Engineering completed geotechnical modelling on the Savannah North Resource;
- Ozvent Consulting continued work to develop a ventilation plan for mining Savannah and Savannah North mineralisation;
- Mining schedule optimisations completed; and
- Modelling of the combined Savannah-Savannah North project cash flows continued.

The Future

Between 2004 and 2016, the Savannah mine and mill operated continuously at or above design capacity. The assets are production ready and consist of an established underground mine, a circa 1.0Mtpa processing plant, a heavy mobile mining fleet and associated infrastructure.

Subject to a sustainable recovery in the US$ nickel price and with these production ready assets, **Savannah could be restarted in a short time frame for minimal capital investment**. Once developed, the combined Savannah Project Resource base could support operations for a significant period at production rates similar to those achieved between 2004 and 2016.

Nickel – Lanfranchi Project

General

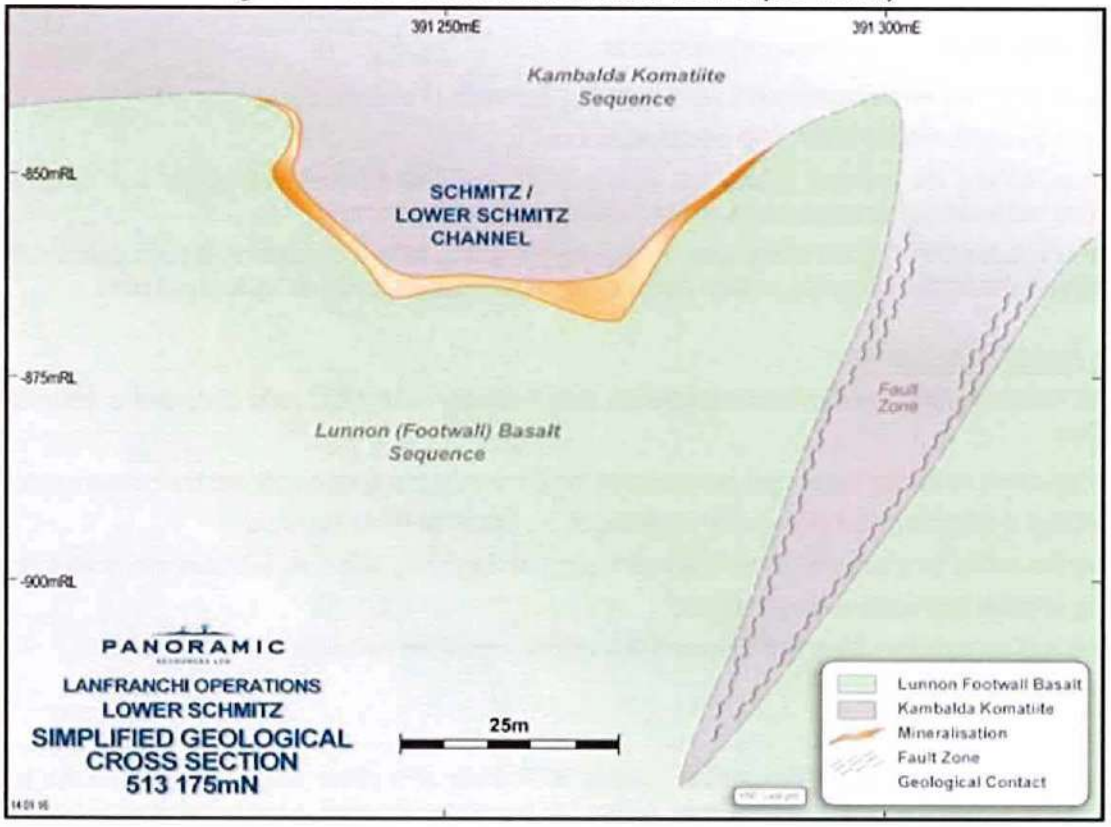
The Lanfranchi Project has a Resource base of approximately 5.65 million tonnes at an average grade of 1.69% Ni for 95,500 tonnes of nickel contained, with approximately half of the Resource classified in the 'Measured' or 'Indicated' category (*refer to the Company's ASX announcement of 30 September 2016*).

Since placing Lanfranchi on care and maintenance in November 2015, a maiden Resource estimate for Lower Schmitz of **131,000t at 5.1% Ni for 6,700t Ni** was defined (*refer to the Company's ASX announcement of 28 April 2016*). The Lower Schmitz mineralisation is confined within a pronounced "channel-like" zone, approximately 100m wide. A simplified geological cross section of the Lower Schmitz channel feature is shown in Figure 1. **Mineralisation, averaging 5-6% Ni, is consistent throughout the channel zone**, however, there is evidence to indicate that a steep west dipping fault has displaced mineralisation at depth to the NNE or SSW. To confirm this displacement, further exploration is required.

The Lower Schmitz mineralisation remains one of the priority exploration targets at Lanfranchi.

Many of the other mineralised komatiite channels at Lanfranchi remain open at depth, including the Lanfranchi, Deacon, East Deacon and Schmitz channels. Panoramic plans to undertake further exploration in these channels as soon as funds become available.

Figure 1 – Lower Schmitz Channel Cross Section (153 175mN)



Native Title

In November 2014, the Federal Court made a Determination of Native Title in favour of the Ngadju People, the consequence of which was that the Company's tenements at the Lanfranchi Nickel Project were invalid to the extent that they were inconsistent with the continued existence, enjoyment or exercise of Native Title rights held by the Ngadju People. The Determination was subsequently appealed by some of the Respondents to the Determination, and the Company joined as a non-participating Respondent Party to the appeal.

On 29 March 2016, the Full Federal Court handed down its decision in the appeal, which overturned the initial decision and confirmed the validity of the relevant tenements. The Ngadju People filed applications for special leave to appeal to the High Court. In October 2016, these applications were refused.

Base Metal Exploration

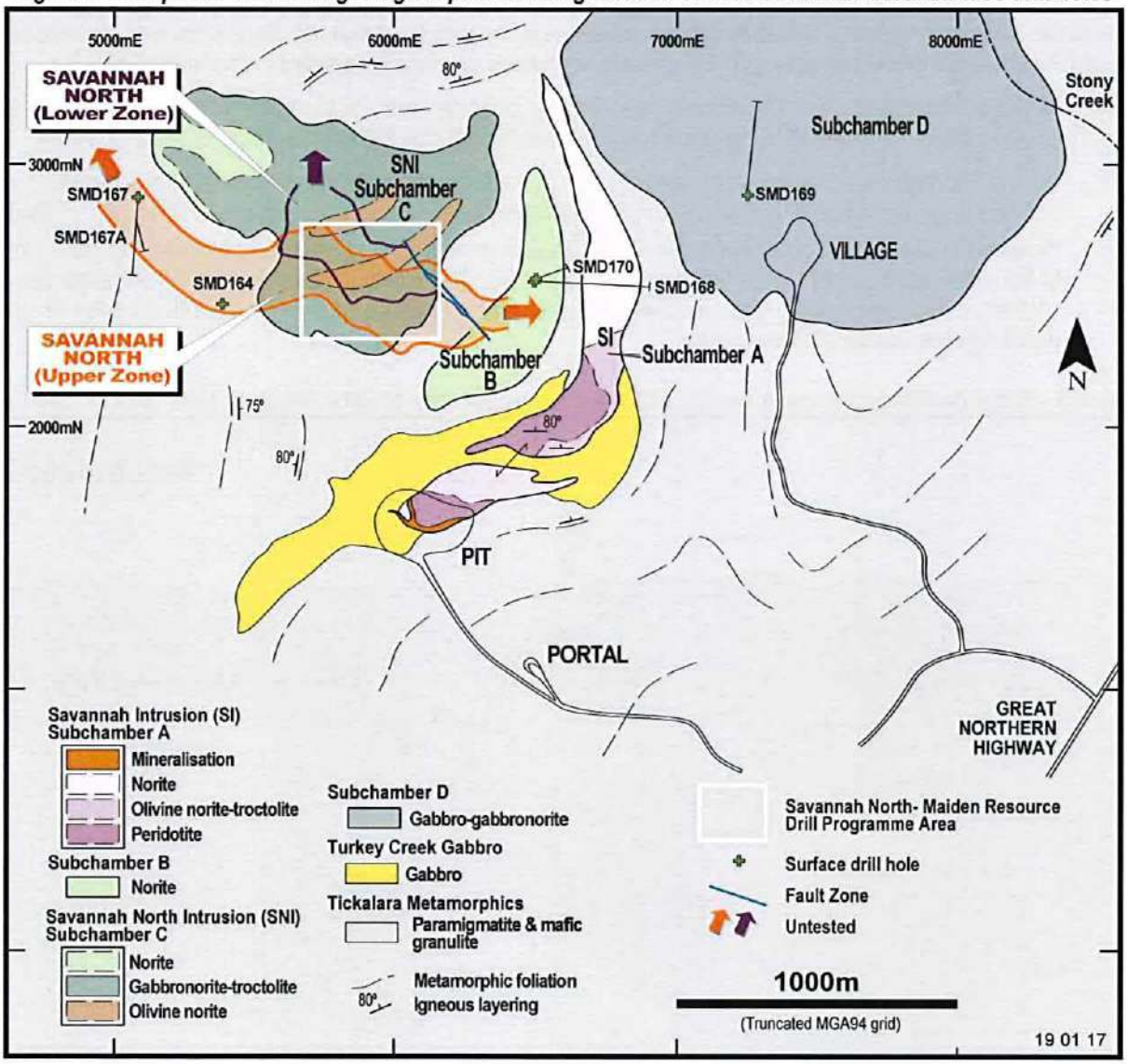
Savannah and East Kimberley Regional

Savannah North Surface Drill Program

The Savannah North 2016 surface drilling program was completed during the quarter. The program consisted of four new surface holes and one wedged daughter hole for a total of 5,903 drill metres. Drill holes SMD167 and 167A were drilled to the west of Savannah North as an initial test of the strong EM anomaly detected previously in SMD164, modelled to extend well to the west of the Savannah North Resource (*Figures 2 and 3*).

Drill hole SMD169 is the first drill hole located in "Sub-chamber D" which is an intrusion located to the east of Savannah North (*see Figures 2 and 3*). SMD169 was drilled to test the internal geology and geometry of this intrusion. Drill holes SMD168 and 170 were drilled within the Savannah North intrusion, to the east and slightly north of the Resource, to test the relationship between the Savannah and Savannah North intrusion in that area.

Figure 2 – Simplified Savannah geological plan showing location of 2016 Savannah North surface drill holes



Results

Drill hole SMD167 targeted the previously interpreted northern margin of the electromagnetic (EM) plate modelled in this area following the down-hole EM (DHEM) survey of SMD164, located 350m to the east. Based on the geology and the subsequent strong on-hole and off-hole DHEM responses identified in SMD167, it is apparent that the hole intersected the southern edge of the Savannah North intrusion and that the bulk of the intrusion and EM source lies to the east and north of the hole. **The best assay result in SMD167 was 2.20m @ 0.59% Ni.**

Drill hole SMD167A was then drilled targeting the base of the intrusion further to the north. Encouragingly, SMD167A intersected a broader zone of weak disseminated and blebby mineralisation at the base of the intrusion approximately 100m to the north of SMD167. The best results within this broader zone of weak mineralisation are **1.00m @ 0.92% Ni and 3.50m @ 0.74% Ni** located on the basal contact of the intrusion. **This mineralised zone in SMD167A is coincident with a very strong EM response** which, when subsequently modelled, confirms stronger mineralisation is located close to the hole towards the north and west.

The geology and DHEM data provided by SMD167 and 167A indicates that, at depth, the orientation of the mineralised Savannah North intrusion adopts a pronounced northwesterly trend from SMD164 and that the mineralisation remains open in this direction (*see Figures 2 and 4*).

Drill holes SMD168 and 170 were drilled within the Savannah North intrusion to the east-north-east of the existing Resource. Neither hole intersected any significant mineralisation, however both holes provided important information about the relationship between the Savannah and Savannah North intrusions in this area. No samples were submitted for assay from SMD168, while the assay results for SMD170 are pending.

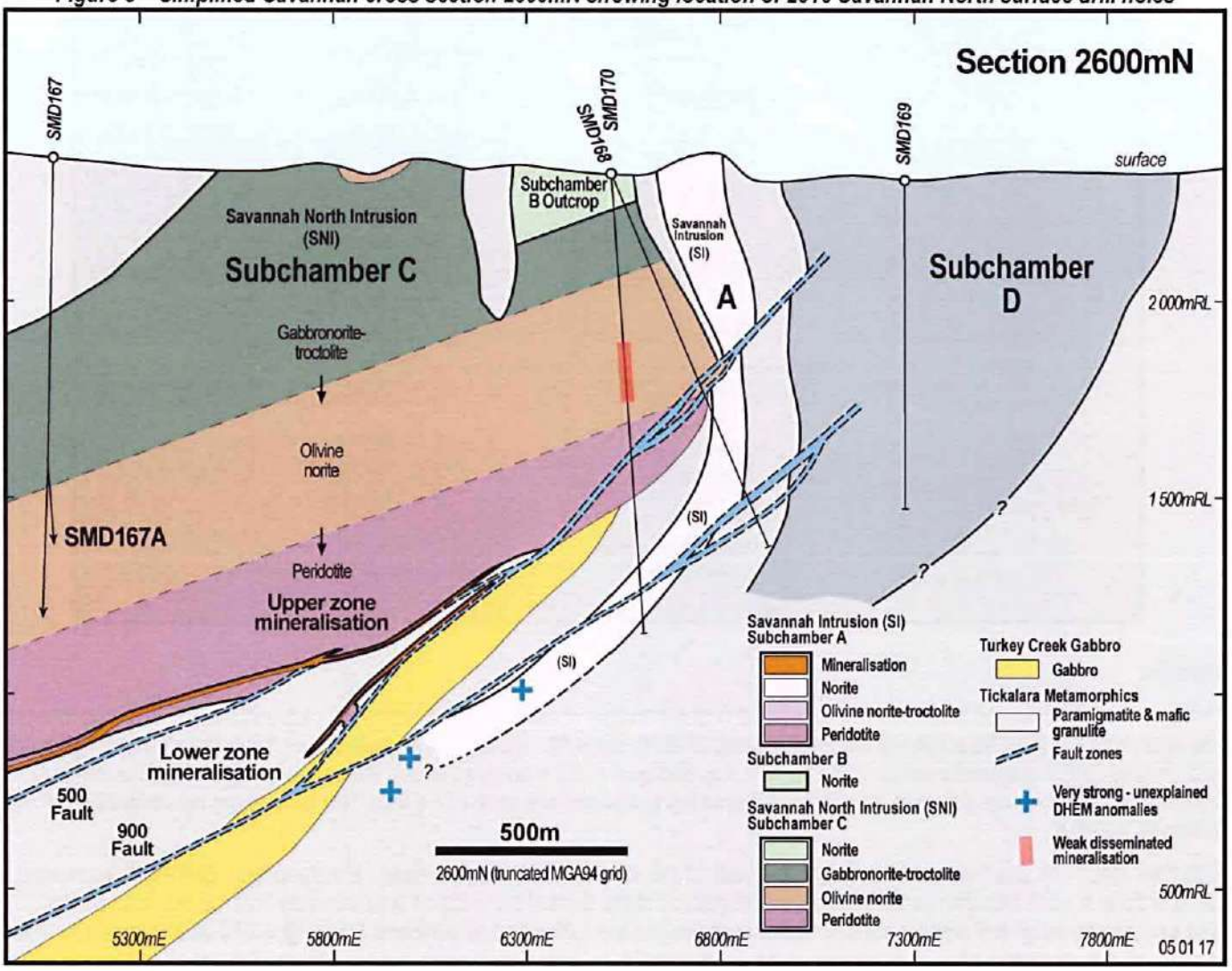
Importantly, drill holes SMD168 and 170 confirm that, at depth, the Savannah and Savannah North intrusions are separate bodies, with the Savannah intrusion folded back towards the west beneath the Savannah North intrusion. This discovery may help explain the presence of several strong DHEM off-hole responses previously detected in this area (*Figure 3*).

In drill-hole SMD168, a moderate strength EM anomaly was identified coincident with the point where the hole intersected the contact of the Savannah North Intrusion. **In SMD170, there are two clear, strong off-hole EM responses**, interpreted as follows:

(1) the first EM response is centred at a depth of 850m at the base of the Savannah North intrusion. Modelling of the data from this response indicates that the Savannah North Upper Zone mineralisation extends to within 50m of SMD170; and

(2) the second EM response is off-hole below SMD170 and is modelled as a large, strongly conductive plate, dipping away to the north-west below SMD170. The modelled conductor is up-plunge from several strong DHEM responses previously detected further down-plunge to the northwest. **The Company intends to extend SMD170 as soon as possible to determine the source of this anomaly.**

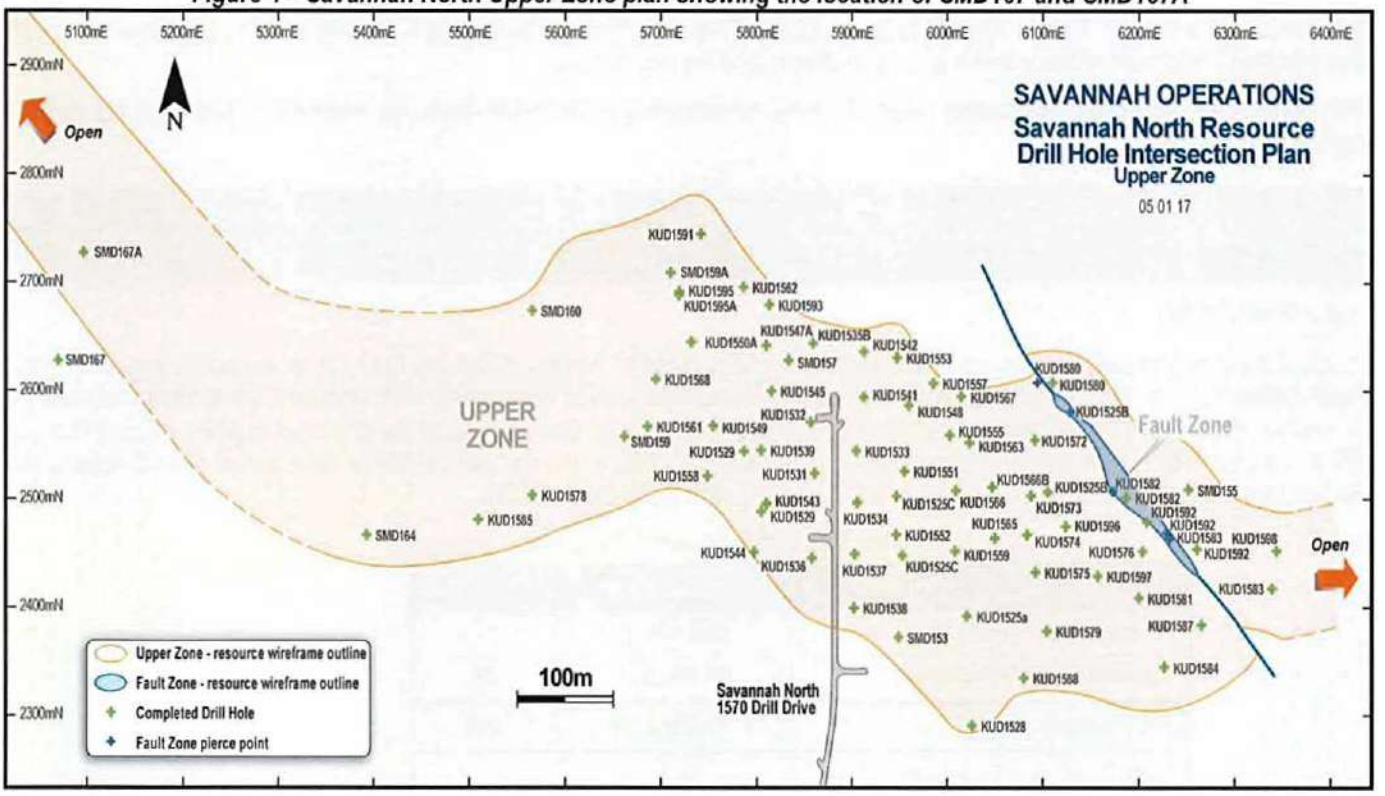
Figure 3 – Simplified Savannah cross section 2600mN showing location of 2016 Savannah North surface drill holes



Drill-hole SMD169 is the first deep test of Sub-chamber D, located immediately to the east of the Savannah and Savannah North Intrusions. This hole intersected a thick, consistent sequence of cumulate textured noritic rock types. No significant mineralisation was intersected and no obvious mineralogical trend towards more primitive, ultramafic lithologies at depth was evident as drilling did not penetrate the base of the intrusion. The DHEM survey on SMD169 did not identify any proximal conductive sources to the hole, however did indicate a long wavelength, off-hole response which has been interpreted to be caused by a sediment horizon located to the east of the sub-chamber. Further modelling of the SMD169 DHEM survey data is ongoing.

All intersections reported in this release are down-hole lengths and not true-widths. Full details of the drill holes and JORC Compliance Tables are contained in Appendix 1.

Figure 4 – Savannah North Upper Zone plan showing the location of SMD167 and SMD167A



Lanfranchi

No exploration programs were undertaken at Lanfranchi during the quarter.

PGM – Thunder Bay North Project

The Thunder Bay North (TBN) Project is located near Thunder Bay in northwest Ontario, Canada. The advanced exploration project claims cover an aggregate area of 40,816 hectares. The TBN Project Resource contains **10.4Mt at 1.13g/t Pt and 1.07g/t Pd for ~0.4Moz Pt and ~0.4Moz Pd** (*refer to the Company's ASX announcement of 30 September 2016*) with exploration potential at depth and along strike.

In 2015, Rio Tinto Exploration Canada Inc. (RTEC) commenced a farm-in whereby RTEC can earn a 70% interest in the TBN Project by sole funding C$20 million in expenditure over five years, with a minimum spend of C$5 million. By November 2015, RTEC had completed a diamond drilling program on the Project after drilling 11 holes, totalling 4,955 drill metres.

In September 2016, RTEC commenced a semi-airborne HeliSAM™ magnetics survey over the Escape Lake, Current Lake, Beaver Lake, SEA Intrusion, 025 Intrusion and Swamp Anomaly portions of the Project. The survey was curtailed due to the inability of the HeliSAM™ system to detect known near surface mineralisation at Current Lake.

In January, Panoramic and RTEC held initial discussions on the results to date and on the future plans for the project. These discussions are ongoing. RTEC confirmed that it has achieved the minimum spend of C$5 million on the Project with total expenditure now approaching C$8 million.

PGM – Panton Project

Panton is located 60km south of the Savannah Nickel Project in the East Kimberley region of Western Australia. **Panton is a significant PGM Resource containing ~1.0Moz Pt at 2.2g/t and ~1.1Moz Pd at 2.4g/t** (*refer to the Company's ASX Announcement of 30 September 2015*) with exploration potential at depth and along strike.

Panoramic considers the Panton Project to be a quality PGM development asset which fits within the Company's commodity diversification and growth strategy and is a key part of its Kimberley Hub concept.

The Company is continuing to sponsor research being undertaken by Curtin University on alternative PGM leaching methods applicable to Panton ore.

Investments – (Horizon Gold/Gum Creek Project – 51%)

Initial Public Offer

In July 2016, the Company announced that it had begun the process to partially divest the Gum Creek Project by way of an Initial Public Offering (IPO). On 21 October 2016, Panoramic entered into various agreements with Horizon Gold Limited ("Horizon") to transfer the Gum Creek Project and its wholly owned subsidiary, Panoramic Gold Pty Ltd, to Horizon on completion of the $15 million IPO and the successful spin-out of Horizon onto the ASX Official List (*refer to the Company's ASX announcement of 21 October 2016*). Horizon was subsequently listed on the ASX on 21 December 2016 (**ASX Code: HRN**).

Table 2: Horizon Gold Limited Capital Structure

	Horizon Shares	%
Shares held by Panoramic	39,030,617	51
Capital Raising (IPO) Shares	37,500,000	49
Total Issued Capital	**76,530,617**	**100**
Share Price (as at 24 January 2017)	$0.37	
Market cap	$28.28 million	
Cash (as at 31 December 2016)	$13.63 million	
Enterprise Value	**$14.65 million**	

The 39.03 million shares in Horizon held by Panoramic are escrowed until December 2018.

Under the Management Agreement with Panoramic, Horizon will utilise Panoramic's management team to provide corporate, technical, managerial and administrative services to Horizon, providing a cost effective administration and continuity of knowledge in relation to Gum Creek.

Horizon's Objectives and Strategy

Horizon's primary objective is to fast track exploration and development studies to become a stand-alone gold producer through the successful development of the Gum Creek Gold Project.

The strategy adopted by Horizon to achieve this goal is to:

- undertake extensional and infill drilling on the existing Gum Creek resources to grow the known resources and lift defined resources into higher-confidence JORC categories;
- undertake regional exploration targeting new gold discoveries outside of the known resources; and
- carry out development studies (including, but not limited to metallurgical and processing investigations) on the free milling and refractory mineralisation.

Horizon is planning to spend ~$13 million over the next two years, in which approximately $5 million will be spent on exploration and development studies in 2017, with an emphasis on:

- infill and extension drilling on the known Gum Creek Resources (Heron South, Swan North, Swift and Kingfisher);
- staged programs of ground EM surveys, IP surveys and air-core drilling, to better define regional geophysical, geochemical and structural targets;
- optimisation studies on free milling material to identify areas for possible reductions in operating and capital costs; and
- further metallurgical test work to confirm the suitability of Wilsons refractory mineralisation to treatment by a moderate temperature and pressure oxidation process.

Corporate

Cash Position

Group Cash at the end of the quarter totalled $15.3 million. The movement in the cash position included the following transactions:

- $0.5 million income from final invoice adjustments on previous nickel concentrate shipments;
- $0.2 million income from selling redundant mobile equipment and spares;
- $1.0 million on exploration drilling at Savannah North; and
- $0.3 million on site, exploration and evaluation activities at Gum Creek.

Aggregate movements in the Group Cash balance over the quarter are shown in Figure 5.

At 31 December 2016, $1.8 million was cash-backed against the drawn amount on the Company's performance bond facility.

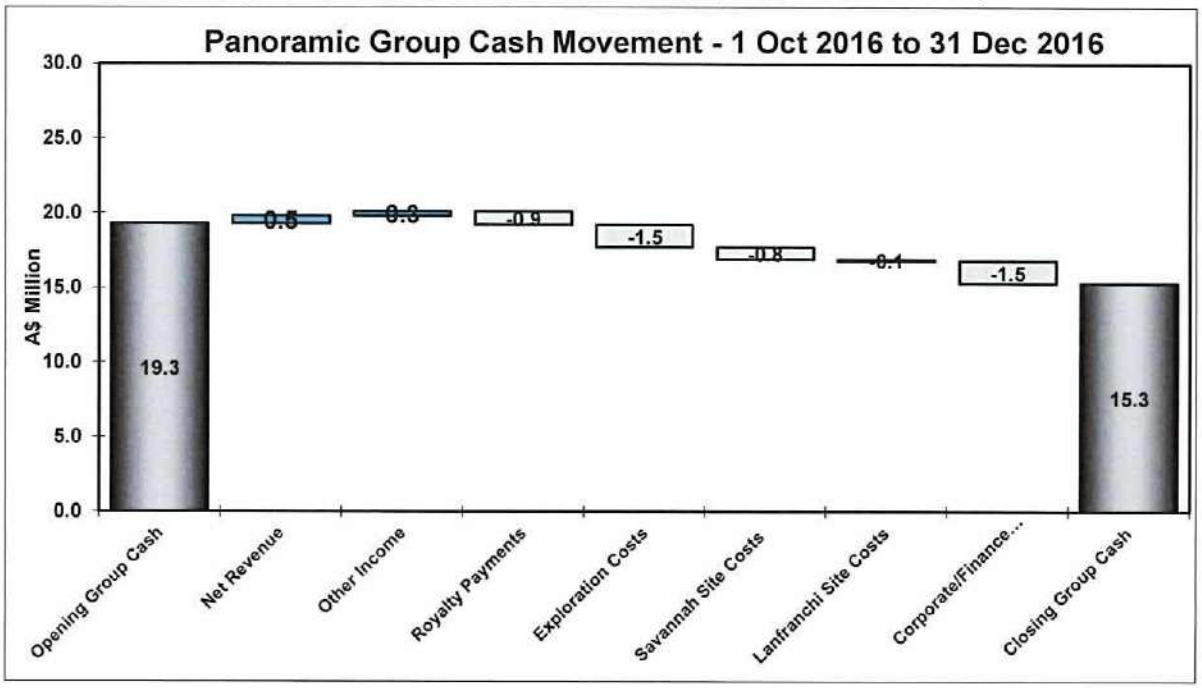
Group finance leases for mobile equipment and insurance premiums at 31 December 2016 totalled approximately $1.2 million.

Perth Office

Following on from the operational changes made at the Lanfranchi and Savannah projects in 2016, staffing and remuneration levels in the Perth Office have been reduced.

Management made further changes to reduce Perth Office personnel and lower corporate costs during the quarter. Office resources will be shared and corporate overheads reduced following the signing of the Management Agreement with Horizon in October 2016.

Figure 5 – Panoramic Group Cash Movement (December 2016 Quarter)



About the Company

Panoramic Resources Limited (**ASX code: PAN**) is a Western Australian mining company formed in 2001 for the purpose of developing the Savannah Nickel Project in the East Kimberley. Panoramic successfully commissioned the $65 million Savannah Project in late 2004 and then in 2005 purchased and restarted the Lanfranchi Nickel Project, near Kambalda. In FY2014, the Company produced a record 22,256t contained nickel and produced 19,301t contained nickel in FY2015. The Lanfranchi and Savannah Projects were placed on care and maintenance in November 2015 and May 2016 respectively.

Following the successful development of the nickel projects, the Company diversified its resource base to include platinum group metals (PGM) and gold. The PGM Division consists of the Panton Project, located 60km south of the Savannah Project and the Thunder Bay North Project in Northern Ontario, Canada, in which Rio Tinto is earning 70% by spending up to C$20 million over five years. Following the ASX listing of Horizon Gold Limited (ASX Code: HRN) in December 2016, the Company's interest in gold consists of an indirect investment in the Gum Creek Gold Project located near Wiluna through its 51% majority shareholding in Horizon.

Panoramic has been a consistent dividend payer and has paid out a total of $114.3 million in fully franked dividends between 2008 and 2016. At 31 December 2016, Panoramic had $15.3 million in cash and no bank debt.

The Company's vision is to broaden its exploration and production base, with the aim of becoming a major, diversified mining company in the S&P/ASX 100 Index. The growth path will include developing existing resources, discovering new ore bodies, acquiring additional projects and is being led by an experienced exploration-to-production team with a proven track record.

For further information contact:
Peter Harold, Managing Director
+61 8 6266 8600

Appendix 1

Savannah North Project – Tabulation of Drill Hole Assay Results and 2012 JORC Compliance Tables

Hole	East (m)	North (m)	RL (m)	Dip (°)	Azi (°)	EOH (m)	From (m)	To (m)	Intercept (Ni)	Cu (%)	Co (%)
SMD167	395090.3	8082875.1	2393.0	-81.0	176.0	1666.00	1615.20	1617.40	2.20m @ 0.59 %	0.38	0.03
SMD167w1	395094.0	8082874.0	2380.0	-81.0	176.0	1778.80	1684.90	1685.90	1.00m @ 0.92 %	0.41	0.07
							1692.50	1696.00	3.50m @ 0.74 %	0.58	0.05
					including		*1692.50*	*1693.50*	*1.00m @ 1.35 %*	*1.14*	*0.09*
SMD168	396483.5	8082538.9	2345.5	-65.6	91.5	1082.00	No samples assayed				
SMD169	397254.9	8082882.9	2330.8	-65.9	356.8	925.10	Assays pending				
SMD170	396488.0	8082527.0	2345.5	-85.8	66.5	1185.80	Assays pending				

Notes:
Intervals are down-hole lengths, not true-width
Parameters: 0.50% Ni lower-cut off, maximum internal waste of 4.0m, minimum intercept of 0.5m

Savannah North Project – Table 1, Section 1 - Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • Aspects of the determination of mineralisation that are Material to the Public Report. • In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	• The Savannah deposit and surrounding exploration areas are typically sampled by diamond drilling techniques. Over 1500 holes have been drilled for a total in excess of 220,000m. The majority of holes were drilled from underground drill platforms. • About the mine the drillhole spacing is a nominal 25x25m grid spacing over the extent of the mineralisation. • All drillhole collars were surveyed using Leica Total Station survey equipment by a registered surveyor. Downhole surveys were typically performed every 30 metres using either "Reflex EZ Shot" or "Flexit Smart Tools". • All diamond core is geologically logged with samples (typically between 0.2 metre to 1 metre long) defined by geological contacts. Analytical samples include a mix of full and sawn half core samples. Sample preparation typically involves pulverising the sample to 90% passing 75 µm followed by either a 3 or total 4 acid digest and analysis by either AAS or ICP OES.
Drilling techniques	• Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	• A mix of LTK60 and NQ2 sized diamond drilling has been used to obtain >90% of the data in the mine database. Exploration holes are typically NQ2 size. Some RC drilling has been used historically for the upper part of the mine.
Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure representative nature of the samples. • Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	• Diamond core recoveries are logged and recorded in the database. Overall recoveries are >99% and there are no apparent core loss issues or significant sample recovery problems. • Depths checked against core blocks, regular rod counts, driller breaks checked by fitting core together. • No relationship exists between sample recovery and grade
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. The total length and percentage of the relevant intersections logged.	• All holes have been geologically logged in full. Geotechnical logging was carried out on all diamond drill holes for recovery and RQD. Number of defects (per interval) and roughness was carried out around the ore zones. Structure type, alpha angle, infill, texture and healing is stored in the structure table of the database. • Logging of diamond core RC samples recorded lithology, colour, mineralisation, structural (DDH only) and other features. Core was photographed wet. • All drill holes were logged in full.

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	• If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	• Analytical core samples included a mix of full and sawn half core samples. • All samples from core • All core sampling and sample preparation followed industry best practice. • QC involved the addition of Savannah derived CRM assay standards, blanks, and duplicates. At least one form of QC was inserted in most sample batches. • Original versus duplicate assay results have always shown strong correlation due to massive sulphide rich nature of the orebody. • Sample sizes are considered appropriate to represent the Savannah style of mineralisation.
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. • Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	• The Savannah Nickel Mine (SNM) standard analytical technique is a 3-acid digest with an AAS finish. The method best approaches total dissolution for most minerals. Exploration samples sent off-site are analysed using a 4-acid digest with either ICP OES or AAS finish (AAS for ore grade samples). • No other analytical tools or techniques are employed. • The onsite laboratory carries out sizing checks, uses internal standards, duplicates, replicates, blanks and repeats. A selection of roughly 10% of pulps was sent to external laboratories for repeat analysis and sizing checks. No bias has been identified.
Verification of sampling and assaying	• The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data.	• Drilling and sampling procedures at the SNM have been inspected by many stakeholders since the project began. • Throughout the life of the mine, there have been several instances where holes have been twinned, confirming intersections and continuity. • Holes are logged into Excel™ templates on laptops, data is then entered into MS Access™ database with user data entry front end built in. Data is ultimately transferred to SQL server from Perth office. Data periodically validated by site personnel. • No adjustments have been made to assay data.
Location of data points	• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. • Specification of the grid system used. • Quality and adequacy of topographic control.	• All diamond drill hole collars were surveyed using Leica Total Station survey equipment by a registered surveyor. "Reflex EZ Shot" or "Flexit Smart Tool" was used for downhole surveys at approximately every 30m. Visual inspection in a 3D graphics environment using Surpac software failed to identify any obvious errors regarding the spatial position of drillhole collars or downhole surveys • The mine grid is a truncated 4 digit (MGA94) grid system. • Conversion from local grid to MGA GDA94 Zone 52 is calculated by applying truncated factor to local coords: E: +390000, N: +8080000N • Topographic control is of a high quality and is adequate for the resource estimation process
Data spacing and distribution	• Data spacing for reporting of Exploration Results. • Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. • Whether sample compositing has been applied.	• Nominal drill hole spacing of 25m (easting) by 25m (RL) • The mineralised domains delineated by the drill spacing show enough continuity to support the classification applied under the 2012 JORC Code. • No sample compositing has been undertaken.
Orientation of data in relation to geological structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. • If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	• Drill hole orientation was largely perpendicular to the orebody with the exception of the western extent where drill platform positions allowed only for oblique intersections. • No orientation sampling bias has been identified.
Sample security	• The measures taken to ensure sample security.	• Samples transported to onsite lab by SNM staff. Samples sent off site are road freighted (Nexus transport) and tracked using spreadsheets onsite.

Criteria	JORC Code explanation	Commentary
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• No recent audits/reviews of the sampling techniques have been undertaken. The procedures used are considered to be industry standard. Mine to mill reconciliation records throughout the life of the Savannah Project provide confidence in the sampling procedures.

Savannah North Project - Table 1, Section 2 - Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. • The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	• The Savannah Nickel Mine (SNM) is an operating mine secured by 5 contiguous Mining Licences. All tenure is current and in good standing. SNM has the right to explore for and mine all commodities within the mine tenements. • The SNM is an operating mine with all statutory approvals and licences in place to operate. The mine has a long standing off-take agreement to mine and deliver nickel sulphide concentrate to the Jinchuan Group in China.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	• Since commissioning the Savannah Project in 2004, SNM has conducted all exploration on the mine tenements.
Geology	• Deposit type, geological setting and style of mineralisation.	• The SNM is based on mining ore associated with the Savannah Intrusion; a palaeo-proterozoic mafic/ultramafic magma conduit. The Ni-Cu-Co rich massive sulphide mineralisation occurs as "classic" magmatic breccias developed about the more primitive, MgO rich ores basal parts of the conduit.
Drill hole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length. • If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	• All exploration at SNM is conducted on the Savannah mine grid, which is a "4 digit" truncated MGA grid. Conversion from local to MGA GDA94 Zone 52 is calculated by applying truncated factor to local coords: E: +390000, N: +8080000. RL equals AHD + 2,000m. Additional drill hole information includes: o Savannah underground diamond drill holes are typically NQ2 size, though some deep holes are commenced HQ size and then reduced. Deep surface holes are commenced PQ size, then reduced to HQ and eventually NQ2 size o All core is orientated and photographed prior to cutting and sampling o All intersection intervals are reported as down-hole lengths and not true widths o All assays are typically performed on the Savannah onsite laboratory, otherwise by SGS Laboratories in Perth
Data aggregation methods	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. • Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. • The assumptions used for any reporting of metal equivalent values should be clearly stated.	• Weighted averages were calculated using parameters of 0.5% Ni lower cut-off, minimum reporting length of 1m and maximum internal waste of 7m. • Cu and Co grades were determined by the defined Ni grade interval, ie they are not calculated independently. • For all Savannah North Maiden Resource drill hole intercepts the process is essentially the same except the individual sample SG values are also incorporated in to the weighting calculation.
Relationship between mineralisation widths and intercept lengths	• These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. • If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	• The geometry of the mineralisation reported herein with respect to the drill holes being reported has not been established. • All intersection lengths reported in this accompanying release are down-hole lengths and not true widths.
Diagrams	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	• Based on the limited level of data currently available for this area at Savannah it was deemed that a simplified plan and section view showing the location of the exploration drill results in relation to the main areas of the SNM operation was appropriate.
Balanced reporting	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	• Based on the fact that exploration results reported herein are from several drill holes, located well away from other mine drill holes, the report is considered to be sufficiently balanced.

Criteria	JORC Code explanation	Commentary
Other substantive exploration data	• Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	• No other exploration data is considered material to this release at this stage.
Further work	• The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling). • Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	• The exploration results reported herein are for the Savannah North Project. Work is ongoing and further results will be reported if and when they become available.

PJD-27

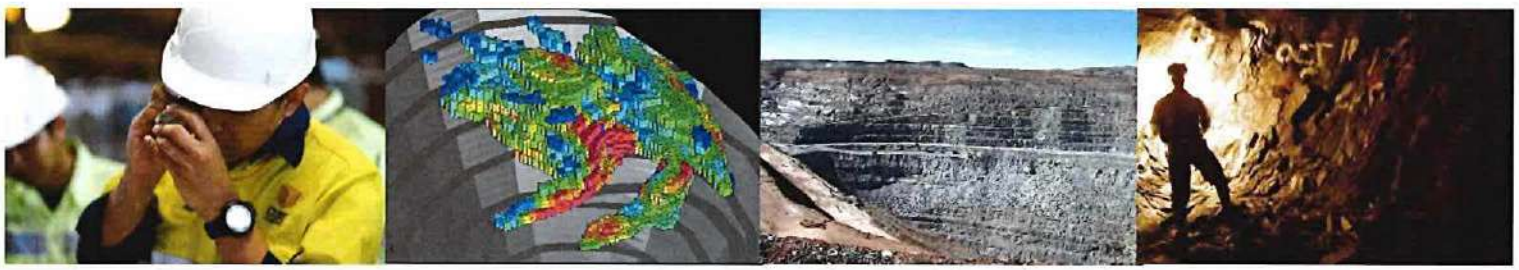
Summary Report

Mineral Resource Estimate

Savannah North, Savannah Nickel Project

Effective Date: 30/06/2023

Prepared for: Panoramic Resources Limited

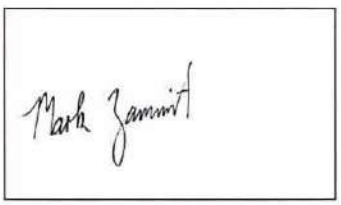


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Coordinating Author	Mark Zammit BSc (Hons) GradCertGeostat MAIG	**Signature**	
Contributing Author	Paul Hetherington MSc.(Min Econ), BSc.(Geol) GradCertGeostat MAusIMM	**Signature**	

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1.0 Executive Summary

Cube Consulting Pty Ltd (Cube) was commissioned by Panoramic Resources Ltd (PAN) to undertake an update of the Savannah North Mineral Resource which forms part of the Savannah Nickel Project. The Mineral Resource Estimate (MRE) was completed during June 2023 under the supervision of Mark Zammit (Principal Geologist). The objective of this work was to incorporate all available drilling up to 7 June 2023 into an updated nickel (Ni), copper (Cu) and cobalt (Co) estimate. This MRE is update to the previous June 2022 Mineral Resource (publicly reported on 29 September 2022) and is considered appropriate for public reporting and the basis for any revised mine planning for the Savannah Nickel Project.

Since the June 2022 MRE, an additional 133 infill grade control diamond drillholes totalling 17,754m were available for this June 2023 update. This drilling was mostly aimed at infilling the existing Mineral Resource between the 1200 and 1325 RLs focusing on the immediate mining area and infilling the surrounding peripheries of known mineralisation. The mineralisation and lithology modelling were completed by PAN geology staff using Leapfrog software and supplied to Cube.

The June 2023 MRE has been classified and reported in accordance with the JORC (2012) guidelines. The estimated model has been reported above a nickel lower grade cut off of 0.5% Ni and depleted to the 30th June 2023 with an assumption of a medium scale underground mining method for exploitation and is tabulated in Table 1-1. For comparison, the historic June 2022 MRE depleted to the 30 June 2022 is tabulated in Table 1-2.

Table 1-1 Summary of the June 2023 Savannah North Mineral Resource (Above 0.5% Ni and depleted the 30th June 2023)

Classification	Tonnes (kt)	Ni (%)	Cu (%)	Co (%)	Ni (kt)	Cu (kt)	Co (kt)
Measured	2,381,128	1.42	0.57	0.103	33,693	13,668	2,453
Indicated	5,465,983	1.57	0.70	0.112	85,761	38,371	6,122
Inferred	3,542,127	1.31	0.50	0.077	46,437	17,852	2,727
Total	**11,389,238**	**1.46**	**0.61**	**0.10**	**165,892**	**69,891**	**11,302**

Table 1-2 Summary of the June 2022 Savannah North Mineral Resource (Above 0.5% Ni and depleted the 30th June 2022

Classification	Domain	Tonnes (kt)	Ni (%)	Cu (%)	Co (%)	Ni (kt)	Cu (kt)	Co (kt)
Measured	Upper	1,884	1.41	0.60	0.101	26.6	11.2	1.9
	Other	114	1.32	0.49	0.092	1.5	0.6	0.1
	Sub-Total	**1,998**	**1.41**	**0.59**	**0.101**	**28.2**	**11.8**	**2.0**
Indicated	Upper	2,343	1.53	0.63	0.115	35.8	14.7	2.7
	Lower	2,680	1.86	0.92	0.132	49.7	24.6	3.5
	Other	517	1.32	0.40	0.085	6.8	2.0	0.4
	Sub-Total	**5,540**	**1.67**	**0.75**	**0.120**	**92.4**	**41.3**	**6.6**
Inferred	Upper	1,736	1.32	0.45	0.075	22.9	7.7	1.3
	Lower	934	1.57	0.79	0.105	14.6	7.4	1.0
	Other	1,364	1.27	0.44	0.077	17.3	6.0	1.1
	Sub-Total	**4,034**	**1.36**	**0.52**	**0.083**	**54.8**	**21.1**	**3.3**
TOTAL		**11,573**	**1.52**	**0.64**	**0.104**	**175.3**	**74.2**	**12.0**

2.0 Sources of Information

The information in this report is based on data supplied by PAN. This included:

- drillhole database (SVN_Surpac.accdb) received on 7 June 2023.
- mineralisation interpretation wireframes (Leapfrog exported dtm files)
- dyke and fault interpretation wireframes (Leapfrog exported dtm files)
- mine working depletion wireframes for development and stoping to 30th June 2023.
- Workings for site NSR calculation (FY23 NSR Unit Calculation_Reserves LOM.xlsx)

3.0 Property Description and Location

3.1 Location

The Savannah North deposit forms part of the Savannah Nickel Project which is located 240 km south of Kununurra in the East Kimberley district of Western Australia (Figure 3-1).

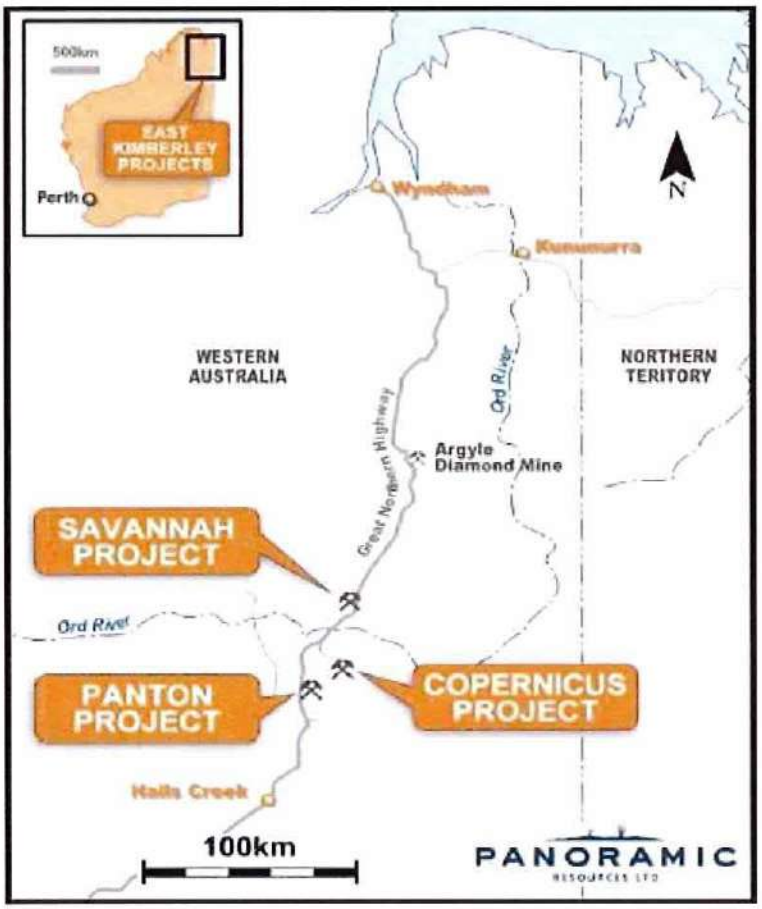


Figure 3-1 Property Plan of the Savannah Project, Western Australia

3.2 Physiography

The region of the Kimberley where the Savannah Nickel Project is located is characterised by savannah style vegetation with mature trees and grasslands.

The Kimberley region experiences a tropical monsoonal climate with the wet season extending from November to March and a dry season from April to October. Halls Creek is the closest region town to the Savannah Nickel Project and the climate here is referred to as a local steppe climate. According to the Köppen-Geiger climate classification, the climate is considered to be BSh.

The average rainfall in Halls Creek is 522 mm. The driest month is typically June with an average of 1 mm with the greatest precipitation being in January, averaging 151 mm.

The average temperature in Halls Creek is 26.7°C. The temperatures are highest on average in November, at around 31.4°C and lowest in July with temperatures averaging 19.4°C (Climate-Data.org).

3.3 Infrastructure

The project is accessed by sealed roads from either Wyndham or Kununurra to the north or from Halls Creek to the south. The Savannah mine and processing facility is located approximately 2 km west of the Great Northern Highway.

Mining was initially undertaken by open pit however the majority of ore has been extracted via long-hole open stoping from underground.

The process plant at Savannah comprises a single stage crusher, SAG mill, flotation, thickening and filtering stages to produce a bulk nickel, copper, cobalt concentrate. The plant was originally designed for a throughput of 750,000 tonnes per annum but has consistently outperformed the design specifications and can operate at in excess of 1 million tonnes per annum.

3.4 Land Tenure

The Savannah Nickel Mine (SNM), incorporating the Savannah North Project, is secured by five contiguous Mining Licences ML's 80/179 to 80/183 inclusive, covering 3,718.60 hectares or 37.186 km2 (Table 3-1). All tenure is current and in good standing and the SNM has the right to explore for and mine all commodities within the mining tenements. SNM has all statutory approvals and licences in place to operate.

Table 3-1 Tenement Summary

Tenement ID	Area (Ha)	Status	Holder	Grant Date	Expiry Date
ML80/179	241.85	Live	Savannah Nickel Mines Pty Ltd	16/06/1987	15/06/2029
ML80/180	960.30	Live	Savannah Nickel Mines Pty Ltd	16/06/1987	15/06/2029
ML80/181	960.00	Live	Savannah Nickel Mines Pty Ltd	16/06/1987	15/06/2029
ML80/182	589.40	Live	Savannah Nickel Mines Pty Ltd	16/06/1987	15/06/2029
ML80/183	967.05	Live	Savannah Nickel Mines Pty Ltd	16/06/1987	15/06/2029

4.0 Geological Setting and Mineralisation

Information provided in this section is referenced from relevant published and unpublished third party documents and public domain data, a list of which is provided in the references in Section 13.0 of this report.

4.1 Regional Geology

The Savannah complex lies within the Paleoproterozoic Halls Creek orogeny in the Kimberley region of Western Australia (Hoatson, 2000; Hoatson et al., 2006). The geology of the Kimberley region is dominated by the Paleoproterozoic Kimberley and Speewah basins. The northeast-trending Halls Creek Orogeny (HCO) is comprised of rocks from the Lamboo Province and the deformed margins of the Kimberley and Speewah basins. In current tectonic models, the HCO is interpreted as resulting from the collision between the Kimberley Craton and the North Australian Craton between 1832-1808 Ma. This period of crustal accretion was characterised by widespread volcanism and the emplacement of pre-, syn- and post-tectonic intrusive (granitic to ultramafic) complexes over a belt of several hundred square kilometres. The Lamboo Province is divided by major north-northeast trending strike-slip that define the boundaries between the Western, the Central and the Eastern terranes.

Most of the mafic-ultramafic intrusions of the East Kimberley region are contained within the HCO magmatic province and are confined to the Central Zone of the East Kimberley. They form a well-exposed north-north-easterly trending belt about 400 km long and at least 120 km wide. It is estimated that these intrusions were emplaced at depths between 8 and 23 km (Hoatson and Blake, 2000). The mafic-ultramafic intrusions of the Savannah complex are located in the Central Zone of the Lamboo province. These intrusions are emplaced within the ca. 1870 Ma Tickalara Metamorphics that dominate the Central Zone and consist of mafic intrusive rocks with interlayered metasedimentary rocks at upper amphibolite to granulite facies.

4.2 Deposit Geology

The Savannah sulphide orebody lies within a marginal norite unit which developed at the base of the Savannah Layered Intrusive Complex (SI). The SI was intruded into a metamorphosed sequence of sedimentary and igneous rocks called the Tickalara Metamorphics. The main Savannah orebody which has been exploited by mining is characterised by steeply dipping mineralisation dominated by pyrrhotite, pentlandite and chalcopyrite. The mode of sulphide occurrence varies from disseminated/matrix to stringer to massive sulphide, where typical massive sulphide will assay between 2.0 - 3.0% nickel.

The Savannah North mineralisation, which is identical to that developed in the SI, dips moderately (40-45 degrees) to the north-west and comprises two main zones and some minor sub-parallel domains. The Upper Zone is developed on the basal contact of the Savannah North Intrusion (SNI) (previously known as the North Olivine Gabbro), and the second Lower Zone is a consistent remobilised zone of massive sulphide mineralisation, in part associated with the 500 Fault (Figure 4 1). Both zones are well defined by the drilling and the interpretation is considered sufficiently robust for resource modelling.

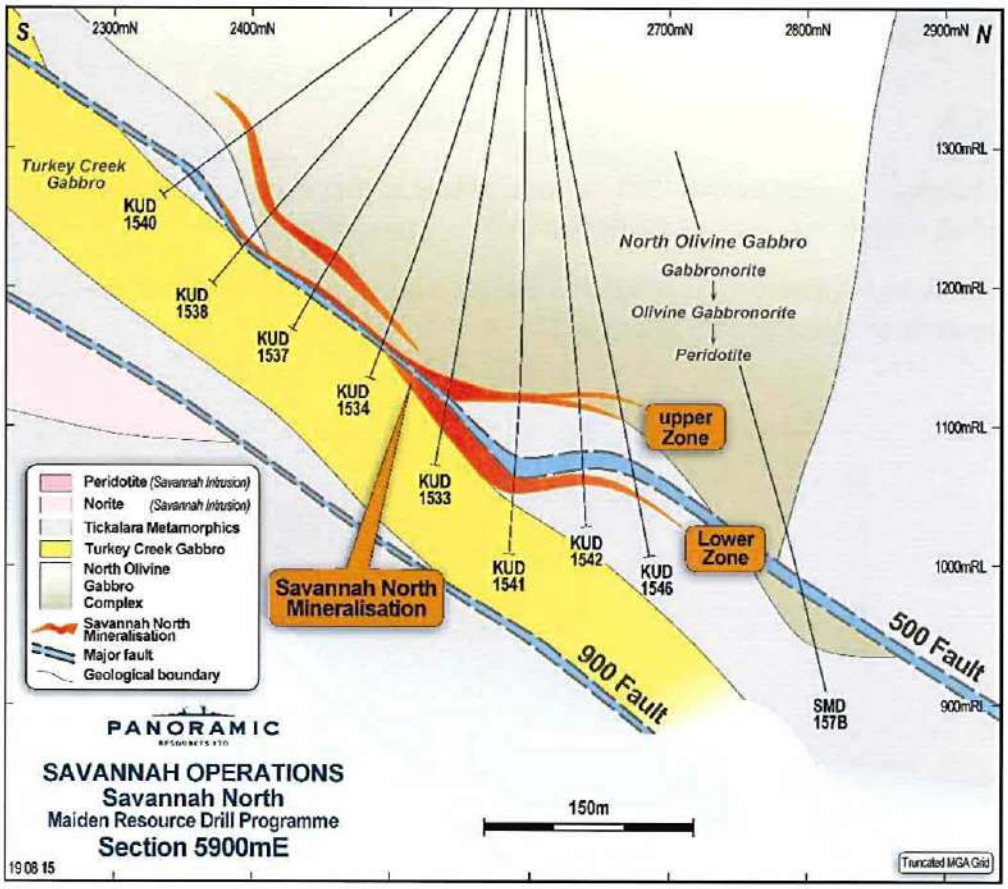


Figure 4-1 Savannah North Local Geology – Cross Section at 5,900E looking West

5.0 Database

1.1. Summary

The database supplied by PAN (SVN_Surpac.accdb) is an export from the total Savannah project data and only includes drilling located within the limits of Savannah North.

The database has a total of 511 collars of which 133 have been drilled after the June 2022 MRE and used in the updated June 2023 MRE (Figure 5-1).

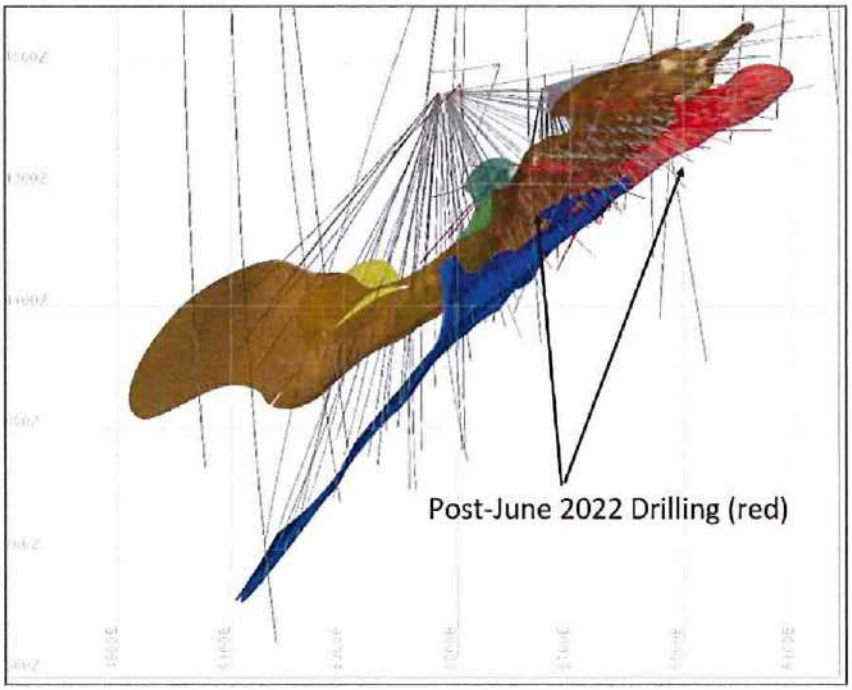


Figure 5-1 Interpretation Domains - Oblique view Looking NE

1.1. Database Structure

A description of the database and the main tables and fields are noted in Table 5-1.

Cube added some fields to the database including the "collar" table fields "mre" and "mre_use". The field "mre" has been flagged as either 2016, 2020, mar2022 or jun2022 to help distinguish drilling post the April 2020 MRE. The field "mre_use" has been flagged as either Y or N to identify drilling considered appropriate (or not) for use in the resource model.

Additional fields were added to the "assay" table which included "cube_ni_pct", "cube_cu_pct", "cube_co_pct", and "cube_sg". These fields include the original assay data but have been updated to account for unsampled intervals and below detection assay results.

Table 5-1 Drillhole Database Structure – Cube_SVN_Surpac_230607. accdb

DB Table	Cube Field	Description
collar	hole_id	Hole Name
	y	Local Northing
	x	Local Easting
	z	Local RL
	max_depth	Total Hole Depth
	hole_type	DDH, UGDDH
	mre	2016, 2020, mar2022, jun2022 or jun2023
	mre_use	Y or N
survey	hole_id	Hole Name
	depth	Downhole Depth of Survey
	dip	Hole Dip
	azimuth	Local Grid Azimuth
assay	hole_id	Hole Name
	samp_id	Sample Id
	depth_from	Interval Depth From
	depth_to	Interval Depth To
	co_pct	Original Cobalt (%)
	cu_pct	Original Copper (%)
	ni_pct	Original Nickel (%)
	sg_cm3	Original Density
	cube_co_pct	Final Cobalt (%)
	cube_cu_pct	Final Copper (%)
	cube_ni_pct	Final Nickel (%)
	cube_sg	Final Density
geology	hole_id	Hole Name
	depth_from	Interval Depth From
	depth_to	Interval Depth To
	Litho1_code	Main Lithology code
zonecode	hole_id	Hole Name
	depth_from	Intercept Depth From
	depth_to	Intercept Depth To
	zonecode	Intercept Domain Code

1.2. Treatment of Below Detection Samples and Edits to Database

Assay results identified as below detection were updated within the "cube_" prefixed assay fields to a low value equal to or less than the detection limit according to Table 5-2. The same criteria were applied to unsampled intervals given the assumption that unsampled intervals represent unmineralised material.

Table 5-2 Below Detection and Unsampled Data Replacement

Assay Field	Below Detection Replacement
ni_pct	0 or 0.005
cu_pct	0.005
co_pct	0.0001

6.0 Mineralisation Domaining

1.1. Oxidation

The Savannah North mineralisation occurs approximately 750 m below the surface. All modelled mineralisation is considered fresh sulphide therefore a modelled oxidation interpretation and surface is not required for the Savannah North Mineral Resource.

1.2. Mineralisation Interpretation and Wireframing

The Savannah North mineralisation has been defined over a strike length of approximately one kilometre. The mineralisation model domains were developed by the Panoramic geology group using all available information, particularly the close spaced GC drilling and supplied to Cube. The interpretation was reviewed by Cube and confirmed as a fair and reasonable model.

Geological controls were used to create the mineralised domains, with the interpretation primarily defined by the presence of strong and continuous zones of logged massive sulphide mineralisation. The mineralisation interpretations were created in Leapfrog Software and supplied to Cube as validated Surpac wireframe solids. As part of the updated modelling exercise, PAN included the development of a geological model comprising late-stage dykes and faults which deplete and offset the mineralisation. For the purpose of the resource model and grade estimation, the mineralisation solid wireframes were supplied without the intersection of the dyke and fault models. The reason for this is the final truncated mineralisation wireframes are prone to validation errors in Surpac and it is a lot more efficient to deplete the final block model with the dyke and fault models as a final step in the process.

A total of eleven domains have been modelled and these are summarised in Table 6-1. Three dimensional views of the mineralisation interpretation in plan and section are shown in Figure 6-1 and Figure 6-2. In addition to the mineralisation wireframes, a simple wireframe was created to encompass the mineralised domains and serve as a limit to the background estimate (Figure 6-3).

Table 6-1 Mineralisation Domain Solids

Domain	3DM Object and Trisolation	Volume
Upper_1	Obj. 1 & Trisol. 1	1,880,679
Lower_2	Obj. 2 & Trisol. 1	1,019,330
Other_4	Obj. 4 & Trisol. 1	36,638
Other_5	Obj. 5 & Trisol. 1	94,577
Other_6	Obj. 6 & Trisol. 1	222,337
Pod_1460_7	Obj. 7 & Trisol. 1	19,493
TCG_East_8	Obj. 8 & Trisol. 1	148,657
Pod_1340_9	Obj. 9 & Trisol. 1	2,507
Pod_1381_10	Obj. 10 & Trisol. 1	11,532
Upper Splay 11	Obj. 11 & Trisol. 1	13,195
Lower Splay 12	Obj. 12 & Trisol. 1	16,593

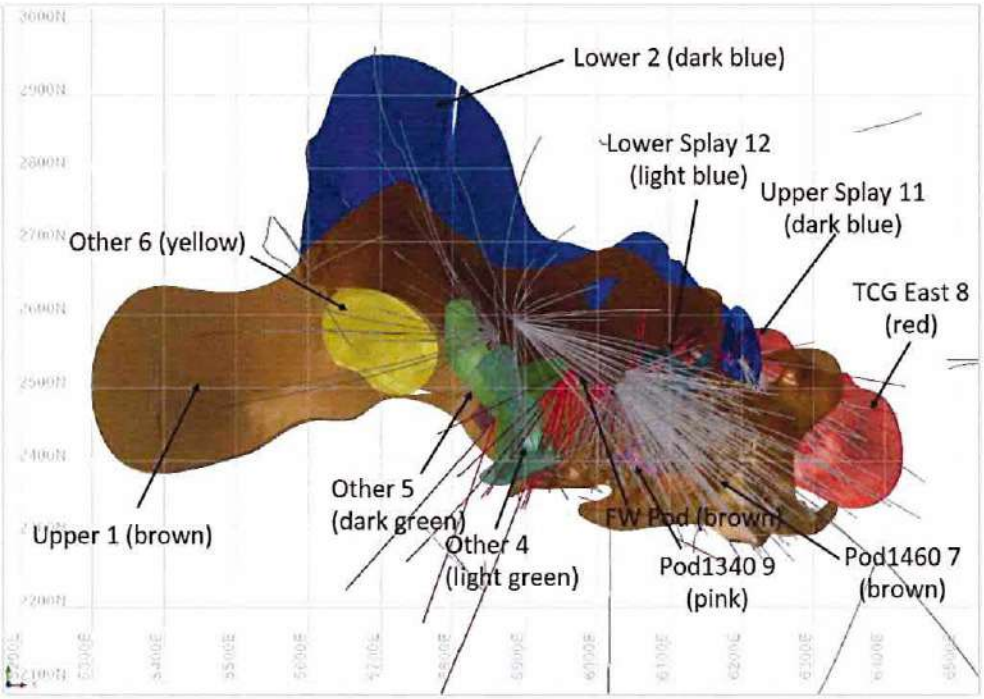


Figure 6-1 Interpreted Mineralisation Domains - Plan

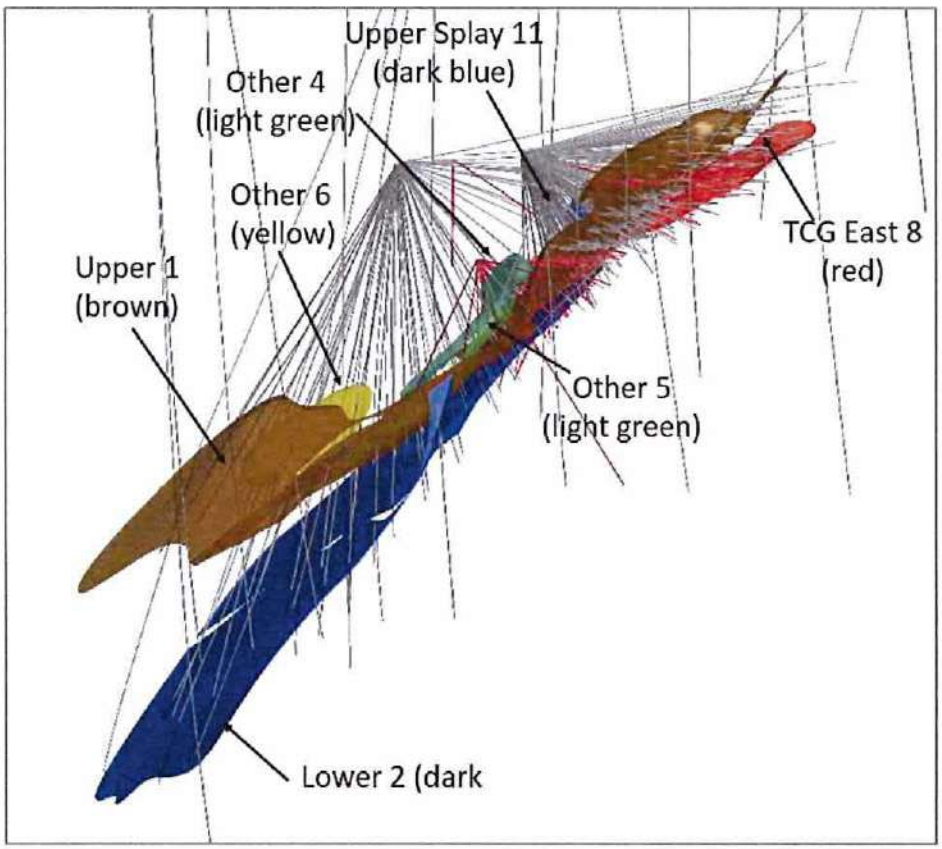


Figure 6-2 Interpreted Mineralisation Domains - Oblique view Looking NE

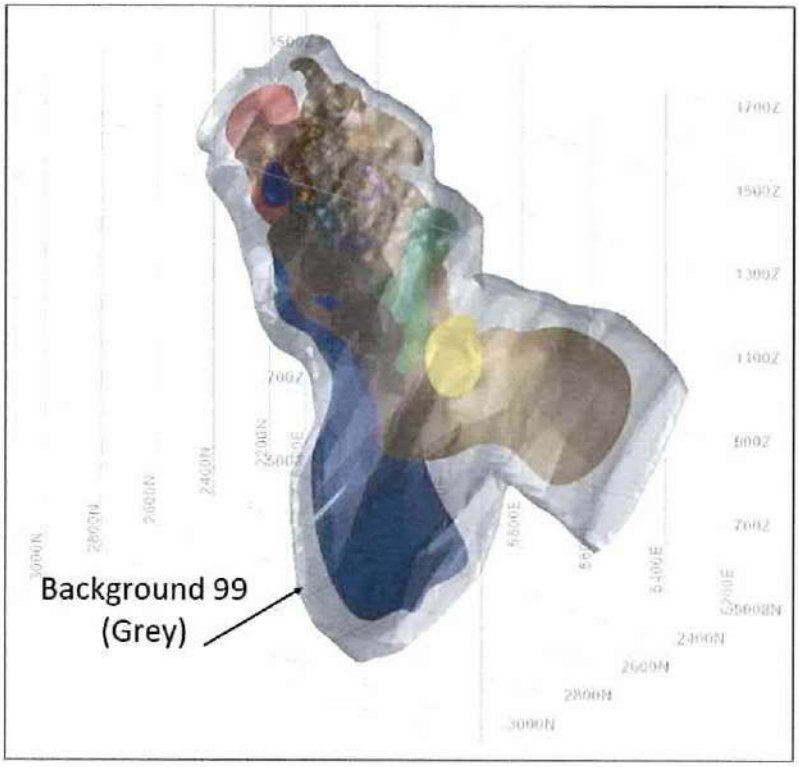


Figure 6-3 Background Envelope - Oblique view Looking SE

1.3. Dyke and Fault Interpretation

A geology model representing late-stage faults and dykes has been interpreted by the Panoramic geology group using Leapfrog software. These were supplied to Cube as an individual wireframe solid named "fault_dyke _system2023.dtm" and were used to assign rock type to the block model.

7.0 DOMAIN CODING AND COMPOSITING

7.1 Domain Sample Flagging

Drillholes were flagged according to the domain wireframe and the relevant drillhole ID, from/to depths and domain code were written to the "zonecode" table of the resource database. The process of coding the database was carried out in a two-part process. The domain intervals used by PAN as part of the intrinsic modelling process completed in Leapfrog were supplied to Cube and these were imported into the zonecode table. This was then validated graphically and modified manually where required to ensure the appropriate downhole interval was coded correctly according to the mineralisation wireframes.

Extraction of domain samples and composite data is based on the flagged zonecode table intervals according to the following codes for each domain:

- 1 (Upper 1)
- 2 (Lower 2)
- 4 (Other 4)
- 5 (Other 5)
- 6 (Other 6)
- 7 (pod_1460_7)
- 8 (tcg_east_8)
- 9 (pod_1340_9)
- 10 (pod_1381_10)
- 11 (upper_splay_11)
- 12 (lower_splay_12)

A listing of the drill holes and from/to values by zonecode is provided in Appendix 2.

7.2 Assay Sample Lengths

The sample length histogram and probability plots for the combined domain samples are shown in Figure 7-1. Almost 95% of the raw assay intervals are 1 m or less.

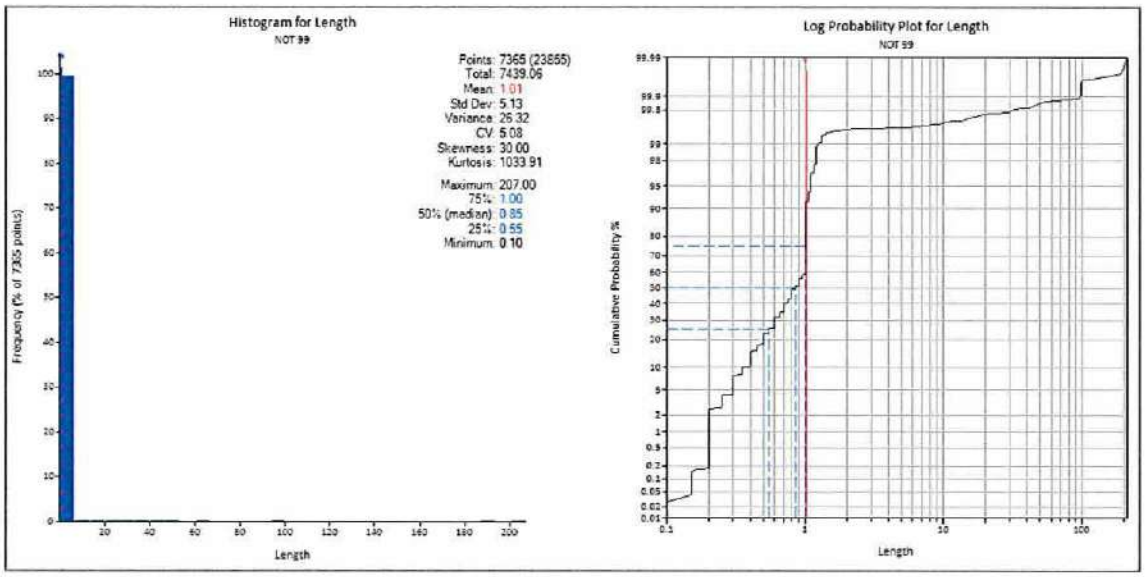


Figure 7-1: Combined Domain Assay Sample Length Histogram and Log Probability.

7.3 Compositing Technique

7.3.1 Downhole Compositing

A compositing target length of 1 m for the purpose of regularising the sample support was selected for Nickel, Copper, Cobalt and Density for the following reasons:

- Since 95% of the raw assays intervals are 1 m or less in length, the use of a 1 m target length would result in minimal sample splitting.
- A parent block size of 2 or 4 mRL was used depending on the drillhole spacing. The composite length is therefore suitable from this point of view.
- The 1 m target length provides an opportunity for maximum resolution to be obtained on local estimates, which is desirable given the presence of some low-grade internal dilution and possible across strike selectivity during mining.

Compositing of the drill holes for Nickel, Copper and Cobalt was undertaken as follows:

- The diamond drillholes were composited separately according to the domain code using Surpac software.
- The "best-fit" algorithm was used and any composites having less than a 0.5 m length were flagged.
- The 1 m elemental composites were length and density weighted given that density is variable and available for all samples.
- The 1 m composites for density were only length weighted.

Individual composite files were created for each domain and used for grade estimation e.g., composite file for the Upper 1 domain is called "sav_nth_1m_comp_upper1_jun2023.str". The individual files were

also combined with the resultant composite file named "all_sav_nth_1m_comp_jun2023.str". The data structure of these Surpac string files is shown in Table 7-1.

Table 7-1 File Structure for 1m Downhole Composites.

D Field	Description
D1	Ni grade (%)
D2	Cu grade (%)
D3	Co grade (%)
D4	Density
D5	Hole ID
D6	Depth From (m)
D7	Depth To (m)
D9	Composite Length (m)
D15	Estimation Domain Code

8.0 EXPLORATORY DATA ANALYSIS

8.1 Basic Statistics

A statistical and spatial analysis of the extracted 1 m downhole composites was undertaken separately for all mineralised domains. The basic statistics for the 1 m diamond drill hole composites are shown below in Table 8-1 to Table 8-4 and a combined log-probability plot for Ni% coloured by domain is displayed in Figure 8-1. Separate histogram and log-probability plots for each domain and attribute are displayed in Appendix 3.

Table 8-1 Basic Statistics for All 1m Composites – Ni %

Domain	1	2	4	5	6	7	8	9	10	11	12	99
Attribute	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni	Ni
Samples	3,771	704	29	50	83	97	631	15	47	144	99	49,284
Minimum	0	0	0.28	0	0	0.04	0	0.27	0	0	0.02	0
Maximum	4.87	3.15	3.49	3.52	1.86	3.2	3.07	2.12	2.5	5.15	3.33	4.27
Mean	1.31	1.51	1.53	1.78	0.82	0.88	1.14	1.1	0.75	0.89	0.79	0.05
Std dv	0.89	0.95	0.84	0.96	0.4	0.74	0.89	0.62	0.76	1.07	0.68	0.15
CV	0.68	0.63	0.55	0.54	0.49	0.85	0.78	0.57	1.01	1.2	0.86	2.85
Variance	0.8	0.9	0.71	0.91	0.16	0.55	0.79	0.39	0.57	1.15	0.46	0.02
10%	0.14	0.04	0.57	0.41	0.4	0.15	0.11	0.28	0	0.04	0.16	0
20%	0.35	0.39	0.7	0.89	0.52	0.31	0.25	0.28	0	0.09	0.26	0
30%	0.61	0.9	0.87	1.18	0.57	0.39	0.41	0.68	0.29	0.16	0.38	0
40%	0.92	1.31	1.02	1.37	0.67	0.51	0.69	0.84	0.35	0.29	0.46	0
50%	1.28	1.65	1.23	1.97	0.77	0.59	0.94	0.87	0.47	0.45	0.6	0
60%	1.66	2.02	1.75	2.21	0.88	0.7	1.29	0.98	0.6	0.68	0.67	0
70%	1.99	2.27	2.04	2.43	0.94	1.18	1.69	1.51	0.79	1.02	0.9	0
80%	2.28	2.47	2.36	2.56	1.06	1.4	2.1	1.77	1.41	1.55	1.13	0.07
90%	2.5	2.62	2.54	2.89	1.45	2.08	2.5	1.91	1.91	2.3	1.89	0.2
95%	2.64	2.75	2.89	3.28	1.5	2.4	2.66	2.07	2.38	3.31	2.27	0.27
97.50%	2.75	2.88	3.22	3.33	1.66	2.68	2.81	2.09	2.41	3.84	2.53	0.35
99%	2.91	3	3.38	3.43	1.8	3.09	2.88	2.11	2.46	4.47	2.64	0.5

Table 8-2 Basic Statistics for All 1m Composites – Cu %

Domain	1	2	4	5	6	7	8	9	10	11	12	99
Attribute	Cu	Cu	Cu	Cu	Cu	Cu	Cu	Cu	Cu	Cu	Cu	Cu
Samples	3,771	704	29	50	83	97	631	15	47	144	99	49,284
Minimum	-	-	0.02	0.01	0.01	0.01	-	0.07	0.01	-	0.02	-
Maximum	9.45	7.59	1.36	4.40	1.34	4.05	9.65	1.23	4.55	5.00	8.88	9.54
Mean	0.55	0.70	0.35	0.62	0.44	0.37	0.47	0.37	0.54	0.19	0.45	0.04
Std Dev	0.63	0.70	0.30	0.77	0.29	0.56	0.75	0.27	0.91	0.42	0.93	0.13
CV	1.15	1.00	0.83	1.25	0.67	1.51	1.60	0.73	1.70	2.23	2.06	3.48
Variance	0.40	0.49	0.09	0.60	0.09	0.31	0.56	0.07	0.83	0.18	0.86	0.02
10%	0.08	0.03	0.09	0.10	0.13	0.06	0.05	0.07	0.01	0.02	0.08	0.01
20%	0.16	0.18	0.13	0.17	0.24	0.10	0.10	0.11	0.01	0.04	0.11	0.01
30%	0.24	0.32	0.16	0.23	0.28	0.14	0.15	0.25	0.11	0.06	0.16	0.01
40%	0.32	0.47	0.20	0.28	0.31	0.19	0.19	0.32	0.17	0.09	0.21	0.01
50%	0.42	0.61	0.26	0.32	0.35	0.22	0.24	0.32	0.20	0.12	0.26	0.01
60%	0.51	0.72	0.33	0.43	0.40	0.28	0.33	0.35	0.27	0.16	0.32	0.01
70%	0.64	0.87	0.39	0.58	0.49	0.32	0.43	0.37	0.35	0.21	0.41	0.01
80%	0.81	1.02	0.49	0.89	0.60	0.40	0.64	0.42	0.61	0.26	0.53	0.03
90%	1.08	1.31	0.66	1.39	0.83	0.64	0.99	0.55	1.33	0.35	0.70	0.10
95%	1.43	1.74	0.93	1.93	1.13	1.14	1.73	0.75	2.12	0.41	1.07	0.17
97.50%	1.87	2.32	1.13	2.53	1.23	2.06	2.05	0.99	3.39	0.45	1.68	0.27
99%	2.61	2.97	1.27	3.50	1.27	2.79	3.85	1.13	4.12	0.56	2.59	0.52

Table 8-3 Basic Statistics for All 1m Composites – Co %

Domain	1	2	4	5	6	7	8	9	10	11	12	99
Attribute	Co	Co	Co	Co	Co	Co	Co	Co	Co	Co	Co	Co
Samples	3,771	704	29	50	83	97	631	15	47	144	99	49,284
Minimum	0.0	0.0	0.02	0.0	0.0	0.0	0.0	0.02	0.0	0.0	0.0	0.0
Maximum	0.25	0.22	0.19	0.21	0.10	0.23	0.21	0.15	0.20	0.23	0.21	0.23
Mean	0.10	0.11	0.09	0.12	0.05	0.06	0.08	0.08	0.06	0.04	0.05	0.0
Std Dev	0.07	0.07	0.05	0.06	0.02	0.05	0.06	0.04	0.06	0.05	0.05	0.01
CV	0.68	0.63	0.51	0.48	0.46	0.83	0.79	0.55	0.99	1.13	0.90	2.54
Variance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10%	0.01	0.0	0.04	0.03	0.02	0.01	0.01	0.02	0.0	0.0	0.01	0.0
20%	0.03	0.03	0.05	0.06	0.03	0.02	0.02	0.02	0.0	0.01	0.02	0.0
30%	0.04	0.07	0.06	0.09	0.03	0.03	0.03	0.05	0.03	0.01	0.02	0.0
40%	0.07	0.10	0.06	0.11	0.04	0.03	0.04	0.06	0.03	0.02	0.03	0.0
50%	0.09	0.12	0.08	0.13	0.05	0.04	0.06	0.06	0.04	0.02	0.04	0.0
60%	0.12	0.15	0.09	0.14	0.05	0.05	0.09	0.07	0.05	0.03	0.05	0.0
70%	0.15	0.17	0.12	0.16	0.06	0.08	0.12	0.11	0.06	0.05	0.07	0.0
80%	0.17	0.18	0.14	0.18	0.07	0.09	0.15	0.12	0.11	0.08	0.08	0.01
90%	0.19	0.19	0.15	0.19	0.08	0.15	0.18	0.14	0.15	0.11	0.14	0.02
95%	0.19	0.20	0.17	0.20	0.08	0.17	0.19	0.15	0.18	0.15	0.16	0.02
97.50%	0.20	0.21	0.18	0.20	0.09	0.19	0.20	0.15	0.19	0.18	0.20	0.02
99%	0.20	0.21	0.19	0.20	0.09	0.22	0.20	0.15	0.20	0.20	0.20	0.04

Table 8-4 Basic Statistics for All 1m Composites – Density

Domain	1	2	4	5	6	7	8	9	10	11	12
Samples	3,771	704	29	50	83	97	631	15	47	144	99
Minimum	2.25	2.33	3.24	2.88	2.56	2.85	2.69	3.03	3.03	2.78	2.88
Maximum	4.66	4.86	4.50	4.62	3.75	4.74	4.63	4.06	4.40	4.43	4.61
Mean	3.64	3.73	3.64	3.82	3.37	3.43	3.50	3.51	3.48	3.20	3.34
Std Dev	0.50	0.60	0.32	0.49	0.28	0.37	0.47	0.34	0.39	0.30	0.35
CV	0.14	0.16	0.09	0.13	0.08	0.11	0.13	0.10	0.11	0.09	0.11
Variance	0.25	0.36	0.10	0.24	0.08	0.14	0.22	0.11	0.15	0.09	0.13
10%	3.04	2.99	3.30	3.05	2.90	3.08	3.03	3.06	3.03	2.94	3.04
20%	3.14	3.05	3.36	3.31	3.18	3.13	3.09	3.11	3.03	3.01	3.12
30%	3.25	3.27	3.44	3.44	3.24	3.17	3.15	3.25	3.20	3.03	3.14
40%	3.39	3.52	3.50	3.66	3.40	3.22	3.22	3.31	3.31	3.05	3.18
50%	3.57	3.77	3.50	3.84	3.44	3.34	3.36	3.44	3.45	3.09	3.24
60%	3.79	4.01	3.56	3.97	3.50	3.42	3.53	3.46	3.49	3.15	3.30
70%	3.99	4.20	3.68	4.18	3.55	3.50	3.72	3.67	3.55	3.21	3.39
80%	4.17	4.38	3.91	4.28	3.59	3.72	3.98	3.85	3.85	3.37	3.47
90%	4.35	4.49	4.10	4.46	3.67	3.93	4.28	3.98	4.02	3.56	3.72
95%	4.47	4.56	4.19	4.54	3.70	4.19	4.42	4.03	4.24	3.79	4.14
97.50%	4.52	4.60	4.29	4.59	3.72	4.37	4.49	4.05	4.36	4.12	4.51
99%	4.57	4.63	4.42	4.61	3.74	4.47	4.55	4.05	4.39	4.36	4.61

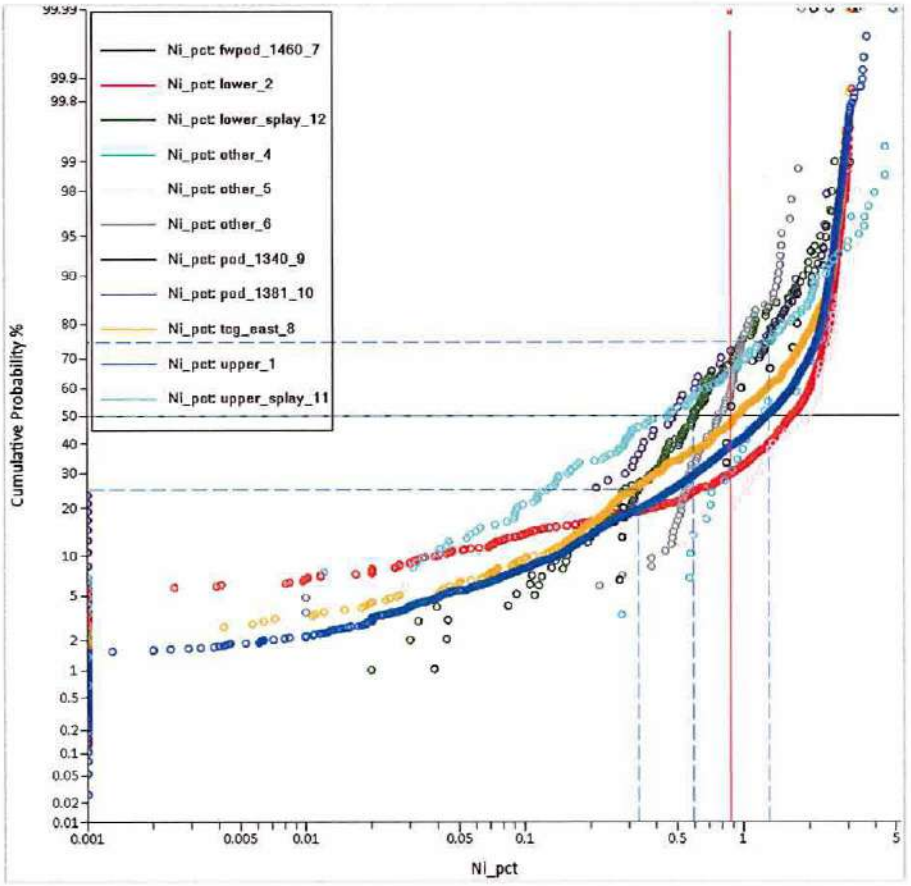


Figure 8-1: Combined domain 1m composite log probability – Ni%

8.2 Grade Capping

Based on an examination of tabulated statistics, histograms, log-probability plots and 3D spatial location, Cube did not identify any excessive outliers within the context of the sulphide mineralisation domains and accordingly, no high-grade assay cuts were applied.

Within the surrounding background envelope, isolated high-grade composites exist and top cuts were applied to limit the influence of these outliers. The background estimate (domain 99) does not form part of the resource inventory however it may be included as planned dilution within a mining volume. The top cuts applied to the background 1m composites are listed below in Table 8-5.

Table 8-5 Top cuts – Background Domain 99

Attribute	Top Cut
Ni	2
Cu	2
Co	0.1

9.0 Variography

Variography has been used to analyse the spatial continuity within the mineralised zones and to determine appropriate estimation inputs to the interpolation process. The variogram modelling process followed by Cube was undertaken using Supervisor Software and involves the following steps:

- Calculate and model the omni-directional or downhole variogram to characterise the Nugget Effect.
- Systematically calculate orientated variograms in three dimensions to identify the plane of greatest continuity.
- Calculate a fan of variograms within the plane of greatest continuity to identify the direction of maximum continuity within the plane. Model the variogram in the direction of maximum continuity and the orthogonal directions.

Variography was undertaken on the 1 m cut composite data for the Upper 1 domain. Variography was undertaken on Normal Scores transformed 1 m downhole high assay cut composite data. The Normal Scores transformed variogram model was back transformed to provide the final variogram model used for grade interpolation.

Variogram modelling for the remaining domains was difficult due to the small number of composites and not considered appropriate for use. Cube adopted the modelled variogram parameters from the Upper 1 Zone for these minor domains.

During grade estimation, the rotation of the variogram models was adjusted to follow the orientation of the search ellipsoid and better fit the orientation of each individual mineralised domain. This was achieved by estimating the dip and strike based on the orientation of a single DTM plane representing the general trend for each domain.

Variogram model parameters are summarised below in Table 9-1 and Appendix 4.

Table 9-1 Variogram Model Parameters – Upper 1 Zone

Att	Nug.	Spherical 1				Spherical 2			
		Sill	Major	Semi	Minor	Sill	Major	Semi	Minor
Ni	0.081	0.447	8	8	5	0.472	55	55	15
Cu	0.297	0.426	10	10	4	0.227	35	35	15
Co	0.071	0.407	10	10	4	0.523	40	40	14
Density	0.079	0.549	14	14	5	0.372	65	65	30

10.0 GRADE ESTIMATION

10.1 Block Model Definition

Several criteria including data spacing, geometry of mineralised domains and volume fill were the primary considerations considered when selecting an appropriate estimation block size. Data spacing within the mineralised domains varies from approximately 5 m to over 100 m spaced drilling intersections.

Cube considers it good geostatistical practice to use an estimation parent cell size that approaches the data spacing where possible, whilst at the same time being mindful of potential mine design and selectivity implications. Cube reviewed the data spacing and conceptual SMU relative to the mineralised zones and determined that two estimation block sizes were required to account for the wider spaced drilling at depth and the recent close spaced drilling at upper portion of the deposit and as a result, two block models have been created.

A temporary GC block model (sav_nth_gc_jun2023.mdl) only used for estimation of the close spaced GC areas was created with the parent cell size of 5 mN x 5 mE x 2 mRL and a sub-blocked size of 1.25 mN x 1.25 mE x 0.5 mRL.

The final block model (sav_nth_res_jun2023.mdl) was also created with a parent cell size of 20 mN x 20 mE x 4 mRL and a sub-blocked size of 1.25 mN x 1.25 mE x 0.5 mRL for volume representation of the narrower mineralised zones. This model was used for grade estimation of areas defined by the wider spaced drilling. The grade estimate completed in the temporary GC block model was imported into the final block model.

The block model definition for the temporary GC and final block models are shown in Table 10-1 and Table 10-2 respectively, and the listing of attributes included in the model is shown in Table 10-3.

Table 10-1 Temporary GC Block Model Definition Summary

Block Model File ID	sav_nth_gc_jun2023.mdl		
Type	**Local Northing (m)**	**Local Easting (m)**	**RL (m)**
Origin	2,200	5,000	300
Maximum	3,000	6,500	1,600
Extent	800	1,500	1,300
Parent Block Size	5	5	2
Sub-Cell Minimum	1.25	1.25	0.5
Rotation	None		

Table 10-2 Final Block Model Definition Summary

Block Model File ID	sav_nth_res_jun2023.mdl		
Type	**Local Northing (m)**	**Local Easting (m)**	**RL (m)**
Origin	2,200	5,000	300
Maximum	3,000	6,500	1,600
Extent	800	1,500	1,300
Parent Block Size	20	20	4
Sub-Cell Minimum	1.25	1.25	0.5
Rotation	None		

Table 10-3 Block Model Attributes

Attribute Name	Type	Background	Description
class	Integer	0	1=measured, 2=Indicated, 3=Inferred,
co_ok	Float	-99	OK Estimated Co%
co_ok_pass_no	Integer	0	Pass Number Co Estimate
cu_ok	Float	-99	OK Estimated Cu%
cu_ok_pass_no	Integer	0	Pass Number Cu Estimate
depletion_type	Character	INSITU	INSITU or DEVELOPMENT or STOPE
domain	Character	999	Mineralised domain name
dynamic_dip	Float	-1	Controls dip component of dynamic estimate
dynamic_dipd	Float	-1	Controls dip direction component of dynamic
mined	Integer	1	1=insitu, 0=mined
ni_ok	Float	-99	OK Estimated Ni%
ni_ok_asd	Real	-99	Average Sample Distance Ni Estimate
ni_ok_bv	Real	-99	Block Variance Ni Estimate
ni_ok_cbs	Real	-99	Slope of Regression Ni Estimate
ni_ok_dns	Real	-99	Distance to Nearest Sample Ni Estimate
ni_ok_ke	Real	-99	Kriging Efficiency Ni Estimate
ni_ok_kv	Real	-99	Kriging Variance Ni Estimate
ni_ok_lm	Real	-99	Lagrange MultiplierNi Estimate
ni_ok_nnw	Integer	-99	Number of Negative Weights Ni Estimate
ni_ok_nos	Integer	-99	Number of Samples Ni Estimate
ni_ok_pass_no	Integer	0	Pass Number Ni Estimate
sg_ok	Float	2.88	OK Estimated Density
sg_ok_pass_no	Integer	0	Pass Number Density Estimate

10.2 Ordinary Kriging Grade Estimation

Cube utilised Ordinary Kriging (OK) of the 1 m downhole composites to estimate nickel, copper, cobalt and density for each of the mineralisation domains. Variogram models and search neighbourhoods were used to interpolate 1 m composite data. Block estimates were based on interpolation into either 20 mN x 20 mE x 4 mRL, 10 mN x 10 mE x 4 mRL, or 5 mN x 5 mE x 2 mRL parent cells depending on the data spacing. Block discretization points were set to 5 (Y) x 5 (X) x 2 (Z) points.

Figure 10-1 and Figure 10-2 below show the Upper 1 and TCG East 8 domains respectively where two different estimation block sizes have been used within a single domain based on the variable data spacing.

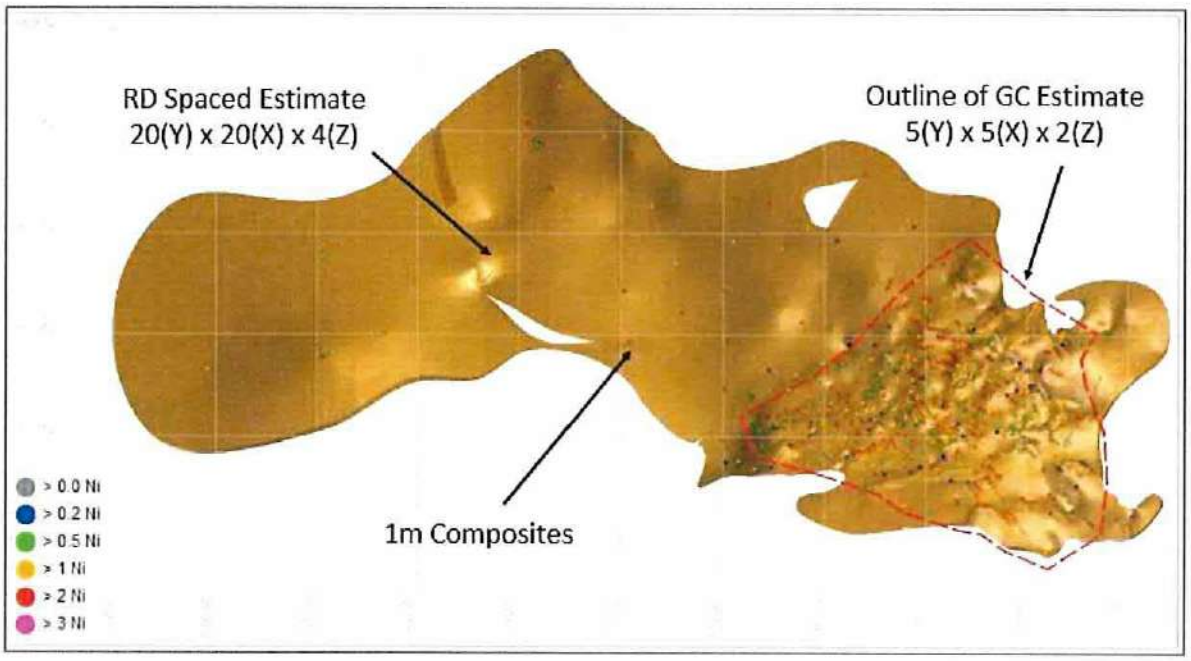


Figure 10-1: Upper 1 Zone with Different Parent Block Size Estimates

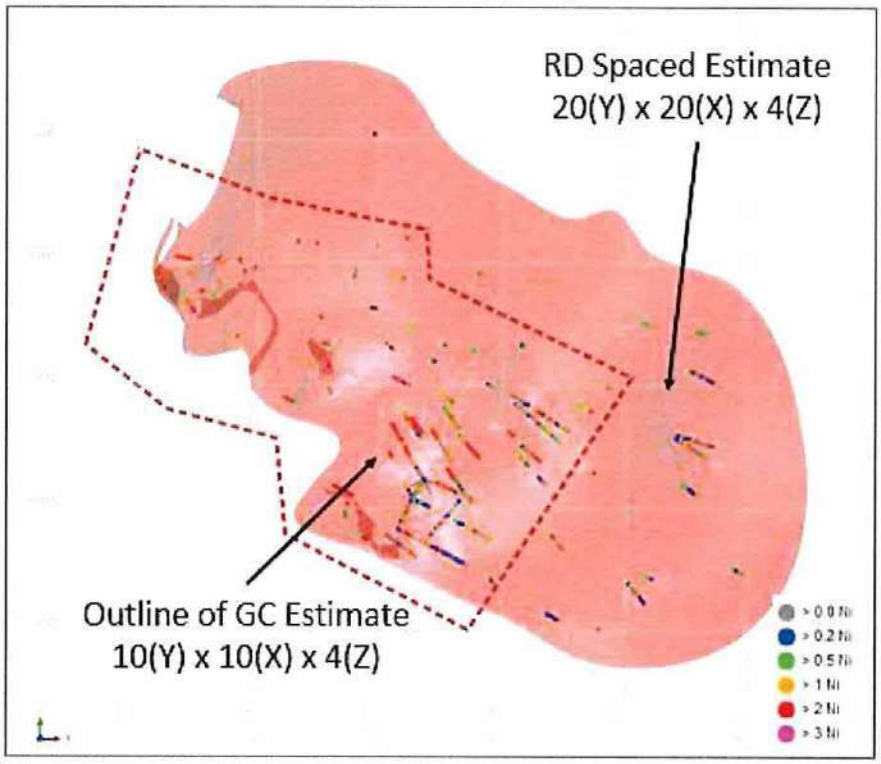


Figure 10-2: TCG East 8 Zone with Different Parent Block Size Estimates

The Lower 2 domain is typically high grade, however there is an area at the western end of the domain which includes three drillhole intersections that are significantly lower grade. Cube decided to sub-domain this area and a soft (or one way) boundary was adopted. During estimation, the low-grade

composites were included in the high-grade sub-domain estimate however only the low-grade composites were used for estimation of the low-grade sub-domain (Figure 10-3).

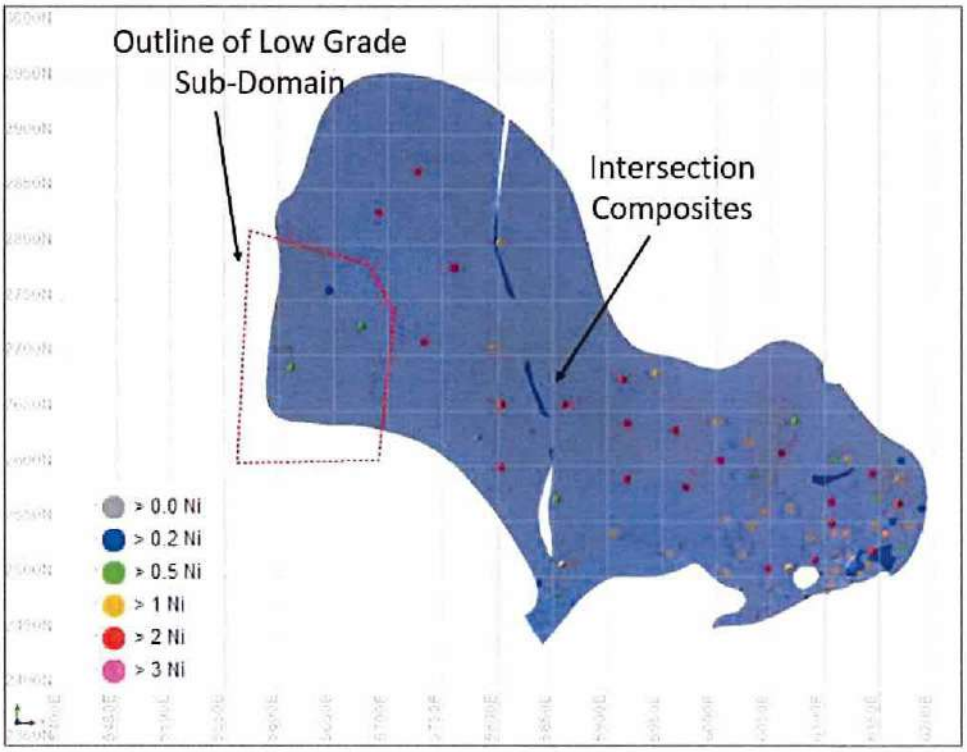


Figure 10-3: Lower Zone with Low Grade Sub-Domain

During estimation, a local rotation was applied to both the variogram model and search ellipsoid. The orientation of this local rotation was controlled by the trend of individual DTM surfaces modelled to reflect the general trend of each domain. The rotations were interpolated into the volume intermediate to and beyond the controlling surfaces for use in the grade interpolation. The local rotations were used to orient both the variogram model and search neighbourhood.

Cube attempted to characterise the spatial relationship of the data using variography and has sought to implement search strategies aimed at producing a robust block estimate, whilst at the same time minimising estimation error and conditional biases. Cube optimises search neighbourhoods by undertaking Kriging Neighbourhood Analysis (KNA), analysing estimation quality data such as Slope of Regression and Kriging weights for various search neighbourhoods and combining these with other primary considerations such as data spacing, the geometry of the mineralised domains and variogram models.

Table 10-4 and Table 10-5 below summarises the selected search neighbourhoods and the minimum/maximum number of composites required for the interpolation.

A two-pass search strategy was used in order to estimate the poorly sampled distal areas. The second pass used a search factor ranging from 2 to 3.7 times the first pass search distance with the same minimum and maximum number of samples.

Table 10-4 Block Model Search Neighbourhood Parameters – Ordinary Kriging RD Defined Areas

Domain	Variable	Min Samp	Max Samp	Search Radii (m)			Block Size			Search Orientation		
				major	Semi ratio	Minor ratio	E	N	RL	Bearing	Plunge	Dip
Upper 1	Ni	4	16	55	1	3.2	20	20	4	Local Dynamic Rotation		
	Cu	4	16	35	1	2.5	20	20	4			
	Co	4	16	40	1	4	20	20	4			
	SG	4	16	65	1	4.9	20	20	4			
Lower 2 (HG)	Ni	4	16	55	1	3.2	20	20	4			
	Cu	4	16	35	1	2.5	20	20	4			
	Co	4	16	40	1	4	20	20	4			
	SG	4	16	65	1	4.9	20	20	4			
Lower 2 (LG)	Ni	4	16	55	1	3.2	20	20	4			
	Cu	4	16	35	1	2.5	20	20	4			
	Co	4	16	40	1	4	20	20	4			
	SG	4	16	65	1	4.9	20	20	4			
All Other	Ni	4	16	55	1	3.2	20	20	4			
	Cu	4	16	35	1	2.5	20	20	4			
	Co	4	16	40	1	4	20	20	4			
	SG	4	16	65	1	4.9	20	20	4			

Table 10-5 Block Model Search Neighbourhood Parameters – Ordinary Kriging GC Defined Areas

Domain	Variable	Min Samp	Max Samp	Search Radii (m)			Block Size			Search Orientation		
				major	Semi ratio	Minor ratio	E	N	RL	Bearing	Plunge	Dip
Upper 1	Ni	4	16	55	1	3.2	5	5	2	Local Dynamic Rotation		
	Cu	4	16	35	1	2.5	5	5	2			
	Co	4	16	40	1	4	5	5	2			
	SG	4	16	65	1	4.9	5	5	2			
TCG East 8	Ni	4	16	55	1	3.2	10	10	4			
	Cu	4	16	35	1	2.5	10	10	4			
	Co	4	16	40	1	4	10	10	4			
	SG	4	16	65	1	4.9	10	10	4			

10.3 Density

Density is routinely measured using a traditional Archimedes submersion method for resource definition drilling otherwise it has been calculated with a regression based on the sulphur content for grade control drilling such that a value exists for all sample intervals within the mineralised domains. The result is approximately 70% of the 5,159 samples used in the MRE have a measured density determination and the remaining have been calculated based on the regression formula:

$$\text{Density} = 3.0314 + (0.0402 \times S\%)$$

Due to the style of mineralisation at Savannah North and associated variability in density, the density was estimated by Ordinary Kriging of 1 m composites as described above in Section 10.2. A density of 2.88 g/cm^3 has been applied to all background material.

10.4 Mining Depletion

Underground mine workings were supplied to Cube as three dimensional (3D) wireframes for the level development and stopes current to the end of June 2023. The 3D wireframes were used to flag the block model attribute "mined" as "1" for insitu and "0" for mined. The block model attribute "depletion_type" was flagged with the mining type, which was either "insitu", "development" or "stope".

Depletion for mining to date at Savannah North occurs on eight development levels (spaced 20m apart vertically) with longhole stoping occurring on five levels (Figure 10-4 and **Error! Reference source not found.**).

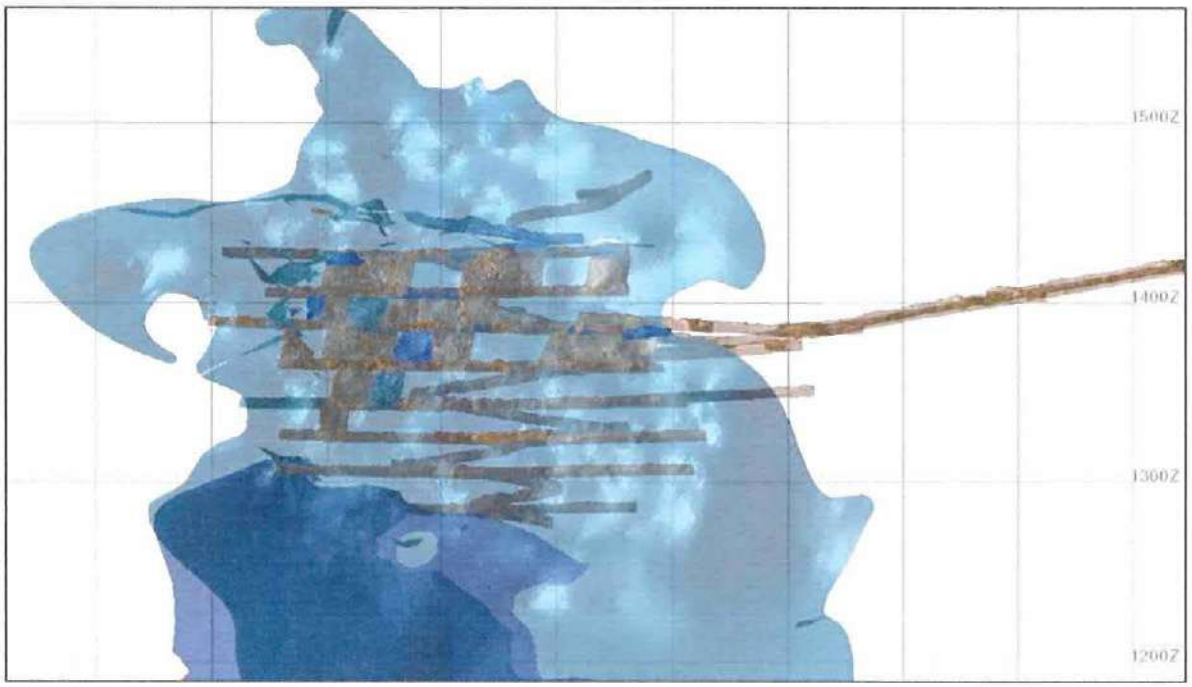


Figure 10-4: Mine Depletion – Looking SE (140°)

10.5 Dyke Depletion

Using the lithology wireframes supplied (Section 1.3), the grades within these solids for Ni, Cu and Co were reset to 0.01, 0.01 and 0.001 respectively. Figure 10-5 below shows an example of where the dyke lithology model intersects the mineralisation and the Ni grades have been set to 0.01% Ni.

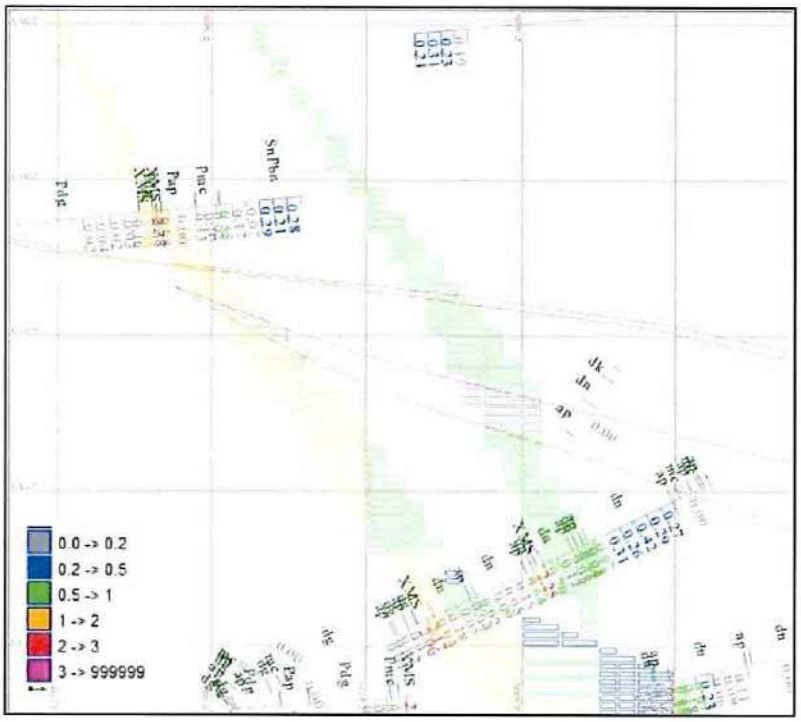


Figure 10-5: Dyke Depletion – Section 6110E +/-5m

10.6 Validation

Block model validation was undertaken by the following means:

- Comparison between wireframe and block model volumes
- Visual inspection of the final block estimates in relation to drill data on a section-by-section basis
- Global statistical comparisons of sample and block grades
- Global comparison of different estimation methods
- Semi-local comparison of composite and block grades using Swath Plot.

Visual validation of the OK grade estimate shows a good correspondence between the model and informing data as shown in cross-section (Figure 10-6) and plan (Figure 10-7 and Figure 10-8). Plan plots of the nickel estimate for all domains is in Appendix 5.

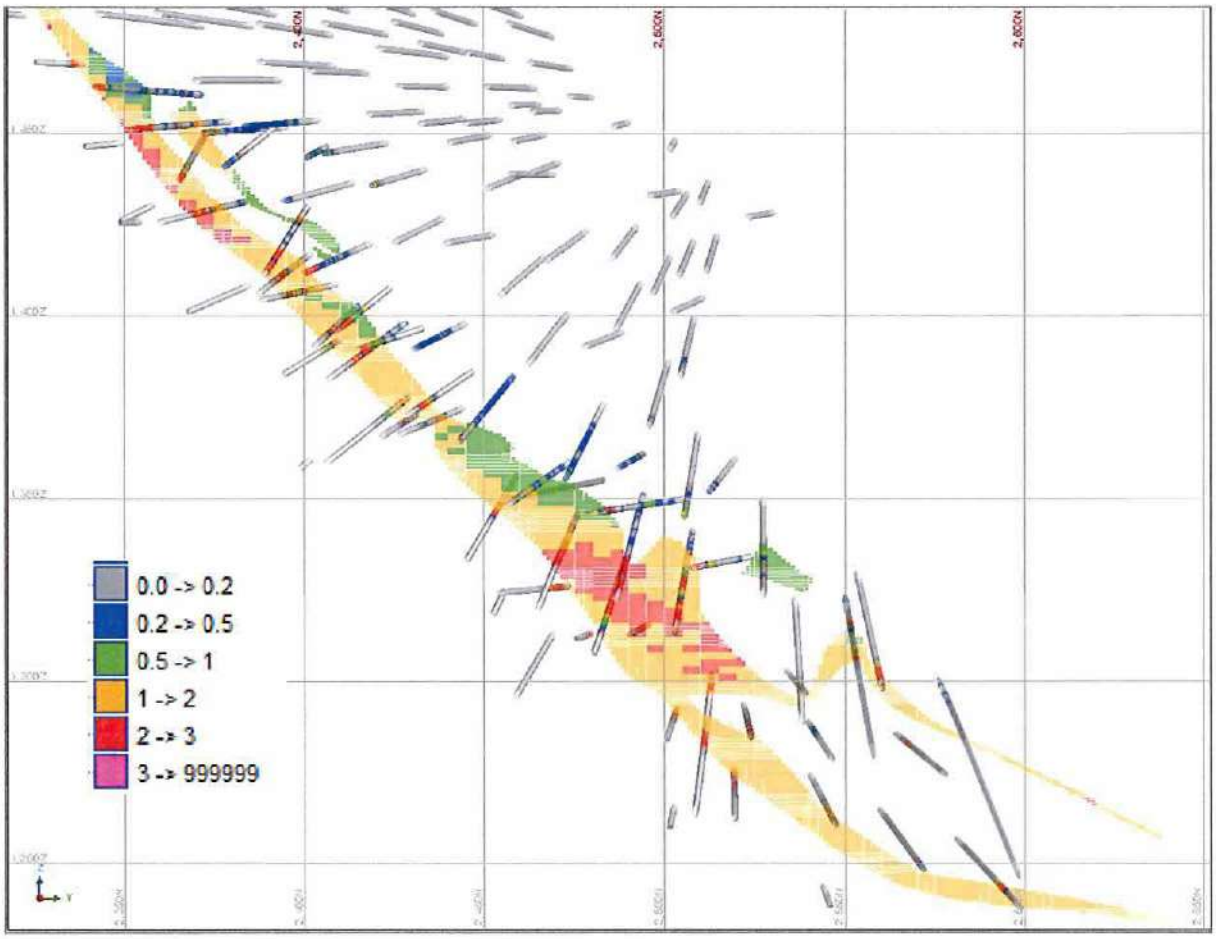


Figure 10-6 Block Model Cross Section with Nickel Estimate – 6,140E +/- 10m

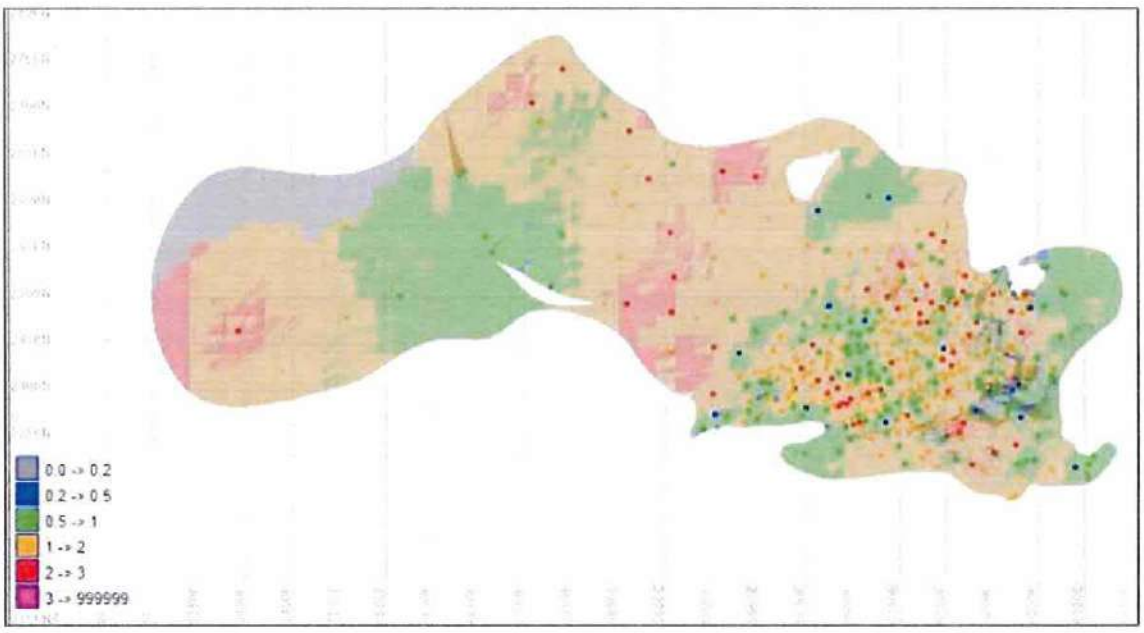


Figure 10-7 Upper 1 Zone Block Model with Nickel Estimate and 1m Composites – Plan View

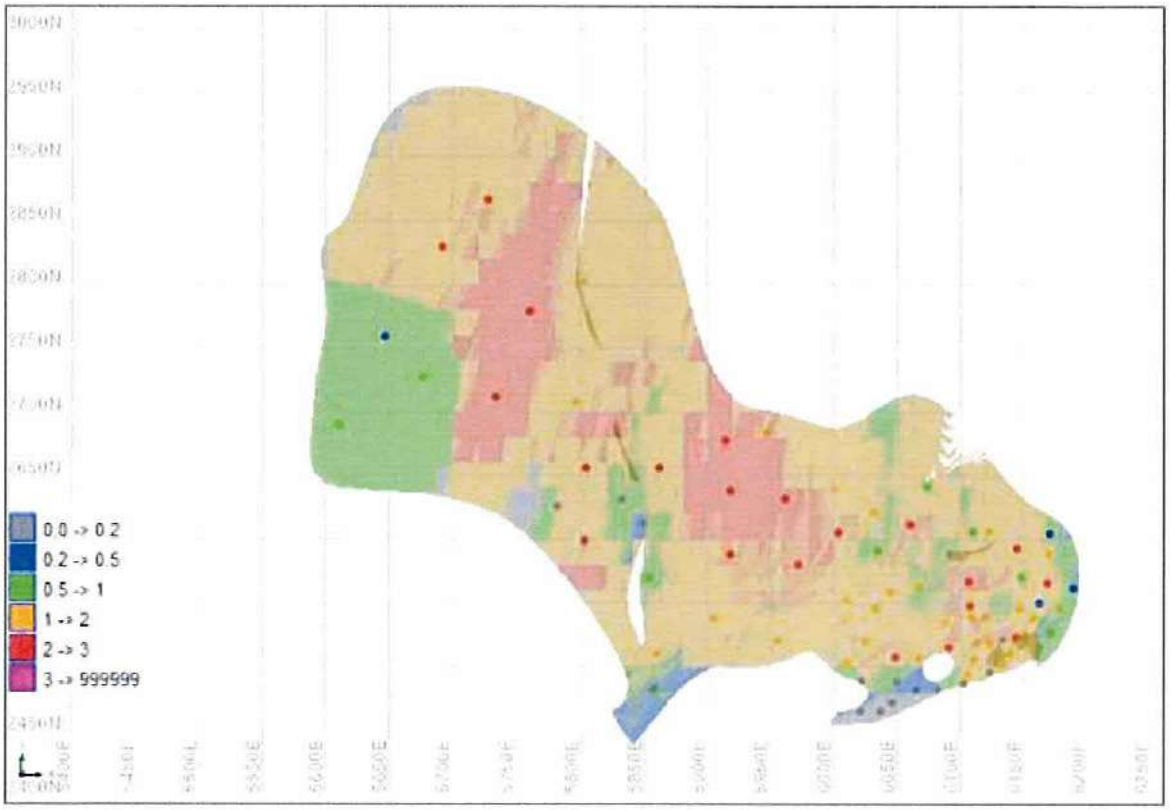


Figure 10-8 Lower 2 Zone Block Model with Nickel Estimate and 1m Composites – Plan View

A comparison between the interpretation wireframe volumes and those reported in the block model shown very good agreement and are summarised in Table 10-7.

Table 10-6 Comparison between Interpretation Wireframe and Block Model Volumes

Domain	Wireframe	Block Model
Upper_1	1,880,679	1,880,420
Lower_2	1,019,330	1,019,479
Other_4	36,638	36,659
Other_5	94,577	94,522
Other_6	222,337	222,298
Pod_1460_7	19,493	19,498
TCG_East_8	148,657	148,540
Pod_1340_9	2,507	2,483
Pod_1381_10	11,532	11,527
Upper Splay 11	13,195	13,211
Lower Splay 12	16,593	16,596

A comparison between the OK estimate and the composite data shows a good agreement and is summarised in Table 10-7.

Table 10-7 Global Statistical Comparison between Composites and Block Estimates

Domain	1m Composites			OK Estimate		
	Ni%	Cu%	Co%	Ni%	Cu%	Co%
Upper_1	1.31	0.55	0.1	1.35	0.52	0.092
Lower_2	1.51	0.7	0.11	1.65	0.79	0.114
Other_4	1.53	0.35	0.09	1.43	0.32	0.087
Other_5	1.78	0.62	0.12	2.06	0.50	0.136
Other_6	0.82	0.44	0.05	0.88	0.45	0.051
Pod_1460_7	0.88	0.37	0.06	0.94	0.36	0.065
TCG_East_8	1.14	0.47	0.08	1.15	0.48	0.080
Pod_1340_9	1.1	0.37	0.08	1.11	0.36	0.079
Pod_1381_10	0.75	0.54	0.06	0.89	0.56	0.071
Upper Splay 11	0.89	0.19	0.04	0.97	0.24	0.046
Lower Splay 12	0.79	0.45	0.05	0.88	0.46	0.060

Swath plots (grade trend profiles) showing the estimated tonnes, estimated grade, number of composites and mean cut composite grade were created for all domains. Plots representative of northing, easting and elevation for the Upper and Lower Zones presented below in Figure 10-9 and Figure 10-10. The limitations of this comparison should be kept in mind when drawing conclusions however, there is generally good correlation between the block estimate and the composite mean. The greatest differences occur in poorly sampled areas and where the composites display high degrees of local variation. Cube considers the OK estimates to be a fair and accurate reflection of the informing data. Supplementary Swath plots are in Appendix 5.

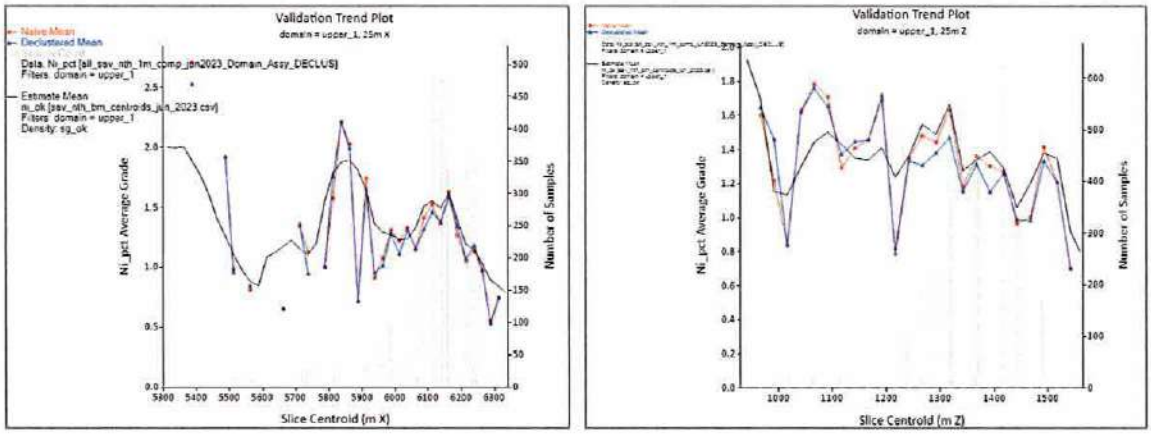


Figure 10-9 Swath Plot Validation for Upper 1 Zone - Ni by Easting (left) and Elevation (right)

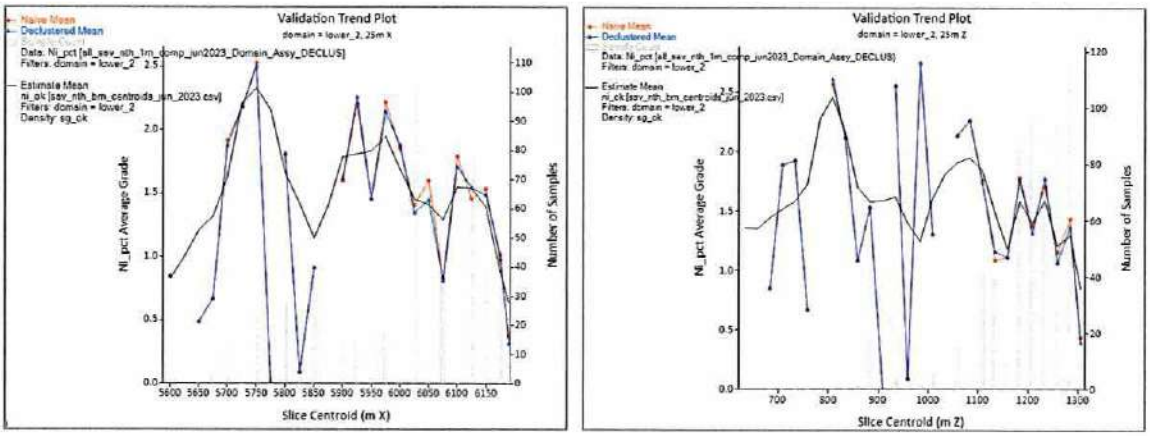


Figure 10-10 Swath Plot Validation for Lower 2 Zone - Ni by Easting (left) and Elevation (right)

11.0 Classification and Reporting

11.1 Mineral Resource Classification

The updated Savannah North Mineral Resource Estimate has been classified and reported in accordance with the 2012 JORC Australasian Code for Reporting of Mineral Resources and Ore Reserves (JORC Code).

The classification has been applied based on similar criteria to that used in June 2022. Cube considers the following points to be material in the classification of the Savannah North Mineral Resource:

- Database integrity – Cube has not undertaken a review of the drillhole data however the sample size, QAQC protocols, and sampling and assaying procedures undertaken by Panoramic demonstrate that their work conforms to industry standards.
- Geological interpretation – The Savannah Project has been subject to significant underground mining activity, demonstrating the continuity and style of mineralisation. The geology is well understood by Panoramic and has been reviewed by Cube.
- Tonnage factor assumptions – Bulk density is determined using the water displacement method for the majority of samples otherwise regressed based on the sulphur content. There is inherent variability of in situ bulk density within the Savannah North deposit and this has been honoured by the abundance of density determination data and the way it has been estimated by Ordinary Kriging.
- Drill hole spacing and sampling density – Mineralisation interpretations are based on a variable drill hole spacing. The initial RD data spacing which underpinned the project approximated 50m x 50m intersections. This has been infilled in the upper levels with closer spaced grade control drilling which has achieved a nominal intercept spacing of 20 m x 20 m for the majority of the mineralisation above 1275 mRL and includes drilling down to down to 5 m x 5 m in areas.
- Estimation method - Reasonable prospects for economic extraction have been satisfies given the Savannah underground mine is currently in production and ore material is processed on site and the presence of significant volumes of contiguous mineralisation above the 0.5% Ni cut-off.
- Amenability to underground mining methods - Cube has undertaken an OK estimate for the grade attributes nickel, copper and cobalt. This involved 1 m composites estimated into either 20 mN x 20 mE x 4 mRL, 10 mN x 10 mE x 4 mRL, or 5 mN x 5 mE x 2 mRL parent cell blocks depending on the domain data spacing. Dynamic kriging was used with the aid of trend planes for each domain to account for undulations in local dip and strike.

It is Cube's conclusion that the Savannah North mineralisation is sufficiently drilled to allow classification. As with any non-rigidly defined classification there will always be some blocks within categories that depart from defined criteria. It is Cube's view that the final outcome must reflect a practical combination of geological knowledge, operational experience and estimation quality parameters that may be more numerical in nature. This approach to classification aims to avoid creating a complex, numerically-derived 'mosaic'. Cube has considered all criteria and has classified the resource as Measured, Indicated or Inferred where:

- Measured resources - only includes mineralisation defined within the close spaced GC drilling within the Upper Zone and also the smaller areas of the TCG East and Upper Splay domains. The drilling here ranges from 5 m x 5 m up to 20 m x 20 m spacing.
- Indicated resources - include areas where the drilling spacing is greater than the close spaced GC drilling but approximates 50 m x 50 m.
- Inferred resources – includes areas are where the data density is greater than 50 m x 50 m spacing, typically around the periphery and depth extent of the Upper and Lower Zones plus the minor domains.

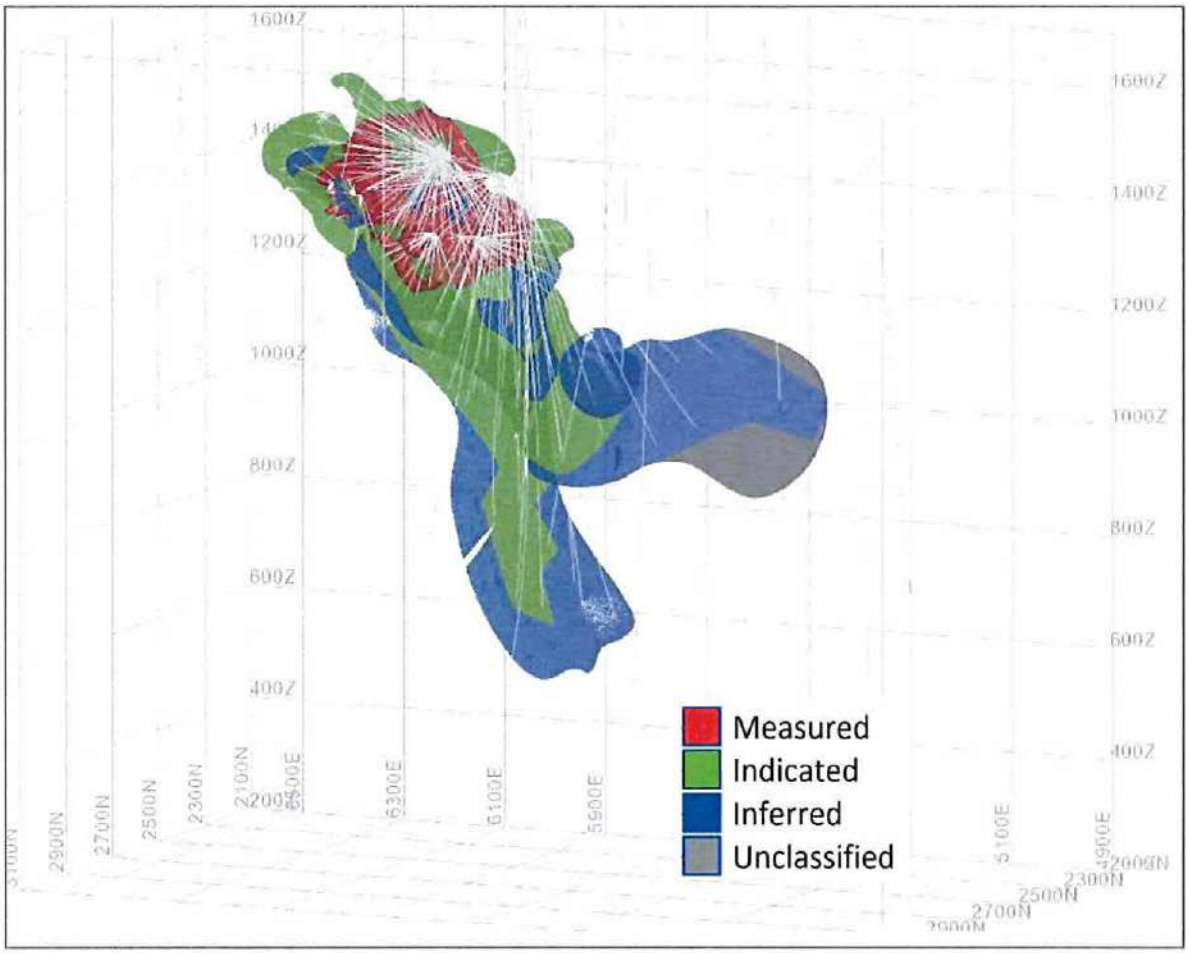


Figure 11-1 Savannah North Classification with Drillholes – Oblique View looking SE

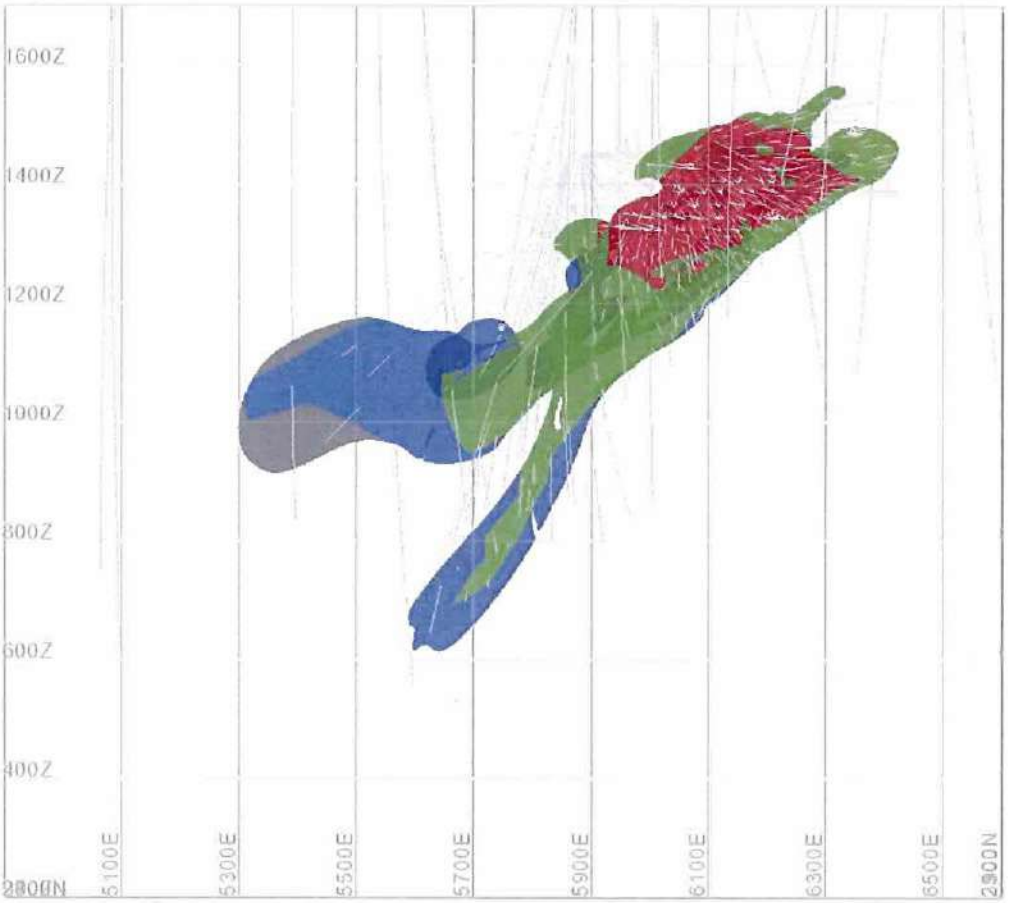


Figure 11-2 Savannah North Classification with Drillholes – Cross-Section View looking N

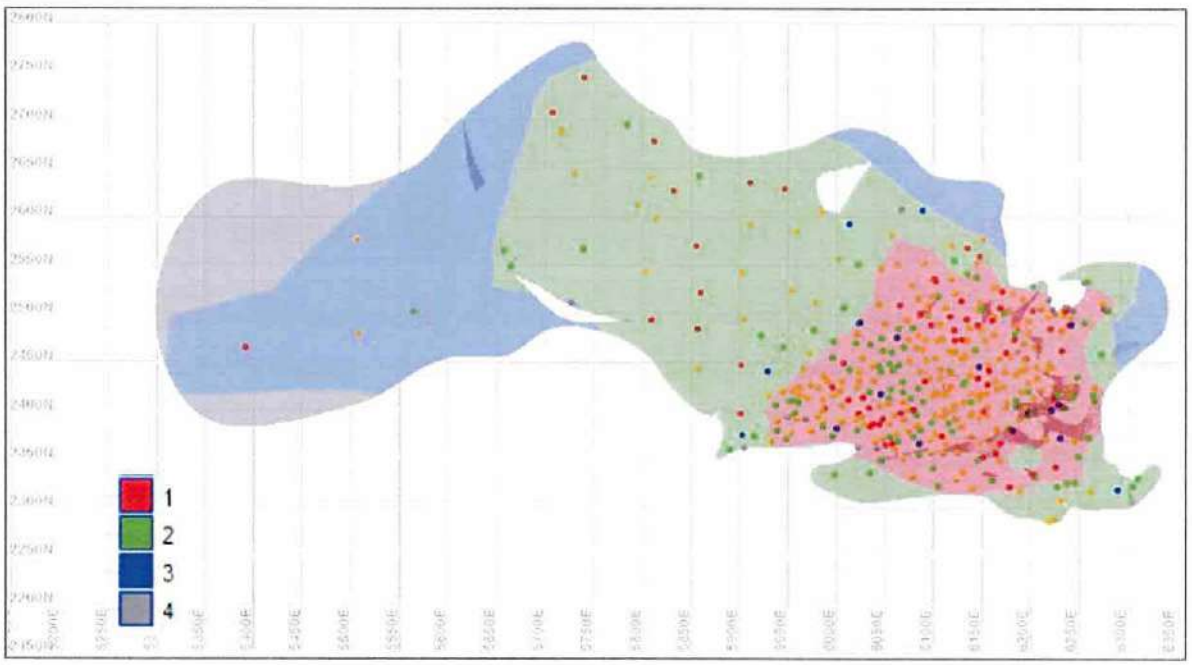


Figure 11-3 Savannah North Classification with Drillhole Intersections for the Upper 1 Zone – Plan View

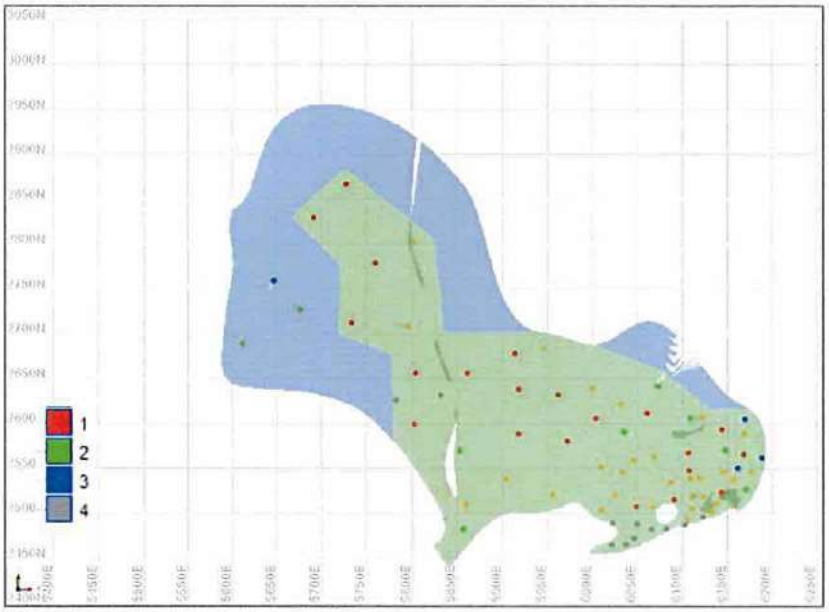


Figure 11-4 Savannah North Classification with Drillhole Intersections for the Lower 2 Zone – Plan View

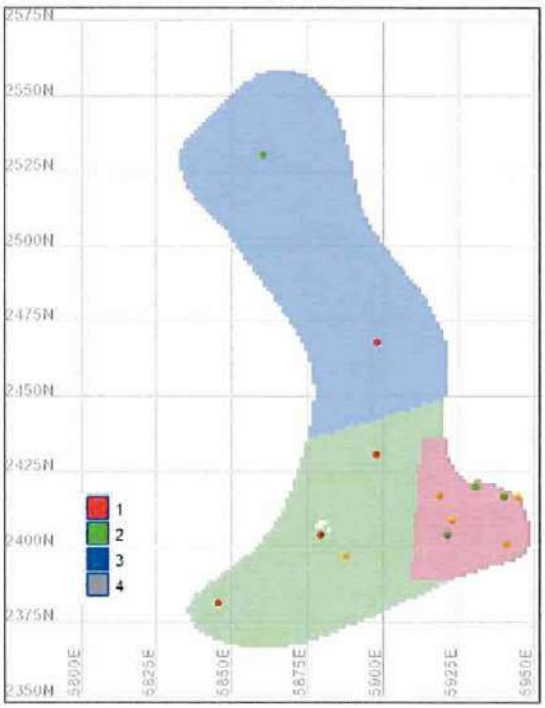


Figure 11-5 Savannah North Classification with Drillhole Intersections for the Other Pod 4 – Plan View

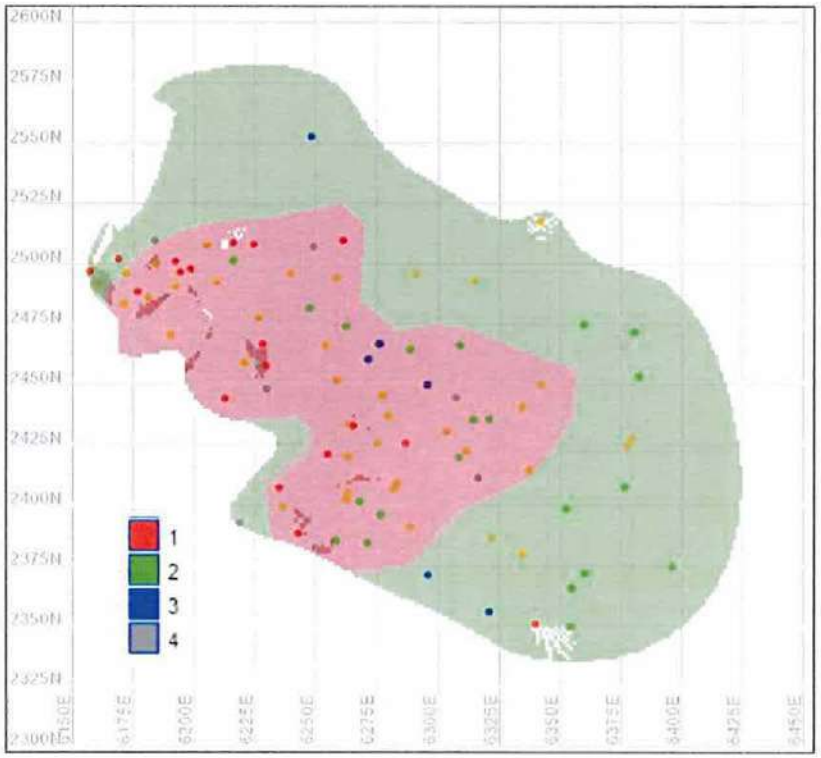


Figure 11-6 Savannah North Classification with Drillhole Intersections for the TCG East 8 Domain – Plan View

11.2 Mineral Resource Statement

The June 2023 MRE has been classified and reported in accordance with the JORC (2012) guidelines. The estimated model has been reported above a nickel lower grade cut off of 0.5% Ni with an assumption of a medium scale underground mining method for exploitation (Table 11-1). The MRE is dated 30th June 2023 and is based on all available information at that time.

Table 11-1 Summary of the June 2023 Savannah North Mineral Resource (Above 0.5% Ni and depleted the 30th June 2023)

Classification	Tonnes (kt)	Ni (%)	Cu (%)	Co (%)	Ni (kt)	Cu (kt)	Co (kt)
Measured	2,381,128	1.42	0.57	0.103	33,693	13,668	2,453
Indicated	5,465,983	1.57	0.70	0.112	85,761	38,371	6,122
Inferred	3,542,127	1.31	0.50	0.077	46,437	17,852	2,727
Total	11,389,238	1.46	0.61	0.10	165,892	69,891	11,302

Notes:

- Effective date of 30 June 2023.
- Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.
- Mineral Resources are reported above a Nickel grade of 0.5%.
- Figures may not add up due to rounding.

11.3 Comparison to Previous Mineral Resource Estimate

The previous MRE for Savannah North was completed by Cube in June 2022. Table 11-2 compares the June 2022 MRE (depleted to June 2023) with the updated June 2023 MRE (depleted to 30 June 2023).

In summary, the key differences between the updated June 2023 MRE (depleted to June 2023) and the historic June 2022 MRE (depleted to June 2022) are:

- A relative decrease in global tonnes of 2% and a decrease of 4% in nickel grade for a decrease in insitu Nickel metal above 0.5% Ni of 5%.
- Measured material has increased by 19% by mass for a 20% increase to nickel metal.
- Decrease in Indicated and Inferred tonnes (and metal)

The key reasons to these changes include:

- Interpretation changes from new drilling.
- New infill drilling data has lower average (declustered) grade.
- Conversion of Indicated to Measured.
- Depletion from mining.

Table 11-2 Comparison between June 2023 MRE (depleted to June 2023) and June 2022 MRE (depleted to June 2022)

June 2023 Abv 0.5% Ni and Depleted to 30 June 2023								
Model	Class	Tonnes	Ni Ok	Cu Ok	Co Ok	Ni(t)	Cu(t)	Co(t)
Jun 2023 MRE	Meas	2,381,128	1.42	0.57	0.103	33,693	13,668	2,453
	Ind	5,465,983	1.57	0.70	0.112	85,761	38,371	6,122
	Inf	3,542,127	1.31	0.50	0.077	46,437	17,852	2,727
	Total	11,389,238	1.46	0.61	0.10	165,892	69,891	11,302

June 2022 Abv 0.5% Ni and Depleted to 30 June 2022								
Model	Class	Tonnes	Ni Ok	Cu Ok	Co Ok	Ni(t)	Cu(t)	Co(t)
Jun 2022 MRE	Meas	1,998,292	1.41	0.59	0.101	28,156	11,770	2,018
	Ind	5,539,924	1.67	0.75	0.120	92,351	41,328	6,648
	Inf	4,034,337	1.36	0.52	0.083	54,827	21,140	3,348
	Total	11,572,553	1.52	0.64	0.104	175,333	74,238	12,015

Actual Difference Between Jun22 vs Jun23 MRE Abv 0.5% Ni (Different Depletion)							
Class	Tonnes	Ni Ok	Cu Ok	Co Ok	Ni(t)	Cu(t)	Co(t)
Meas	382,836	0.01	- 0.02	0.00	5,537	1,898	434
Ind	- 73,941	- 0.10	- 0.04	- 0.01	- 6,589	- 2,957	- 526
Inf	- 492,210	- 0.05	- 0.02	- 0.01	- 8,389	- 3,288	- 621
Total	- 183,315	- 0.06	- 0.03	- 0.00	- 9,442	- 4,347	- 713

Relative Difference Bewteen Jun22 vs Jun23 MRE Abv 0.5% Ni (Different Depletion)							
Class	Tonnes	Ni Ok	Cu Ok	Co Ok	Ni(t)	Cu(t)	Co(t)
Meas	19%	0%	-3%	2%	20%	16%	22%
Ind	-1%	-6%	-6%	-7%	-7%	-7%	-8%
Inf	-12%	-4%	-4%	-7%	-15%	-16%	-19%
Total	-2%	-4%	-4%	-4%	-5%	-6%	-6%

11.4 Comparison to Mine Production

The mine production data was not available at the time of writing and therefore a comparison between the MRE and mine production for the last 12 months has not been completed.

12.0 Recommendations

Consider the use of underground stope optimising software (MSO) to assist with meeting the requirements of Reasonable Prospects of Eventual Economic Extraction.

Complete the reconciliation between MRE, claimed production and milling.

13.0 References

Abzalov, M.Z., (2006). Localised Uniform Conditioning (LUC): A New Approach for Direct Modelling of Small Blocks, Mathematical Geology 38 (4), p. 393-411.

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APPENDIX 1 JORC Table 1

Section 1 - Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • Aspects of the determination of mineralisation that are Material to the Public Report. • In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	• The Savannah mine and surrounding exploration areas are typically sampled by diamond drilling techniques. Over 1600 holes have been drilled within the mine for a total in-excess of 220,000m. The majority of holes were drilled from underground platforms. • Initial Resource definition drilling is conducted on a nominal 50 x 50 metre grid spacing with subsequent infill grade control drilling conducted on a nominal 25 x 25 metre grid spacing. • Historically, all drill hole collars were surveyed using Leica Total Station survey equipment by a registered surveyor. Down hole surveys are typically performed every 30 metres using either "Reflex EZ Shot" or "Flexit Smart Tools". • All diamond core is geologically logged with samples (typically between 0.2 metre to 1 metre long) defined by geological contacts. Analytical samples are dominantly sawn half core samples.
Drilling techniques	• Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	• Greater than 90% of the mine drill hole database consists of LTK60 and NQ2 size diamond holes. Exploration and Resource definition drill holes are typically NQ2 size. Infill grade control holes are typically LTK60. Historically, some RC holes were drilled about the upper part of the mine. • The diamond drill holes pertaining to this announcement were a combination of NQ2 and LTK60 size.
Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure representative nature of the samples. • Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	• Diamond core recoveries are logged and recorded in the database. Overall recoveries are typically >99% and there are no apparent core loss issues or significant sample recovery problems. • Hole depths are verified against core blocks. • Regular rod counts are performed by the drill contractor. • There is no apparent relationship between sample recovery and grade.
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. • The total length and percentage of the relevant intersections logged.	• All diamond holes pertaining to this announcement were geologically logged in full. • Geotechnical logging was carried out for recovery and RQD. The number of defects (per interval) and their roughness were recorded about ore zones. • Details of structure type, alpha angle, infill, texture and healing is also recorded for most holes and stored in the structure table of the mine drill hole database. • Logging protocols dictate lithology, colour, mineralisation, structural (DDH only) and other features are routinely recorded. • All diamond core was photographed wet.

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	• If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	• Analytical core samples pertaining to this announcement were half core. • Sample sizes are considered appropriate to represent the Savannah North style of mineralisation. • SG determinations by water immersion technique are restricted to Resource definition and Exploration holes at Savannah and are not performed on grade control holes. • All core sampling and sample preparation follow industry best practice. • QC involves the addition of purchased CRM and Savannah derived CRM assay standards, blanks, and duplicates. At least one form of QC is inserted in most sample batches on average one in every 20 samples. • Original versus duplicate assay results have always shown strong correlation due to the massive sulphide rich nature of the Savannah North mineralisation.
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. • Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	• Prior to 2019 all sample preparation included pulverising to 90% passing 75 µm followed by either a 3 acid digest & AAS finish at the Savannah onsite laboratory or a total 4 acid digest with an ICP OES finish if the samples are analysed off-site. • Since 2019 Bureau Veritas has operated the on-site laboratory. Sample preparation and assaying of all drill samples now involves crushing and pulverizing the sample to 80% passing 75µm followed by Ni, Cu, Co, Fe, MgO and S analysis by XRF of metaborate fused glass beads. The XRF brand is a ZETIUM Pan-analytical instrument. • No other analytical tools or techniques are employed. • The onsite laboratory uses internal standards, duplicates, replicates, blanks and repeats and carries out all appropriate sizing checks. • External laboratory checks are occasionally performed by ALS Geochemistry Australia. No analytical bias has been identified.
Verification of sampling and assaying	• The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data.	• Drilling and sampling procedures at SNM have been inspected by many stakeholders since the project began. • Throughout the life of the mine, there have been several instances where holes have been twinned to confirm intersections and continuity. • In respect to the drill holes pertaining to this announcement, no holes were twinned. • Holes are logged into OCRIS software on Toughbook laptop computers before the data is transferred to SQL server databases. • All drill hole and assay data is routinely validated by site personnel. • No adjustments are made to assay data.
Location of data points	• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	• All diamond drill hole collars are picked-up using Leica TS15, R1000 instrument by a registered mine surveyor. • Downhole surveys are performed using an Axis Champ North Seeking Gyro instrument. Survey

Criteria	JORC Code explanation	Commentary
	• Specification of the grid system used. • Quality and adequacy of topographic control.	interval no more than 30m. • Visual checks to identify any obvious errors regarding the spatial position of drill holes collars or downhole surveys are routinely performed in a 3D graphics environment using Surpac software. • The mine grid is a truncated 4 digit (MGA94) grid system. • Conversion from local grid to MGA GDA94 Zone 52 is calculated by applying truncated factor to local coordinates is E: +390000, N: +8080000. • High quality topographic control is established across the mine site. RL equals AHD + 2,000m.
Data spacing and distribution	• Data spacing for reporting of Exploration Results. • Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. • Whether sample compositing has been applied.	• The Savannah and Savannah North Project nominal underground Resource Definition drill hole spacing is 25m (E) by 25m (RL) but does range from 50m (E) by 50m (RL) to 5m (E) by 5m (RL). • The mineralized domains delineated by the drill hole spacing show enough continuity to support the classification applied under the JORC Coe (2012 Edition). • No sample compositing is undertaken.
Orientation of data in relation to geological structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. • If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	• Where possible drill holes are designed to be drilled perpendicular to the target area being tested. • No orientation sampling bias has been identified.
Sample security	• The measures taken to ensure sample security.	• Drill samples are collected and transported to the on-site laboratory by SNM staff. Samples sent off site are road freighted.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• No recent audits/reviews of the Savannah drill sampling protocols have been undertaken. The procedures are considered to be of the highest industry standard. Mine to mill reconciliation records throughout the life of the Savannah Project provide confidence in the sampling procedures employed at the mine.

Section 2 - Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. • The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	• The Savannah Nickel Mine (SNM), incorporating the Savannah North Project is an operating mine secured by five contiguous Mining Licences, ML's 80/179 to 80/183 inclusive. All tenure is current and in good standing. SNM has the right to explore for and mine all commodities within the mining tenements. • SNM has all statutory approvals and licences in place to operate. The mine has a long standing off-take agreement to mine and deliver nickel sulphide concentrate to the Trafigura Group.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	• Since commissioning in 2004, SNM has conducted all surface and underground exploration and drilling related activities on the site.
Geology	• Deposit type, geological setting and style of mineralisation.	• The SNM is based on mining ore associated with the Savannah and Savannah North palaeo-proterozoic mafic/ultramafic intrusions. The "Savannah-style" Ni-Cu-Co rich massive sulphide mineralisation occurs as "classic" magmatic breccias developed about the more primitive, MgO rich basal parts of the two intrusions.
Drill hole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length. • If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	• All in-mine drilling at SNM is conducted on the Savannah mine grid, which is a "4 digit" truncated MGA grid. Conversion from local to MGA GDA94 Zone 52 is calculated by applying truncated factor to local coordinates of: E: +390000, N: +8080000. RL equals AHD + 2,000m. • Additional drill hole information pertaining to this announcement includes: • All diamond holes were either NQ2 or LTK60. • All core is oriented and photographed prior to logging, cutting and sampling. • All intersection intervals are reported as down-hole lengths and not true widths. • All reported assay results were performed by the on-site laboratory.
Data aggregation methods	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. • Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. • The assumptions used for any reporting of metal equivalent values should be clearly stated.	• All analytical drill intercepts pertaining to reporting exploration results are based on sample length by grade weighted averages using a 0.5% lower cut-off, a minimum reporting length of 1m and maximum of 2m on consecutive internal waste. No top-cuts have been applied. • Cu and Co grades are determined for the same Ni interval defined above using the same procedures.
Relationship between mineralisation widths and intercept lengths	• These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. • If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	• All exploration results intersection lengths are reported as down hole lengths and not true widths. • Where reported, estimates of True Width are stated only when the geometry of the mineralisation with respect to the drill hole angle is sufficiently well established.
Diagrams	• Appropriate maps and sections (with scales) and	• Refer to figures in the document.

Criteria	JORC Code explanation	Commentary
	tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	
Balanced reporting	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	• Results from all drill-holes in the Mineral Resource have been reported and their context discussed and considered to be sufficiently balanced.
Other substantive exploration data	• Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	• No other data is considered material to this release at this stage.
Further work	• The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling). • Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	• The infill Resource Definition drill results reported herein for the Savannah North orebody are part of an ongoing program. Further results will be reported when they become available.

Section 3 – Estimation and Reporting of Mineral Resources

Criteria	JORC Code explanation	Commentary
Database integrity	• Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. • Data validation procedures used.	• An Excel logging template with lookup tables and fixed formatting is used for logging and data collection. • Data validation checks are performed every time a drill hole is entered into the database using a checklist.
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• Mr Mark Zammit, Principal Geologist at Cube Consulting Pty Ltd is the Competent Person for preparing the estimate and has undertaken a number of site visits to the Savannah Nickel Project with the most recent being for two days on 27th and 28th June 2015. • Mr Andrew Shaw-Stuart, Manager Geology & Exploration at Panoramic Resources is the Competent Person for data collection, is a full time employee of the Company and has undertaken numerous site visits.
Geological interpretation	• Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit. • Nature of the data used and of any assumptions made. • The effect, if any, of alternative interpretations on Mineral Resource estimation. • The use of geology in guiding and controlling Mineral Resource estimation. • The factors affecting continuity both of grade and geology.	• The Savannah North mineralisation dips moderately (40-45 degrees) to the north-west and comprises two main zones, the Upper Zone is developed on the basal contact of the North Olivine Gabbro, the second Lower Zone is a consistent remobilised zone of massive sulphide mineralisation, in part associated with the 500 Fault. Both zones are well defined by the drilling and the interpretation is considered sufficiently robust for resource modelling. Additional minor mineralised zones include one as an NE extending basal contact domain and nine domains in the hangingwall position to the Upper Zone. • No other interpretations have been considered as the current model is demonstrably robust. Recent extension and infilling drilling has confirmed the geological interpretation. • Geological controls were used to create the mineralised domains. The interpretation has been defined by the presence of strong and continuous zones of massive sulphide mineralisation. • Post mineralisation faulting and barren dykes have been interpreted and accounted for.
Dimensions	• The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	• The Savannah North mineralisation has been defined over a strike length of approximately 1km. The Mineral Resource reported herein relates to an area with a strike length of 1,125m from 5,300mE to 6,425mE and extends from 615m to 1,575m below surface with an average domain thickness of approximately 4 to 5 metres.
Estimation and modelling techniques	• The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used. • The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes	• Ordinary Kriging of 1m downhole composites was used to estimate Ni, Cu Co and density for all mineralised domains. • The parent estimation block dimensions used in the model were 20m(Y) x 20m(X) x 4(Z). A parent block size of 10m(Y) x 10m(X) x 4(Z) and 5m(Y) x 5m(X) x 2(Z) was also used for areas defined by closer spaced drilling. The parent block size(s) were selected on the basis of being approximately 50% of the average drill hole spacing in the deposit. Block descretisation points were set to 5(Y) x 5(X) x

Criteria	JORC Code explanation	Commentary
	appropriate account of such data. • The assumptions made regarding recovery of by-products. • Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation). • In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. • Any assumptions behind modelling of selective mining units. • Any assumptions about correlation between variables. • Description of how the geological interpretation was used to control the resource estimates. • Discussion of basis for using or not using grade cutting or capping. • The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	2(Z) points. The final 3D block dimensions used for volume definition were 1.25 m (Y) x 1.25m(X) x 0.5m(Z). • Top cut analysis was undertaken for each domain using grade histograms, log-probability plots and spatial review and no extreme values were detected and therefore no top cuts were applied. A search radius of 55m (Ni), 35m (Cu), 40m (Co) and 65m (Density) was used, with a minimum of 4 and a maximum of 16 1m composites. A second pass strategy was used with between 2 and 3.7x search distance and the same minimum and maximum composites. Dynamic anisotropy using local rotations was used to reflect the general trend for each domain. • Check estimates using Inverse Distance and Nearest Neighbour methods are comparable. These estimates supported the OK estimate and yielded similar characteristics. • By-product credits for Cu and Co have formed part of the previous off-take agreement. • No deleterious elements have been modelled in the Mineral Resource estimate; the Savannah orebody has low MgO and negligible arsenic levels. • No selective mining units were assumed in the estimate. • Ni and Co show a very strong correlation. Nickel and copper are much more variable. Variography and search neighborhoods were modelled separately for the grade attributes Ni, Cu and Co based on 1m composites for the Upper 1 domain and these models were adopted to the remaining domains. • The mineralisation interpretation was based on a combination of grade and geological characteristics such as massive sulphide content, lithology and structural boundaries. These were wireframed and used as hard boundaries to flag sample data for estimation. • Statistical analysis of the grade populations indicated no extreme values and a low coefficient of variation. • Validation has included comparing the raw data statistics to block estimates, volumes of wireframes to block model volumes, drill holes and block model value plots were produced for a visual checking of the grades. Good reconciliation data exists between mined and milled figures.
Moisture	• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	• Tonnages are estimated on a dry basis.
Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	• The presence of logged massive sulphide in addition to an approximate 0.5%Ni cut-off was used when defining the mineralised wireframes.
Mining factors or assumptions	• Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating	• Mining at Savannah has been ongoing since 2004. Underground, sub-level open stoping is used effectively to extract the ore. No further assumptions were made on mining factors. Mining factors are applied during Ore Reserve conversion. Similar mining assumptions have been made and are in progress at the Savannah North Project.

Criteria	JORC Code explanation	Commentary
	Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	
Metallurgical factors or assumptions	• The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	• Savannah ore has been successfully treated through a 1Mtpa SAG mill and flotation circuit since commissioning in 2004. The metallurgical nature of the mineral resource in this estimate has not changed. Metallurgical factors are addressed in Ore Reserve conversion.
Environmental factors or assumptions	• Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	• Savannah operates under the conditions set out by an environmental license to operate.
Bulk density	• Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples. • The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit. • Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	• Bulk density is determined using the water displacement method where possible for all resource definition samples. Where density measurements are missing, a regression formula incorporating S% is used such that a density value is present for all samples. • Voids within the mineralised zones are not common. • Density assignment for all mineralised domains was via Ordinary Kriging of 1m composites with variography and search parameters based on the density data. Waste material was assigned a value of 2.88.
Classification	• The basis for the classification of the Mineral Resources into varying confidence categories. • Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	• The classification adopted is based largely on drill data density and an understanding of the contact, and fault related mineralisation. Measured resources only includes mineralisation defined within the close spaced GC drilling within the Upper Zone and also the smaller areas of the TCG East and Upper Splay domains. The drilling here ranges from 5 m x 5 m up to 20 m x 20 m spacing. Indicated resources include areas where the drilling spacing is greater than the close spaced GC drilling but approximates 50 m x 50 m. Inferred resources – includes areas are where the data density is greater than 50 m x 50 m spacing, typically around the periphery and depth extent of the Upper and Lower Zones plus the minor domains. • Overall, the confidence in the continuity of mineralisation and the quality of the input data is high.

Criteria	JORC Code explanation	Commentary
		• The estimate and classification appropriately reflects the view of the Competent Person.
	• Whether the result appropriately reflects the Competent Person's view of the deposit.	
Audits or reviews	• The results of any audits or reviews of Mineral Resource estimates.	• The Mineral Resource estimate has been peer reviewed by the Panoramic corporate technical team.
Discussion of relative accuracy/ confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	• The relative accuracy of the Mineral Resource estimate is considered robust as it has been compiled in accordance with the guidelines of the 2012 JORC Code, and knowledge gained from extensive operational history of the mine.
	• The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	• The statement relates to global estimates of tonnes and grade.
	• These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	• Mine to mill reconciliation records throughout the life of the Savannah Project provide confidence in the accuracy of the Mineral Resource estimate.

APPENDIX 2 Drill Hole ID and From To by Zonecode

Domain: Upper 1 Zone

Domain	Zonecode	Hole_Id	From	To	Ni%	Cu%	Co%	Length	Y	X	Z
Upper_1	1	KUD1525	705.23	722.45	1.36	0.42	0.10	17.22	2479.3	6021.8	1232.3
Upper_1	1	KUD1531	334.8	336.15	2.22	1.18	0.16	1.35	2521.7	5859.1	1117.7
Upper_1	1	KUD1532	359	369.7	2.12	0.46	0.16	10.7	2569.8	5855.0	1085.1
Upper_1	1	KUD1533	318.7	332.36	1.98	0.76	0.15	13.66	2542.6	5902.9	1128.6
Upper_1	1	KUD1534	303.65	306	1.54	0.21	0.11	2.35	2495.0	5903.9	1161.2
Upper_1	1	KUD1535B	373	374	0.56	0.58	0.04	1	2642.7	5858.1	1082.2
Upper_1	1	KUD1536	292.05	293.5	1.81	0.37	0.12	1.45	2443.4	5856.6	1186.1
Upper_1	1	KUD1537	285.3	290	2.74	0.75	0.19	4.7	2446.9	5901.5	1201.0
Upper_1	1	KUD1538	289.7	291.85	2.64	0.53	0.18	2.15	2396.8	5900.7	1232.9
Upper_1	1	KUD1539	359	368.85	1.53	0.93	0.12	9.85	2543.2	5803.3	1091.7
Upper_1	1	KUD1540	281.9	283.25	0.71	0.12	0.05	1.35	2359.6	5890.1	1285.2
Upper_1	1	KUD1541	327.1	330.83	1.52	0.41	0.11	3.73	2592.1	5911.2	1122.2
Upper_1	1	KUD1542	336.72	339.6	2.19	0.42	0.17	2.88	2635.1	5911.0	1115.6
Upper_1	1	KUD1543	331.26	332.35	2.38	0.54	0.17	1.09	2493.5	5808.5	1131.7
Upper_1	1	KUD1545	393.25	397.56	1.62	0.46	0.12	4.31	2598.1	5813.8	1057.9
Upper_1	1	KUD1547A	409.5	421.16	1.47	1.02	0.12	11.66	2640.5	5808.5	1043.3
Upper_1	1	KUD1548	300	301	1.09	0.27	0.08	1	2584.7	5958.7	1158.9
Upper_1	1	KUD1549	401.78	402.5	0.54	5.45	0.07	0.72	2566.6	5739.2	1066.9
Upper_1	1	KUD1550A	453.6	473.8	1.19	0.40	0.09	20.2	2644.0	5730.0	1010.7
Upper_1	1	KUD1551	279.16	281.2	1.14	0.81	0.09	2.04	2523.9	5954.0	1187.4
Upper_1	1	KUD1552	277	279	0.87	0.54	0.06	2	2465.4	5945.5	1209.8
Upper_1	1	KUD1553	314.05	316.1	2.65	0.72	0.19	2.05	2629.2	5946.3	1143.6
Upper_1	1	KUD1555	285.4	287	1.16	0.47	0.09	1.6	2556.4	6001.2	1191.2
Upper_1	1	KUD1556	275.1	277.83	1.00	1.89	0.08	2.73	2505.8	6008.0	1218.2
Upper_1	1	KUD1557	293.02	293.72	1.80	0.12	0.13	0.7	2605.4	5984.1	1174.4
Upper_1	1	KUD1558	372.16	374.22	0.00	0.01	0.00	2.06	2511.4	5726.6	1107.6
Upper_1	1	KUD1559	261.4	262.8	2.45	0.51	0.18	1.4	2449.5	6006.8	1266.5
Upper_1	1	KUD1561	438	441.3	0.73	0.10	0.04	3.3	2565.3	5657.1	1061.2
Upper_1	1	KUD1562	451.1	454.84	0.73	0.23	0.06	3.74	2694.9	5784.1	1020.6
Upper_1	1	KUD1563	279.58	280.67	0.88	0.10	0.07	1.09	2550.5	6021.9	1209.6
Upper_1	1	KUD1565	263.2	268.2	0.79	0.28	0.06	5	2462.1	6048.2	1284.0
Upper_1	1	KUD1566B	271	280.15	1.46	0.68	0.11	9.15	2509.7	6044.3	1240.8
Upper_1	1	KUD1567	284	284.9	0.41	1.25	0.03	0.9	2592.9	6013.1	1196.6
Upper_1	1	KUD1572	286.23	287.23	1.64	0.23	0.13	1	2552.5	6090.4	1254.0
Upper_1	1	KUD1573	273	290.08	2.16	0.91	0.16	17.08	2500.7	6086.3	1274.6
Upper_1	1	KUD1574	265.5	280.7	1.76	0.60	0.13	15.2	2464.9	6082.1	1308.6
Upper_1	1	KUD1575	273.7	286.65	2.09	1.13	0.16	12.95	2430.4	6091.1	1346.1
Upper_1	1	KUD1576	335.29	355.77	2.09	1.17	0.14	20.48	2453.7	6195.5	1384.6
Upper_1	1	KUD1578	441.2	460.5	0.85	0.59	0.05	19.3	2501.4	5564.4	1118.6
Upper_1	1	KUD1579	302.8	312.6	1.33	0.34	0.09	9.8	2375.7	6102.6	1407.1
Upper_1	1	KUD1580	295	296	0.31	0.21	0.02	1	2606.7	6088.6	1236.6
Upper_1	1	KUD1581	358.55	370.95	1.32	0.27	0.09	12.4	2406.4	6198.5	1416.3
Upper_1	1	KUD1582	313.65	314.71	2.12	0.60	0.16	1.06	2506.0	6168.4	1344.2

Domain	Zonecode	Hole_Id	From	To	Ni%	Cu%	Co%	Length	Y	X	Z
Upper_1	1	KUD1583	363.4	376.5	2.43	0.55	0.18	13.1	2462.3	6231.4	1425.7
Upper_1	1	KUD1584	416.4	425	2.30	0.18	0.16	8.6	2342.2	6225.1	1467.8
Upper_1	1	KUD1585	471	494.7	1.08	0.33	0.05	23.7	2479.1	5508.1	1135.3
Upper_1	1	KUD1586	413.1	415.9	1.50	0.42	0.13	2.8	2612.2	5794.9	1042.7
Upper_1	1	KUD1587	379.49	400	0.43	0.28	0.03	20.51	2406.5	6228.4	1439.7
Upper_1	1	KUD1588	322.25	322.5	1.60	0.16	0.09	0.25	2332.2	6078.7	1461.1
Upper_1	1	KUD1591	512	516.6	2.08	0.27	0.15	4.6	2744.1	5739.8	980.3
Upper_1	1	KUD1592	335.45	337	1.39	0.28	0.09	1.55	2481.5	6197.7	1392.2
Upper_1	1	KUD1593	412.15	415.95	2.28	0.42	0.18	3.8	2677.9	5811.2	1050.6
Upper_1	1	KUD1595	502.5	517.45	1.60	0.61	0.13	14.95	2690.4	5717.2	975.0
Upper_1	1	KUD1595A	501.45	515	1.09	0.81	0.09	13.55	2687.2	5717.0	976.3
Upper_1	1	KUD1596	287.6	304.6	2.41	0.90	0.17	17	2472.9	6122.1	1319.0
Upper_1	1	KUD1597	317.35	326	2.18	0.61	0.15	8.65	2427.0	6155.4	1389.3
Upper_1	1	KUD1598	366	378.46	0.20	0.13	0.01	12.46	2489.1	6241.4	1419.4
Upper_1	1	KUD1599	177.75	179.9	1.42	0.28	0.09	2.15	2357.0	6124.8	1448.1
Upper_1	1	KUD1600	200	201.4	0.57	0.18	0.03	1.4	2322.9	6104.9	1488.4
Upper_1	1	KUD1601	192.3	207.4	2.36	0.80	0.16	15.1	2366.0	6168.3	1450.4
Upper_1	1	KUD1602	237.5	255.4	2.10	0.65	0.14	17.9	2334.5	6200.8	1486.8
Upper_1	1	KUD1603	189.12	205.06	1.11	0.25	0.07	15.94	2404.2	6194.4	1449.0
Upper_1	1	KUD1604	247	273.1	1.37	0.34	0.09	26.1	2368.6	6245.3	1485.6
Upper_1	1	KUD1605A	158.8	161.64	1.43	0.23	0.10	2.84	2377.2	6062.4	1390.8
Upper_1	1	KUD1606	152.5	154.8	2.37	0.39	0.17	2.3	2400.9	6079.8	1371.6
Upper_1	1	KUD1607	153.7	155	1.25	0.34	0.09	1.3	2409.7	6068.0	1355.2
Upper_1	1	KUD1608	157.7	160.2	1.14	0.32	0.08	2.5	2385.0	6082.7	1388.3
Upper_1	1	KUD1609	153	159.35	1.58	0.37	0.11	6.35	2395.5	6102.0	1390.7
Upper_1	1	KUD1610	141.05	157.1	1.26	0.56	0.09	16.05	2415.1	6098.6	1372.4
Upper_1	1	KUD1611	151	154.7	2.19	0.51	0.16	3.7	2397.7	6066.1	1371.5
Upper_1	1	KUD1612	151.21	156.97	1.53	0.40	0.11	5.76	2405.2	6044.3	1355.5
Upper_1	1	KUD1613	155.85	161.4	2.01	0.38	0.14	5.55	2386.3	6043.6	1372.9
Upper_1	1	KUD1614	164.1	164.3	1.36	0.76	0.09	0.2	2371.6	6048.4	1389.1
Upper_1	1	KUD1615	169.35	170.2	0.13	0.64	0.01	0.85	2362.4	6021.7	1396.5
Upper_1	1	KUD1616	164.8	167.9	0.57	0.79	0.04	3.1	2380.1	6021.5	1369.2
Upper_1	1	KUD1617	161.3	165.1	1.53	0.41	0.10	3.8	2393.8	6026.1	1355.0
Upper_1	1	KUD1618	174	175	0.65	1.08	0.04	1	2374.0	5995.4	1370.9
Upper_1	1	KUD1619	171.5	172.25	1.67	0.45	0.11	0.75	2388.0	6003.8	1352.5
Upper_1	1	KUD1620	177	178.9	0.95	0.15	0.06	1.9	2383.7	5985.9	1354.5
Upper_1	1	KUD1622A	154.4	164.8	1.03	0.53	0.07	10.4	2408.6	6130.5	1392.7
Upper_1	1	KUD1623A	145	163.3	0.88	1.09	0.06	18.3	2427.9	6130.6	1377.0
Upper_1	1	KUD1624	154.6	166.71	1.62	0.75	0.12	12.11	2417.2	6140.2	1390.3
Upper_1	1	KUD1625	140.16	160.7	1.49	0.70	0.11	20.54	2420.6	6115.2	1376.3
Upper_1	1	KUD1626	149.4	159.53	1.34	0.57	0.10	10.13	2439.1	6117.7	1354.1
Upper_1	1	KUD1627	155.6	164.1	0.49	1.84	0.04	8.5	2445.7	6147.2	1368.5
Upper_1	1	KUD1628	145.4	165.8	1.29	0.50	0.09	20.4	2456.8	6132.7	1352.4
Upper_1	1	KUD1629	161.4	180.5	1.54	0.94	0.11	19.1	2440.0	6173.8	1392.8

Domain	Zonecode	Hole_Id	From	To	Ni%	Cu%	Co%	Length	Y	X	Z
Upper_1	1	KUD1630	179	191.4	1.52	0.47	0.11	12.4	2443.2	6195.1	1397.2
Upper_1	1	KUD1631	161.75	174.4	1.92	0.69	0.14	12.65	2453.6	6168.0	1375.2
Upper_1	1	KUD1632	156	169.3	1.45	0.53	0.11	13.3	2471.6	6152.4	1353.6
Upper_1	1	KUD1633	168.8	178.15	2.09	0.58	0.15	9.35	2473.7	6183.0	1375.3
Upper_1	1	KUD1634	176.84	199	1.22	0.54	0.09	22.16	2465.3	6204.4	1390.6
Upper_1	1	KUD1635	156.62	160.4	2.21	0.64	0.16	3.78	2493.2	6160.4	1361.1
Upper_1	1	KUD1637	190.7	196.6	2.31	0.23	0.16	5.9	2484.7	6220.5	1403.4
Upper_1	1	KUD1638	163.1	168.7	1.57	0.25	0.11	5.6	2488.6	6185.6	1389.1
Upper_1	1	KUD1639	201.7	208	2.14	0.26	0.14	6.3	2502.6	6235.4	1404.9
Upper_1	1	KUD1640	175.05	178.9	1.53	0.22	0.10	3.85	2493.6	6198.3	1387.8
Upper_1	1	KUD1641	158	171.45	0.98	0.49	0.07	13.45	2500.4	6172.9	1365.9
Upper_1	1	KUD1642	179.5	179.75	2.75	0.04	0.18	0.25	2503.5	6201.5	1386.1
Upper_1	1	KUD1643	196.6	225	1.54	0.86	0.10	28.4	2349.2	6167.7	1464.4
Upper_1	1	KUD1644	297.6	298.7	1.93	0.15	0.12	1.1	2286.4	6218.6	1521.0
Upper_1	1	KUD1645	299.9	317.15	1.60	0.37	0.10	17.25	2316.2	6262.4	1516.3
Upper_1	1	KUD1646	160.8	162.1	0.45	7.53	0.04	1.3	2417.3	6045.2	1333.6
Upper_1	1	KUD1647	167.6	172.5	1.71	0.60	0.12	4.9	2431.7	6038.2	1312.4
Upper_1	1	KUD1648	176	182.9	0.73	0.47	0.05	6.9	2446.6	6043.9	1294.2
Upper_1	1	KUD1649	159.3	165.4	2.07	0.63	0.14	6.1	2413.7	6026.8	1335.4
Upper_1	1	KUD1650	170.09	175.92	1.70	0.49	0.12	5.83	2424.1	6021.3	1314.4
Upper_1	1	KUD1651	180.09	185.75	1.81	0.45	0.13	5.66	2440.6	6023.3	1293.4
Upper_1	1	KUD1652	167.4	173.8	1.75	0.72	0.12	6.4	2405.5	6005.4	1335.1
Upper_1	1	KUD1653	175.9	178.2	1.62	1.86	0.11	2.3	2416.0	5996.2	1319.8
Upper_1	1	KUD1654	185.55	195.91	1.19	0.67	0.08	10.36	2430.1	6006.2	1291.9
Upper_1	1	KUD1655	197.3	205.87	1.27	0.24	0.09	8.57	2390.8	6188.7	1427.5
Upper_1	1	KUD1656	177.52	191.22	1.14	0.65	0.08	13.7	2408.2	6175.5	1412.0
Upper_1	1	KUD1657	231.65	236.15	1.35	0.31	0.09	4.5	2369.5	6216.1	1452.1
Upper_1	1	KUD1658	163.85	177.1	2.25	0.89	0.16	13.25	2399.6	6151.2	1411.6
Upper_1	1	KUD1659	186.4	192.9	1.51	0.96	0.10	6.5	2380.6	6165.5	1428.0
Upper_1	1	KUD1660	196.1	210.8	2.46	0.65	0.16	14.7	2356.4	6164.1	1449.3
Upper_1	1	KUD1661	171.6	182.5	1.89	0.68	0.13	10.9	2372.9	6139.5	1428.9
Upper_1	1	KUD1662A	151.6	164.9	1.13	0.27	0.08	13.3	2390.7	6124.2	1411.0
Upper_1	1	KUD1663	172.2	173.8	1.83	0.27	0.12	1.6	2356.0	6110.4	1438.0
Upper_1	1	KUD1664	178.9	180.87	0.86	0.35	0.05	1.97	2341.2	6099.2	1459.0
Upper_1	1	KUD1665	163.4	164.2	0.94	2.36	0.06	0.8	2354.7	6085.0	1433.6
Upper_1	1	KUD1666	157.6	158.9	0.40	0.30	0.03	1.3	2366.1	6085.1	1410.7
Upper_1	1	KUD1667	151.8	161.2	0.67	0.39	0.05	9.4	2429.7	6067.9	1334.0
Upper_1	1	KUD1668	159.3	166.8	0.78	0.57	0.06	7.5	2447.4	6064.2	1314.4
Upper_1	1	KUD1669	145.9	161.2	1.03	0.37	0.07	15.3	2440.2	6087.0	1336.7
Upper_1	1	KUD1670	168.48	177.5	1.22	0.43	0.09	9.02	2473.3	6074.8	1295.6
Upper_1	1	KUD1671	141	161.8	1.43	0.71	0.10	20.8	2454.0	6101.5	1337.9
Upper_1	1	KUD1672	149.9	170.85	1.86	0.92	0.13	20.95	2471.6	6104.5	1320.8
Upper_1	1	KUD1673	153.26	169.6	1.01	0.31	0.07	16.34	2460.8	6123.0	1334.7
Upper_1	1	KUD1674	151	170.8	1.57	0.68	0.11	19.8	2473.0	6135.1	1338.9

Domain	Zonecode	Hole_Id	From	To	Ni%	Cu%	Co%	Length	Y	X	Z
Upper_1	1	KUD1675	164.7	189.4	2.01	0.83	0.14	24.7	2497.8	6116.9	1301.1
Upper_1	1	KUD1676	151.65	157.35	1.18	0.41	0.07	5.7	2361.2	6060.4	1412.8
Upper_1	1	KUD1678	203.85	241.1	0.37	0.14	0.02	37.25	2400.8	6221.3	1440.2
Upper_1	1	KUD1679	250.9	265.95	0.54	0.14	0.04	15.05	2410.8	6265.8	1454.3
Upper_1	1	KUD1680	215.5	229.3	2.38	0.62	0.16	13.8	2413.2	6224.0	1419.9
Upper_1	1	KUD1681	249.15	260.8	0.78	0.27	0.05	11.65	2416.6	6264.2	1453.7
Upper_1	1	KUD1682	223.6	249.05	0.77	0.29	0.05	25.45	2414.6	6242.6	1440.0
Upper_1	1	KUD1683	219	246.3	1.70	0.60	0.12	27.3	2424.9	6240.8	1424.6
Upper_1	1	KUD1687	251.7	252.7	0.78	0.56	0.05	1	2458.3	6272.8	1445.2
Upper_1	1	KUD1688	228	235.8	0.58	0.16	0.03	7.8	2490.4	6255.2	1431.5
Upper_1	1	KUD1690	28.78	29.4	0.10	0.21	0.00	0.62	2362.0	6041.8	1399.6
Upper_1	1	KUD1691	32.85	33.7	1.70	0.97	0.11	0.85	2368.1	6039.4	1390.2
Upper_1	1	KUD1692	27.7	27.9	2.14	0.05	0.14	0.2	2364.5	6050.1	1398.2
Upper_1	1	KUD1693	28.45	29	2.00	0.29	0.12	0.55	2366.1	6057.2	1396.7
Upper_1	1	KUD1694	33.82	34.53	0.73	0.68	0.04	0.71	2373.3	6055.3	1390.7
Upper_1	1	KUD1695	30.55	32.6	0.59	0.15	0.04	2.05	2368.6	6063.3	1397.2
Upper_1	1	KUD1697	155	163.1	0.86	0.63	0.06	8.1	2505.7	6149.7	1345.7
Upper_1	1	KUD1698	165.1	176.4	2.42	0.99	0.18	11.3	2488.5	6145.4	1329.3
Upper_1	1	KUD1699	161.35	181.8	1.71	1.00	0.12	20.45	2485.6	6137.5	1323.0
Upper_1	1	KUD1700	161.5	195.18	1.88	0.81	0.14	33.68	2503.6	6147.0	1317.8
Upper_1	1	KUD1700	195.98	197.4	1.41	0.13	0.10	1.42	2501.0	6157.7	1303.1
Upper_1	1	KUD1701	190.4	198.6	1.66	1.43	0.12	8.2	2527.3	6162.5	1308.3
Upper_1	1	KUD1702	173	186.7	2.25	0.83	0.16	13.7	2513.2	6128.9	1303.0
Upper_1	1	KUD1703	191	193.7	0.94	0.17	0.07	2.7	2537.6	6144.5	1298.4
Upper_1	1	KUD1704	190.6	199	2.11	0.49	0.15	8.4	2559.5	6148.0	1301.6
Upper_1	1	KUD1706	255.99	275.9	0.68	0.25	0.05	19.91	2372.4	6259.7	1464.0
Upper_1	1	KUD1709	340	343.15	0.69	0.34	0.04	3.15	2322.2	6304.9	1538.9
Upper_1	1	KUD1711	282.05	286.75	0.72	0.25	0.04	4.7	2326.7	6245.3	1482.3
Upper_1	1	KUD1713	228.75	253	2.02	0.63	0.13	24.25	2321.4	6178.3	1488.6
Upper_1	1	KUD1714	190.7	204.85	2.44	1.00	0.16	14.15	2352.1	6150.5	1451.3
Upper_1	1	KUD1715	187.6	206.7	0.87	0.35	0.06	19.1	2349.2	6145.4	1462.3
Upper_1	1	KUD1716	218.2	223.8	1.32	0.30	0.08	5.6	2319.9	6140.6	1494.9
Upper_1	1	KUD1717	196.8	201.1	1.69	0.62	0.11	4.3	2336.6	6130.7	1469.0
Upper_1	1	KUD1718	24.05	40.5	1.48	0.56	0.11	16.45	2444.7	6205.9	1398.1
Upper_1	1	KUD1719	30.05	56.52	1.25	0.48	0.09	26.47	2452.8	6193.9	1394.2
Upper_1	1	KUD1720	31.15	39.9	1.72	0.48	0.13	8.75	2441.1	6191.4	1393.7
Upper_1	1	KUD1721	33.05	46	1.61	0.46	0.13	12.95	2437.8	6184.4	1397.2
Upper_1	1	KUD1722	20.6	27.3	1.53	1.13	0.12	6.7	2424.9	6172.0	1397.1
Upper_1	1	KUD1723	23.51	36.5	1.53	0.47	0.12	12.99	2430.1	6163.7	1393.6
Upper_1	1	KUD1724	21	28.55	1.78	0.76	0.14	7.55	2422.5	6165.2	1397.6
Upper_1	1	KUD1725	17.5	32	1.39	0.52	0.11	14.5	2418.1	6155.2	1398.7
Upper_1	1	KUD1726	19.4	29.9	1.55	1.79	0.12	10.5	2418.2	6148.7	1392.0
Upper_1	1	KUD1727	17.25	30.05	1.56	0.69	0.12	12.8	2412.8	6147.6	1399.0
Upper_1	1	KUD1728	297	300	1.39	0.16	0.08	3	2288.3	6223.7	1511.3

Domain	Zonecode	Hole_Id	From	To	Ni%	Cu%	Co%	Length	Y	X	Z
Upper_1	1	KUD1729	214.5	237.04	0.98	0.41	0.06	22.54	2328.8	6159.7	1502.1
Upper_1	1	KUD1733C	553.9	556.2	1.19	0.06	0.07	2.3	2576.9	5506.3	1025.3
Upper_1	1	KUD1734	19	35.84	0.97	0.52	0.07	16.84	2409.6	6138.8	1397.8
Upper_1	1	KUD1735	15.05	27.75	1.81	0.80	0.14	12.7	2401.3	6122.7	1397.8
Upper_1	1	KUD1736	18.2	29.9	1.32	0.53	0.10	11.7	2406.2	6121.2	1391.5
Upper_1	1	KUD1737	15	26.5	1.54	0.53	0.12	11.5	2398.0	6115.2	1398.6
Upper_1	1	KUD1738	16.5	27.9	1.63	0.69	0.13	11.4	2400.8	6111.5	1391.9
Upper_1	1	KUD1739	17.05	22.35	1.39	0.44	0.11	5.3	2393.8	6110.3	1397.0
Upper_1	1	KUD1740	30.9	38.75	0.70	0.58	0.05	7.85	2387.8	6098.2	1396.4
Upper_1	1	KUD1742	26.55	31.5	0.86	0.25	0.06	4.95	2380.0	6086.3	1397.3
Upper_1	1	KUD1743	31	33.7	1.52	0.22	0.11	2.7	2379.5	6074.5	1390.0
Upper_1	1	KUD1744	24.2	29.05	0.62	0.20	0.05	4.85	2373.0	6079.6	1397.5
Upper_1	1	KUD1745	168.15	169.9	1.07	0.14	0.08	1.75	2400.8	5985.2	1329.2
Upper_1	1	KUD1746	168.3	180	1.71	0.73	0.13	11.7	2411.9	5985.9	1314.5
Upper_1	1	KUD1747	182.45	190.95	1.92	1.04	0.15	8.5	2423.4	5981.1	1294.6
Upper_1	1	KUD1750	235.9	266.4	1.76	0.51	0.12	30.5	2317.5	6189.1	1494.9
Upper_1	1	KUD1753	270.2	273.65	0.57	0.06	0.04	3.45	2353.0	6248.6	1493.2
Upper_1	1	KUD1755	331.85	334.01	0.46	0.30	0.03	2.16	2318.5	6289.5	1540.8
Upper_1	1	KUD1757	266.05	292.8	0.93	0.26	0.06	26.75	2325.6	6237.4	1490.7
Upper_1	1	KUD1758	270.65	280.8	0.73	0.49	0.05	10.15	2322.0	6227.3	1505.5
Upper_1	1	KUD1759	287.7	290.2	1.07	0.17	0.07	2.5	2307.9	6230.0	1513.4
Upper_1	1	KUD1760	218.7	228.55	2.28	0.50	0.16	9.85	2328.2	6160.4	1484.4
Upper_1	1	KUD1761	200.8	203.1	1.91	0.30	0.10	2.3	2329.7	6124.0	1481.5
Upper_1	1	KUD1762	245	252.8	0.77	0.83	0.06	7.8	2332.2	6204.3	1472.0
Upper_1	1	KUD1763	237.7	251	0.29	0.16	0.02	13.3	2371.5	6230.3	1463.4
Upper_1	1	KUD1764	225.33	239.91	0.93	0.27	0.07	14.58	2403.4	6234.4	1447.4
Upper_1	1	KUD1765	193.08	208.5	0.35	0.22	0.03	15.42	2379.3	6181.1	1440.2
Upper_1	1	KUD1766	23.1	46.65	1.22	0.36	0.09	23.55	2468.9	6193.1	1380.0
Upper_1	1	KUD1767	24.9	65.15	0.95	0.35	0.07	40.25	2479.3	6184.1	1375.5
Upper_1	1	KUD1768	20.85	36	1.65	0.72	0.13	15.15	2456.4	6179.2	1376.2
Upper_1	1	KUD1769A	25.3	39.84	2.17	0.78	0.17	14.54	2460.0	6174.8	1372.2
Upper_1	1	KUD1770	28.75	34.75	1.47	0.44	0.11	6	2446.9	6156.3	1369.8
Upper_1	1	KUD1771	25	32.15	2.43	0.66	0.19	7.15	2441.1	6157.1	1377.5
Upper_1	1	KUD1772	24	29.95	2.06	0.50	0.16	5.95	2433.7	6145.9	1376.1
Upper_1	1	KUD1773	31.9	34.6	1.37	0.62	0.11	2.7	2436.9	6138.1	1371.8
Upper_1	1	KUD1774	26	41.35	0.68	0.30	0.05	15.35	2429.7	6133.0	1372.2
Upper_1	1	KUD1775	19	34.25	1.65	0.63	0.13	15.25	2425.3	6118.3	1369.1
Upper_1	1	KUD1776	15.5	26.08	1.90	0.59	0.15	10.58	2416.2	6112.2	1372.8
Upper_1	1	KUD1777	16	37.8	1.95	0.67	0.15	21.8	2417.1	6104.1	1376.4
Upper_1	1	KUD1778	17.85	37.9	1.49	0.49	0.12	20.05	2419.7	6101.9	1369.8
Upper_1	1	KUD1779	37.6	54.05	0.87	0.62	0.07	16.45	2409.8	6089.4	1373.1
Upper_1	1	KUD1780	32.1	33.85	0.97	0.91	0.08	1.75	2395.8	6082.1	1378.0
Upper_1	1	KUD1781	34.3	37.15	1.66	0.52	0.12	2.85	2401.7	6073.2	1367.8
Upper_1	1	KUD1782	26.35	31.7	1.32	0.66	0.10	5.35	2390.8	6069.4	1377.3

Domain	Zonecode	Hole_Id	From	To	Ni%	Cu%	Co%	Length	Y	X	Z
Upper_1	1	KUD1783	30.35	38	1.47	0.62	0.09	7.65	2395.0	6059.9	1368.4
Upper_1	1	KUD1784	32.1	34.75	1.88	0.51	0.14	2.65	2386.7	6054.9	1378.1
Upper_1	1	KUD1785	21.7	26	2.17	0.45	0.17	4.3	2391.6	6047.5	1369.6
Upper_1	1	KUD1786	16.9	21.9	2.04	1.05	0.15	5	2387.0	6037.3	1369.7
Upper_1	1	KUD1787	15.95	22.7	2.37	0.56	0.18	6.75	2383.9	6034.7	1374.7
Upper_1	1	KUD1788	18.6	24.35	1.16	0.34	0.08	5.75	2385.0	6028.3	1369.4
Upper_1	1	KUD1789	7.12	55	1.09	0.43	0.08	47.88	2444.4	6220.9	1414.1
Upper_1	1	KUD1790	9.05	58.45	1.27	0.44	0.10	49.4	2448.0	6219.1	1407.2
Upper_1	1	KUD1791	6.95	18.15	1.45	0.61	0.11	11.2	2425.2	6224.7	1411.6
Upper_1	1	KUD1792	10	46.3	1.01	0.56	0.08	36.3	2440.2	6215.8	1407.3
Upper_1	1	KUD1793	14.2	24.15	1.53	0.48	0.11	9.95	2420.6	6212.0	1416.7
Upper_1	1	KUD1794	20.5	38	1.08	0.39	0.08	17.5	2433.7	6207.0	1409.2
Upper_1	1	KUD1795	13.2	24	1.11	0.25	0.08	10.8	2413.6	6203.7	1420.2
Upper_1	1	KUD1796	21	35	1.22	1.03	0.10	14	2429.7	6198.0	1406.8
Upper_1	1	KUD1797	17.7	26	0.92	0.31	0.07	8.3	2420.0	6197.3	1411.4
Upper_1	1	KUD1798	21	31.85	1.36	0.46	0.10	10.85	2419.7	6190.8	1410.9
Upper_1	1	KUD1799	17.8	21.85	0.74	0.84	0.06	4.05	2411.4	6184.9	1409.6
Upper_1	1	KUD1800	14.65	22	0.85	0.54	0.06	7.35	2404.5	6184.9	1417.8
Upper_1	1	KUD1801	18.2	30.6	1.76	0.88	0.13	12.4	2403.8	6174.7	1415.7
Upper_1	1	KUD1802	7.9	20.1	1.65	0.77	0.12	12.2	2395.1	6155.6	1417.6
Upper_1	1	KUD1803	11.65	26.4	1.98	0.54	0.15	14.75	2404.3	6155.3	1409.7
Upper_1	1	KUD1804	8.5	17.3	1.88	0.48	0.14	8.8	2392.1	6147.9	1416.1
Upper_1	1	KUD1805	11.55	26.64	1.05	0.46	0.08	15.09	2395.5	6138.6	1412.5
Upper_1	1	KUD1806	12.8	23.55	1.23	0.39	0.09	10.75	2398.3	6140.1	1406.5
Upper_1	1	KUD1807	11.3	17.5	1.97	0.65	0.15	6.2	2383.9	6129.4	1414.6
Upper_1	1	KUD1808	16.2	25.1	0.92	0.85	0.07	8.9	2391.4	6122.7	1406.0
Upper_1	1	KUD1809	11.05	20.15	0.67	0.23	0.05	9.1	2378.8	6119.5	1416.8
Upper_1	1	KUD1810	14.75	26.55	0.90	0.22	0.07	11.8	2387.2	6115.4	1407.3
Upper_1	1	KUD1811	13.4	14.55	2.11	0.39	0.15	1.15	2373.8	6108.4	1411.7
Upper_1	1	KUD1812	16.15	22.75	1.00	0.29	0.07	6.6	2369.4	6096.8	1417.8
Upper_1	1	KUD1816	60.56	63.81	0.00	0.01	0.00	3.25	2527.9	6202.2	1357.8
Upper_1	1	KUD1819	50.9	54.6	1.83	0.66	0.14	3.7	2515.7	6191.6	1357.7
Upper_1	1	KUD1820	57.4	63.5	1.29	0.55	0.10	6.1	2521.2	6181.2	1348.8
Upper_1	1	KUD1822	44.3	47.6	1.93	0.84	0.15	3.3	2502.7	6177.3	1355.4
Upper_1	1	KUD1823	44.5	47.8	1.12	0.51	0.09	3.3	2496.9	6162.3	1353.9
Upper_1	1	KUD1824	28.2	36.8	1.47	0.70	0.12	8.6	2478.1	6162.4	1353.1
Upper_1	1	KUD1825	23.9	51.3	1.07	0.43	0.08	27.4	2484.4	6148.9	1346.8
Upper_1	1	KUD1826	17.3	30.9	0.77	0.39	0.06	13.6	2462.8	6143.4	1352.5
Upper_1	1	KUD1827	34.7	39.1	1.27	0.20	0.09	4.4	2505.8	6211.7	1389.9
Upper_1	1	KUD1827A	34.26	38.19	0.00	0.01	0.00	3.93	2505.7	6209.4	1389.0
Upper_1	1	KUD1830	45.7	47	1.01	0.15	0.07	1.3	2499.0	6217.1	1398.7
Upper_1	1	KUD1830	115.25	121.8	0.91	0.46	0.07	6.55	2435.3	6248.0	1412.8
Upper_1	1	KUD1832	46.22	51.75	0.01	0.09	0.00	5.53	2500.2	6225.5	1394.3
Upper_1	1	KUD1833	49	56.65	2.52	0.58	0.18	7.65	2503.8	6234.3	1394.0

Domain	Zonecode	Hole_Id	From	To	Ni%	Cu%	Co%	Length	Y	X	Z
Upper_1	1	KUD1834	52.15	52.85	1.14	7.65	0.08	0.7	2500.9	6230.5	1397.6
Upper_1	1	KUD1835	55.25	57.45	1.32	0.29	0.09	2.2	2498.6	6232.9	1402.7
Upper_1	1	KUD1836	57.99	65.71	0.02	0.06	0.00	7.72	2503.5	6243.4	1404.2
Upper_1	1	KUD1837	85.06	87.68	0.03	0.04	0.00	2.62	2505.3	6275.2	1405.6
Upper_1	1	KUD1837	89.81	91.76	0.52	0.09	0.02	1.95	2503.5	6279.1	1406.4
Upper_1	1	KUD1838	79.01	84.5	1.98	0.34	0.07	5.49	2511.7	6273.4	1403.3
Upper_1	1	KUD1839	61.5	80.4	1.87	0.38	0.13	18.9	2482.8	6232.5	1410.9
Upper_1	1	KUD1839	139.77	145.3	1.58	0.78	0.12	5.53	2423.7	6266.5	1432.9
Upper_1	1	KUD1840	50.1	53.08	0.12	0.19	0.01	2.98	2506.7	6235.3	1399.7
Upper_1	1	KUD1840	53.56	56.4	0.03	0.17	0.00	2.84	2504.5	6237.8	1400.4
Upper_1	1	KUD1841	59.35	72.4	1.49	0.44	0.11	13.05	2495.5	6240.9	1410.1
Upper_1	1	KUD1842	62.35	80.1	2.35	0.40	0.17	17.75	2488.4	6239.3	1415.2
Upper_1	1	KUD1845	171.1	172	1.25	0.15	0.07	0.9	2392.3	5959.7	1343.4
Upper_1	1	KUD1846	184.4	185.5	0.71	0.14	0.04	1.1	2397.6	5957.3	1321.2
Upper_1	1	KUD1847	188.35	194.58	0.62	0.41	0.05	6.23	2410.5	5955.3	1304.6
Upper_1	1	KUD1848	25.8	60.8	1.07	0.48	0.08	35	2453.7	6128.4	1349.6
Upper_1	1	KUD1849	22.2	37.4	0.98	0.51	0.08	15.2	2440.7	6116.6	1350.0
Upper_1	1	KUD1850	22.9	43.8	1.28	0.42	0.10	20.9	2442.8	6108.0	1349.7
Upper_1	1	KUD1851	20.05	33.85	1.42	0.57	0.11	13.8	2433.6	6107.5	1355.1
Upper_1	1	KUD1852	22.35	40.25	1.47	1.01	0.12	17.9	2433.9	6097.1	1351.4
Upper_1	1	KUD1853	31.3	43	0.60	0.43	0.05	11.7	2423.9	6084.5	1354.0
Upper_1	1	KUD1854	30.1	34.75	0.82	0.33	0.06	4.65	2412.6	6076.8	1359.7
Upper_1	1	KUD1855	34.7	41.95	0.77	0.39	0.06	7.25	2419.6	6069.0	1347.8
Upper_1	1	KUD1856	39.8	52.1	0.66	0.31	0.05	12.3	2413.3	6053.6	1348.9
Upper_1	1	KUD1857	30.5	40.6	1.46	0.52	0.11	10.1	2408.1	6053.6	1358.3
Upper_1	1	KUD1858	36	41.7	2.25	0.61	0.17	5.7	2403.4	6033.6	1352.6
Upper_1	1	KUD1859	41.7	44.6	2.36	0.69	0.17	2.9	2397.4	6022.6	1349.7
Upper_1	1	KUD1860	29.75	30.1	1.55	0.82	0.11	0.35	2390.6	6019.2	1355.6
Upper_1	1	KUD1861	34.4	35.85	1.51	0.48	0.11	1.45	2390.4	6005.6	1349.7
Upper_1	1	KUD1862	31.3	40.25	0.45	0.18	0.03	8.95	2382.0	6000.1	1358.3
Upper_1	1	KUD1863	13.8	14.2	1.36	9.45	0.10	0.4	2389.3	5986.2	1346.2
Upper_1	1	KUD1864	40.45	41.5	1.97	0.26	0.12	1.05	2379.6	5974.2	1350.4
Upper_1	1	KUD1865	57.6	59	1.26	0.12	0.06	1.4	2377.5	5952.6	1352.8
Upper_1	1	KUD1871	170	186	2.13	0.79	0.17	16	2488.1	6097.9	1295.9
Upper_1	1	KUD1874	201.8	208.7	1.99	1.09	0.14	6.9	2420.5	5954.9	1282.3
Upper_1	1	KUD1876	58.17	60.89	0.62	0.11	0.02	2.72	2533.0	6258.3	1391.6
Upper_1	1	KUD1891	200.5	211	2.55	1.06	0.20	10.5	2536.4	6101.1	1268.7
Upper_1	1	KUD1899	64.2	65.1	1.86	0.11	0.09	0.9	2368.4	5932.5	1330.2
Upper_1	1	KUD1900	59.55	62.45	0.57	0.21	0.03	2.9	2379.4	5938.4	1331.8
Upper_1	1	KUD1901	57.35	58.05	0.05	0.55	0.01	0.7	2393.6	5949.8	1326.5
Upper_1	1	KUD1902	41.35	44.4	0.20	0.40	0.01	3.05	2391.4	5967.6	1333.6
Upper_1	1	KUD1903	46.8	49.1	1.81	0.29	0.13	2.3	2395.0	5980.0	1336.8
Upper_1	1	KUD1904	43	45.8	2.07	0.82	0.15	2.8	2402.7	5987.8	1326.0
Upper_1	1	KUD1905	37.6	43	2.08	0.53	0.15	5.4	2411.4	6012.3	1330.3

Domain	Zonecode	Hole_Id	From	To	Ni%	Cu%	Co%	Length	Y	X	Z
Upper_1	1	KUD1906	36.95	45.3	0.86	0.55	0.06	8.35	2419.7	6034.1	1331.1
Upper_1	1	KUD1907	33	36.8	0.74	0.27	0.05	3.8	2422.1	6056.2	1330.6
Upper_1	1	KUD1908	32.4	48.3	1.26	0.67	0.09	15.9	2451.1	6092.7	1330.8
Upper_1	1	KUD1909	31.5	45.6	1.44	0.42	0.11	14.1	2460.9	6117.3	1331.5
Upper_1	1	KUD1910	23.8	42.7	2.01	0.97	0.15	18.9	2473.4	6129.4	1325.9
Upper_1	1	KUD1911	45	51.6	1.34	0.59	0.10	6.6	2511.2	6148.6	1331.7
Upper_1	1	KUD1912	53.9	54.1	2.38	0.04	0.18	0.2	2523.0	6170.7	1336.2
Upper_1	1	KUD1948	102.1	103.5	1.22	0.08	0.05	1.4	2576.9	6150.0	1298.2
Upper_1	1	KUD1949	79.05	91.7	1.11	0.37	0.08	12.65	2552.0	6145.1	1311.7
Upper_1	1	KUD1952	33.92	35.02	0.00	0.01	0.00	1.1	2515.0	6218.6	1380.6
Upper_1	1	KUD1953	42.65	44.85	0.09	0.01	0.01	2.2	2504.8	6222.6	1390.2
Upper_1	1	KUD1956	55.48	56.8	0.00	0.01	0.00	1.32	2532.5	6254.6	1388.7
Upper_1	1	KUD1957	26.6	32.8	1.53	1.30	0.11	6.2	2366.2	6112.9	1426.4
Upper_1	1	KUD1958	14	24.8	1.62	0.63	0.11	10.8	2362.9	6125.4	1432.9
Upper_1	1	KUD1959	17.7	28.5	1.60	1.18	0.12	10.8	2366.3	6147.9	1439.0
Upper_1	1	KUD1960	14.65	19.05	1.80	0.53	0.13	4.4	2370.7	6157.1	1435.3
Upper_1	1	KUD1961	28.2	39	0.67	0.96	0.05	10.8	2381.9	6179.2	1433.8
Upper_1	1	KUD1962	16.3	24.12	0.79	0.55	0.06	7.82	2395.9	6197.6	1428.1
Upper_1	1	KUD1963	15.3	28.5	0.70	0.52	0.05	13.2	2400.6	6204.0	1428.8
Upper_1	1	KUD1964	15.8	31.2	1.57	0.46	0.11	15.4	2403.4	6213.3	1429.2
Upper_1	1	KUD1965	23.3	57.2	0.81	0.36	0.06	33.9	2416.7	6228.4	1432.4
Upper_1	1	KUD1966	60.89	71.6	0.23	0.08	0.02	10.71	2400.2	6196.9	1443.0
Upper_1	1	KUD1966	71.87	72.51	0.25	0.13	0.02	0.64	2405.4	6194.6	1444.7
Upper_1	1	KUD1967	62.35	89.27	1.28	0.41	0.09	26.92	2416.2	6240.4	1428.1
Upper_1	1	KUD1972	57.55	67.8	1.66	0.48	0.13	10.25	2450.4	6075.1	1313.6
Upper_1	1	KUD1973	46.75	55.8	0.87	0.64	0.07	9.05	2465.8	6069.4	1299.8
Upper_1	1	KUD1974	51	55.85	0.84	1.00	0.06	4.85	2484.6	6063.8	1276.7
Upper_1	1	KUD1975	50.1	67.7	1.59	0.46	0.13	17.6	2463.7	6089.4	1313.1
Upper_1	1	KUD1976	49.9	55.1	1.98	0.89	0.17	5.2	2476.6	6084.2	1295.7
Upper_1	1	KUD1977	54.7	63.6	1.70	0.54	0.14	8.9	2493.6	6072.5	1269.4
Upper_1	1	KUD1978	59.25	65.35	0.88	0.51	0.07	6.1	2474.9	6046.7	1271.2
Upper_1	1	KUD1979	53.65	57.25	0.84	0.44	0.06	3.6	2460.7	6056.8	1295.4
Upper_1	1	KUD1980	57.7	76.05	1.67	0.66	0.13	18.35	2474.2	6109.7	1316.0
Upper_1	1	KUD1981	59.2	83.01	2.09	0.84	0.16	23.81	2483.3	6121.6	1314.3
Upper_1	1	KUD1982	61.65	97.18	2.04	0.86	0.16	35.53	2494.3	6134.5	1314.9
Upper_1	1	KUD1983	86	91.3	0.71	0.10	0.05	5.3	2442.3	6057.9	1316.5
Upper_1	1	KUD1984	79	82.65	1.67	0.33	0.12	3.65	2446.4	6037.7	1289.7
Upper_1	1	KUD1985	77.6	80.4	1.57	0.09	0.12	2.8	2454.4	6025.9	1273.0
Upper_1	1	KUD1986	71.8	82.25	0.64	0.38	0.05	10.45	2469.6	6019.5	1260.2
Upper_1	1	KUD1987	79.85	89.95	0.72	0.28	0.05	10.1	2454.6	5995.6	1259.4
Upper_1	1	KUD1988	91.3	98.15	0.88	0.63	0.07	6.85	2471.2	5997.0	1237.1
Upper_1	1	KUD1990	135.64	138.59	1.64	0.07	0.10	2.95	2389.7	5939.1	1313.2
Upper_1	1	KUD1991	112.1	117.5	1.72	0.66	0.13	5.4	2419.9	5944.2	1279.4
Upper_1	1	KUD1992	112	120.2	0.51	0.64	0.04	8.2	2408.7	5960.9	1313.2

Domain	Zonecode	Hole_Id	From	To	Ni%	Cu%	Co%	Length	Y	X	Z
Upper_1	1	KUD1993	108.1	115.15	1.61	0.49	0.12	7.05	2416.3	5961.7	1295.8
Upper_1	1	KUD1994	107.55	113.45	1.28	0.30	0.10	5.9	2424.6	5962.5	1276.0
Upper_1	1	KUD2036	41.2	54.7	0.46	0.25	0.03	13.5	2475.5	6062.4	1289.7
Upper_1	1	KUD2037	49.4	57.3	0.84	0.50	0.06	7.9	2485.4	6079.0	1282.8
Upper_1	1	KUD2038	51.5	59.8	1.47	0.63	0.12	8.3	2473.4	6092.3	1305.2
Upper_1	1	KUD2039	45.3	72	1.83	0.66	0.14	26.7	2489.2	6106.6	1301.8
Upper_1	1	KUD2040	48.91	72.51	1.57	0.62	0.12	23.6	2506.0	6113.1	1299.7
Upper_1	1	KUD2041	45.3	49.3	1.93	0.72	0.15	4	2508.3	6094.3	1293.9
Upper_1	1	KUD2042	69.41	72.34	1.31	0.31	0.10	2.93	2521.3	6122.9	1296.4
Upper_1	1	KUD2043	55.8	57.7	0.94	0.39	0.07	1.9	2518.1	6104.9	1292.2
Upper_1	1	KUD2044	92.2	94.26	0.91	0.17	0.07	2.06	2537.7	6144.4	1298.4
Upper_1	1	KUD2045	89.7	91.1	0.60	0.10	0.04	1.4	2541.6	6135.2	1286.1
Upper_1	1	KUD2046	75.3	76.8	1.83	2.18	0.15	1.5	2536.3	6117.6	1282.2
Upper_1	1	KUD2047	46.6	50.35	1.83	1.10	0.14	3.75	2498.6	6094.5	1295.5
Upper_1	1	KUD2048	83.87	105.9	1.33	0.49	0.11	22.03	2550.9	6063.3	1236.9
Upper_1	1	KUD2049	117.56	119.41	1.55	0.34	0.11	1.85	2581.4	6056.5	1225.4
Upper_1	1	KUD2052	101.36	103.31	2.42	0.30	0.19	1.95	2567.6	6134.8	1282.7
Upper_1	1	KUD2053	99.26	100.76	1.85	0.60	0.14	1.5	2570.9	6118.0	1267.2
Upper_1	1	KUD2054	91.01	93.71	0.61	0.24	0.05	2.7	2555.0	6121.7	1271.0
Upper_1	1	KUD2055	64.71	75.01	2.17	0.73	0.17	10.3	2533.4	6102.5	1273.7
Upper_1	1	KUD2056	54	74.9	1.55	0.69	0.12	20.9	2518.3	6098.8	1274.3
Upper_1	1	KUD2057	53	77	1.97	0.93	0.16	24	2515.1	6084.7	1264.4
Upper_1	1	KUD2058	56.91	92.3	1.71	0.72	0.14	35.39	2529.7	6078.6	1253.4
Upper_1	1	KUD2059	54.55	73.4	2.14	0.71	0.17	18.85	2508.8	6065.1	1260.0
Upper_1	1	KUD2060	67	71.35	1.04	0.40	0.08	4.35	2490.0	6049.3	1256.3
Upper_1	1	KUD2061	91.39	93.4	0.37	0.52	0.03	2.01	2490.9	6024.3	1235.6
Upper_1	1	KUD2061	99.77	101.28	0.00	0.01	0.00	1.51	2489.4	6022.2	1227.8
Upper_1	1	KUD2062	80	86.35	0.81	0.65	0.06	6.35	2448.8	6054.9	1305.5
Upper_1	1	KUD2063	81	86	0.65	0.44	0.05	5	2440.4	6045.1	1308.9
Upper_1	1	KUD2064	80.45	87.65	1.59	0.71	0.12	7.2	2431.6	6023.2	1304.3
Upper_1	1	KUD2065	88.2	95.1	1.55	0.72	0.11	6.9	2419.8	6003.2	1310.1
Upper_1	1	KUD2066	87.2	91.6	2.01	1.27	0.15	4.4	2424.2	5995.4	1300.4
Upper_1	1	KUD2067	100.5	108	1.41	0.58	0.10	7.5	2412.7	5969.8	1304.4
Upper_1	1	KUD2069	77.7	78.5	0.60	0.37	0.03	0.8	2333.9	5998.4	1434.6
Upper_1	1	KUD2070	43	44	0.75	0.06	0.03	1	2335.4	6034.7	1438.5
Upper_1	1	KUD2071	35	40	0.82	0.34	0.05	5	2349.4	6047.1	1435.7
Upper_1	1	KUD2072	24.95	26.4	1.52	0.29	0.10	1.45	2350.3	6069.0	1437.1
Upper_1	1	KUD2073	21.2	22.8	1.62	0.25	0.11	1.6	2356.9	6097.7	1432.8
Upper_1	1	KUD2074	101.1	111	1.41	0.69	0.10	9.9	2435.5	5987.4	1273.3
Upper_1	1	KUD2075	103.15	109.1	1.00	0.13	0.07	5.95	2443.7	5965.3	1255.7
Upper_1	1	KUD2076	111.15	115.6	1.36	0.37	0.11	4.45	2459.0	5972.2	1232.3
Upper_1	1	KUD2077	119.15	124.95	0.72	0.41	0.05	5.8	2483.3	5976.2	1209.9
Upper_1	1	KUD2078	161.89	166.29	0.61	0.43	0.04	4.4	2373.7	5915.5	1278.9
Upper_1	1	KUD2079	136.96	139.78	1.02	0.19	0.07	2.82	2415.7	5929.8	1245.0

Domain	Zonecode	Hole_Id	From	To	Ni%	Cu%	Co%	Length	Y	X	Z
Upper_1	1	KUD2080	125.79	136.39	0.49	0.62	0.04	10.6	2440.5	5928.9	1228.9
Upper_1	1	KUD2081	125.01	127.22	0.57	0.38	0.04	2.21	2405.6	5937.3	1289.9
Upper_1	1	KUD2082	174.3	174.95	0.00	0.01	0.00	0.65	2361.8	5904.9	1295.5
Upper_1	1	KUD2084	174.51	175.26	0.45	1.72	0.03	0.75	2374.9	5902.9	1256.2
Upper_1	1	KUD2090	146.2	147.2	0.77	0.07	0.06	1	2477.3	5922.3	1190.5
Upper_1	1	KUD2091	124.8	135.15	1.62	1.28	0.14	10.35	2511.4	5978.8	1195.7
Upper_1	1	KUD2093	72	78.95	0.73	0.43	0.05	6.95	2468.3	6034.9	1269.7
Upper_1	1	KUD2094	79.2	84.9	0.94	0.41	0.07	5.7	2441.8	6013.7	1280.0
Upper_1	1	KUD2095	84	92.1	1.45	0.50	0.11	8.1	2430.8	5990.7	1287.7
Upper_1	1	KUD2096	97.73	101.14	1.52	0.90	0.11	3.41	2426.4	5973.1	1278.8
Upper_1	1	KUD2097	110	115.9	0.52	0.44	0.03	5.9	2410.3	5951.3	1305.5
Upper_1	1	KUD2177	93.47	98.82	1.22	0.28	0.10	5.35	2546.3	6045.9	1233.0
Upper_1	1	KUD2178	135	136	0.02	0.69	0.00	1	2607.8	6066.8	1223.8
Upper_1	1	SMD153	1026.37	1033.4	0.51	0.22	0.02	7	2370.2	5948.1	1353.3
Upper_1	1	SMD155	1035.42	1037.6	0.11	0.16	0.01	2.17	2506.5	6238.2	1404.8
Upper_1	1	SMD157	1345.75	1353.4	2.22	0.53	0.17	7.69	2626.6	5831.7	1057.4
Upper_1	1	SMD157-A	1249.25	1255.1	2.21	0.65	0.15	5.85	2484.0	5856.5	1144.5
Upper_1	1	SMD159	1344.9	1346.7	0.54	0.14	0.02	1.83	2548.4	5664.7	1055.2
Upper_1	1	SMD159-A	1434.3	1437.6	2.36	0.63	0.18	3.25	2707.9	5707.9	963.4
Upper_1	1	SMD161	814.54	821.38	0.80	0.29	0.05	6.84	2330.9	6309.5	1548.5
Upper_1	1	SMD164	1325.45	1330.8	2.84	0.17	0.11	5.33	2464.5	5391.7	1064.3

Domain: Lower 2

Domain	Zonecode	Hole_Id	From	To	Ni%	Cu%	Co%	Length	Y	X	Z
Lower_2	2	KUD1525	729.28	797.85	1.70	0.85	0.12	68.57	2520.2	6024.7	1204.1
Lower_2	2	KUD1525	882.05	891.2	1.31	0.87	0.10	9.15	2621.4	6031.6	1134.5
Lower_2	2	KUD1531	394.5	395.8	1.14	0.45	0.09	1.3	2511.1	5858.6	1059.0
Lower_2	2	KUD1532	440	442	0.95	0.19	0.06	2	2570.2	5853.4	1008.5
Lower_2	2	KUD1533	339.2	355.9	1.66	0.76	0.12	16.7	2538.7	5905.2	1107.1
Lower_2	2	KUD1535B	456.73	462.75	2.08	0.74	0.14	6.02	2656.2	5861.6	997.1
Lower_2	2	KUD1541	389.5	397.35	2.08	0.73	0.15	7.85	2588.4	5918.0	1058.2
Lower_2	2	KUD1542	388.75	395.12	2.50	0.97	0.17	6.37	2638.6	5918.3	1062.5
Lower_2	2	KUD1545	520.15	523.65	2.50	0.12	0.16	3.5	2599.5	5802.5	931.9
Lower_2	2	KUD1546	409.2	410.26	2.29	0.41	0.16	1.06	2678.0	5914.3	1050.6
Lower_2	2	KUD1547A	534.74	538.45	2.62	0.78	0.20	3.71	2656.2	5803.7	923.1
Lower_2	2	KUD1548	348.2	366.4	2.32	0.99	0.17	18.2	2580.5	5971.8	1103.8
Lower_2	2	KUD1550A	810.02	813.81	0.87	0.99	0.05	3.79	2689.5	5611.3	686.6
Lower_2	2	KUD1551	284	295.4	1.08	1.79	0.08	11.4	2520.8	5956.0	1178.6
Lower_2	2	KUD1553	366.9	371.9	2.37	1.02	0.15	5	2632.5	5961.9	1091.6
Lower_2	2	KUD1554	386.75	388.72	1.76	0.67	0.13	1.97	2684.3	5945.3	1078.4
Lower_2	2	KUD1555	302.9	310.9	1.92	1.24	0.14	8	2552.5	6009.8	1172.8
Lower_2	2	KUD1556	278.65	284.42	1.54	0.60	0.11	5.77	2503.9	6010.1	1214.0
Lower_2	2	KUD1557	341.6	347.4	2.64	0.84	0.19	5.8	2605.4	6003.7	1127.2

Domain	Zonecode	Hole_Id	From	To	Ni%	Cu%	Co%	Length	Y	X	Z
Lower_2	2	KUD1560	348.1	351.7	1.39	0.96	0.10	3.6	2639.9	6000.4	1123.5
Lower_2	2	KUD1562	667.6	693.55	2.55	1.49	0.17	25.95	2779.3	5760.1	810.7
Lower_2	2	KUD1563	296.13	310.13	1.88	1.34	0.14	14	2546.4	6032.9	1189.8
Lower_2	2	KUD1566B	281.5	285.35	2.12	0.80	0.15	3.85	2507.5	6048.6	1234.6
Lower_2	2	KUD1567	329.96	337.7	0.91	1.61	0.07	7.74	2591.4	6034.9	1152.3
Lower_2	2	KUD1572	304.75	315.95	2.14	0.87	0.16	11.2	2548.2	6106.6	1237.3
Lower_2	2	KUD1580	321.6	325.28	0.67	0.20	0.05	3.68	2606.2	6108.9	1217.4
Lower_2	2	KUD1586	552.83	556.43	0.00	0.01	0.00	3.6	2626.2	5782.2	903.8
Lower_2	2	KUD1591	786.2	799.65	2.06	1.07	0.12	13.45	2829.5	5691.6	719.5
Lower_2	2	KUD1591W1	774.55	785.8	2.09	0.63	0.14	11.25	2866.7	5727.0	741.2
Lower_2	2	KUD1593	574.6	583.8	1.67	0.53	0.12	9.2	2707.8	5795.3	889.0
Lower_2	2	KUD1594A	612	622.55	1.55	0.42	0.11	10.55	2802.5	5801.6	874.7
Lower_2	2	KUD1595	777	777.6	0.49	0.15	0.03	0.6	2759.3	5646.2	726.8
Lower_2	2	KUD1595A	733.49	736.98	0.68	0.29	0.04	3.49	2727.2	5675.9	756.7
Lower_2	2	KUD1675	189.4	190.39	0.07	0.45	0.00	0.99	2495.9	6122.6	1289.7
Lower_2	2	KUD1701	203.51	211.03	0.63	0.52	0.05	7.52	2527.1	6170.5	1298.4
Lower_2	2	KUD1702	196.5	204.3	1.90	0.70	0.14	7.8	2511.1	6138.7	1285.1
Lower_2	2	KUD1703	213.3	216.3	1.74	0.21	0.12	3	2538.6	6156.3	1279.4
Lower_2	2	KUD1704	230.8	231.6	2.30	0.28	0.16	0.8	2566.1	6167.8	1271.8
Lower_2	2	KUD1871	187.31	189.21	0.15	0.35	0.01	1.9	2487.1	6102.0	1286.5
Lower_2	2	KUD1891	212	241	2.00	0.72	0.16	29	2539.5	6108.3	1249.5
Lower_2	2	KUD1946A	91.25	101.11	0.47	0.28	0.04	9.86	2562.0	6188.6	1293.7
Lower_2	2	KUD1947	134.65	137.8	0.22	0.66	0.02	3.15	2604.9	6169.8	1269.2
Lower_2	2	KUD1948	183	189.95	1.57	0.37	0.11	6.95	2607.0	6121.2	1225.7
Lower_2	2	KUD1949	167.9	185	2.36	0.76	0.19	17.1	2567.4	6106.4	1230.7
Lower_2	2	KUD1974	56.24	61.67	0.00	0.00	0.00	5.43	2482.1	6065.0	1271.9
Lower_2	2	KUD1978	65.35	70.44	0.00	0.02	0.00	5.09	2471.9	6046.2	1266.5
Lower_2	2	KUD1986	82.25	87.1	0.06	0.01	0.00	4.85	2465.5	6021.2	1254.0
Lower_2	2	KUD2037	57.3	59.45	0.03	0.00	0.00	2.15	2483.2	6081.5	1279.0
Lower_2	2	KUD2040	77.52	85.92	1.79	0.50	0.14	8.4	2503.0	6132.2	1291.3
Lower_2	2	KUD2041	63.2	73.01	1.77	1.00	0.14	9.81	2505.8	6110.4	1280.9
Lower_2	2	KUD2042	92.31	94.07	2.12	0.30	0.16	1.76	2523.4	6143.3	1287.7
Lower_2	2	KUD2042	95.61	104.01	1.29	0.78	0.10	8.4	2524.0	6149.4	1285.1
Lower_2	2	KUD2043	60.8	95.4	1.85	0.79	0.14	34.6	2518.9	6122.7	1280.4
Lower_2	2	KUD2044	121.8	134.8	1.24	0.36	0.09	13	2545.8	6177.2	1289.0
Lower_2	2	KUD2045	120.2	122.4	0.48	0.86	0.03	2.2	2550.1	6161.9	1273.0
Lower_2	2	KUD2046	107.75	114.7	1.59	0.81	0.12	6.95	2545.9	6145.8	1263.5
Lower_2	2	KUD2047	58	67.85	1.84	0.81	0.14	9.85	2494.0	6105.4	1287.3
Lower_2	2	KUD2048	116.51	137.02	1.02	0.72	0.08	20.51	2562.9	6068.0	1207.7
Lower_2	2	KUD2049	163.44	182.13	2.16	0.53	0.17	18.69	2612.0	6060.4	1180.7
Lower_2	2	KUD2052	144.21	147.61	1.71	0.28	0.13	3.4	2589.4	6168.3	1265.2
Lower_2	2	KUD2053	138.66	144.61	2.05	0.53	0.16	5.95	2593.4	6143.9	1243.7
Lower_2	2	KUD2054	127.01	132.01	0.97	0.78	0.07	5	2570.5	6148.1	1250.0
Lower_2	2	KUD2055	81.81	108.71	1.23	0.52	0.10	26.9	2539.9	6118.9	1255.4

Domain	Zonecode	Hole_Id	From	To	Ni%	Cu%	Co%	Length	Y	X	Z
Lower_2	2	KUD2056	81.2	87.9	1.42	0.44	0.11	6.7	2519.2	6111.6	1258.9
Lower_2	2	KUD2057	78	80	2.22	0.66	0.18	2	2515.2	6090.6	1251.7
Lower_2	2	KUD2058	99	106	1.21	0.64	0.09	7	2535.3	6086.7	1227.3
Lower_2	2	KUD2059	73.4	75.05	1.35	1.79	0.10	1.65	2508.2	6066.6	1249.9
Lower_2	2	KUD2060	71.35	75.38	0.02	0.02	0.00	4.03	2488.9	6049.3	1252.3
Lower_2	2	KUD2061	101.28	102.79	0.00	0.01	0.00	1.51	2489.2	6021.8	1226.4
Lower_2	2	KUD2093	78.95	82.66	0.02	0.00	0.00	3.71	2465.3	6037.1	1265.9
Lower_2	2	KUD2177	113.14	153.04	1.84	0.67	0.14	39.9	2559.3	6045.4	1198.4
Lower_2	2	KUD2178	186.41	187.21	0.84	0.19	0.05	0.8	2641.7	6073.0	1185.8
Lower_2	2	SMD157	1446.89	1457.5	0.08	0.11	0.01	10.61	2631.5	5831.7	955.0
Lower_2	2	SMD157-A	1255.1	1283.5	0.79	0.22	0.06	28.4	2482.8	5856.5	1127.5
Lower_2	2	SMD159-A	1581.62	1585.9	2.58	1.14	0.17	4.24	2712.2	5733.1	817.9

Domains: Other 4, Other 5, Other 6 and FW_Pod_1460_7

Domain	Zonecode	Hole_Id	From	To	Ni%	Cu%	Co%	Length	Y	X	Z
Other_4	4	KUD1531	282.6	286.47	0.66	0.11	0.04	3.87	2530.4	5860.1	1167.9
Other_4	4	KUD1537	244	246.75	2.19	0.43	0.14	2.75	2468.0	5897.8	1237.5
Other_4	4	KUD1538	238.2	239.4	2.35	0.37	0.15	1.2	2430.7	5897.6	1272.2
Other_4	4	KUD1540	233.7	238.15	1.79	0.33	0.09	4.45	2396.7	5887.5	1313.4
Other_4	4	KUD1989	127	127.7	0.94	1.05	0.07	0.7	2404.0	5921.2	1322.8
Other_4	4	KUD1990	124	127.65	1.79	0.38	0.12	3.65	2400.8	5940.9	1314.0
Other_4	4	KUD1995	185	188	2.22	0.08	0.10	3	2381.3	5845.7	1299.7
Other_4	4	KUD1996	153.35	154.05	2.38	0.19	0.13	0.7	2404.1	5879.4	1276.7
Other_4	4	KUD2078	112.5	114.15	0.73	1.08	0.05	1.65	2420.0	5930.5	1293.4
Other_4	4	KUD2081	113.5	115	0.71	0.31	0.05	1.5	2416.7	5939.8	1293.3
Other_4	4	KUD2082	123	123.7	1.85	0.23	0.14	0.7	2409.0	5922.8	1304.6
Other_4	4	KUD2084	125.01	126.6	1.71	0.29	0.11	1.59	2417.0	5918.5	1275.9
Other_4	4	KUD2098	111	111.65	1.21	0.21	0.08	0.65	2416.6	5944.5	1302.6
Other_5	5	KUD1531	329.6	330.15	2.23	0.28	0.14	0.55	2522.7	5859.2	1123.2
Other_5	5	KUD1534	286.95	289.3	2.38	0.40	0.15	2.35	2501.0	5902.6	1176.7
Other_5	5	KUD1537	259.2	269.75	2.72	0.20	0.16	10.55	2458.5	5899.4	1221.0
Other_5	5	KUD1538	259.95	265.9	2.35	0.93	0.16	5.95	2415.0	5898.9	1253.9
Other_5	5	KUD1539	343.6	347.55	1.24	0.48	0.07	3.95	2545.3	5805.8	1109.7
Other_5	5	KUD1545	375.65	385.55	1.07	0.40	0.08	9.9	2598.1	5815.2	1072.6
Other_5	5	KUD1551	264	267	1.40	0.22	0.11	3	2528.4	5951.0	1201.0
Other_5	5	KUD1586	391.01	395.5	0.88	2.68	0.09	4.49	2610.3	5797.0	1063.7
Other_5	5	KUD1996	184.39	186.28	0.00	0.01	0.00	1.89	2379.1	5863.2	1265.9
Other_5	5	KUD2079	116.69	120.09	2.39	0.87	0.19	3.4	2431.3	5934.6	1256.5
Other_5	5	KUD2084	131.82	133.87	2.51	0.50	0.19	2.05	2410.9	5916.3	1273.0
Other_5	5	SMD157-A	1239.2	1240.9	2.21	0.70	0.15	1.65	2484.9	5856.5	1156.7
Other_6	6	KUD1549	342	366	0.56	0.35	0.03	24	2565.9	5752.7	1113.1
Other_6	6	KUD1558	326.3	327.65	1.49	0.20	0.07	1.35	2519.0	5746.6	1148.6
Other_6	6	KUD1561	371	391	0.88	0.55	0.06	20	2565.2	5684.6	1113.0

Domain	Zonecode	Hole_Id	From	To	Ni%	Cu%	Co%	Length	Y	X	Z
Other_6	6	KUD1568	407	434	1.05	0.46	0.06	27	2609.1	5693.2	1066.4
Other_6	6	SMD159	1281.92	1292.6	0.79	0.43	0.05	10.68	2555.6	5659.8	1113.1
FW_Pod_1460_7	7	KUD1584	339.89	341.46	0.29	0.03	0.03	1.57	2392.3	6162.7	1467.5
FW_Pod_1460_7	7	KUD1599	168.52	170.86	0.61	0.15	0.04	2.34	2364.8	6120.1	1448.8
FW_Pod_1460_7	7	KUD1601	178.19	180.53	0.56	1.57	0.04	2.34	2380.3	6153.7	1451.6
FW_Pod_1460_7	7	KUD1602	189.98	194.31	1.70	0.36	0.14	4.33	2374.0	6163.8	1482.0
FW_Pod_1460_7	7	KUD1603	165.86	175.22	1.85	0.46	0.13	9.36	2418.5	6172.1	1451.0
FW_Pod_1460_7	7	KUD1604	188.98	196.01	0.80	0.27	0.06	7.03	2406.6	6189.8	1479.6
FW_Pod_1460_7	7	KUD1655	151.29	152.88	1.01	0.22	0.07	1.59	2419.6	6149.3	1436.1
FW_Pod_1460_7	7	KUD1657	163.59	164.86	0.61	0.27	0.04	1.27	2410.9	6160.2	1455.0
FW_Pod_1460_7	7	KUD1658	155.6	158.51	0.22	0.55	0.02	2.91	2408.1	6141.6	1415.4
FW_Pod_1460_7	7	KUD1659	168.64	169.41	0.09	0.12	0.01	0.77	2394.3	6150.4	1431.5
FW_Pod_1460_7	7	KUD1660	177.25	187.15	1.32	0.39	0.09	9.9	2372.3	6150.1	1450.3
FW_Pod_1460_7	7	KUD1661	160.94	165.13	0.78	1.85	0.05	4.19	2383.4	6130.6	1431.3
FW_Pod_1460_7	7	KUD1663	157.81	158.68	0.53	0.23	0.04	0.87	2369.0	6103.4	1439.3
FW_Pod_1460_7	7	KUD1714	174.09	182.59	0.87	0.35	0.06	8.5	2367.6	6138.7	1452.4
FW_Pod_1460_7	7	KUD1717	175.12	177.21	0.57	0.19	0.03	2.09	2356.2	6119.1	1468.2
FW_Pod_1460_7	7	KUD1765	159.9	162.01	0.57	0.15	0.04	2.11	2405.1	6151.1	1444.5
FW_Pod_1460_7	7	KUD1803	33.45	39.47	0.72	0.27	0.05	6.02	2421.0	6157.0	1414.4
FW_Pod_1460_7	7	KUD1804	24.92	27.78	1.84	0.24	0.13	2.86	2398.7	6142.2	1426.4
FW_Pod_1460_7	7	KUD1811	21.64	27.13	0.67	0.12	0.05	5.49	2383.1	6107.0	1416.1
FW_Pod_1460_7	7	KUD1812	28.94	33.71	0.49	0.33	0.03	4.77	2374.6	6088.7	1424.7
FW_Pod_1460_7	7	KUD1957	47.71	49.5	0.87	0.20	0.06	1.79	2377.2	6097.6	1427.2
FW_Pod_1460_7	7	KUD1958	34.66	36.11	0.43	0.05	0.03	1.45	2374.5	6115.9	1438.6
FW_Pod_1460_7	7	KUD1959	34.08	42.02	0.53	0.13	0.04	7.94	2370.8	6135.9	1446.7
FW_Pod_1460_7	7	KUD1960	32.81	34.68	1.09	0.34	0.08	1.87	2381.5	6147.2	1443.7
FW_Pod_1460_7	7	KUD1961	69.91	72.45	0.53	0.11	0.04	2.54	2401.7	6148.9	1444.0
FW_Pod_1460_7	7	KUD2073	34.45	35.05	1.32	0.09	0.08	0.6	2367.8	6092.2	1436.3

Domain: TCG_East

Domain	Zonecode	Hole_Id	From	To	Ni%	Cu%	Co%	Length	Y	X	Z
TCG_East_8	8	KUD1576	362.95	367.9	2.29	0.67	0.15	4.95	2444.2	6212.8	1382.5
TCG_East_8	8	KUD1582	331.36	333.58	1.68	0.47	0.12	2.22	2500.0	6184.3	1337.4
TCG_East_8	8	KUD1583	485	488.1	1.17	0.57	0.08	3.1	2414.8	6337.2	1413.8
TCG_East_8	8	KUD1587	418	435.05	0.76	0.18	0.06	17.05	2385.2	6258.3	1441.9
TCG_East_8	8	KUD1592	368.75	372.24	2.22	0.65	0.14	3.49	2466.9	6228.2	1386.5
TCG_East_8	8	KUD1592	400.85	408.95	1.78	0.50	0.11	8.1	2451.8	6258.7	1381.5
TCG_East_8	8	KUD1598	479.7	482.7	1.43	0.18	0.09	3	2449.9	6341.9	1403.6
TCG_East_8	8	KUD1633	181.15	184.65	1.09	0.29	0.07	3.5	2470.4	6190.4	1370.4
TCG_East_8	8	KUD1634	205.13	209.5	1.43	0.38	0.10	4.37	2458.9	6220.8	1382.4
TCG_East_8	8	KUD1635	179.9	182.5	2.10	0.45	0.15	2.6	2488.5	6176.9	1346.3
TCG_East_8	8	KUD1637	267.4	269.1	0.86	1.85	0.06	1.7	2464.3	6288.0	1379.3
TCG_East_8	8	KUD1638	211.8	214.1	2.00	0.54	0.14	2.3	2478.1	6226.6	1368.5

Domain	Zonecode	Hole_Id	From	To	Ni%	Cu%	Co%	Length	Y	X	Z
TCG_East_8	8	KUD1639	288.25	290.05	1.27	0.19	0.07	1.8	2493.1	6314.8	1378.1
TCG_East_8	8	KUD1640	230.7	236.9	0.75	0.22	0.05	6.2	2481.5	6247.4	1362.1
TCG_East_8	8	KUD1641	191.6	193.05	2.48	0.39	0.17	1.45	2496.6	6194.4	1349.0
TCG_East_8	8	KUD1642	242.9	246.9	1.58	0.24	0.10	4	2494.1	6258.3	1355.3
TCG_East_8	8	KUD1678	244.8	250	2.16	2.60	0.14	5.2	2388.4	6242.8	1437.7
TCG_East_8	8	KUD1679	333.15	334.55	1.57	0.21	0.10	1.4	2379.8	6334.5	1450.9
TCG_East_8	8	KUD1680	230.5	239.8	2.35	1.23	0.16	9.3	2407.3	6235.1	1417.5
TCG_East_8	8	KUD1681	358.7	363	0.57	0.28	0.04	4.3	2371.9	6359.7	1462.8
TCG_East_8	8	KUD1682	260.3	269.55	0.63	0.21	0.04	9.25	2401.6	6268.1	1438.8
TCG_East_8	8	KUD1682	279	296.15	1.08	0.29	0.07	17.15	2391.1	6288.1	1437.8
TCG_East_8	8	KUD1683	268.45	287.15	1.81	0.54	0.12	18.7	2406.6	6281.5	1417.6
TCG_East_8	8	KUD1684	391	397	0.57	0.19	0.04	6	2374.6	6396.0	1465.0
TCG_East_8	8	KUD1687	355	371.2	1.01	0.24	0.06	16.2	2427.5	6379.2	1440.0
TCG_East_8	8	KUD1688	356.8	362.7	0.99	0.58	0.05	5.9	2471.8	6380.3	1412.5
TCG_East_8	8	KUD1697	182.9	191.9	2.47	0.90	0.18	9	2501.9	6169.1	1325.4
TCG_East_8	8	KUD1707	345.65	347	2.34	0.28	0.14	1.35	2350.7	6339.4	1485.9
TCG_East_8	8	KUD1748	328	334	0.37	0.17	0.03	6	2355.9	6320.4	1481.8
TCG_East_8	8	KUD1764	258.4	289.9	0.87	0.23	0.06	31.5	2384.4	6271.2	1444.3
TCG_East_8	8	KUD1813	22.4	25.7	1.24	0.15	0.09	3.3	2495.8	6239.8	1353.8
TCG_East_8	8	KUD1814	33.6	34.8	2.65	0.05	0.19	1.2	2508.0	6224.4	1345.9
TCG_East_8	8	KUD1815	37.02	37.27	2.21	0.21	0.15	0.25	2508.8	6216.1	1344.4
TCG_East_8	8	KUD1816	30.7	31.7	0.81	1.85	0.06	1	2501.1	6216.0	1350.4
TCG_East_8	8	KUD1817	41.4	42.5	1.88	0.15	0.13	1.1	2508.1	6205.1	1345.0
TCG_East_8	8	KUD1818	27.8	28.2	1.50	1.86	0.11	0.4	2492.8	6209.3	1357.5
TCG_East_8	8	KUD1819	32.3	33	2.67	0.24	0.20	0.7	2497.8	6198.7	1351.9
TCG_East_8	8	KUD1820	36	38.1	2.51	0.44	0.19	2.1	2500.8	6192.4	1346.2
TCG_East_8	8	KUD1821	33.3	35.4	1.64	1.16	0.12	2.1	2490.7	6192.5	1357.3
TCG_East_8	8	KUD1822	26.7	29.5	1.37	0.54	0.10	2.8	2486.1	6181.2	1350.3
TCG_East_8	8	KUD1823	25.1	33.9	1.50	0.47	0.12	8.8	2483.4	6171.2	1349.7
TCG_East_8	8	KUD1827	86.75	89.03	2.45	0.48	0.18	2.28	2458.0	6229.3	1390.8
TCG_East_8	8	KUD1827A	86.22	86.93	0.00	0.01	0.00	0.71	2458.2	6226.2	1389.6
TCG_East_8	8	KUD1827A	95.08	99.25	0.06	0.04	0.00	4.17	2448.2	6229.8	1389.7
TCG_East_8	8	KUD1828	132	134.15	0.52	0.05	0.03	2.15	2466.2	6308.6	1392.0
TCG_East_8	8	KUD1829	171.95	176.5	0.94	0.23	0.05	4.55	2475.1	6359.5	1400.3
TCG_East_8	8	KUD1830	132.44	136.48	2.34	0.50	0.17	4.04	2421.3	6254.9	1415.9
TCG_East_8	8	KUD1830	147.95	157.3	1.04	0.81	0.08	9.35	2405.3	6262.9	1419.4
TCG_East_8	8	KUD1832	131.5	147.05	1.55	0.35	0.11	15.55	2425.5	6275.3	1403.9
TCG_East_8	8	KUD1833	144.55	172.35	0.76	0.25	0.05	27.8	2435.3	6314.0	1404.1
TCG_East_8	8	KUD1834	161.9	170.53	0.99	0.18	0.07	8.63	2419.9	6308.2	1415.9
TCG_East_8	8	KUD1834	175.58	180.39	0.19	0.11	0.02	4.81	2411.4	6316.1	1417.7
TCG_East_8	8	KUD1835	199.4	208.35	1.17	0.49	0.08	8.95	2386.4	6322.1	1437.7
TCG_East_8	8	KUD1836	226.2	234	0.50	0.07	0.03	7.8	2407.7	6376.3	1442.5
TCG_East_8	8	KUD1837	199.75	215.55	0.79	0.19	0.05	15.8	2453.4	6382.3	1428.6
TCG_East_8	8	KUD1839	203.2	207.8	0.50	2.17	0.04	4.6	2371.1	6295.6	1451.6

Domain	Zonecode	Hole_Id	From	To	Ni%	Cu%	Co%	Length	Y	X	Z
TCG_East_8	8	KUD1840	214	215	0.52	0.40	0.04	1	2398.4	6352.3	1433.2
TCG_East_8	8	KUD1841	241.2	253.55	0.81	0.48	0.06	12.35	2365.8	6354.4	1467.0
TCG_East_8	8	KUD1842	263	264.1	0.89	0.10	0.06	1.1	2349.9	6354.1	1483.2
TCG_East_8	8	KUD1844	212.51	228.6	1.09	0.51	0.07	16.09	2424.6	6377.2	1441.0
TCG_East_8	8	KUD1897	68.65	70.7	0.41	0.35	0.03	2.05	2552.8	6248.0	1339.8
TCG_East_8	8	KUD1911	22.9	27.78	1.43	0.90	0.11	4.88	2491.7	6160.1	1328.2
TCG_East_8	8	KUD1911	29.83	32.9	2.34	1.29	0.18	3.07	2496.8	6157.1	1329.1
TCG_East_8	8	KUD1912	25	28.1	1.34	0.58	0.11	3.1	2496.3	6171.9	1330.3
TCG_East_8	8	KUD1913	31	32	0.00	0.78	0.00	1	2509.6	6183.8	1327.6
TCG_East_8	8	KUD1952	94.75	97.35	0.94	0.62	0.07	2.6	2474.1	6262.4	1366.4
TCG_East_8	8	KUD1953	126.6	137.7	1.18	0.93	0.09	11.1	2437.0	6279.2	1394.2
TCG_East_8	8	KUD1954	103.4	105.95	1.55	0.12	0.10	2.55	2495.7	6290.6	1364.3
TCG_East_8	8	KUD1955	77.85	79.9	2.41	0.20	0.16	2.05	2509.9	6261.5	1350.3
TCG_East_8	8	KUD1956	144.2	144.7	1.38	0.06	0.08	0.5	2517.5	6341.6	1388.4
TCG_East_8	8	KUD1965	13.93	14.03	0.00	0.01	0.00	0.1	2392.8	6218.6	1427.5
TCG_East_8	8	KUD1967	55.4	61.7	1.37	0.35	0.10	6.3	2399.4	6236.3	1427.0
TCG_East_8	8	KUD1968	56.75	80	1.01	0.20	0.07	23.25	2402.1	6262.6	1431.0
TCG_East_8	8	KUD1969	61.6	81	0.77	0.31	0.06	19.4	2396.0	6276.5	1432.8
TCG_East_8	8	KUD2099	127	133.3	1.38	0.11	0.09	6.3	2440.9	6333.9	1403.6
TCG_East_8	8	KUD2100	65.8	68	0.49	1.33	0.03	2.2	2466.9	6276.0	1372.7
TCG_East_8	8	KUD2101	100.13	108.77	0.06	0.34	0.01	8.64	2444.3	6306.9	1400.4
TCG_East_8	8	KUD2101	112.2	129	0.98	0.33	0.07	16.8	2435.7	6320.4	1402.3
TCG_East_8	8	KUD2102A	88.9	92.37	0.42	1.38	0.04	3.47	2450.0	6295.1	1385.8
TCG_East_8	8	KUD2103	64.5	67	0.41	0.77	0.03	2.5	2460.3	6271.7	1377.8
TCG_East_8	8	KUD2104	107	111	1.89	0.14	0.12	4	2430.7	6303.3	1399.3
TCG_East_8	8	KUD2105	116.1	127.2	1.64	0.13	0.11	11.1	2422.7	6311.5	1408.7
TCG_East_8	8	KUD2106	74.7	83	1.30	0.91	0.09	8.3	2445.5	6277.3	1387.9
TCG_East_8	8	KUD2107	45.71	52.2	1.28	1.40	0.09	6.49	2466.2	6253.8	1374.3
TCG_East_8	8	KUD2109	93.55	109	2.01	0.72	0.15	15.45	2425.4	6286.4	1407.8
TCG_East_8	8	KUD2111	71.97	85.01	1.50	0.58	0.11	13.04	2433.8	6263.2	1397.0
TCG_East_8	8	KUD2112	74.5	108.82	1.43	0.55	0.11	34.32	2420.3	6263.0	1409.6
TCG_East_8	8	KUD2113	79.2	88.37	2.37	0.86	0.17	9.17	2433.1	6265.4	1413.6
TCG_East_8	8	KUD2113	105.5	124	1.27	0.46	0.09	18.5	2409.0	6282.6	1422.9
TCG_East_8	8	SMD155	1091.99	1093.9	0.00	0.01	0.00	1.88	2506.9	6249.1	1349.5

Domain: Pod_1340_9, Pod_1381_10, Upper_Splay_11 and Lower_Splay_12

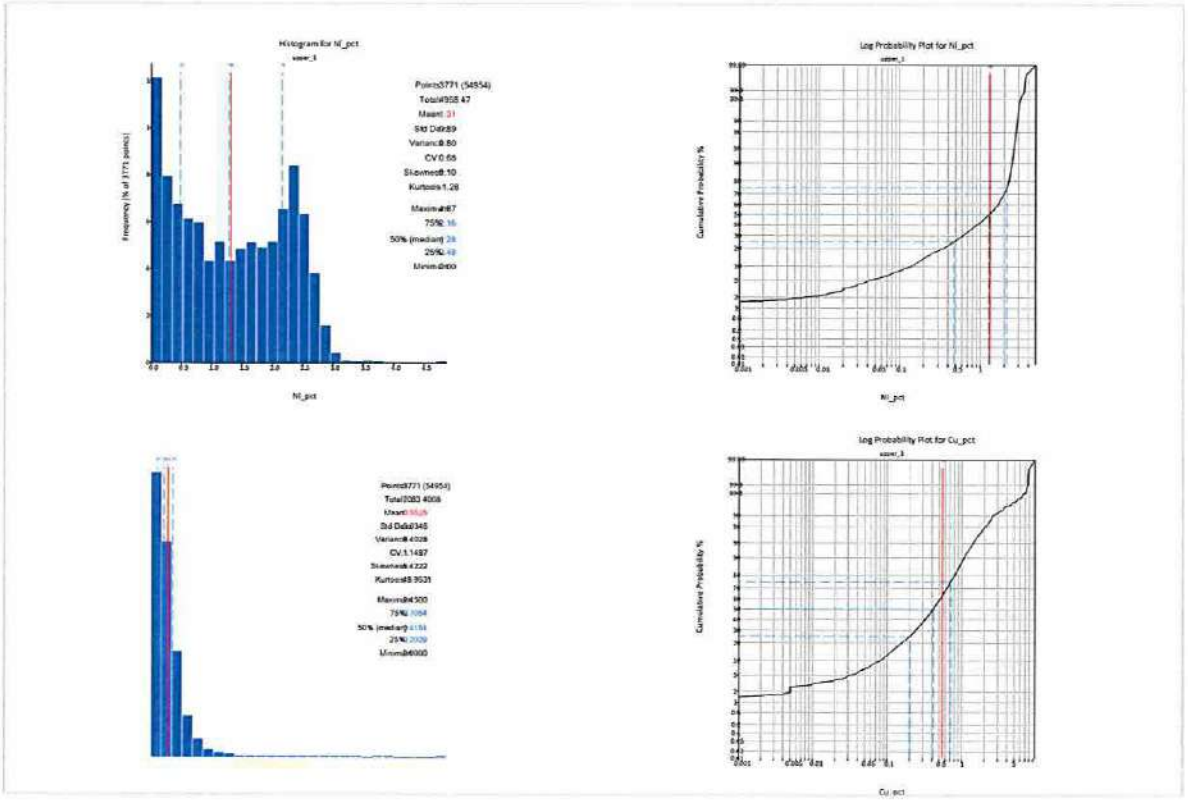
Domain	Zonecode	Hole_Id	From	To	Ni%	Cu%	Co%	Length	Y	X	Z
Pod_1340_9	9	KUD1608	153	153.4	2.05	0.32	0.15	0.4	2389.9	6081.1	1390.9
Pod_1340_9	9	KUD1612	142.74	144.6	1.35	0.35	0.09	1.86	2412.9	6043.6	1362.5
Pod_1340_9	9	KUD1617	153.6	154.3	0.98	0.07	0.07	0.7	2400.8	6026.6	1361.0
Pod_1340_9	9	KUD1646	155.7	157.8	0.28	0.27	0.02	2.1	2420.2	6044.9	1337.3
Pod_1340_9	9	KUD1743	44	45	0.28	0.07	0.02	1	2388.7	6066.8	1392.1
Pod_1340_9	9	KUD1780	43.05	43.6	1.33	0.50	0.10	0.55	2404.9	6083.7	1382.8
Pod_1340_9	9	KUD1782	33.4	34.2	0.85	0.32	0.06	0.8	2394.8	6068.2	1379.6
Pod_1340_9	9	KUD1783	41.8	42.3	1.77	0.35	0.13	0.5	2401.6	6055.8	1369.8
Pod_1340_9	9	KUD1785	31.3	33.15	1.28	0.82	0.09	1.85	2399.5	6049.2	1371.8
Pod_1340_9	9	KUD1855	45.15	46.95	0.68	0.42	0.05	1.8	2425.8	6064.4	1348.9
Pod_1340_9	9	KUD1860	40	40.35	2.12	0.25	0.15	0.35	2399.6	6016.1	1359.4
Pod_1381_10	10	KUD1623A	124.7	138.2	0.78	0.62	0.06	13.5	2442.2	6117.2	1388.6
Pod_1381_10	10	KUD1626	145	146	0.72	0.64	0.06	1	2443.9	6113.3	1360.3
Pod_1381_10	10	KUD1737	32.3	38.5	1.19	2.03	0.10	6.2	2408.5	6109.7	1407.2
Pod_1381_10	10	KUD1772	40.6	40.8	0.00	0.01	0.00	0.2	2442.7	6137.4	1382.1
Pod_1381_10	10	KUD1773	47.49	53.2	0.00	0.01	0.00	5.71	2447.6	6125.5	1376.2
Pod_1381_10	10	KUD1775	44	57.2	1.11	0.23	0.09	13.2	2447.9	6112.6	1374.4
Pod_1381_10	10	KUD1810	33.15	37.4	0	0.005	0.0001	4.25	2398.21	6106.08	1409.6
Pod_1381_10	10	KUD1849	45	46.8	1.9504	0.4835	0.152	1.8	2456.29	6115.51	1354
Upper_Splay_11	11	KUD1815	116.67	117.08	3.5883	0.1519	0.1141	0.41	2583.71	6189.11	1348.2
Upper_Splay_11	11	KUD1819	60	67.5	0.8573	0.8096	0.0669	7.5	2525.48	6187.74	1360.8
Upper_Splay_11	11	KUD1820	63.5	67.4	0.0382	0.0987	0.0034	3.9	2525.62	6178.86	1349.4
Upper_Splay_11	11	KUD1827	9.47	10.24	0.1631	0.0837	0.012	0.77	2530.71	6201.11	1389
Upper_Splay_11	11	KUD1827	14.7	20.61	0.3245	0.2384	0.0166	5.91	2523.54	6204.16	1389.2
Upper_Splay_11	11	KUD1827A	9.43	10.47	0	0.005	0.0001	1.04	2530.43	6200.66	1388.8
Upper_Splay_11	11	KUD1828	2.7	12	1.6725	0.213	0.0767	9.3	2536.18	6204.25	1388.8
Upper_Splay_11	11	KUD1829	2	9.7	3.6448	0.2895	0.164	7.7	2538.17	6203.78	1389.2
Upper_Splay_11	11	KUD1832	18.73	22.12	0.3295	0.1364	0.0162	3.39	2523.62	6209.5	1391.2
Upper_Splay_11	11	KUD1833	16.91	16.93	1.02	0.19	0.048	0.02	2526.94	6207.02	1390.5
Upper_Splay_11	11	KUD1833	21.09	21.3	0.88	0.37	0.042	0.21	2524.19	6210.27	1390.9
Upper_Splay_11	11	KUD1834	23.9	24.35	2.13	0.19	0.107	0.45	2520.91	6210.92	1393
Upper_Splay_11	11	KUD1835	16.31	17.24	0.0448	0.0619	0.005	0.93	2528.1	6208.44	1392.7
Upper_Splay_11	11	KUD1835	20.97	21.26	0.031	0.2083	0.0058	0.29	2524.88	6211.13	1393.8
Upper_Splay_11	11	KUD1835	27.99	29.8	0.3918	0.0336	0.023	1.81	2519.1	6215.95	1395.8
Upper_Splay_11	11	KUD1836	18	19.01	0.505	0.3326	0.0252	1.01	2527.56	6208.93	1393.8
Upper_Splay_11	11	KUD1837	3.01	8.47	0.2041	0.0893	0.0132	5.46	2537.95	6203.14	1389.8
Upper_Splay_11	11	KUD1837	13.3	16.2	1.1157	0.3106	0.0526	2.9	2534.31	6211.18	1391.6
Upper_Splay_11	11	KUD1838	2.42	13.5	0.7737	0.1045	0.0359	11.08	2537.67	6205.56	1390.1
Upper_Splay_11	11	KUD1840	15	15.8	0.45	0.07	0.024	0.8	2530.44	6209.14	1391.8
Upper_Splay_11	11	KUD1841	17.62	24.56	0.3848	0.0953	0.021	6.94	2526.18	6211.79	1395.4
Upper_Splay_11	11	KUD1841	29.95	31.56	0	0.005	0.0001	1.61	2519.58	6218.09	1398.6
Upper_Splay_11	11	KUD1844	16.86	17.58	0.27	0.1	0.011	0.72	2529.66	6209.72	1393.5
Upper_Splay_11	11	KUD1875	3.3	7.07	1.7551	0.4314	0.0779	3.77	2539.21	6204.05	1390.7

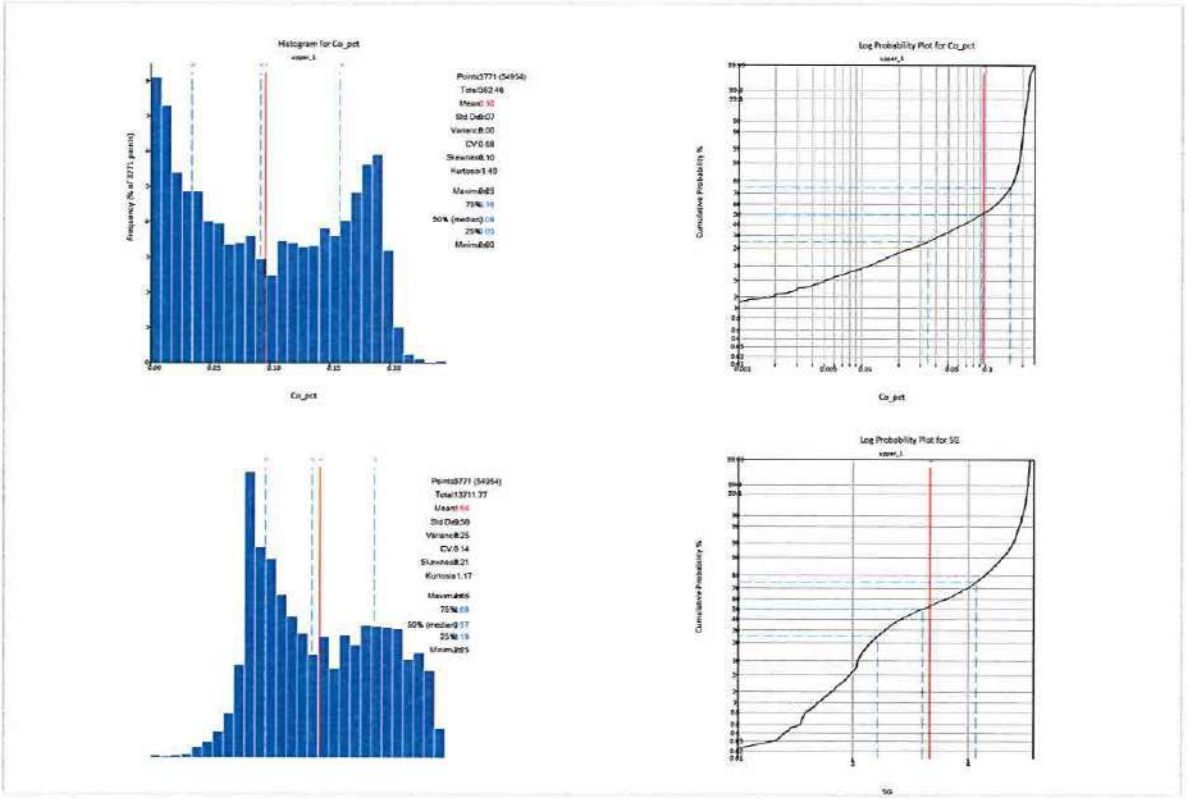
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Upper_Splay_11	11	KUD1876	1.6	4.8	0.8876	0.0896	0.0399	3.2	2540.74	6202.62	1388.9
Upper_Splay_11	11	KUD1895	3.75	10.75	1.3337	0.2158	0.0621	7	2535.84	6203.59	1386.6
Upper_Splay_11	11	KUD1896	3.5	8.1	1.6456	0.1642	0.0755	4.6	2540.69	6204.91	1391.5
Upper_Splay_11	11	KUD1897	5.05	5.35	0.79	0.01	0.028	0.3	2543.56	6202.32	1384.3
Upper_Splay_11	11	KUD1898	20.7	22.15	0.8439	0.0373	0.0474	1.45	2548.55	6181.19	1368.4
Upper_Splay_11	11	KUD1898	22.48	27.88	0.2192	0.1165	0.0145	5.4	2550.34	6180.75	1365.2
Upper_Splay_11	11	KUD1914	41.3	46.4	1.4853	0.1997	0.0496	5.1	2575.41	6205.34	1398.5
Upper_Splay_11	11	KUD1946	13.57	20.83	0.7245	0.1209	0.0419	7.26	2542.7	6185.88	1370.3
Upper_Splay_11	11	KUD1946A	13.5	21	0.7568	0.1392	0.0432	7.5	2542.89	6185.7	1370.3
Upper_Splay_11	11	KUD1947	20.75	21.3	1.25	0.17	0.067	0.55	2549.45	6183.4	1369.2
Upper_Splay_11	11	KUD1951	16	17	0.55	0.21	0.022	1	2535.26	6212.98	1396.9
Upper_Splay_11	11	KUD1952	7.61	14.84	0.1123	0.0767	0.007	7.23	2530.34	6201.95	1385.8
Upper_Splay_11	11	KUD1953	14.14	17.32	0.264	0.0603	0.014	3.18	2525.96	6204.32	1389.2
Upper_Splay_11	11	KUD1954	3	4	0.73	0.4	0.034	1	2539.43	6202.34	1387.5
Upper_Splay_11	11	KUD1955	3	4.1	0.62	0.1	0.031	1.1	2539.4	6202.23	1386.2
Upper_Splay_11	11	KUD1956	2.52	5.11	0.1543	0.0459	0.0088	2.59	2541.36	6202.99	1388.8
Lower_Splay_12	12	KUD1596	274.6	276.15	1.6237	0.3165	0.1124	1.55	2480.68	6107.17	1331.1
Lower_Splay_12	12	KUD1675	148.6	149.7	0.96	0.23	0.07	1.1	2501.83	6104.77	1325.8
Lower_Splay_12	12	KUD1701	158	164.8	0.8664	0.3828	0.0503	6.8	2527.56	6141.88	1334.2
Lower_Splay_12	12	KUD1702	166	168.4	0.8572	0.2647	0.0611	2.4	2514.43	6122.82	1314
Lower_Splay_12	12	KUD1871	163.3	164.9	1.6607	0.3999	0.1248	1.6	2489.43	6092.43	1308.6
Lower_Splay_12	12	KUD1891	174	180	0.874	0.2651	0.0581	6	2532.18	6090.99	1295.3
Lower_Splay_12	12	KUD1909	51	52	0.6	1.06	0.049	1	2473.5	6116.08	1334.4
Lower_Splay_12	12	KUD1910	50	54.02	0.3499	1.0274	0.0306	4.02	2486.04	6115.51	1327
Lower_Splay_12	12	KUD1949	63.6	66.9	0.4244	0.1203	0.0221	3.3	2548.87	6153.92	1329.5
Lower_Splay_12	12	KUD1976	41.6	42.6	0.6201	0.1113	0.0477	1	2482.95	6078.04	1301.2
Lower_Splay_12	12	KUD1977	43.95	44.85	0.6541	0.4302	0.0509	0.9	2497.36	6067.61	1282.8
Lower_Splay_12	12	KUD1980	47.3	54.4	0.5354	0.2212	0.0442	7.1	2482.55	6096.15	1318
Lower_Splay_12	12	KUD1981	44	46	0.29	0.205	0.02	2	2494.41	6098.32	1318
Lower_Splay_12	12	KUD1982	43	45	0.2747	0.1298	0.02	2	2502.89	6100.45	1319.2
Lower_Splay_12	12	KUD2037	36.85	38.4	1.5054	0.2759	0.1195	1.55	2492.14	6071.31	1294.7
Lower_Splay_12	12	KUD2039	35.9	36.2	1.73	0.09	0.139	0.3	2498.51	6087.8	1310.3
Lower_Splay_12	12	KUD2040	42.01	44.01	0.2102	0.5148	0.0145	2	2508.39	6097.09	1306.8
Lower_Splay_12	12	KUD2041	34	36.01	0.4997	0.255	0.0175	2.01	2509.81	6084.79	1301.6
Lower_Splay_12	12	KUD2042	49	55	0.2925	0.5737	0.0246	6	2519.41	6105.59	1303.7
Lower_Splay_12	12	KUD2043	48	52	1.7527	0.5445	0.1383	4	2517.71	6099.3	1295.9
Lower_Splay_12	12	KUD2044	51	57	1.1332	0.2864	0.0727	6	2528.06	6107.9	1309.2
Lower_Splay_12	12	KUD2045	44	48.35	0.4944	0.2911	0.0353	4.35	2528.57	6097.33	1304.8
Lower_Splay_12	12	KUD2046	42	49	0.3933	0.4177	0.0268	7	2527.64	6093.36	1298.7
Lower_Splay_12	12	KUD2047	34.3	40.2	1.1254	1.6319	0.089	5.9	2502.18	6086	1302
Lower_Splay_12	12	KUD2048	63.01	65.01	0.5926	0.2094	0.0194	2	2539.21	6058.67	1265.1
Lower_Splay_12	12	KUD2049	85.86	86.26	3.3315	0.0685	0.1068	0.4	2563.18	6054.59	1252.1
Lower_Splay_12	12	KUD2052	46.35	47.15	1.42	0.22	0.09	0.8	2539.28	6092.58	1305.1

Domain	Zonecode	Hole_Id	From	To	Ni%	Cu%	Co%	Length	Y	X	Z
Lower_Splay_12	12	KUD2053	48.5	52.15	0.2418	0.1549	0.0184	3.65	2543.33	6087.63	1295.2
Lower_Splay_12	12	KUD2054	48	49	0.64	0.06	0.042	1	2536.16	6090.93	1296
Lower_Splay_12	12	KUD2055	44	47.2	2.2974	1.0427	0.1858	3.2	2527.06	6086.71	1291
Lower_Splay_12	12	KUD2056	35	40	0.448	0.2706	0.0161	5	2516.91	6081.47	1294.9
Lower_Splay_12	12	KUD2058	49	50	0.81	0.14	0.036	1	2524.74	6071.26	1276.9

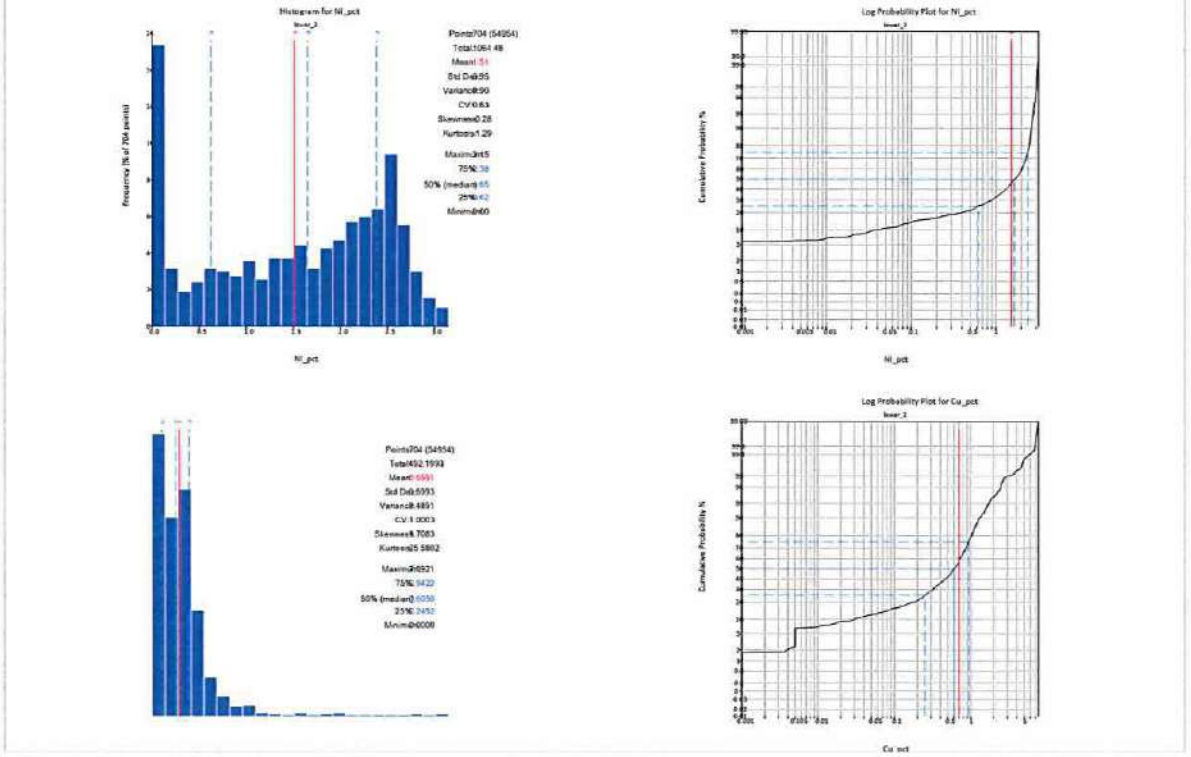
APPENDIX 3 Basic Statistics Plots

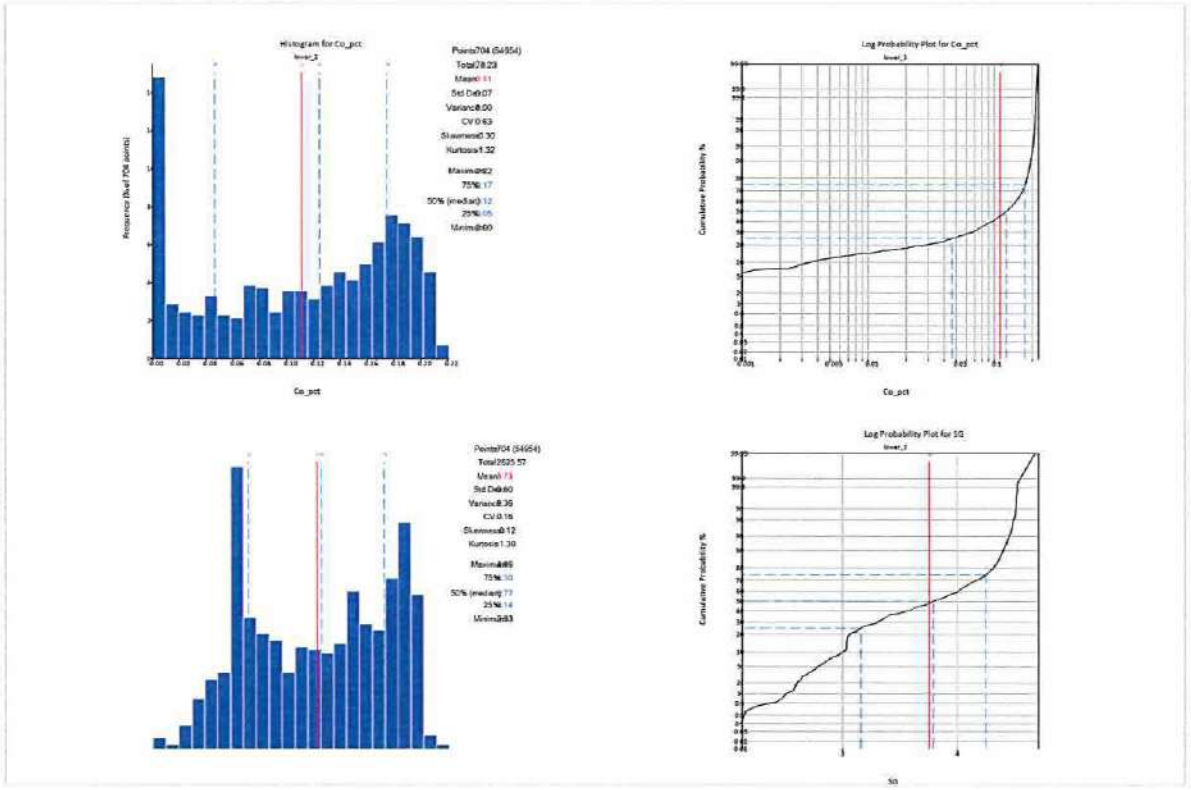
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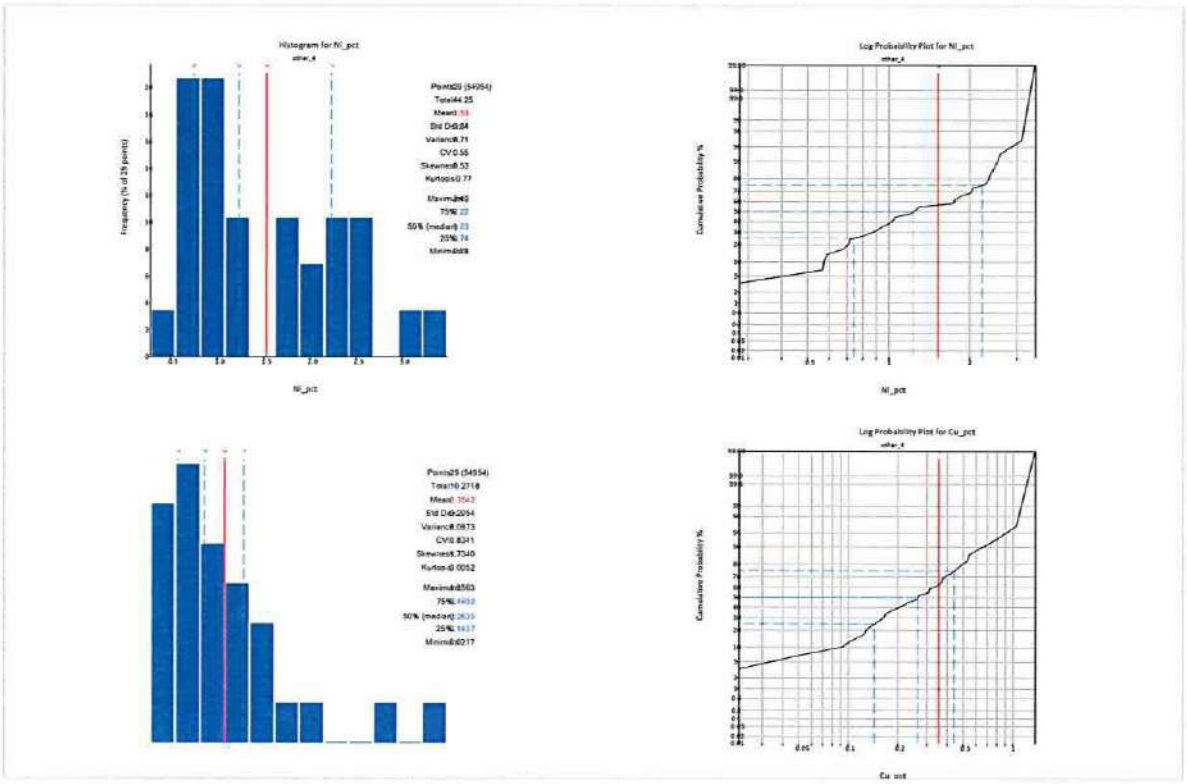


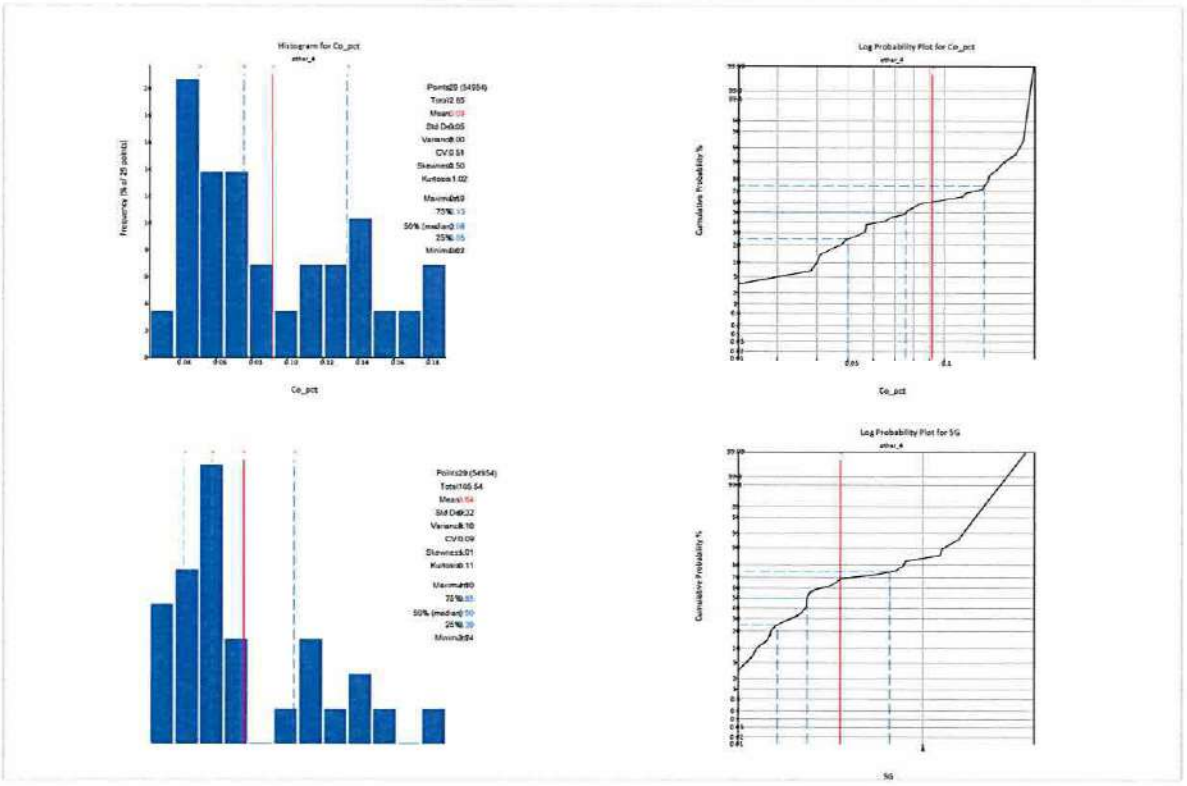
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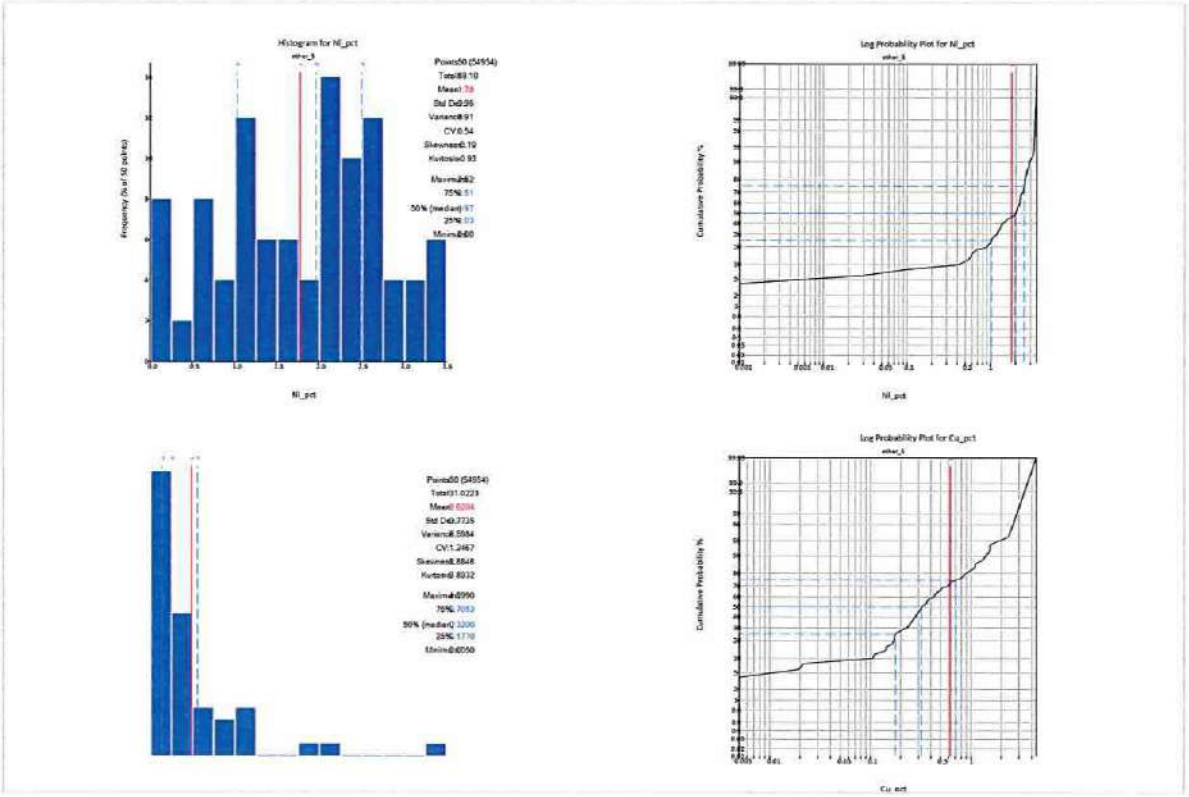


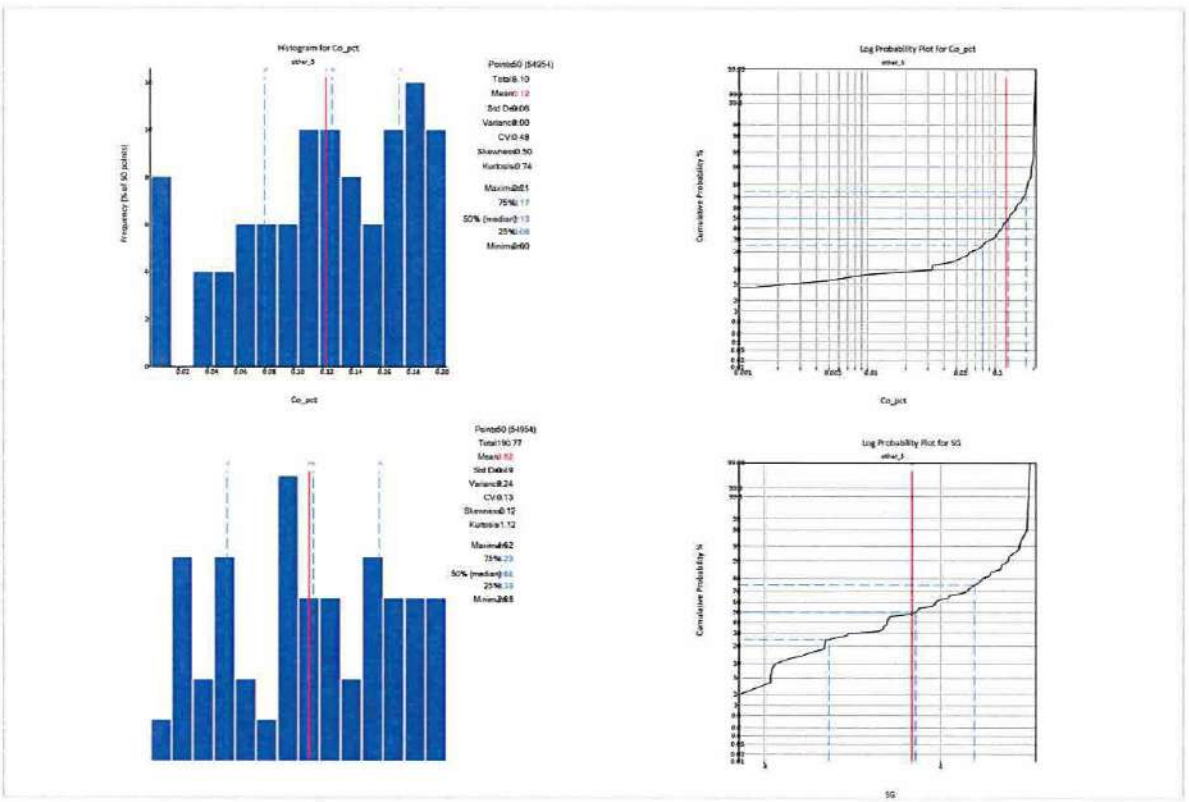
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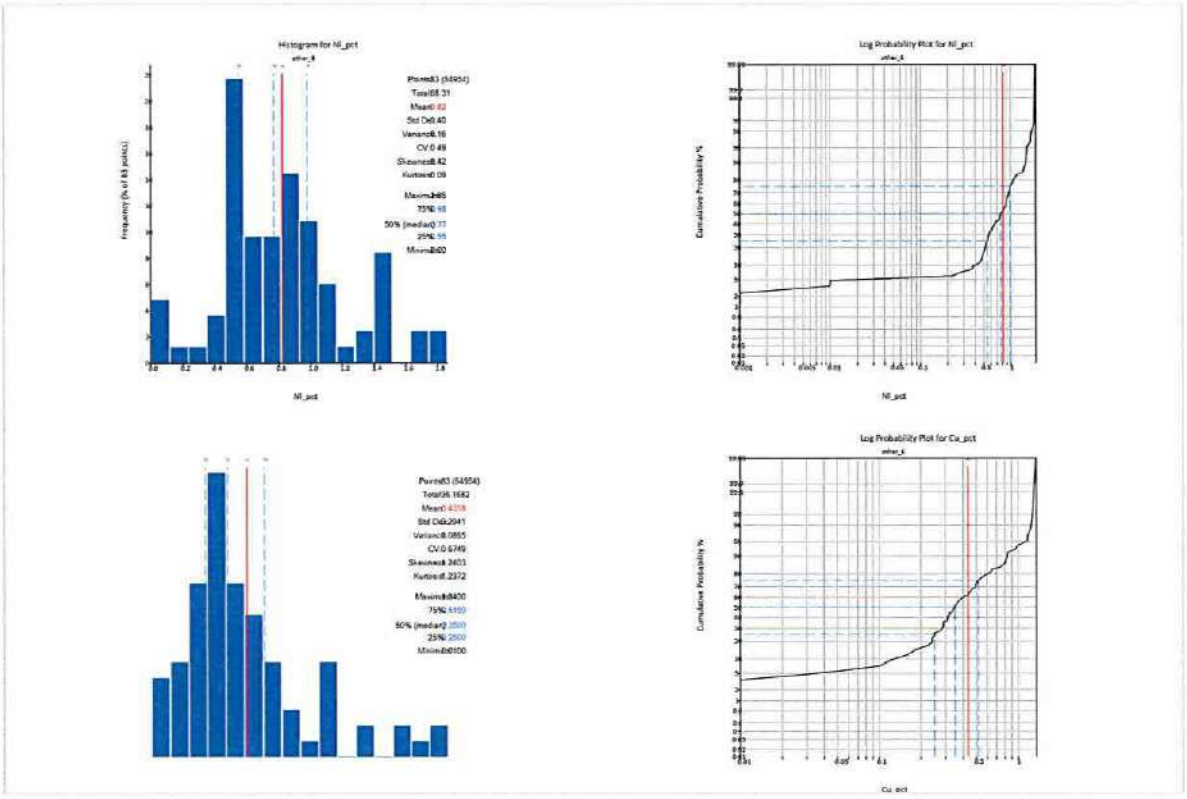


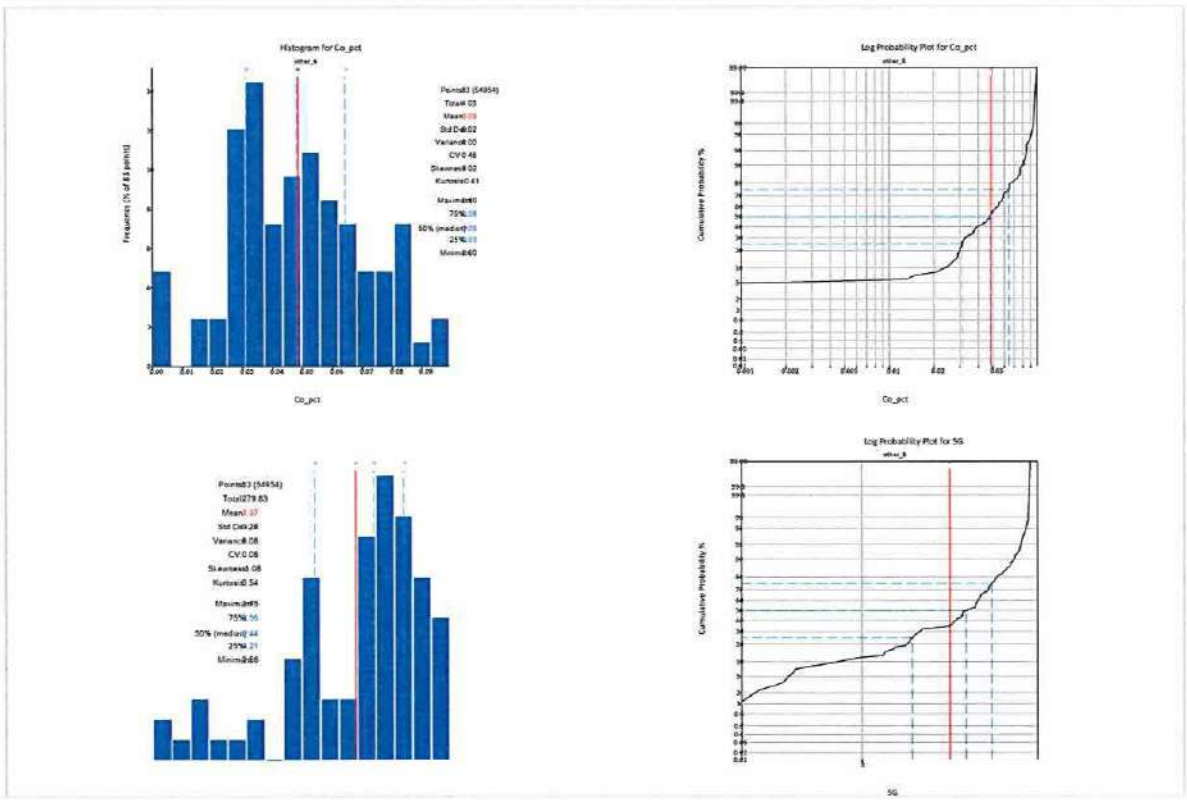
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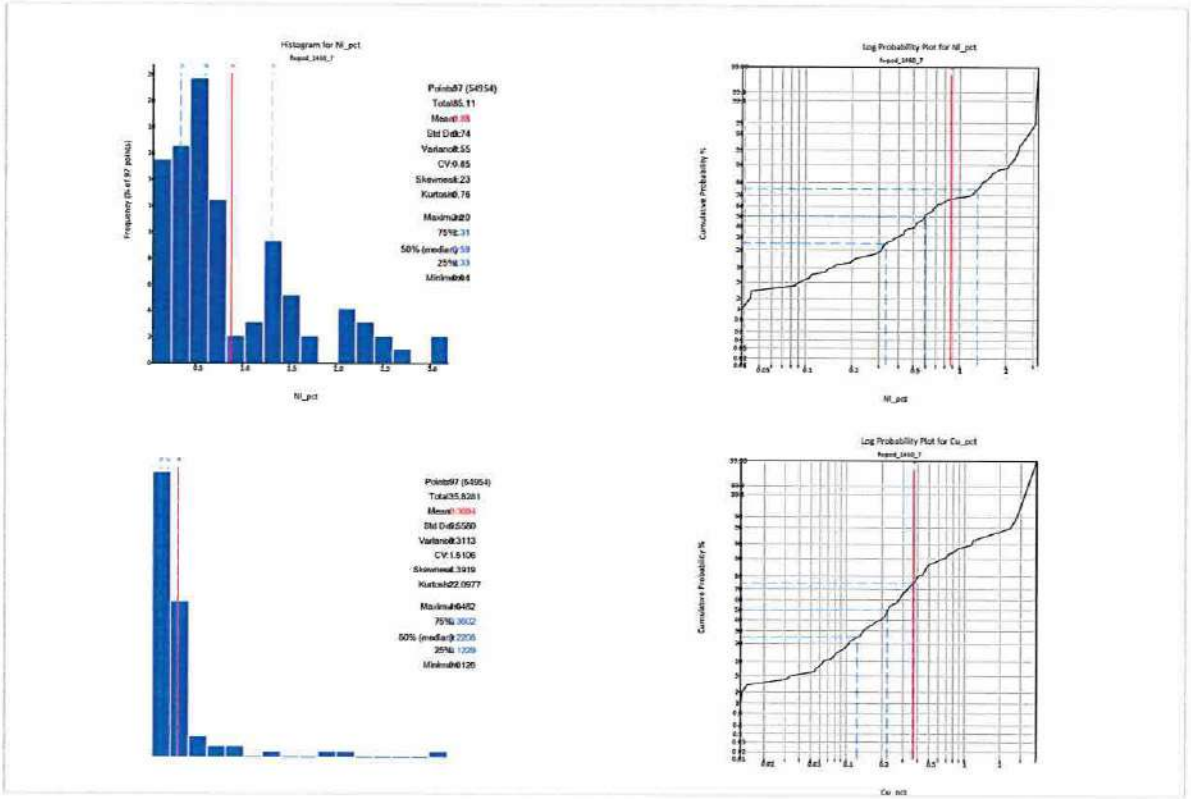


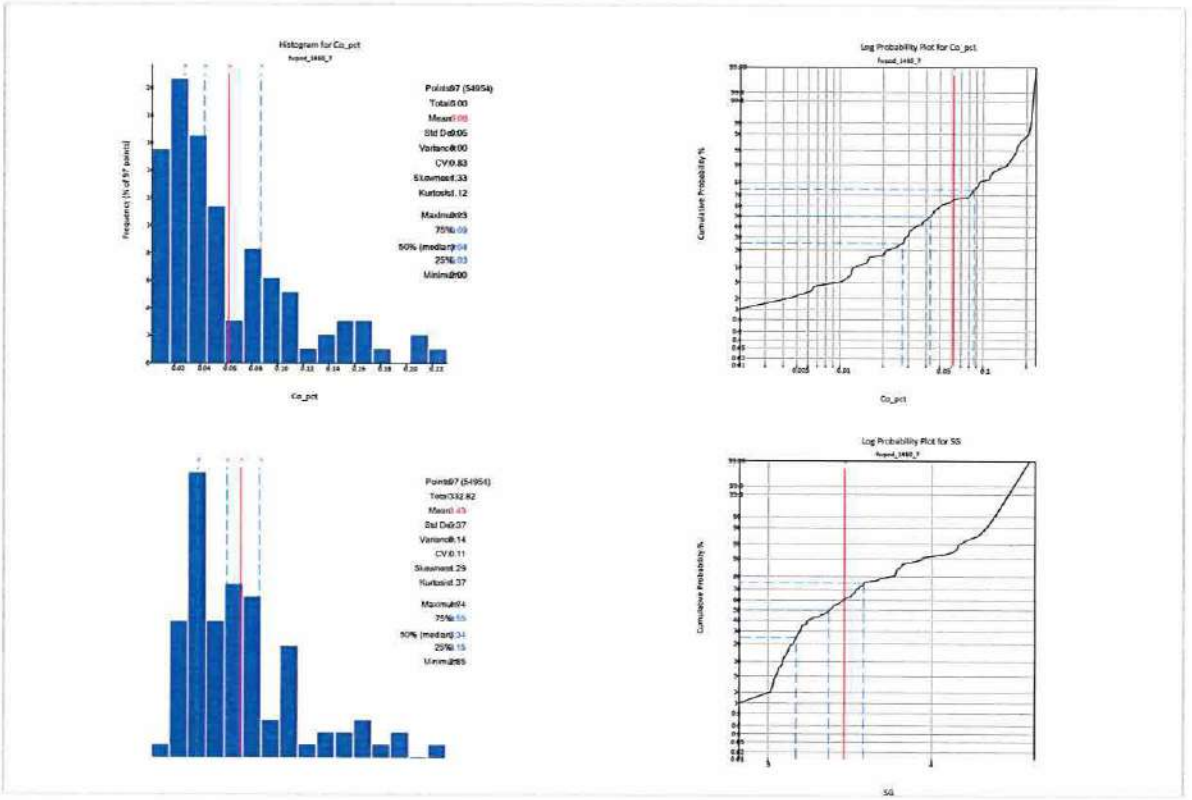
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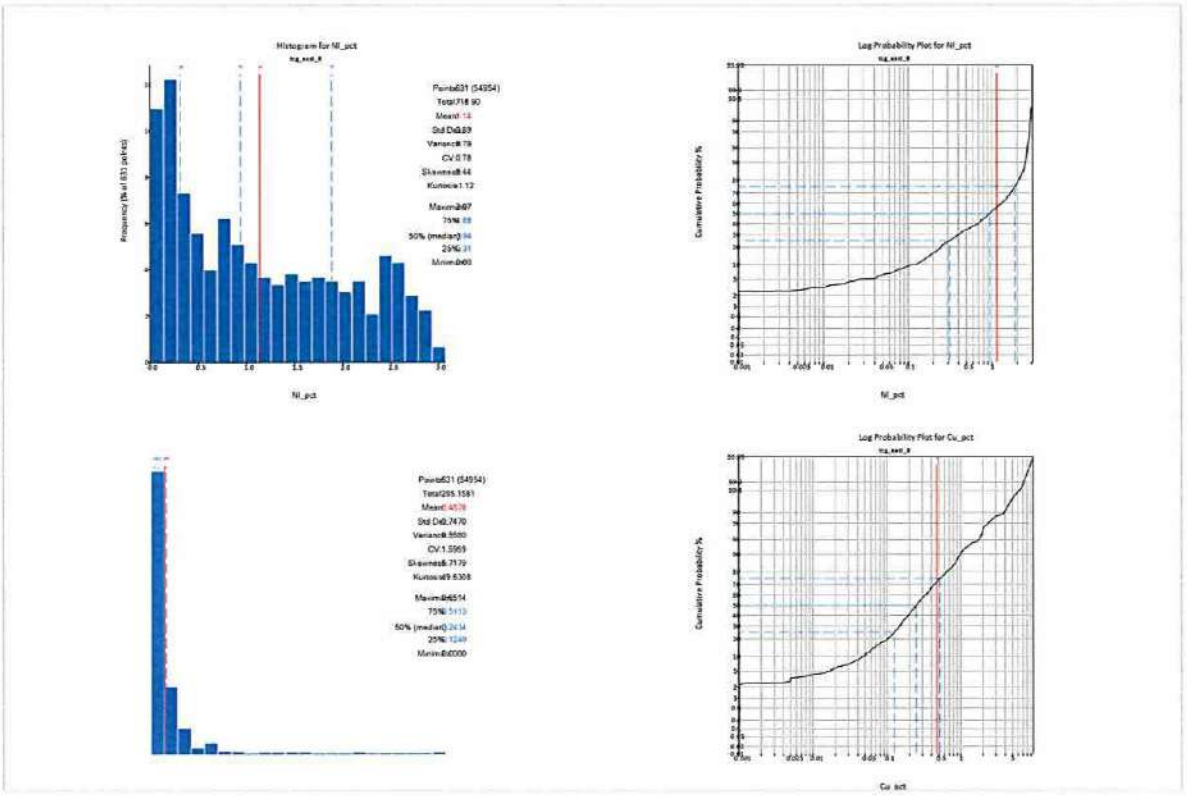


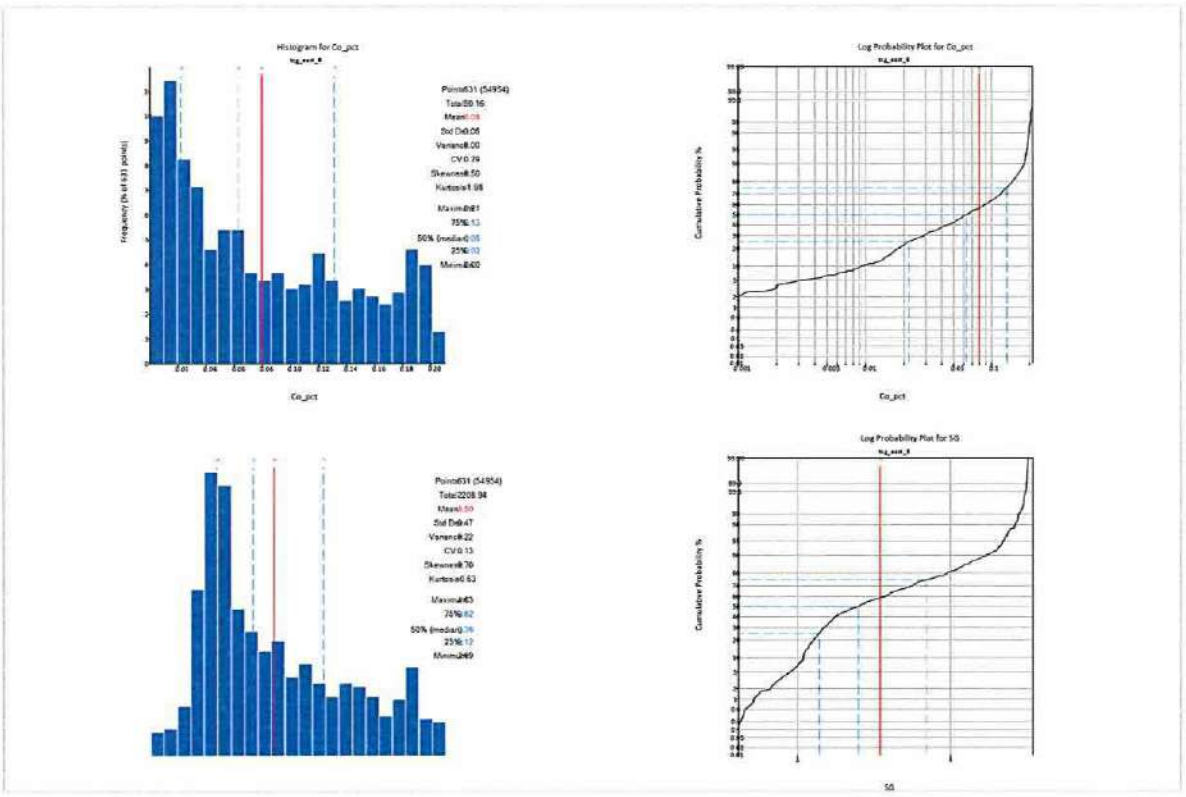
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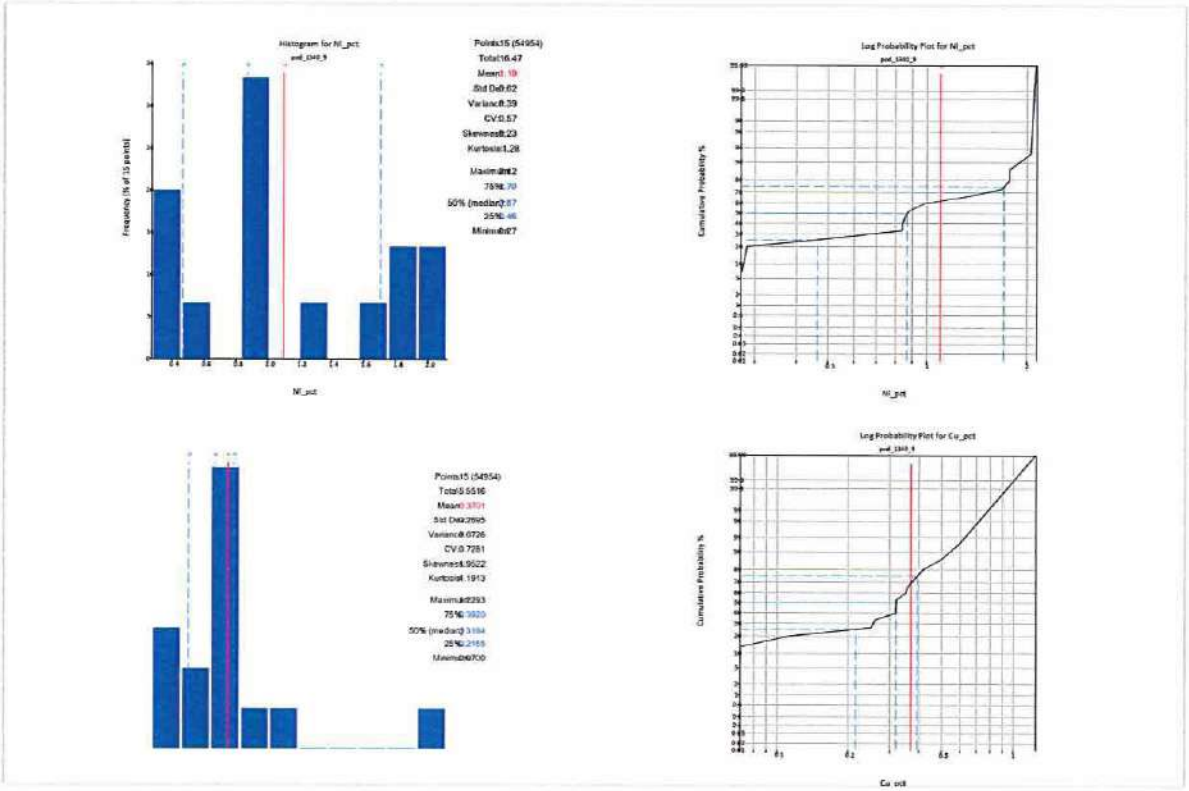


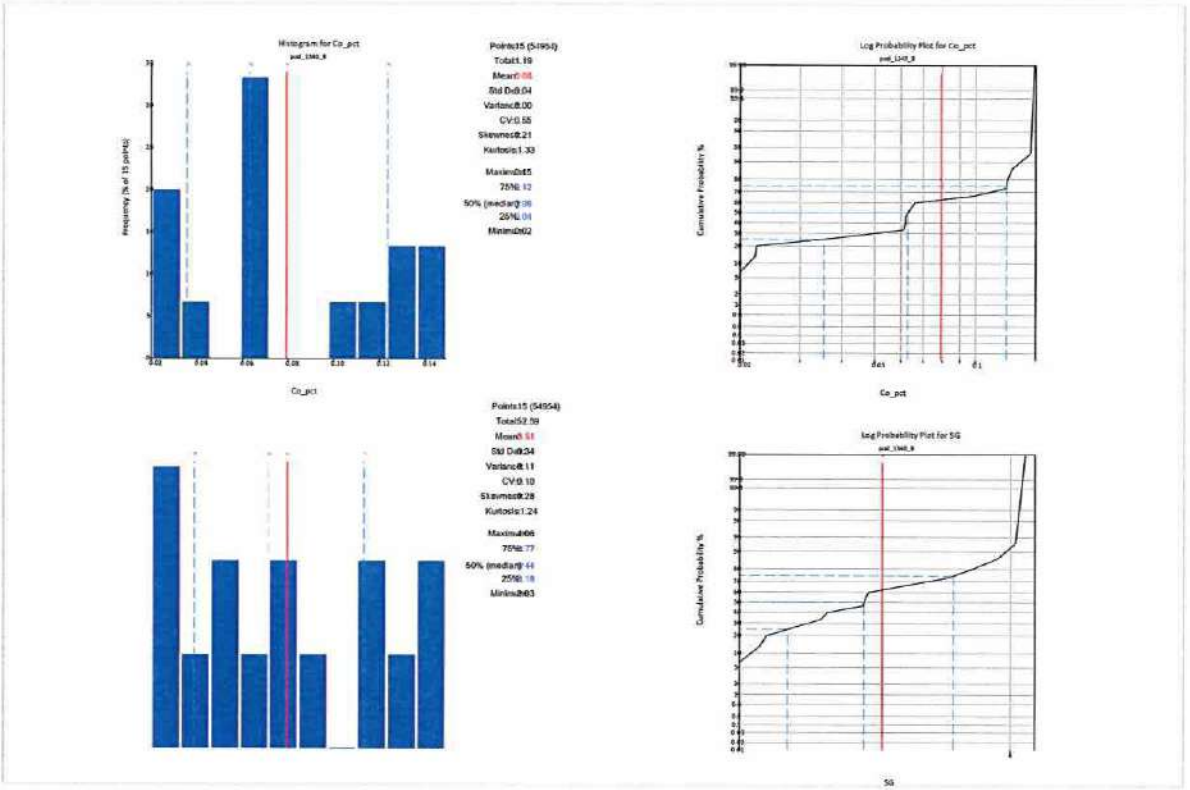
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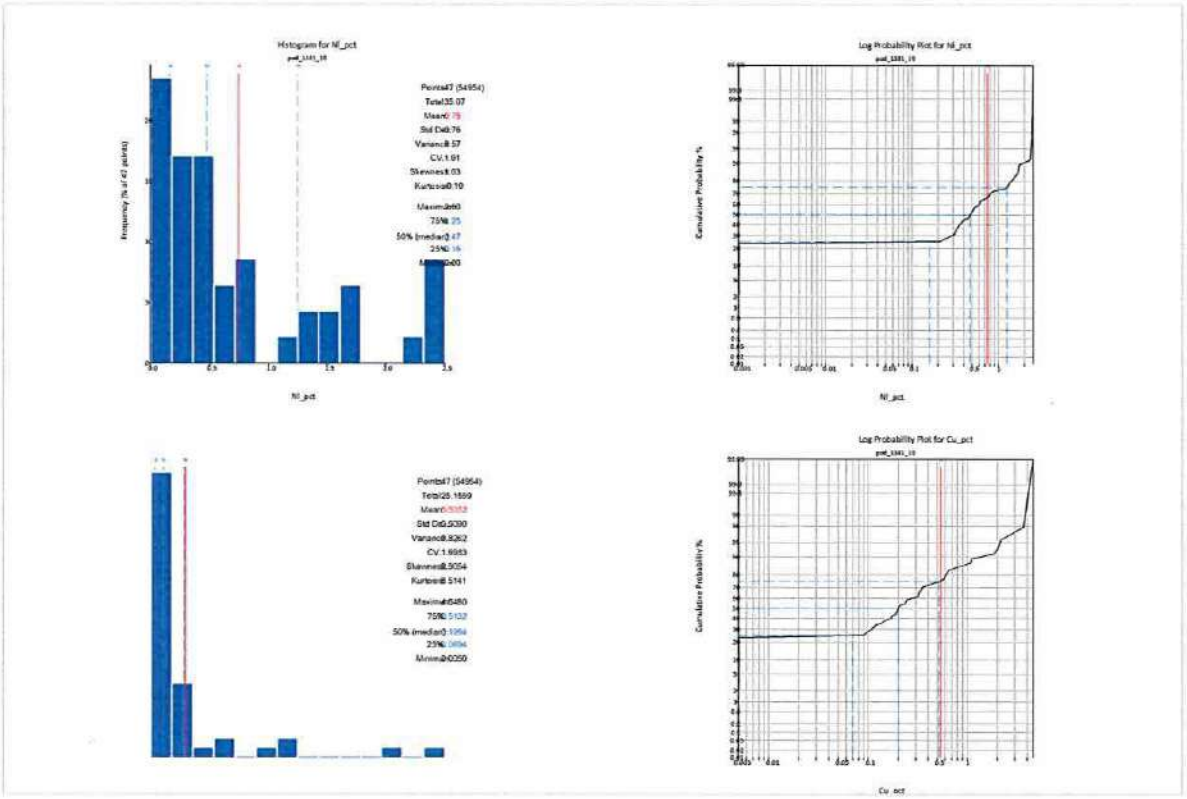


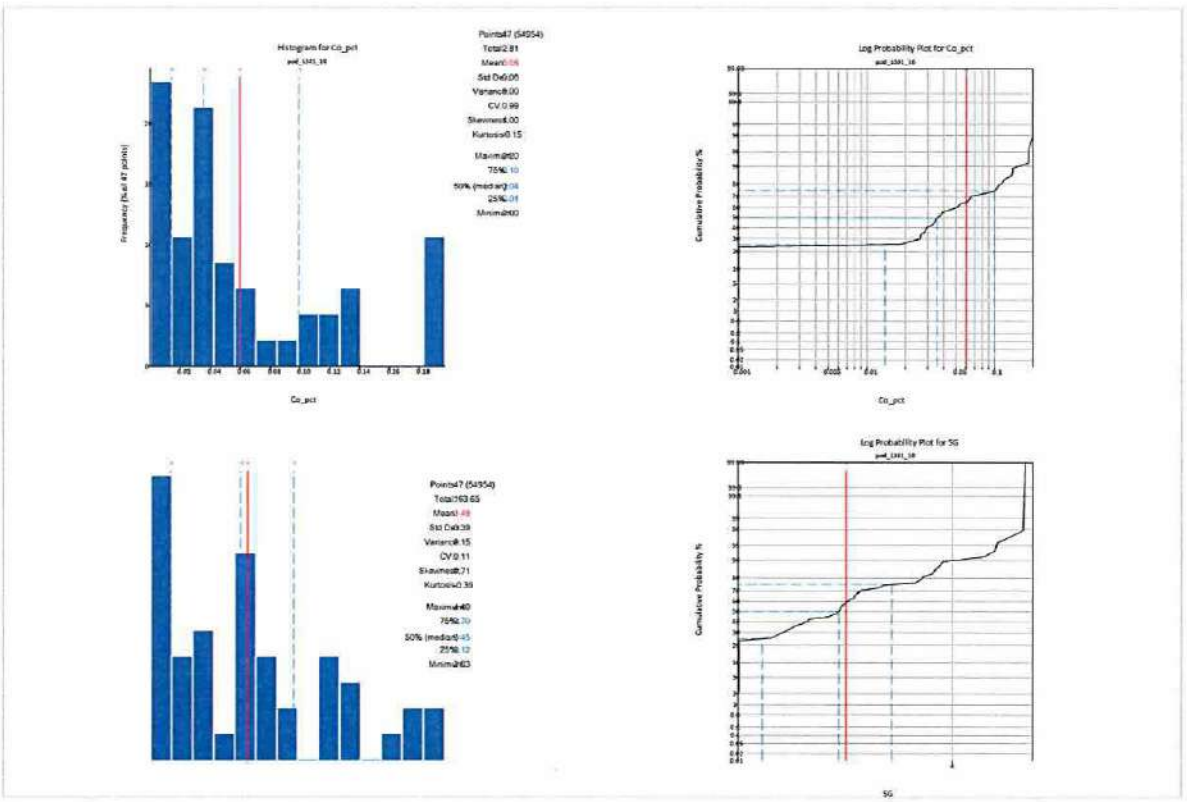
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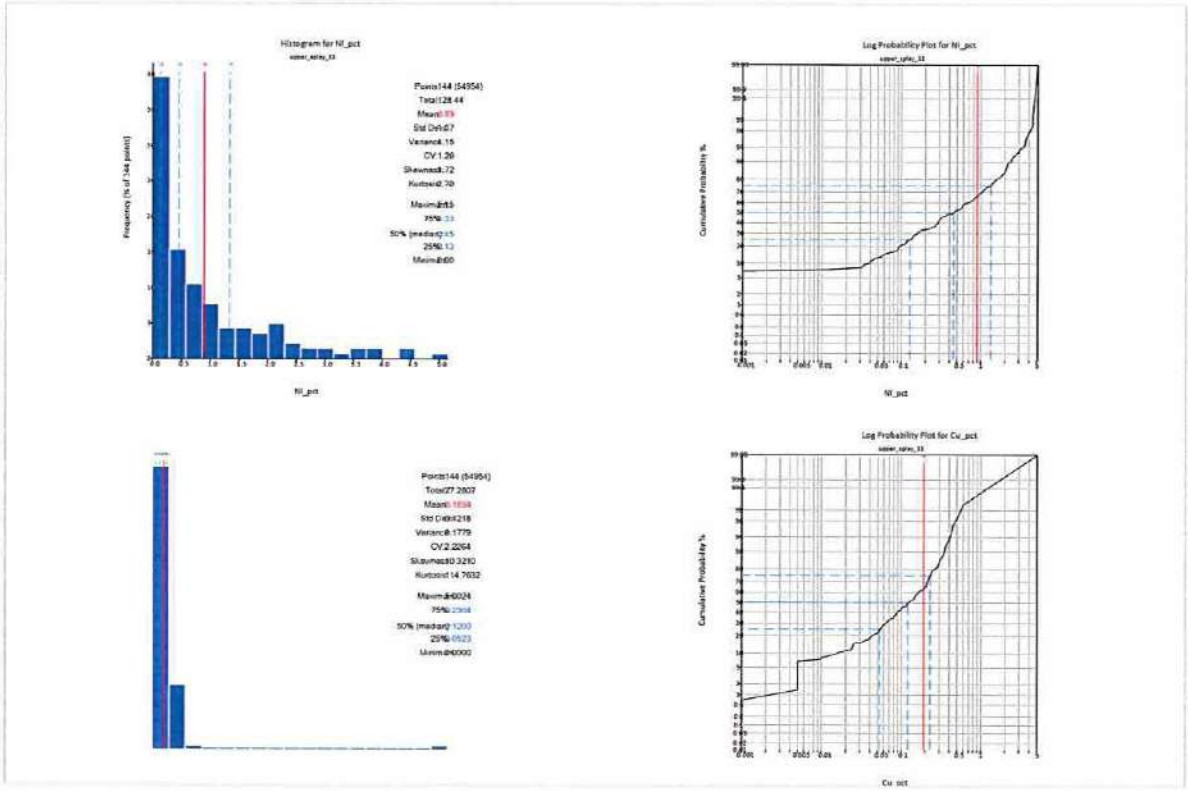


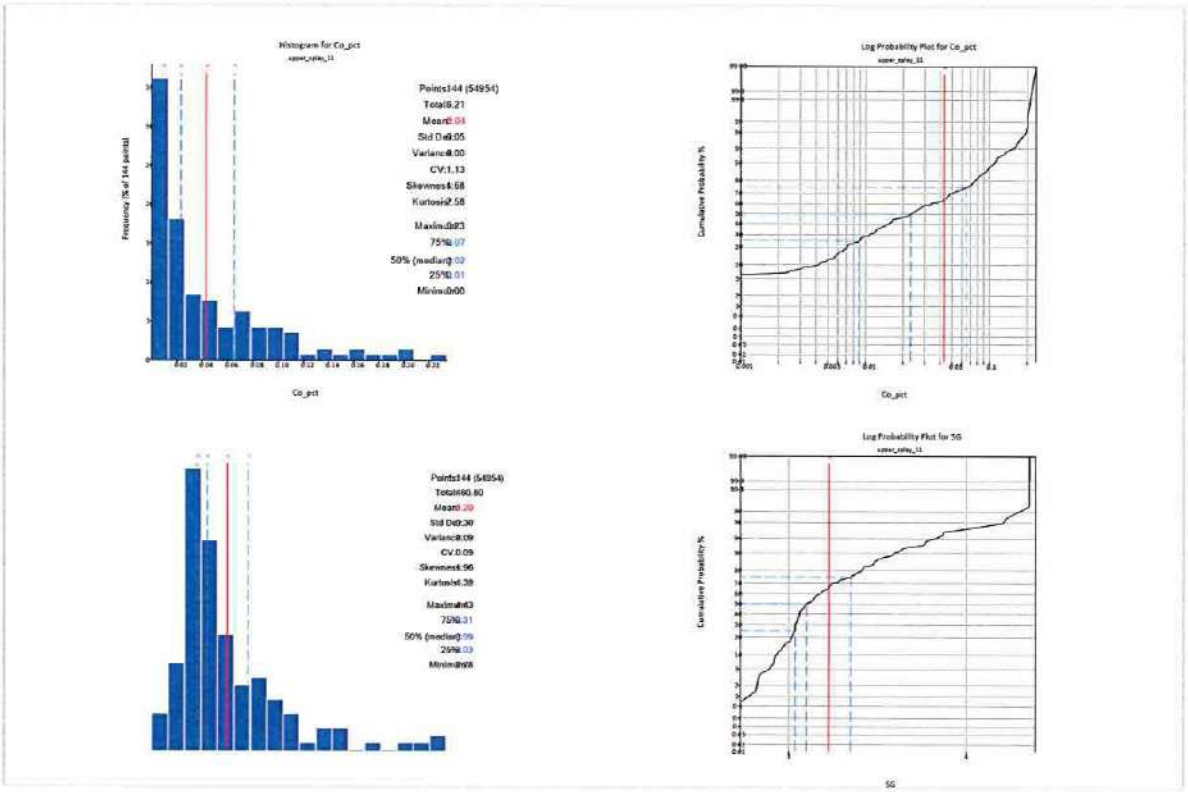
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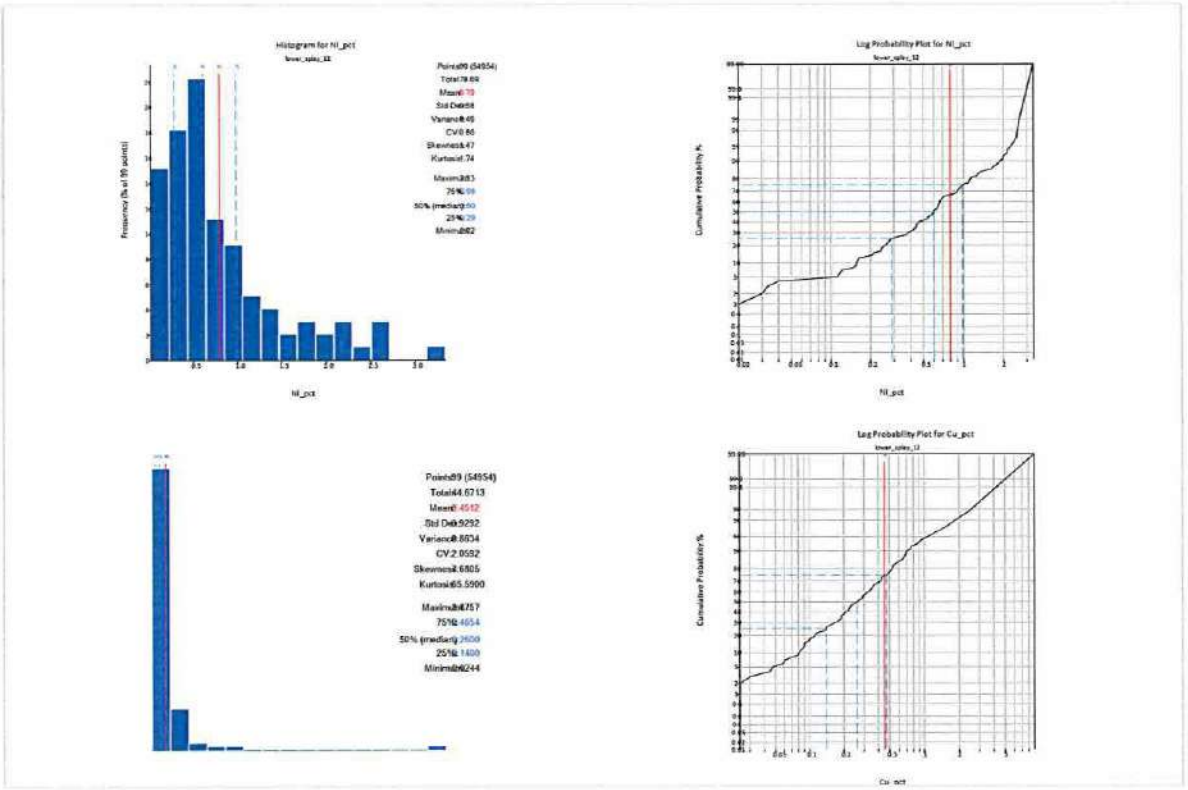


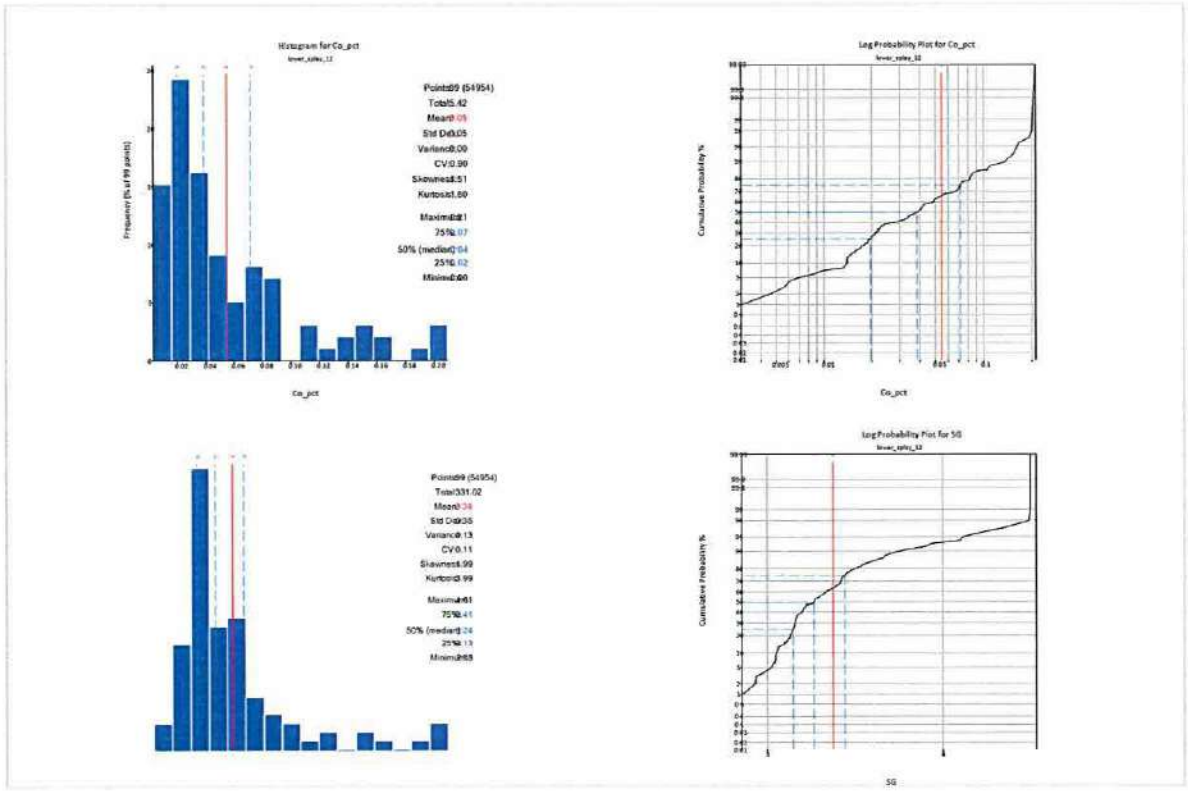
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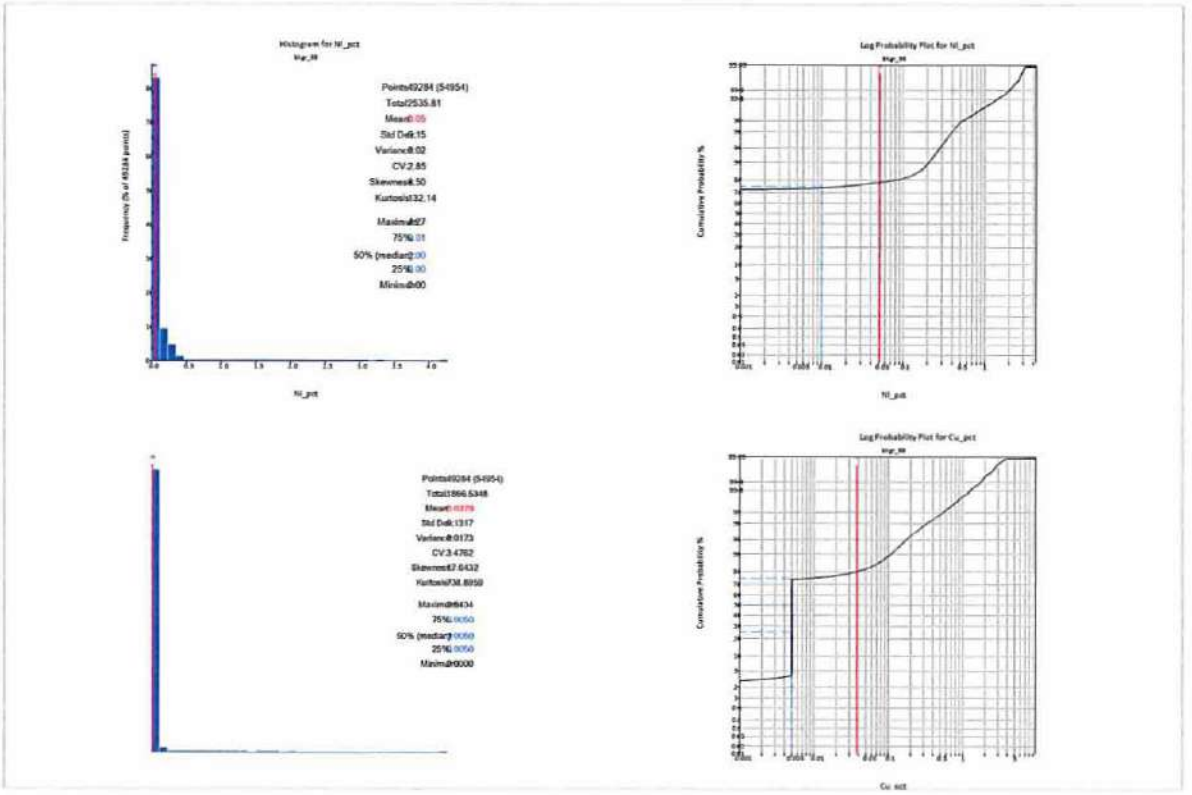


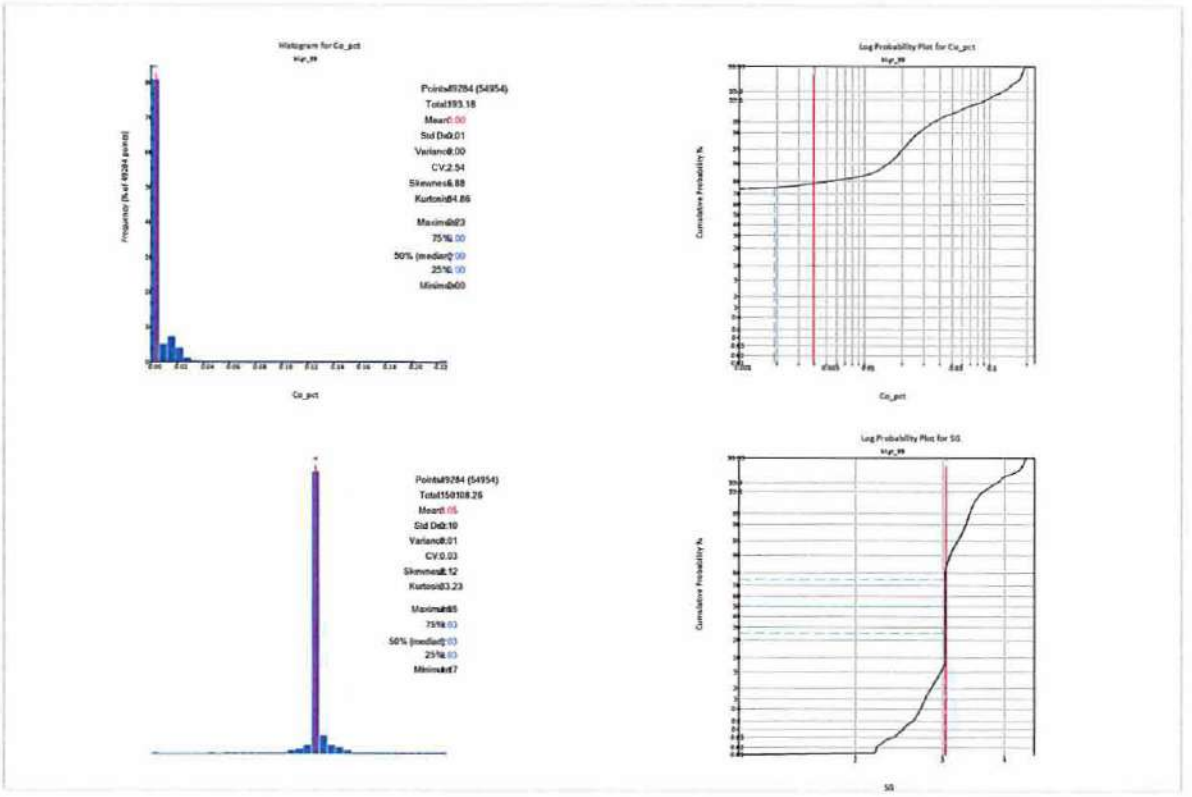
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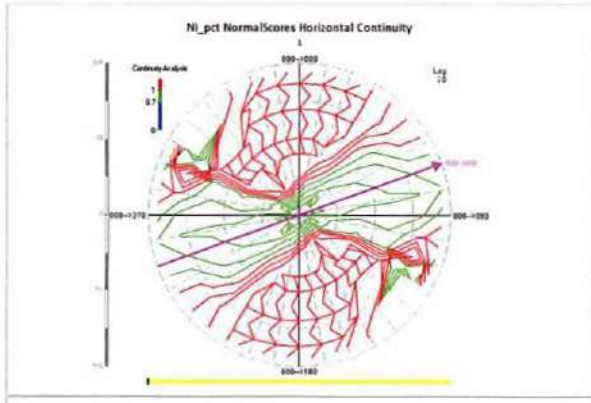
Domain: Background

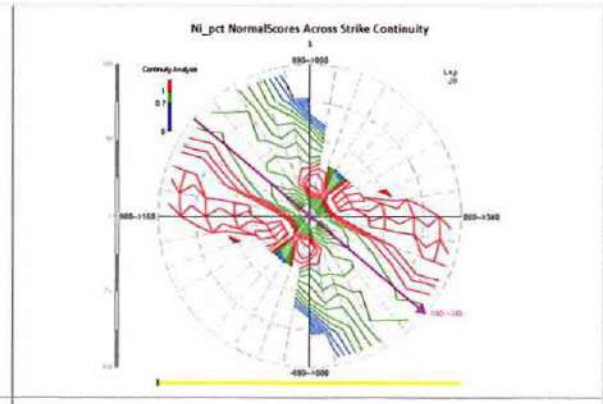


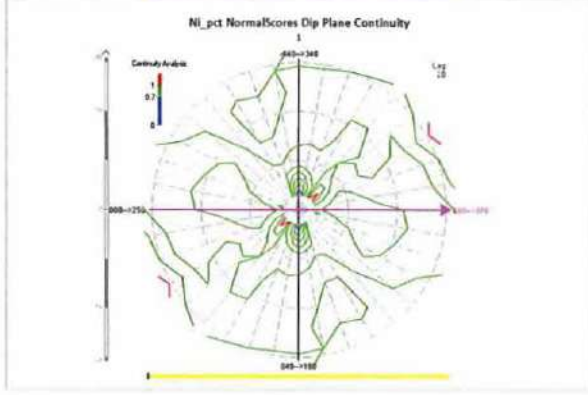


APPENDIX 4 Variograms

Domain: Upper 1 Domain

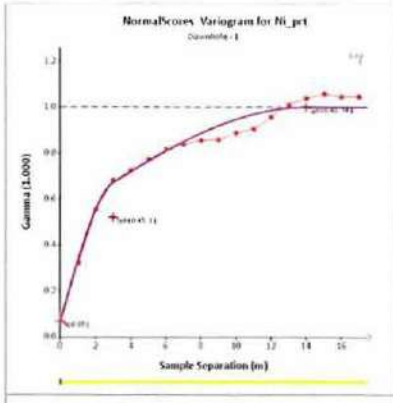


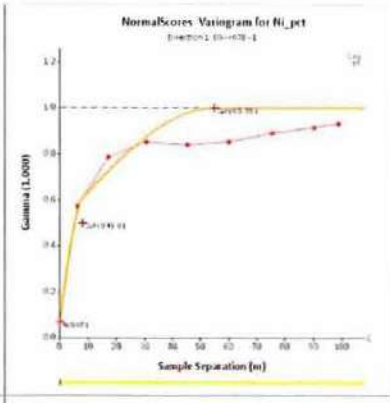


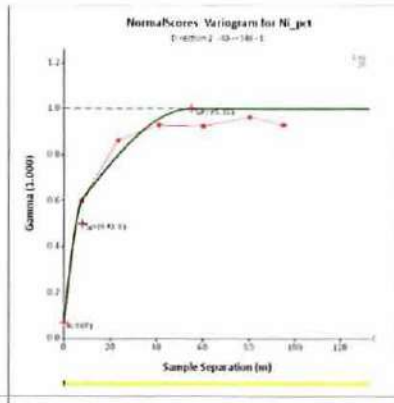


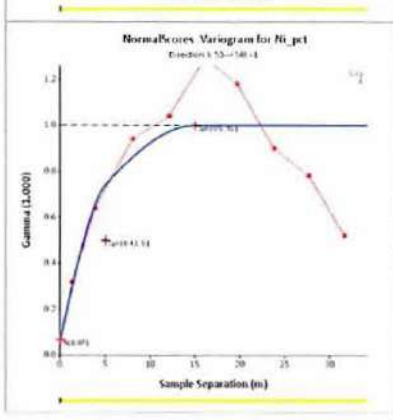
Surpac ZXY Rotation for
NormalScores Dip Plane (90°)

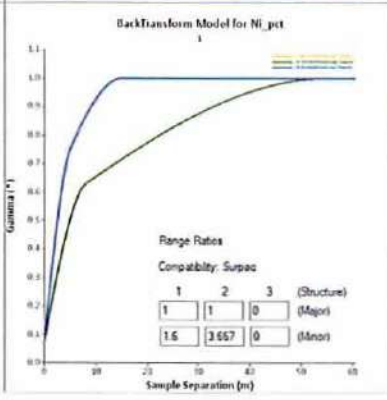
1[000-->070]-Y 2[040-->160]-X 3[050-->340]-Z
Surpac ZXY angles are [70.000, 0.000, 40.000]











BackTransform | Graph | X | Y | Legend

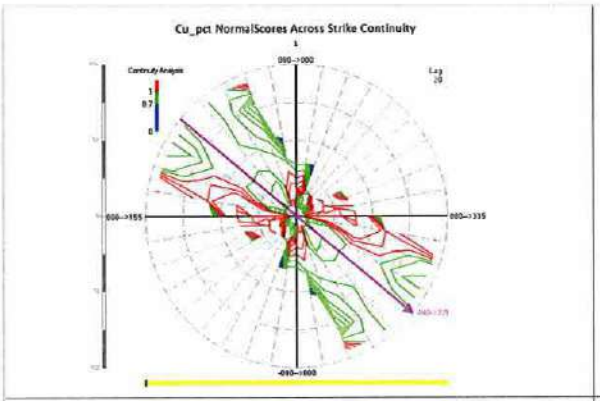
☑ Standardise Sills

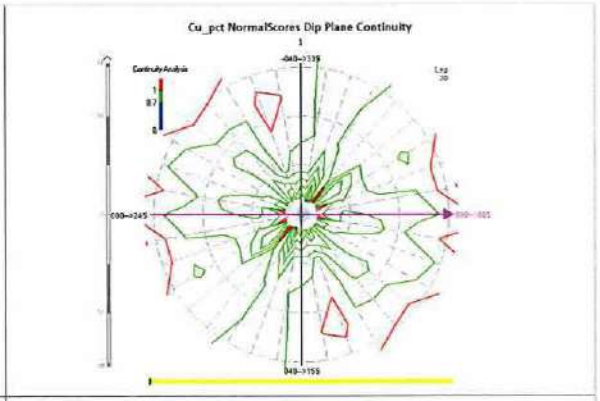
Use direction: 1

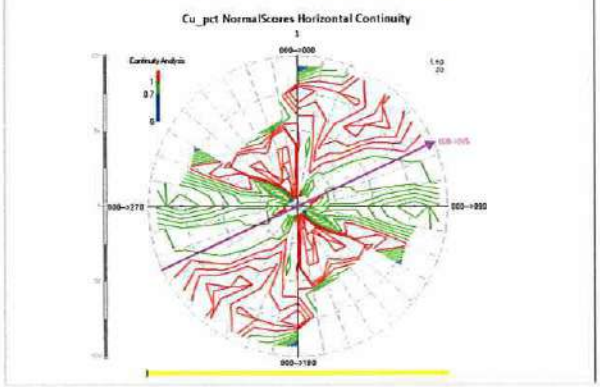
Num polynomials: 50

Nugget: 0.0809

	Sill	Ranges in Directions 1	2	3
Spherical	0.447	8	8	5
Spherical	0.472	55	55	15

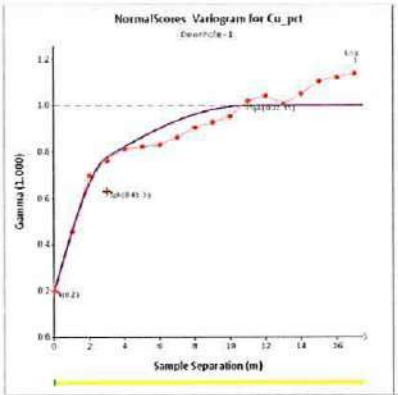


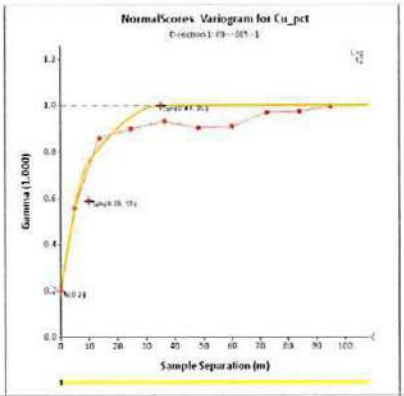


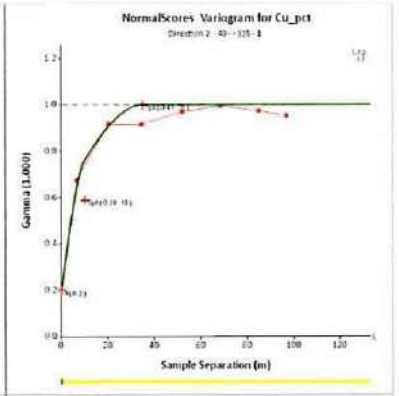


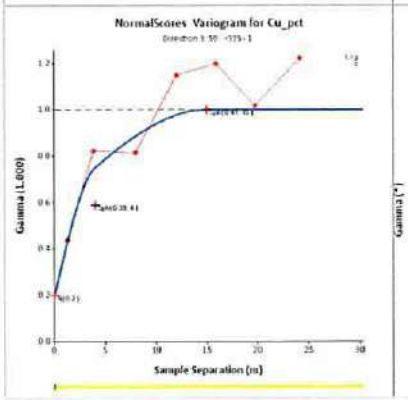
Surpac ZXY Rotation for
NormalScores Dip Plane (90°)

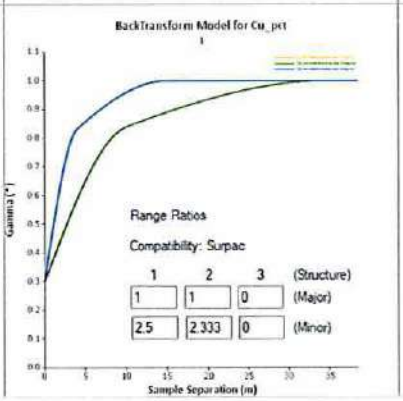
1[000-->065]-Y 2[040-->155]-X 3[050-->335]-Z
Surpac ZXY angles are [65.000, 0.000, 40.000]











BackTransform | Graph | X | Y | Legend

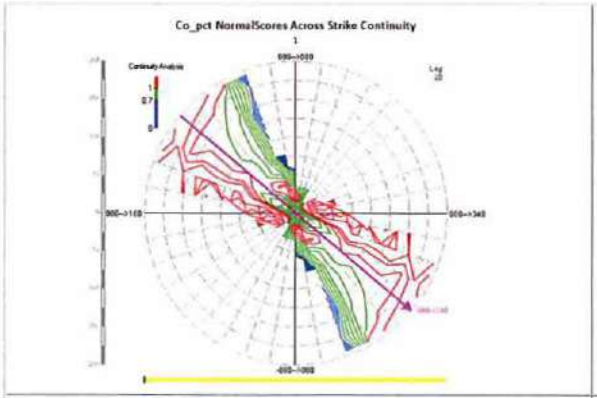
☑ Standardise Sills

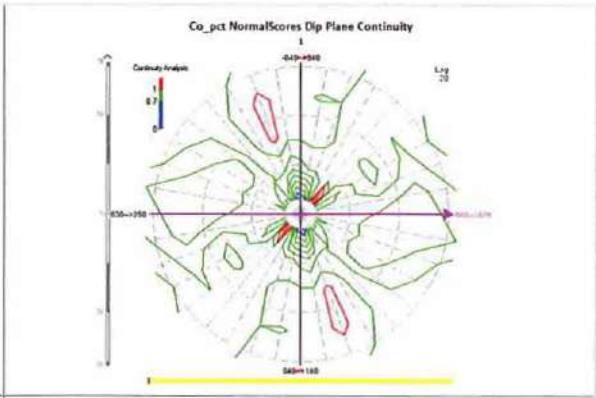
Use direction: 1

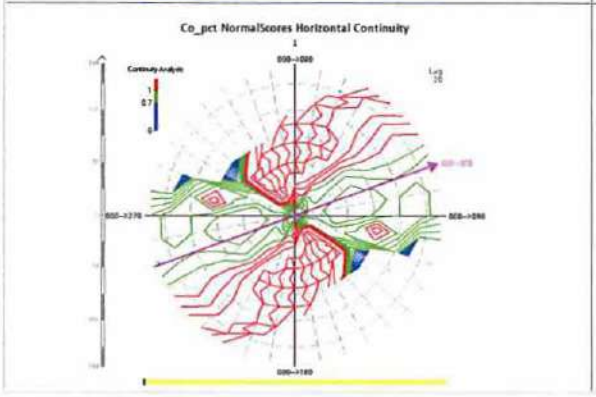
Num polynomials: 50

Nugget: 0.297

	Sill	Ranges in Directions 1	2	3
	0.426	10	10	4
	0.277	35	35	15

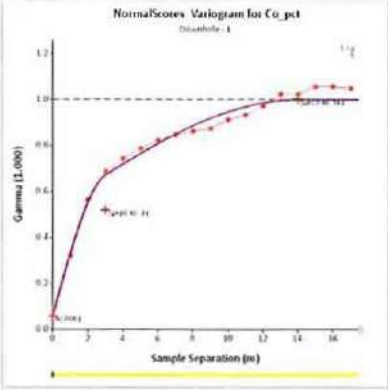


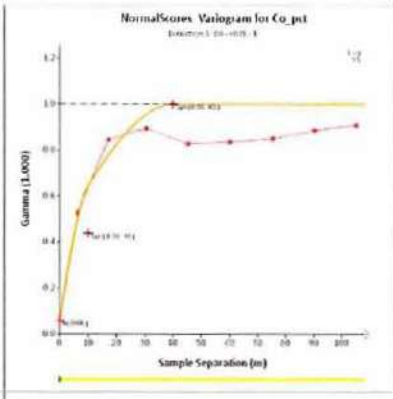


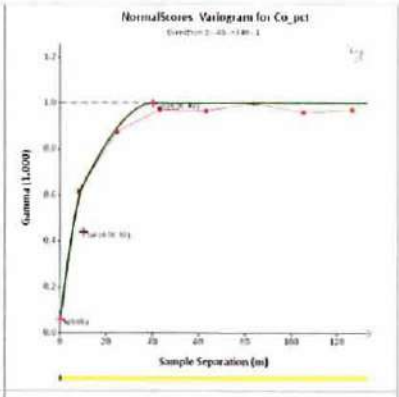


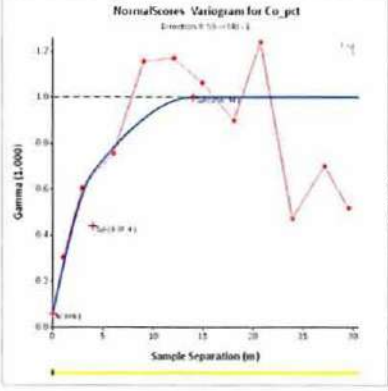
Surpac ZXY Rotation for
NormalScores Dip Plane (90°)

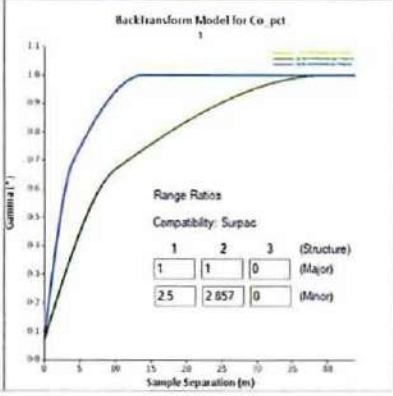
1[000-->070]-Y 2[040-->160]-X 3[050-->340]-Z
Surpac ZXY angles are [70.000, 0.000, 40.000]











BackTransform | Graph | X | Y | Legend

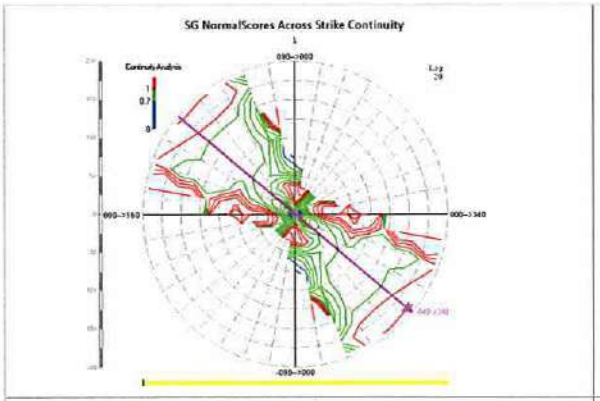
☑ Standardise Sills

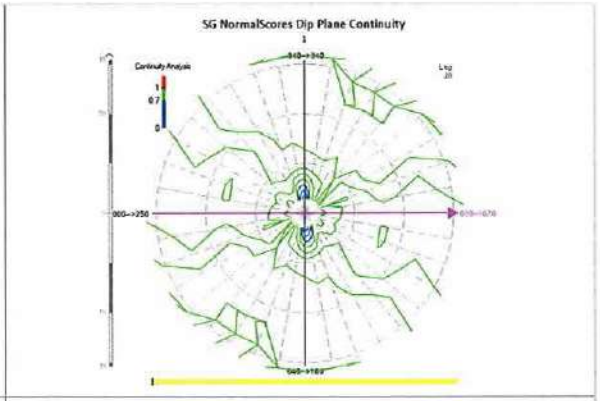
Use direction: 1

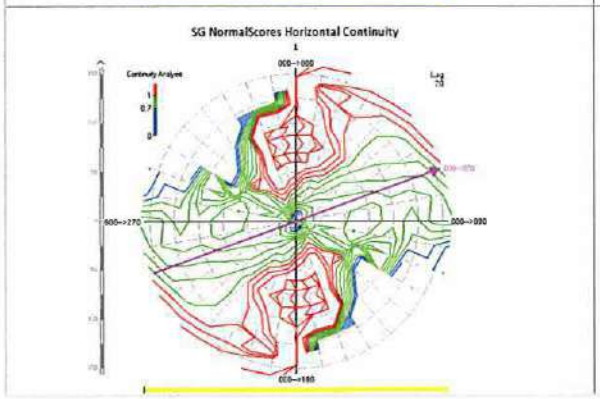
Num polynomials: 50

Nugget: 0.0708

	Sill	Ranges in Directions 1	2	3
Spherical	0.407	10	10	4
Spherical	0.523	40	40	14

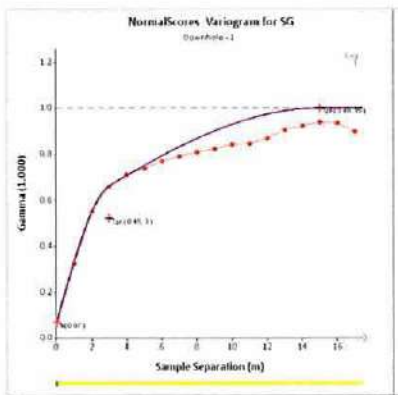


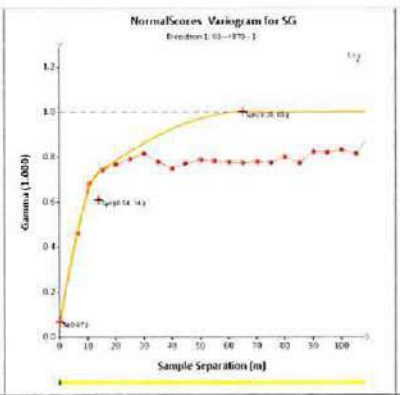


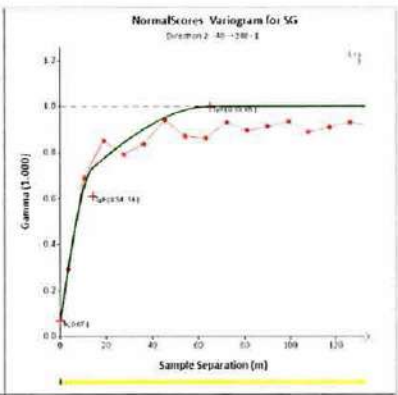


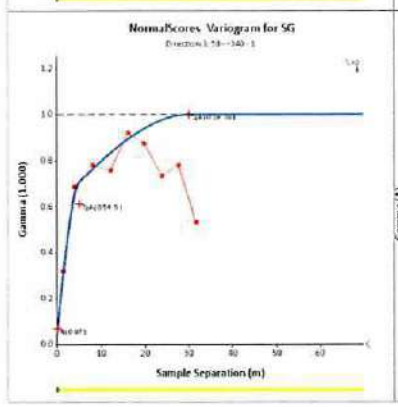
Surpac ZXY Rotation for
NormalScores Dip Plane (90°)

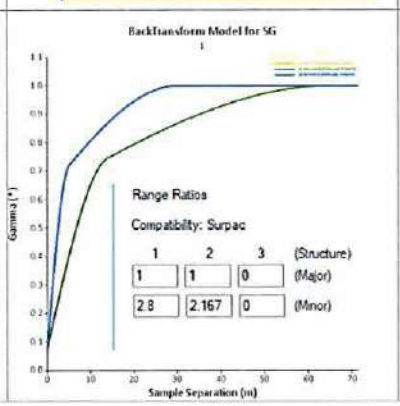
1[000-->070]-Y 2[040-->160]-X 3[050-->340]-Z
Surpac ZXY angles are [70.000, 0.000, 40.000]

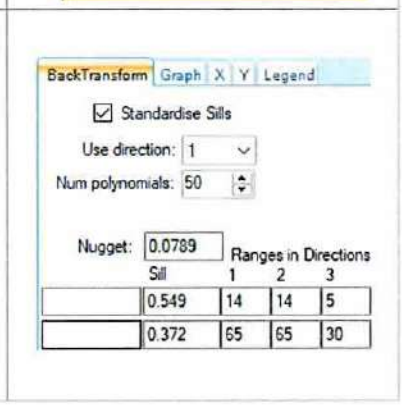






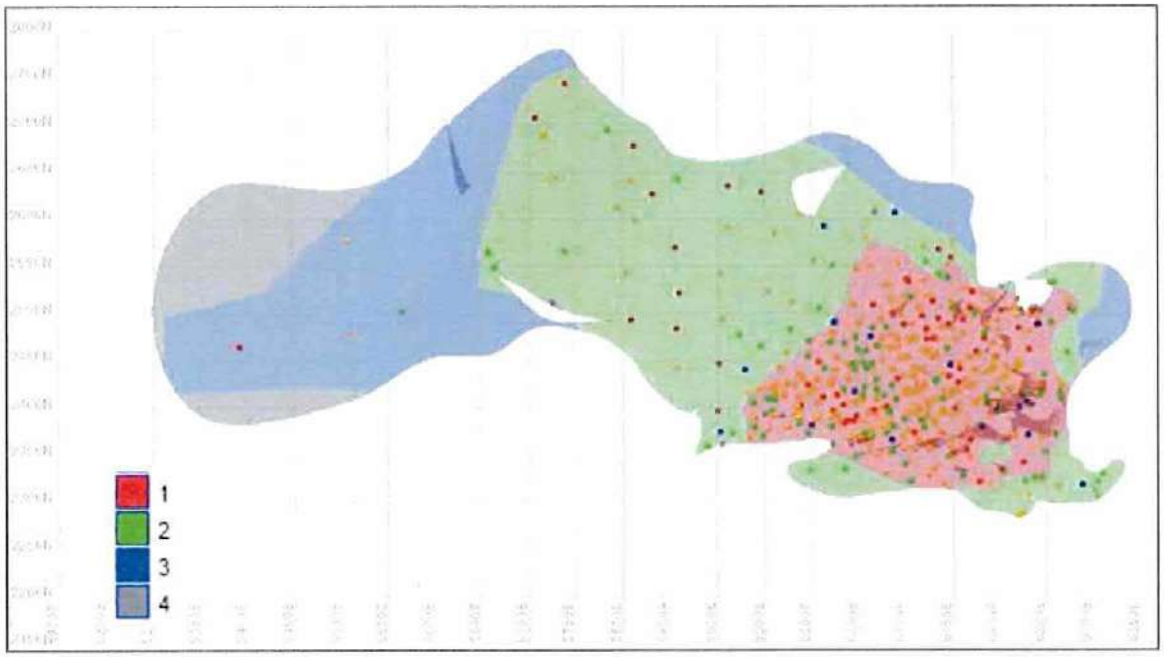




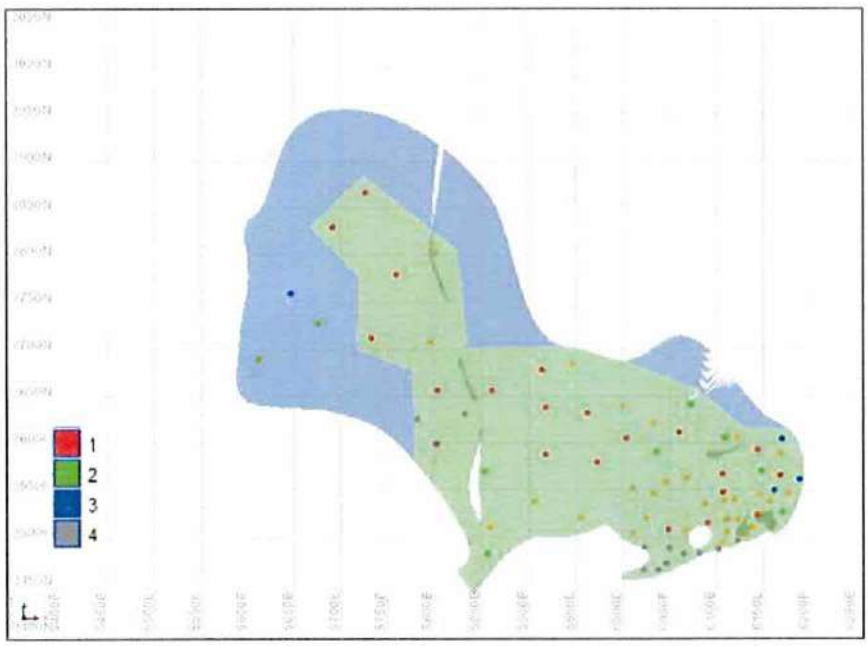


APPENDIX 5 Grade Estimation Plots

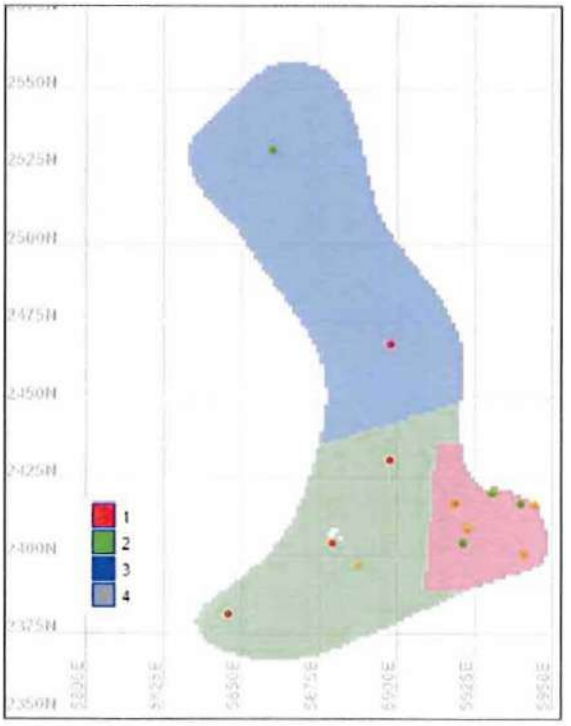
Domain: Upper 1 Zone (Ni%) – Plan View



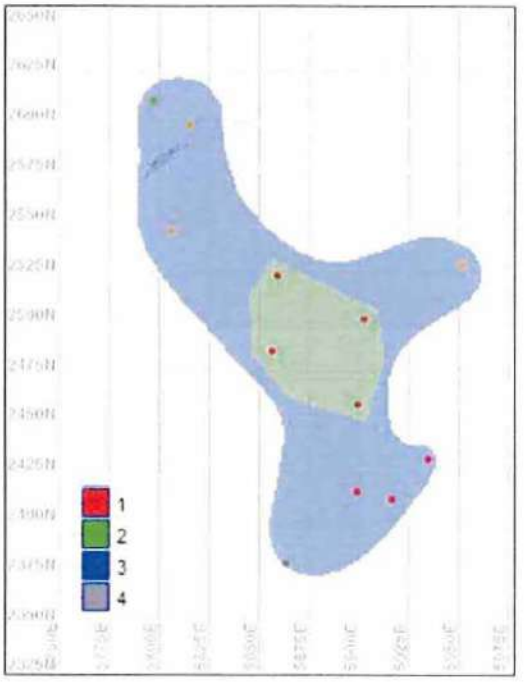
Domain: Lower 2 Zone (Ni%) – Plan View



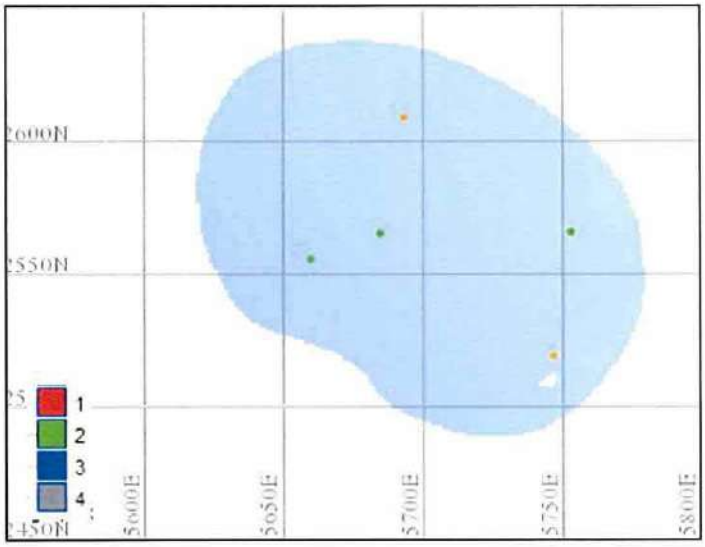
Domain: Other 4 (Ni%) – Plan View



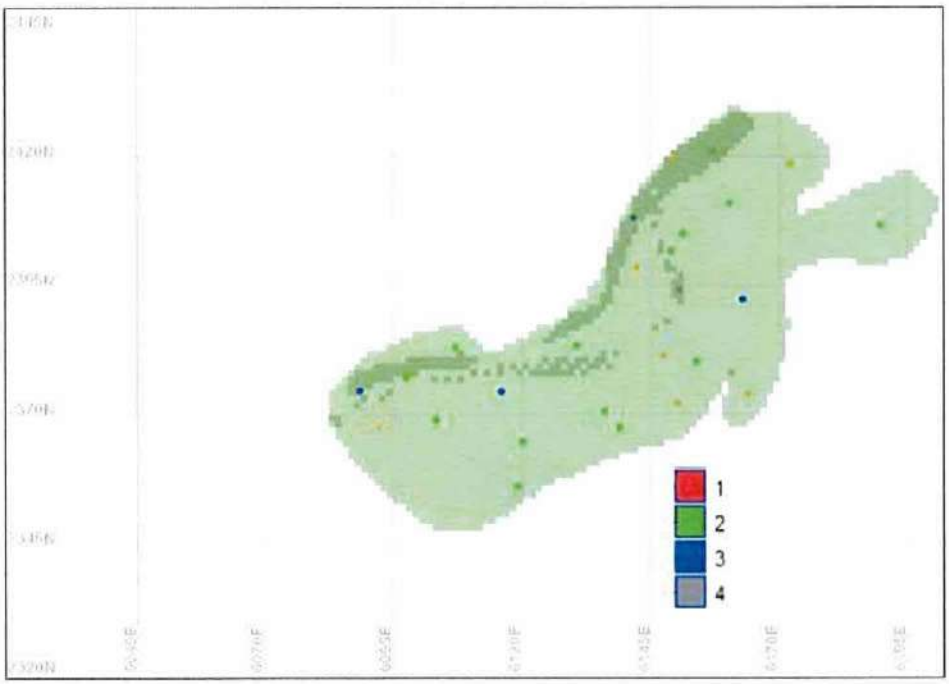
Domain: Other 5 (Ni%) – Plan View



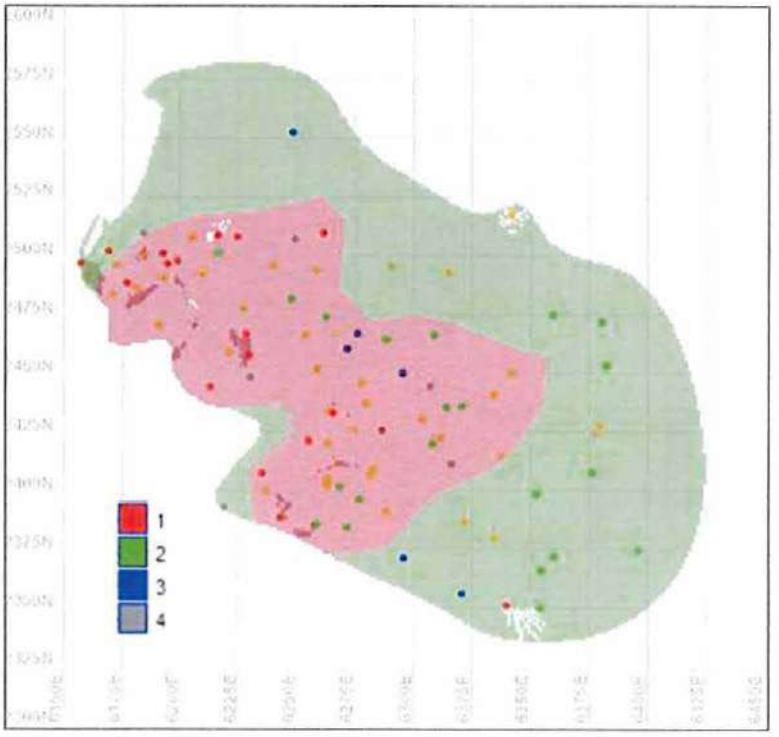
Domain: Other 6 (Ni%) – Plan View



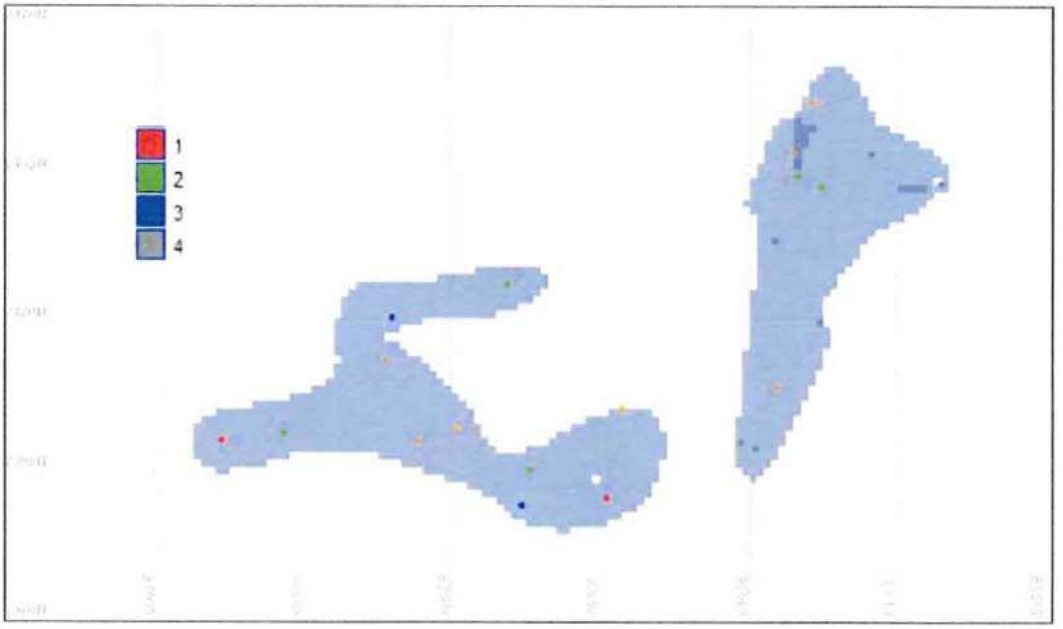
Domain: Pod 1460 7 (Ni%) – Plan View



Domain: TCG East 8 (Ni%) – Plan View



Domain: Pod 1340 9 and Pod 1381 10 (Ni%) – Plan View



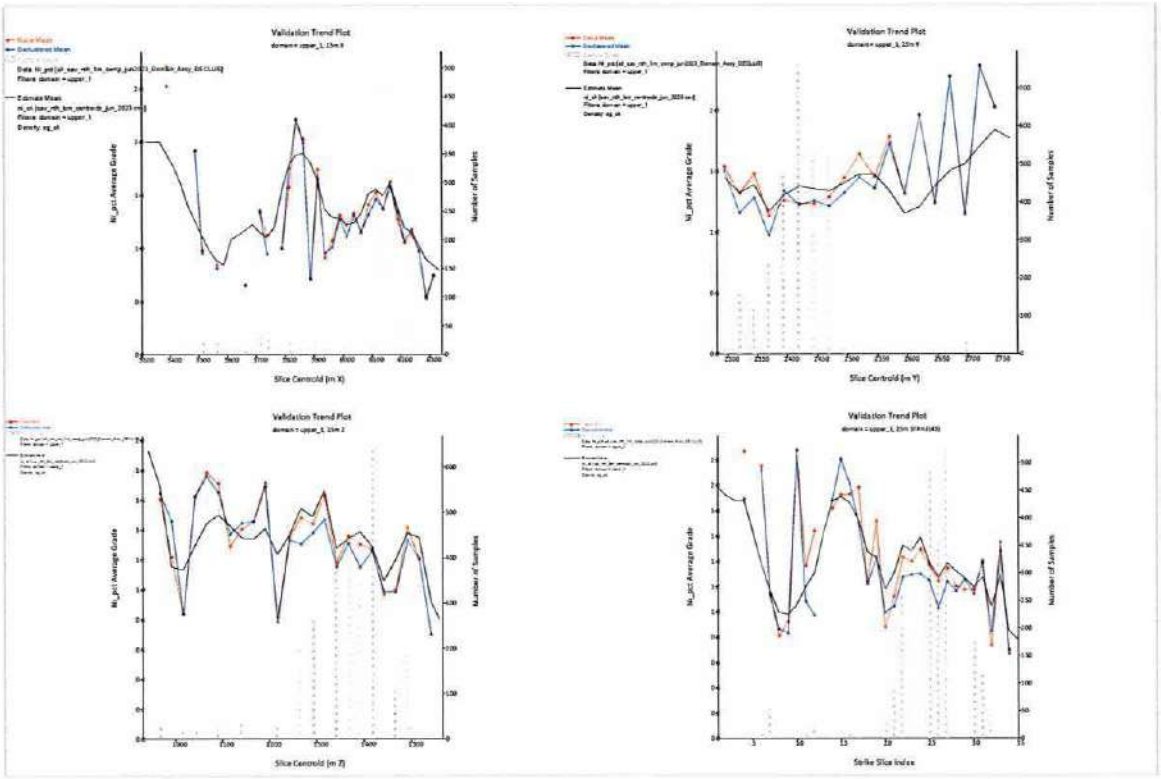
Domain: Upper Splay 11 (right) and Lower Splay 12(left) (Ni%) – Plan View



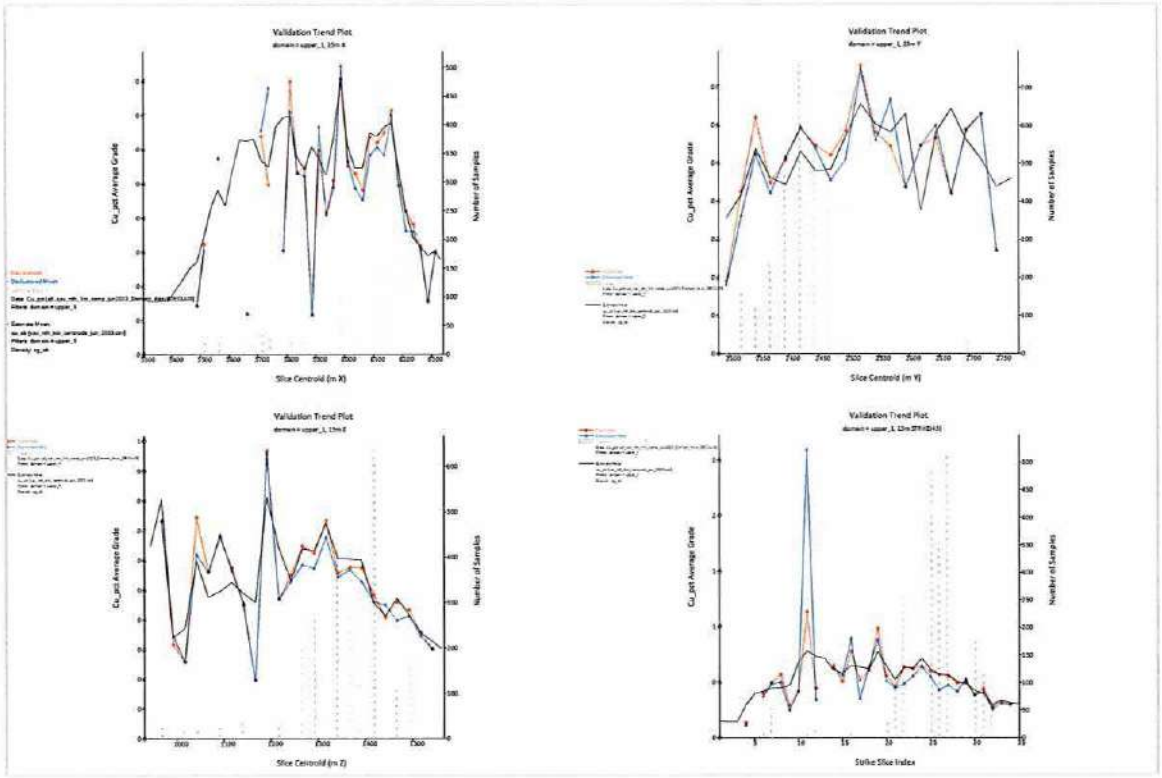
1389

APPENDIX 6 Swath Plots

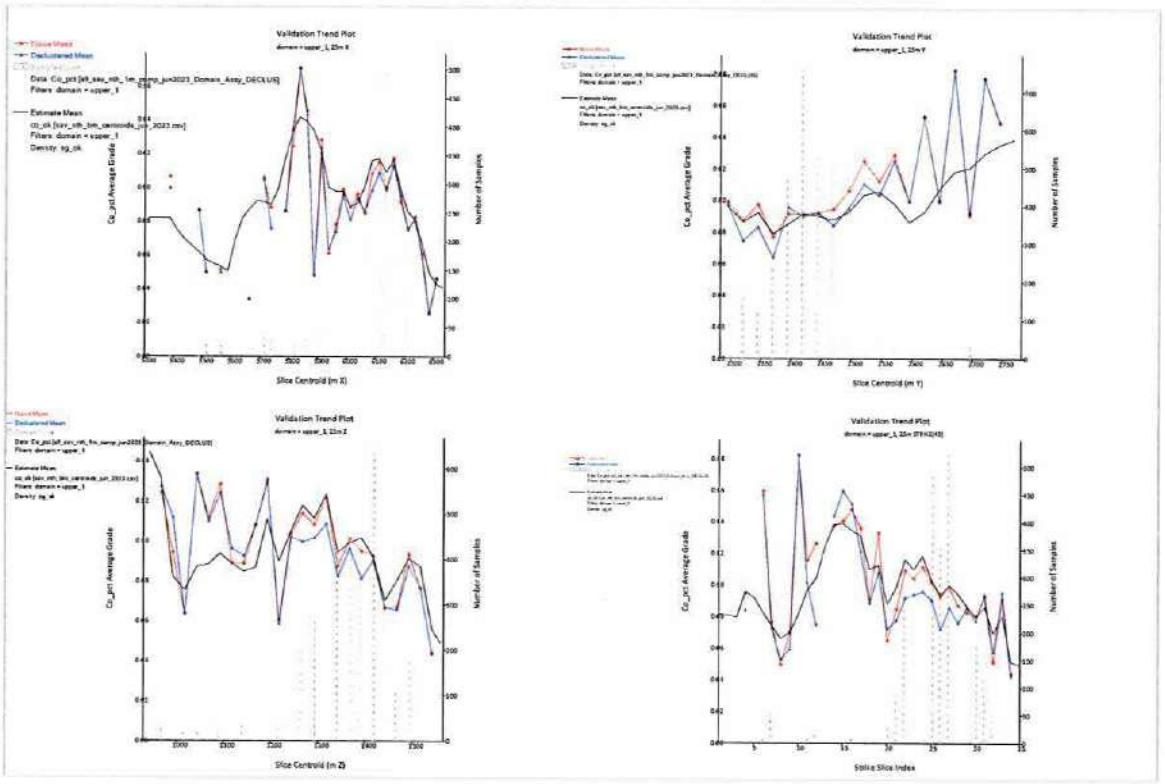
Upper 1 – Ni%



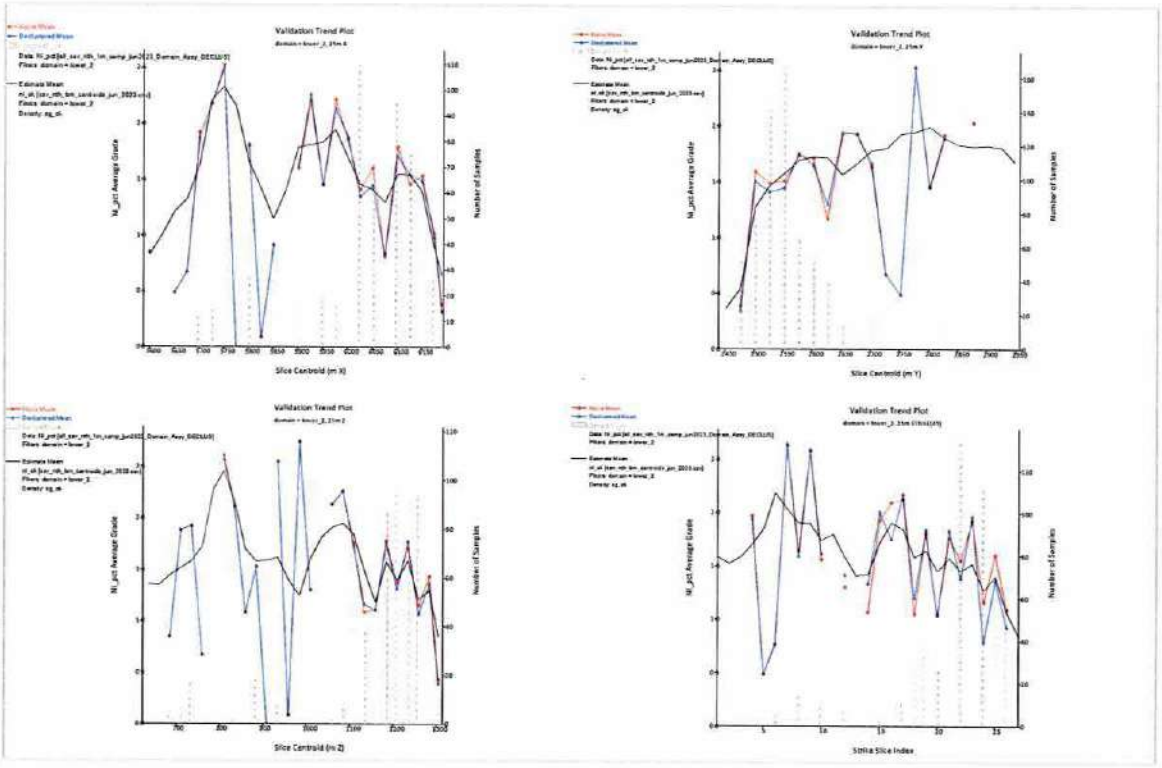
Upper 1 – Cu%



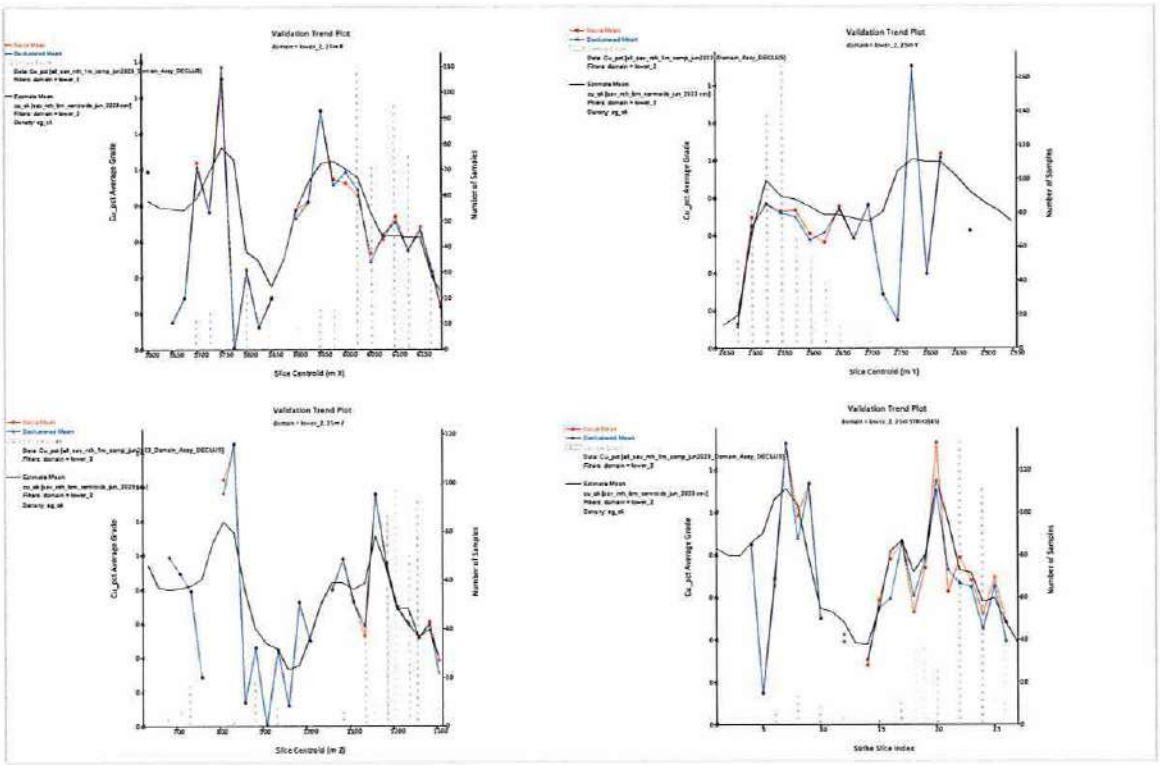
Upper 1 – Co%



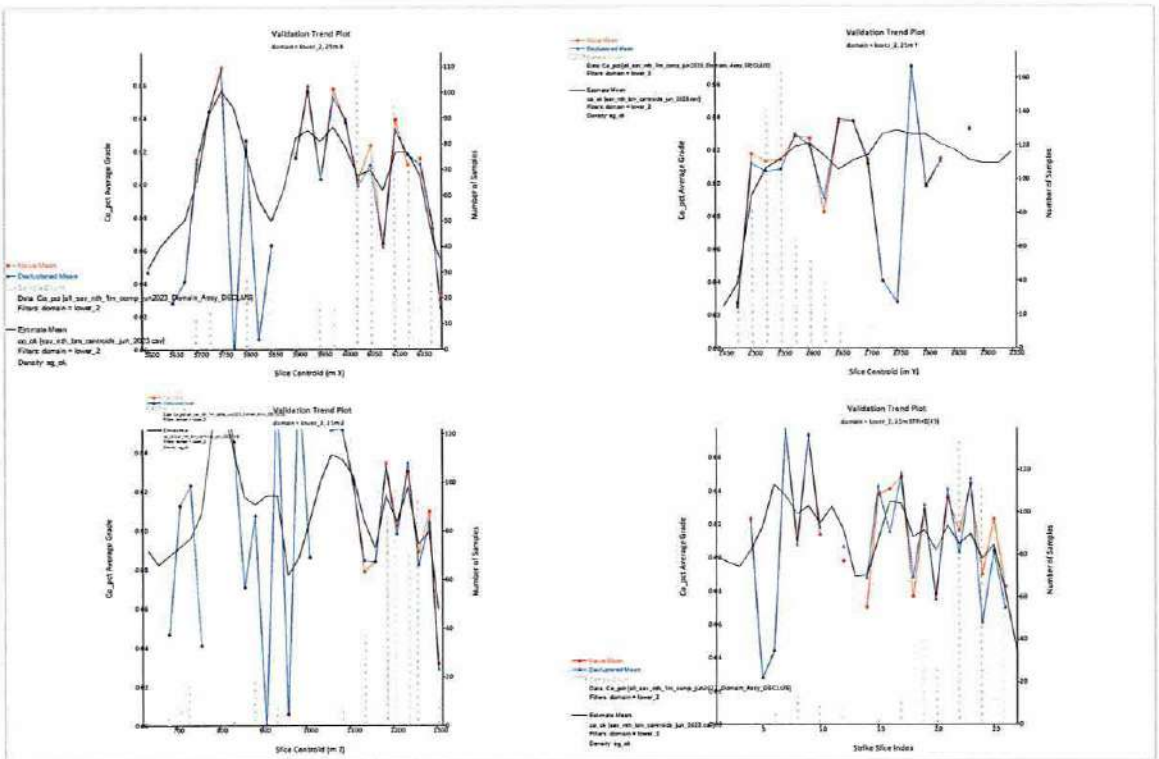
Lower 2 - Ni%



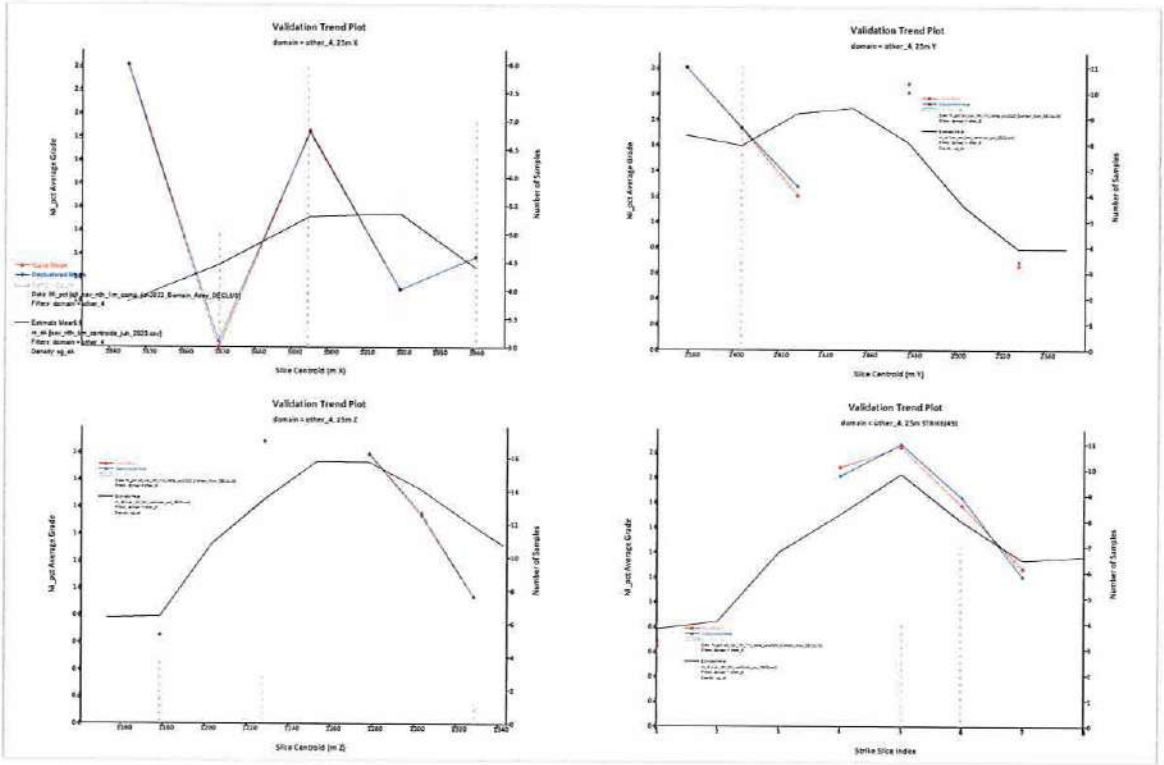
Lower 2 - Cu%



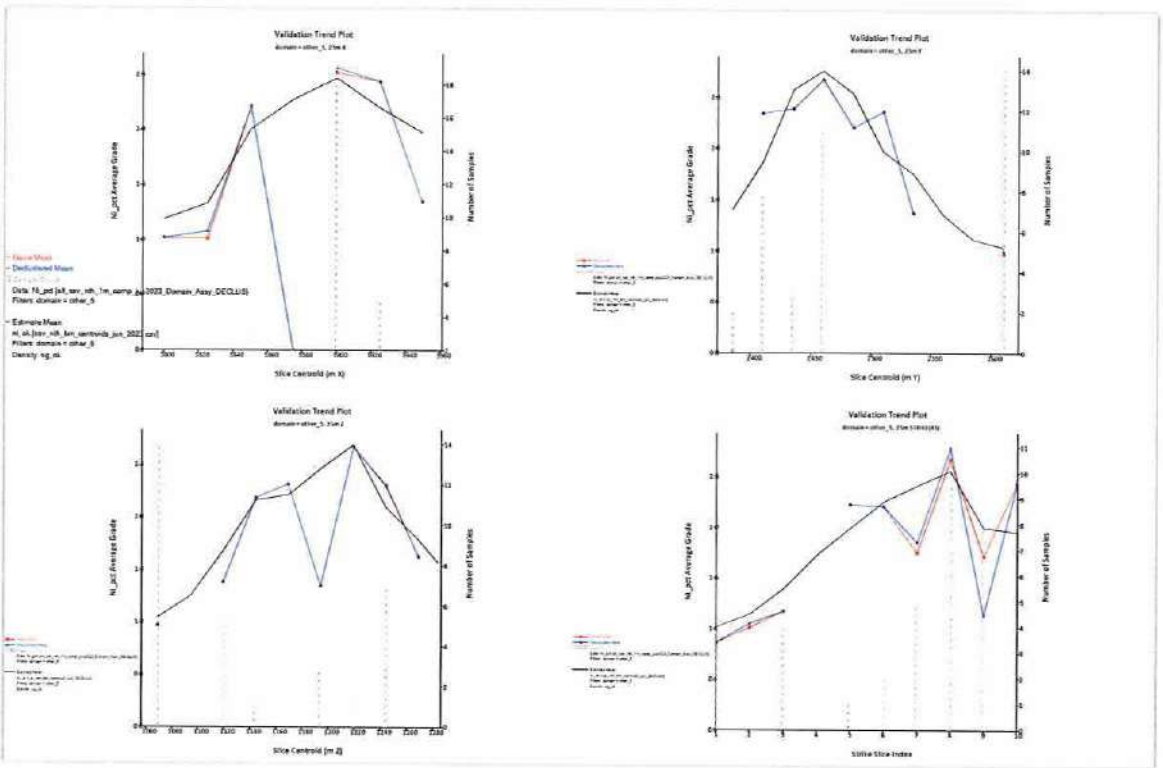
Lower 2 - Co%



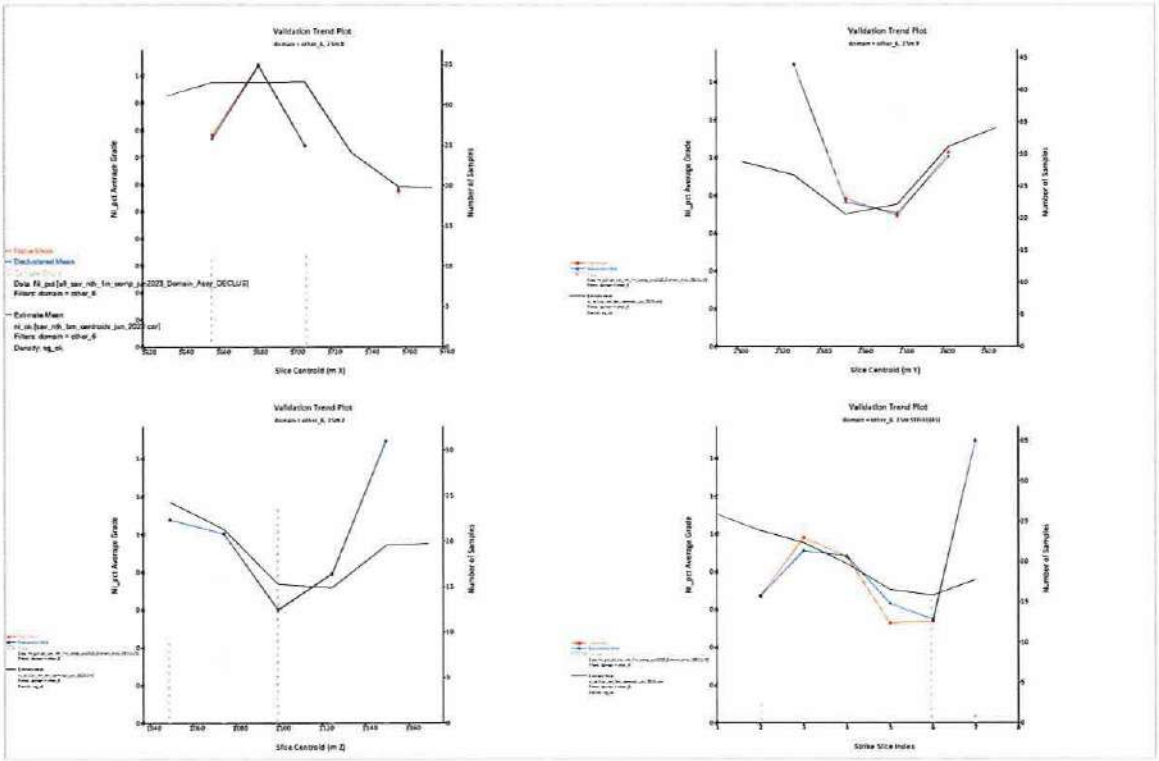
Other 4 – Ni%



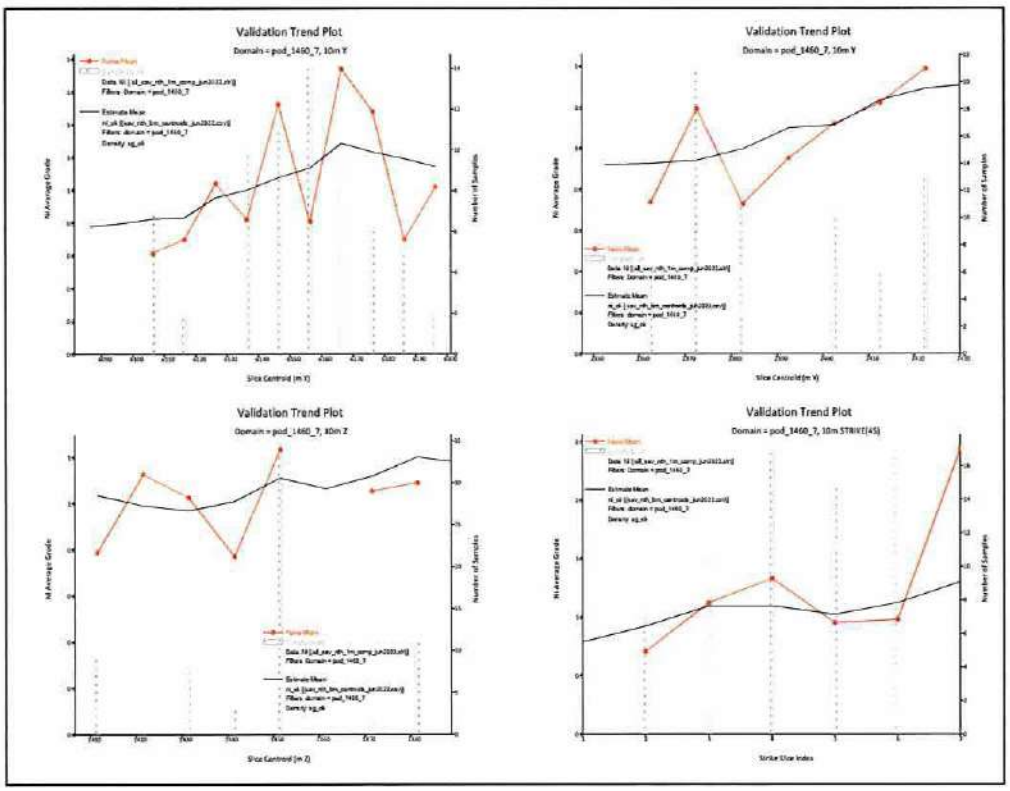
Other 5 – Ni%



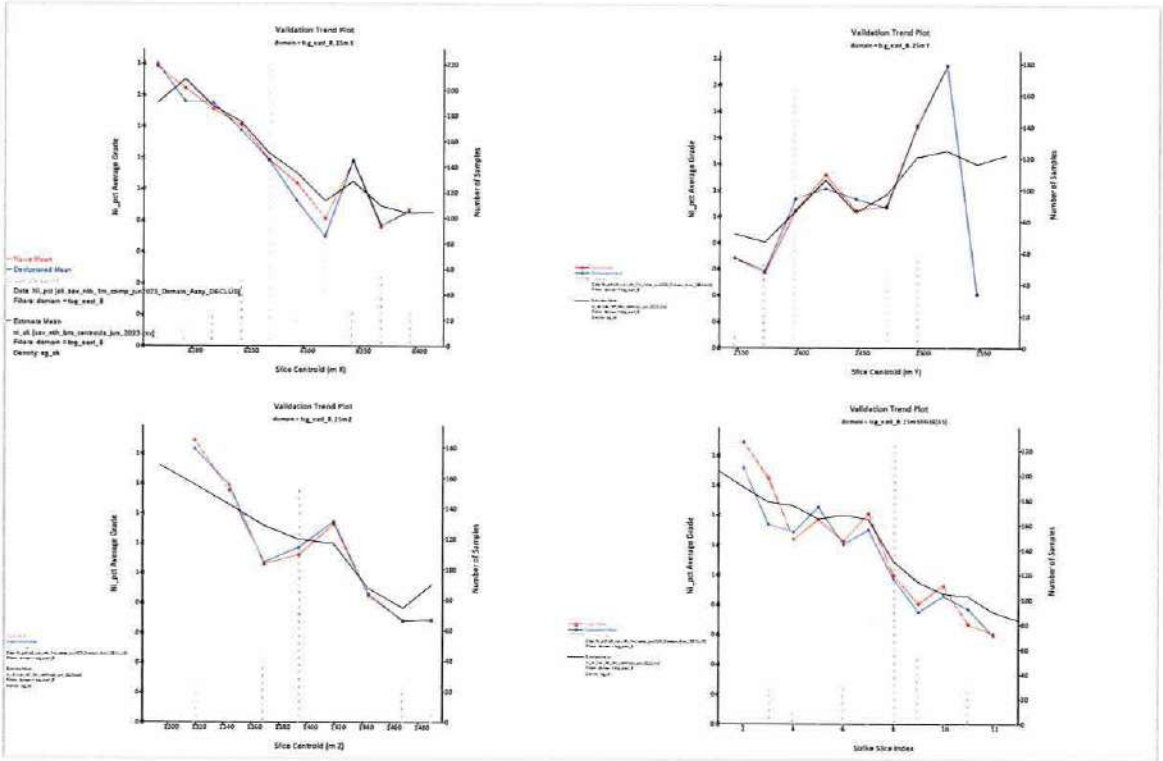
Other 6 – Ni%



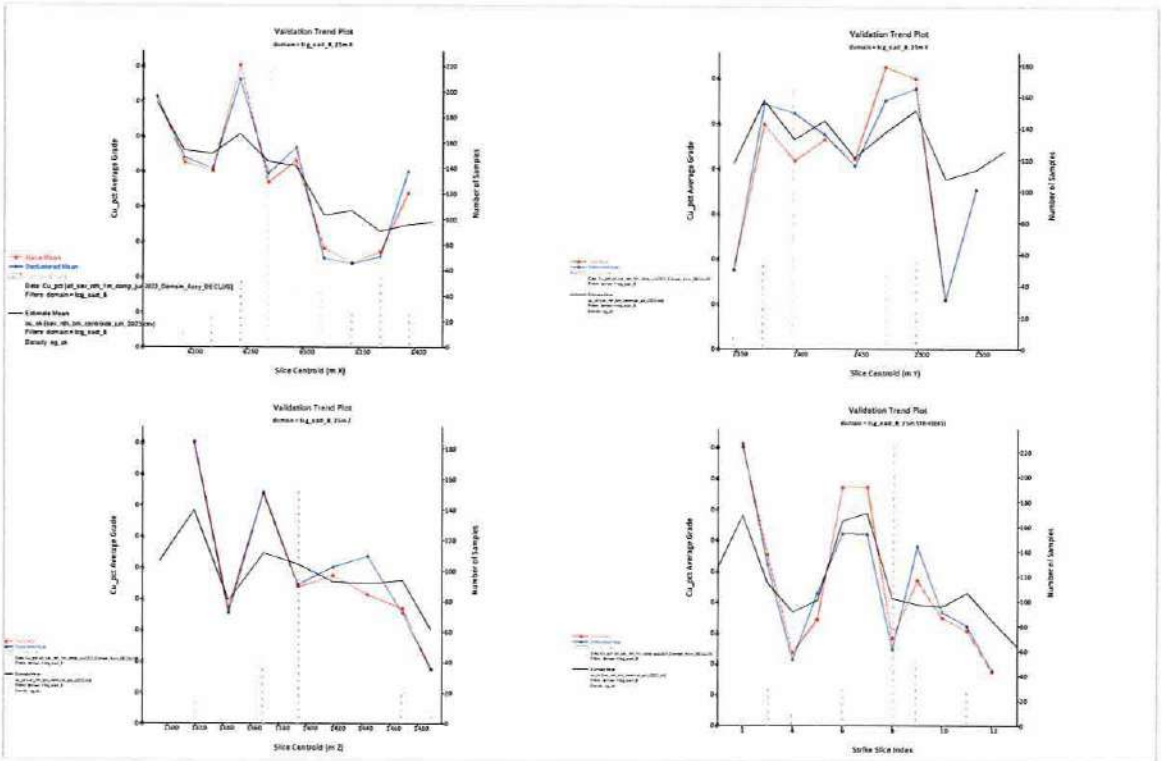
Pod 1460 7 – Ni%



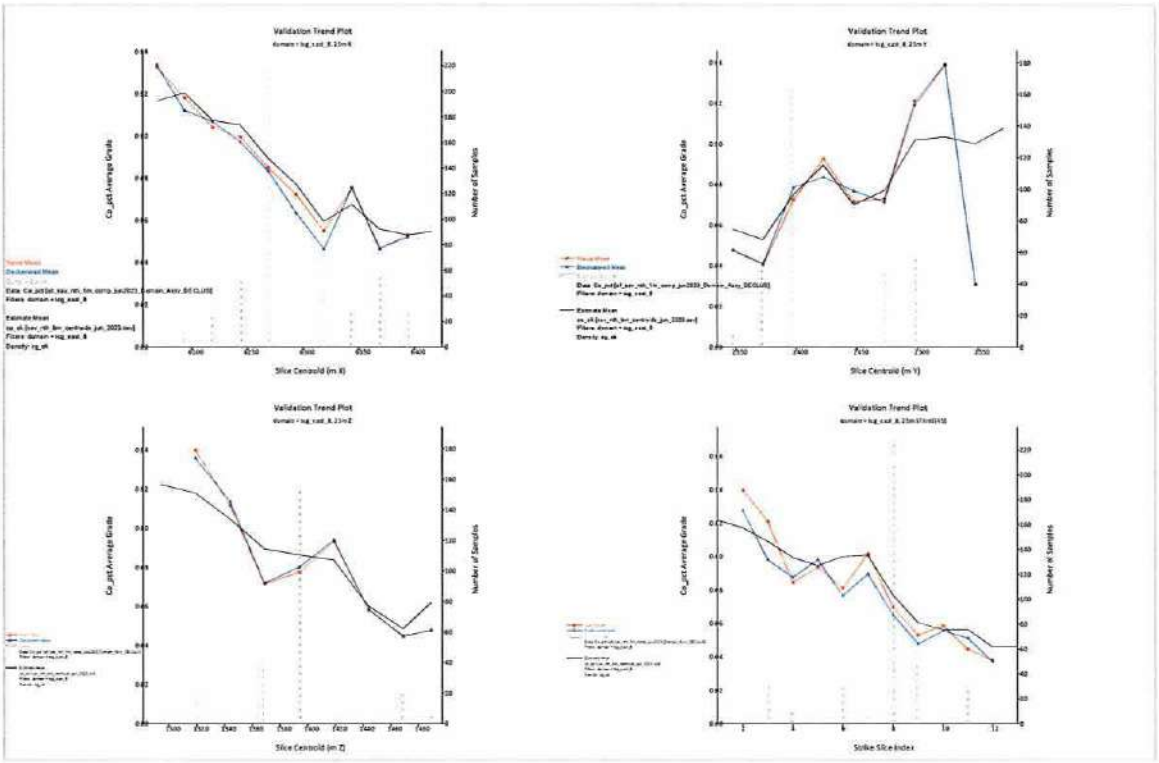
TCG East 8 – Ni%



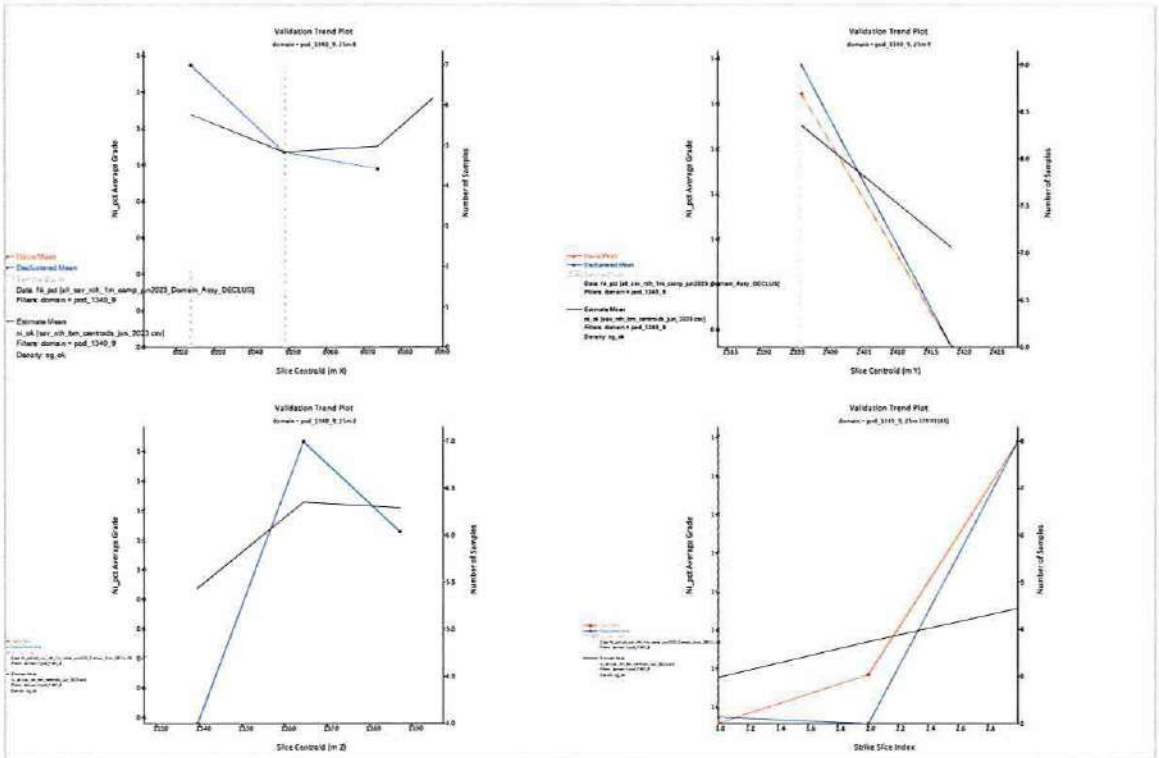
TCG East 8 – Cu%



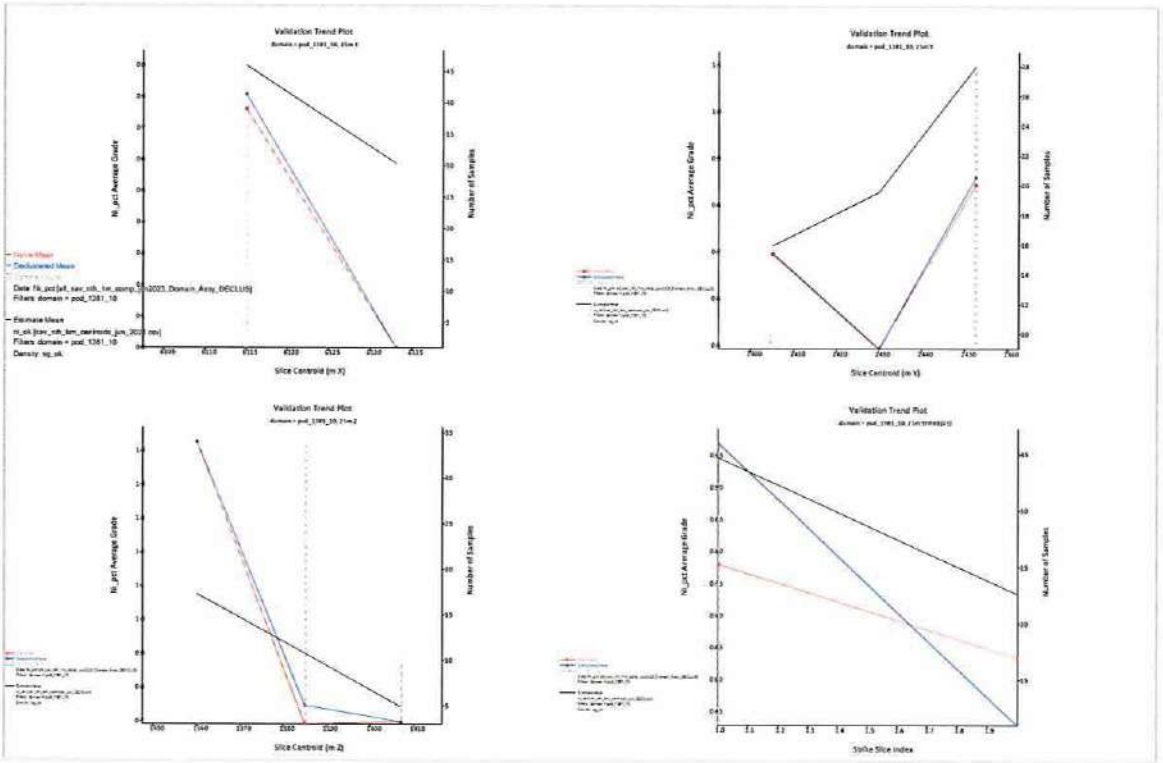
TCG East 8 – Co%



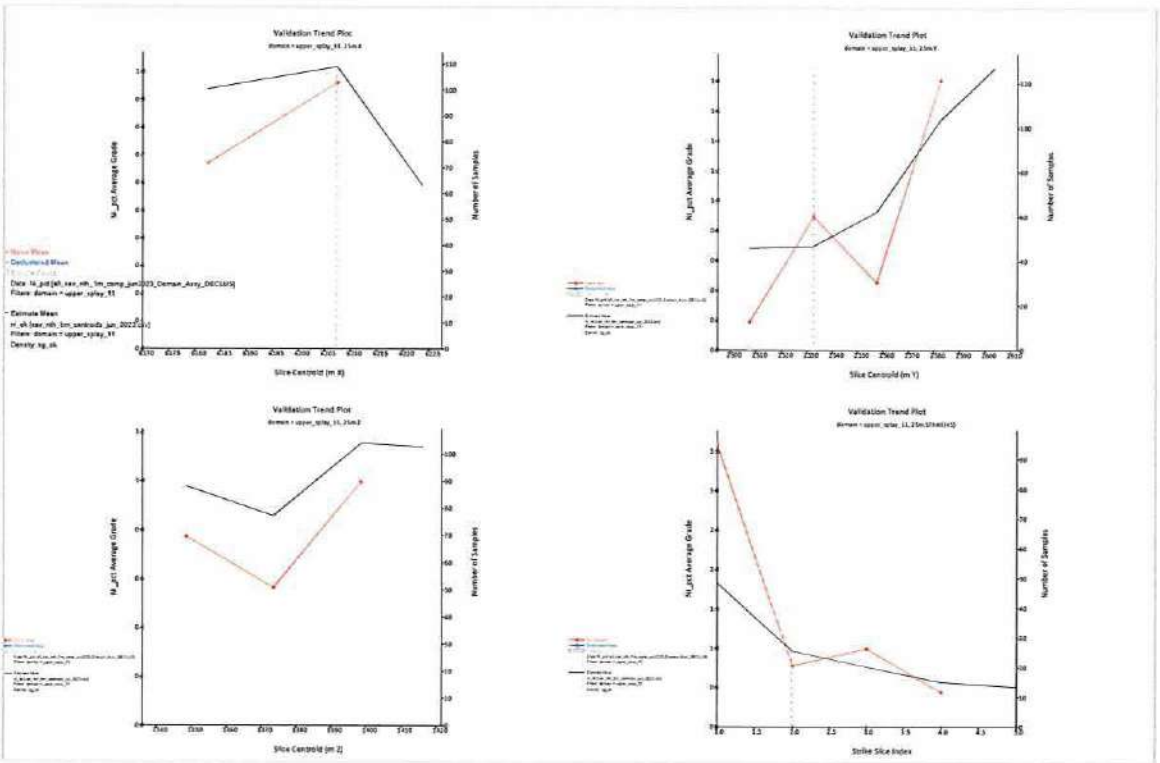
Pod 1340 9 – Ni%



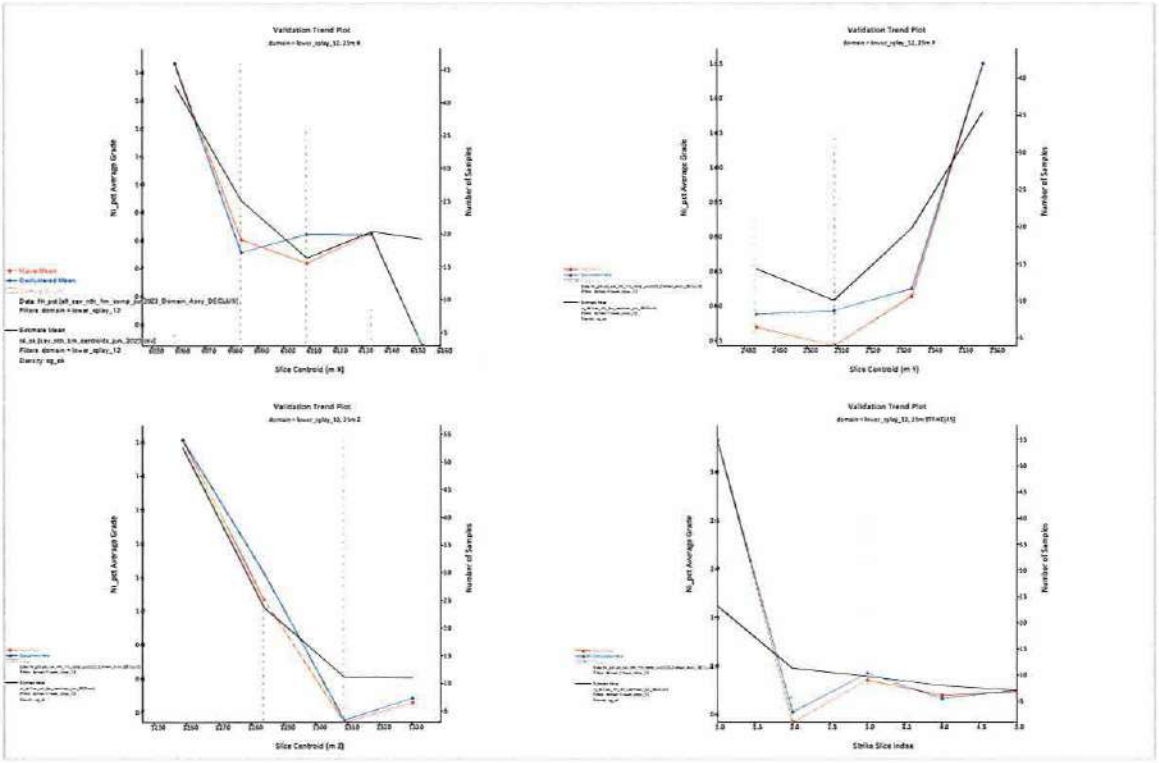
Pod 1381 10 – Ni%



Upper Splay 11 – Ni%



Lower Splay 12 – Ni%



Technical Memorandum

To: Andrew Shaw-Stuart (Exploration and Geology Manager)
Company: Panoramic Resources
From: Paul Hetherington (Senior Geology Consultant)
Reviewed: Mark Zammit (Principal Consultant)
Date: 22 May 2023
Project: Savannah Sub-900 fault updated estimate
Subject: Model handover

CUBE CONSULTING

Work Completed

Cube Consulting (Cube) was retained by Panoramic Resources Limited (PAN) to produce a mineral resource estimate (MRE) for a discrete area of the main Savannah nickel deposit below the 900 fault, where recently completed underground drilling has resulted in an updated interpretation. Drill hole data and geological interpretations were supplied by PAN, and Cube produced a block model using standard processes and procedures including data selection, compositing, variography, estimation and model validation.

Estimates were made for nickel, copper, cobalt and density using Ordinary Kriging (OK) for the interpreted mineralisation. The model was then exported with only the fields pertinent to the Panoramic mine planning engineers including a binary set of resource classification attributes.

Further details of the process can be found in the attached powerpoint presentation *230515_SNM_ResUpdt_notes.pptx.*

The output for this estimate is a Surpac block model named *2305_sub_900_eng.mdl.*

The insitu Savannah MRE below the 900 fault, reported by classification and above 0.5% Ni is shown in Table 1.

Table 1 – Savanah MRE Below 900 Fault and >0.5% Ni

Category	Volume	Tonnes	Ni %	Cu %	Co %	Ni (t)	Cu (t)	Co (t)
Indicated	259,403	860,211	1.57	0.69	0.10	13,505	5,935	860
Inferred	73,088	243,555	1.27	0.45	0.07	3,093	1,096	170
Total	332,491	1,103,766	1.51	0.64	0.09	16,598	7,031	1,031

Table 2 shows the difference between total tonnage greater than 0.5% Ni and nickel metal for the updated estimate minus the previously (rounded) reported tonnage from the PAN website.

Table 2 – Key changes (New-old)

Category	Tonnes	Ni (t)
Indicated	+80,211	+713
Inferred	+118,555	+943
Total	198,766	1,656

Figure 1 shows the Surpac block model summary.

Block model summary

Block Model

Name: 2305_sub_900_eng.mdl

Description: Update of Savannah - Sub 900Fault MRE

Block Model Geometry

Min Coordinates	Y	1720	X	5200	Z	1070
Max Coordinates	Y	2100	X	5980	Z	1520
User block Size	Y	4	X	20	Z	10
Min. block Size	Y	0.5	X	2.5	Z	1.25
Rotation	Bearing	0	Dip	0	Plunge	0

Block Summary

Total No. Blocks	258124
Storage Efficiency %	99.69

Attributes

	Name	Type	Decimals	Background	Description / Expression
1	co	Float	2	-99.00	OK estimated cobalt %
2	cu	Float	2	-99.00	OK estimated copper %
3	domain	Integer	-	999	mineralised domain number
4	indicated	Calculated	-	-	iif(rescat=2,1,0)
5	inferred	Calculated	-	-	iif(rescat=3,1,0)
6	measured	Calculated	-	-	iif(rescat=1,1,0)
7	mined	Integer	-	0	1=mined; 0=insitu
8	ni	Float	2	-99.00	OK estimated nickel %
9	rescat	Integer	-	0	1=mes; 2=ind; 3= inf; 0=Unclassified
10	sg	Float	2	-99.00	OK estimated density t/m3
11	unclass	Calculated	-	-	iif(rescat=0,1,0)

Figure 1: Surpac block model summary

Cube has included a classification scheme that follows the previously reported MRE however there is scope to re-classify a portion of Indicated material in the central area to Inferred that has sample spacing more than 75 metres. Figure 2 shows a three-dimensional view of the mineralised blocks coloured by the average sample distance on the left-hand image and the suggested JORC classification on the right-hand image.

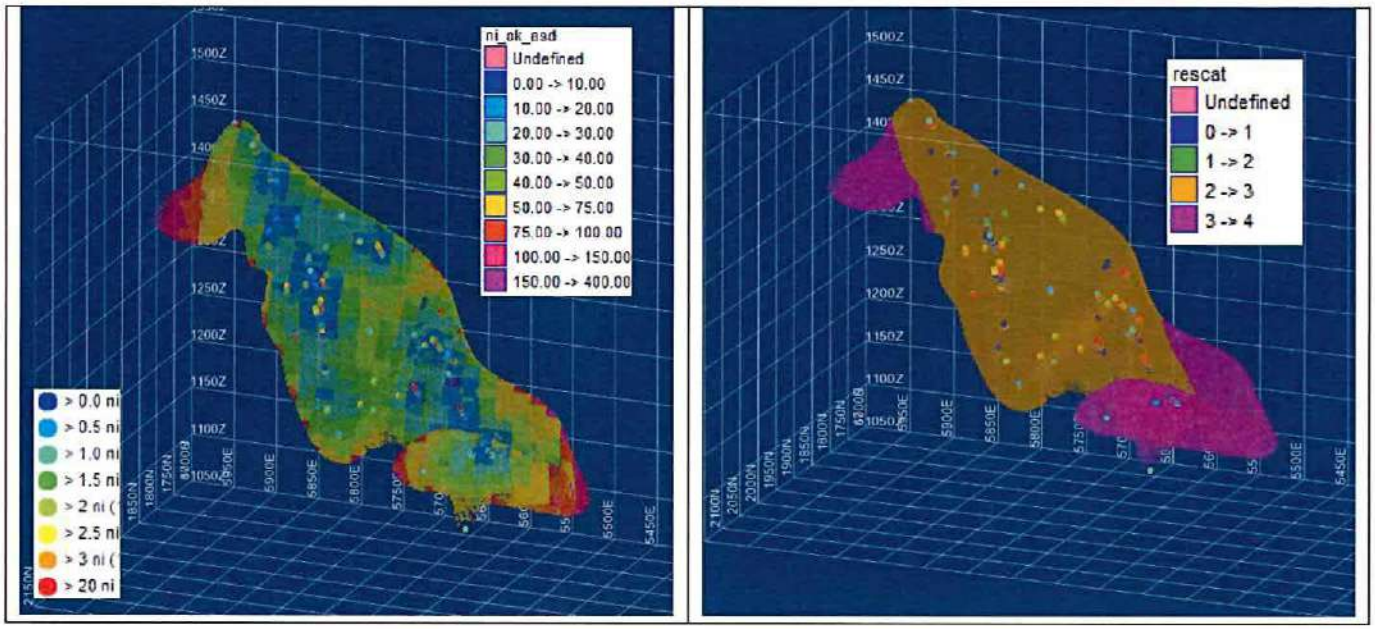


Figure 2: Sub-900 Fault zone 118 blocks, coloured by average distance to samples and JORC classification with composite locations coloured by nickel grade.

Recommendations

- Infill widely spaced areas of the Sub-900 Fault (118) domain including the lateral extremities which are currently unsampled.
- Consider an alternative method of limiting the Leapfrog vein model to constrain the zone edges. The current method of using a boundary string to truncate the edges results in geologically unrealistic contacts.
- Continue interpretation of sulphides within the intrusion, such as the intercept seen in KUD2050, that are not included in the mineralised envelope.

PJD-29

Technical Memorandum

To:	Andrew Shaw-Stuart (Exploration and Geology Manager)
Company:	Panoramic Resources
From:	Paul Hetherington (Senior Geology Consultant)
Reviewed:	Mark Zammit (Principal Consultant)
Date:	17 July 2023
Project:	Updated Savannah North Mineral Resource Estimate (MRE) and Savannah project total MRE statement depleted to 30 June 2023
Subject:	Model handover

CUBE CONSULTING

Work Completed

Savannah North MRE Update

Cube Consulting (Cube) was retained by Panoramic Resources Limited (PAN) to produce an updated MRE for the Savanah North deposit using new drill data completed to 7 June 2023. Drill hole data and geological interpretations were supplied by PAN, and Cube produced a block model using standard processes and procedures including data selection, compositing, variography, estimation and model validation which are detailed in the Savannah North MRE report.

Estimation work was done using Surpac software with the final model output exported as a Datamine block model named *sav_nth_res_jun2023_eng.dm*. with fields changed to match the site engineers Deswik block model as requested.

Cube added a net smelter return (NSR) field using inputs provided in the file *FY23 NSR Unit Calculation_Reserves LOM.xlsx*. Table 1 gives Panoramic's expected unit values for the LOM and their budgeted metallurgical recovery for ni, cu and co.

Table 1 – NSR calculation

	AUD/%grade	Met Recovery (%)
Nickel	191.48	83.00
Copper	51.64	97.10
Cobalt	250.39	85.20
Block maths implementation	*nsr = (ni*191.48*0.83)+(cu*51.64*0.971)+(co*250.39*0.852)*	

Figure 1 shows the Surpac block model summary.

Block model summary

Block Model

Name	sav_nth_res_jun2023_e
Description	Estimate of Savannah North resource using drilling data to 07 June 2023

Block Model Geometry

Min Coordinates	Y	2200	X	5000	Z	300
Max Coordinates	Y	3000	X	6500	Z	1600
User block Size	Y	20	X	20	Z	4
Min. block Size	Y	1.25	X	1.25	Z	0.5
Rotation	Bearing	0	Dip	0	Plunge	0

Block Summary

Total No. Blocks	28650522
Storage Efficiency %	98.56

Attributes

	Name	Type	Decimals	Background	Description / Expression
1	co	Float	3	-99.000	estimated co%
2	cu	Float	3	-99.000	estimated cu%
3	depl_dat	Character	-	INSITU	INSITU or DEVELOPMENT or STOPE
4	depl_typ	Character	-	INSITU	INSITU or DEVELOPMENT or STOPE
5	domain	Character	-	0	Mineralised domain name
6	gc_class	Integer	-	0	1=measured, 2=Indicated, 3=Inferred, 0=U...
7	gm_lith	Character	-	bkgr	Lithology type description
8	indctatd	Integer	-	0	binary indicator for indicated blocks
9	inferred	Integer	-	0	binary indicator for inferred blocks
10	measured	Integer	-	0	binary indicator for measured blocks
11	mined	Integer	-	1	1=insitu, 0=mined
12	ni	Float	3	-99.000	estimated ni%
13	nsr	Float	2	0.00	NSR using LOM inputs
14	sg	Float	2	2.88	estimated density
15	unclass	Integer	-	0	binary indicator for unclassified blocks

Figure 1: Surpac block model summary

Depletion

Mined wireframes were provided to Cube on 11 July 2023 representing all volumes mined at Savannah Main and Savannah North to the end of June 2023. Cube applied the mining volumes to each of the relevant block models in a depletion attribute to enable the reporting of an insitu MRE. No further consideration was given to sterilisation for the reporting of the 2023 MRE.

MRE Statement

Cube produced three separate Surpac block model reports using the following models:

1. sav_nth_res_jun2023.mdl
2. 2301_sav_depleted_to_jun23.mdl
3. 2305_sub_900.mdl

The reports were constrained by insitu blocks that were greater than or equal to 0.5% Ni and grouped by JORC classification. Figure 2 shows the reported blocks in each deposit area.

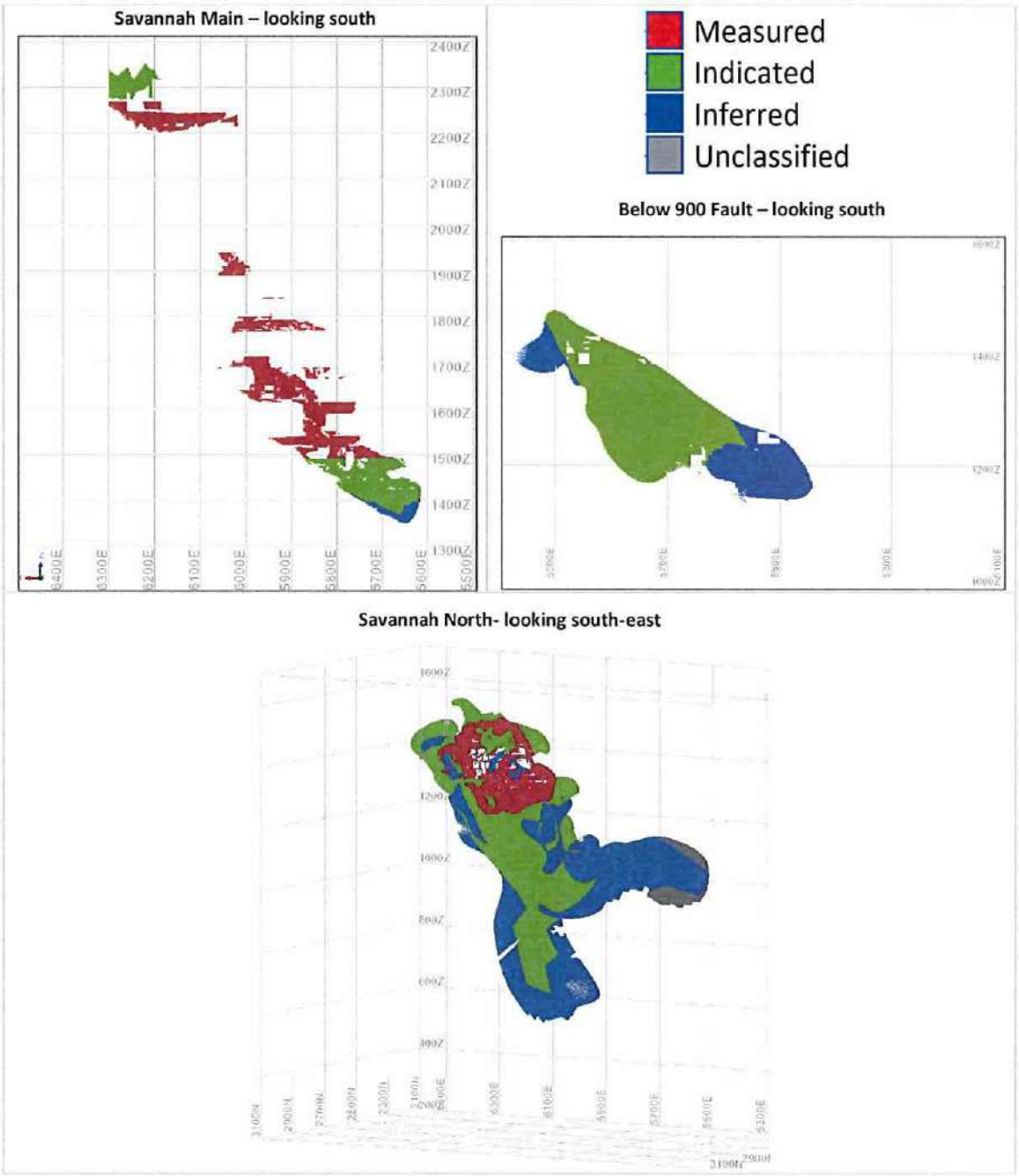


Figure 2: Insitu blocks above 0.5% Ni and coloured by JORC classification

The total MRE for the Savannah Nickel Project is given in Table 3.

Table 2 – Savannah Nickel Project MRE reported above 0.5% Ni, depleted to 30 June 2023

Deposit area	Model	Category	Volume	Tonnes	Ni %	Ni (t)	Cu %	Cu (t)	Co %	Co (t)
Savannah above 900F	2301_sav_depleted_to_jun23.mdl	Measured	229,577	816,885	1.36	11,142	0.77	6,290	0.07	564
		Indicated	142,070	522,938	1.66	8,655	1.18	6,165	0.08	418
		Inferred	8,095	29,876	1.82	543	1.14	339	0.09	26
Savannah below 900F	2305_sub_900.mdl	Indicated	259,403	860,211	1.57	13,505	0.69	5,935	0.10	860
		Inferred	73,088	243,555	1.27	3,093	0.45	1,096	0.07	170
Savannah North	sav_nth_res_jun2023.mdl	Measured	648,301	2,381,128	1.42	33,693	0.57	13,668	0.10	2,453
		Indicated	1,471,177	5,465,983	1.57	85,761	0.70	38,371	0.11	6,122
		Inferred	1,026,142	3,542,127	1.31	46,437	0.50	17,852	0.08	2,727
Total			**3,857,853**	**13,862,703**	**1.46**	**202,830**	**0.65**	**89,717**	**0.10**	**13,340**

Data file description

The data pack relating to this handover note contains the files listed in Table 3.

Table 3 – Data pack file contents

Item	File name	Type	Description
1	sav_nth_res_jun2023_eng	Datamine Block model	Updated June 2023 MRE for Savannah North - adjusted field names and depleted to 30 June 2023
2	2301_sav_depleted_to_jun23_eng	Datamine Block model	Updated January 2023 MRE for Savannah Main (below 1440mRL) - adjusted field names and depleted to 30 June 2023
3	2305_sub_900_eng	Datamine Block model	Updated May 2023 MRE for Savannah below 900 Fault - adjusted field names
4	Cube Summary Report Savannah North MRE - June2023	Word docx/pdf	Updated June 2023 MRE report for Savannah North
5	fy23_savannah_total_MRE_statement	Excel	MRE tabulation using three models, includes raw block model reports and macro

Recommendations

- See previous recommendations given in sub-900 fault and Savannah Main estimate handovers dated 22 May 2023 and 24 January 2023 respectively.
- Consider treatment of remnant material such as rib pillars and lateral extents of mineralisation per level. Cube believes that some of this material should be flagged as 'sterilised' given it is unlikely to meet the reasonable prospects of eventual economic extraction test set out in the JORC Code.

Technical Memorandum

To: Andrew Shaw-Stuart (Exploration and Geology Manager)
Company: Panoramic Resources
From: Paul Hetherington (Senior Geology Consultant)
Reviewed: Mark Zammit (Principal Consultant)
Date: 22 September 2023
Project: Savannah Sub-900 fault updated estimate
Subject: Model handover

CUBE CONSULTING

Work Completed

Cube Consulting (Cube) was retained by Panoramic Resources Limited (PAN) to produce a mineral resource estimate (MRE) for a discrete area of the main Savannah nickel deposit below the 900 fault, where recently completed underground drilling has resulted in an updated interpretation. An additional nine underground diamond drill holes have been included since the previous 'internal' estimate was done in May 2023. The new holes are KUD2162, KUD2168, KUD2169, KUD2170, KUD2171, KUD2172, KUD2173, KUD2174 and KUD2245. Drill hole data and geological interpretations were supplied by PAN, and Cube produced a block model using standard processes and procedures including data selection, compositing, variography, estimation and model validation.

Estimates were made for nickel, copper, cobalt and density using Ordinary Kriging (OK) for the interpreted mineralisation. The model was then exported with only the fields pertinent to the Panoramic mine planning engineers including a binary set of resource classification attributes.

The output for this estimate is a Surpac block model named *2309_sub_900_eng.mdl*.

The insitu Savannah MRE below the 900 fault, reported by classification and above 0.5% Ni is shown in Table 1.

Table 1 – Savanah MRE Below 900 Fault and >0.5% Ni

Category	Volume	Tonnes	Ni %	Cu %	Co %	Ni (t)	Cu (t)	Co (t)
Indicated	284,900	986,911	1.80	0.86	0.11	17,764.40	8,487.43	1,085.60
Inferred	233,127	819,989	1.57	0.78	0.07	12,873.83	6,395.91	573.99
Total	518,027	1,806,900	1.70	0.83	0.09	30,717.30	14,997.27	1,626.21

Table 2 shows the difference between total tonnage greater than 0.5% Ni and nickel metal for the updated estimate minus the previously (rounded) reported tonnage from the PAN website.

Table 2 – Differences to previously reported tonnage and Ni grade

Prospect	Category	Mass	Ni%	Ni t
Savannah Below 900F	Measured	-	0.00	0
	Indicated	206,861	0.16	4972
	Inferred	695,328	-0.15	10730
Sub-Total		**902,189**	**0.05**	**15,701**

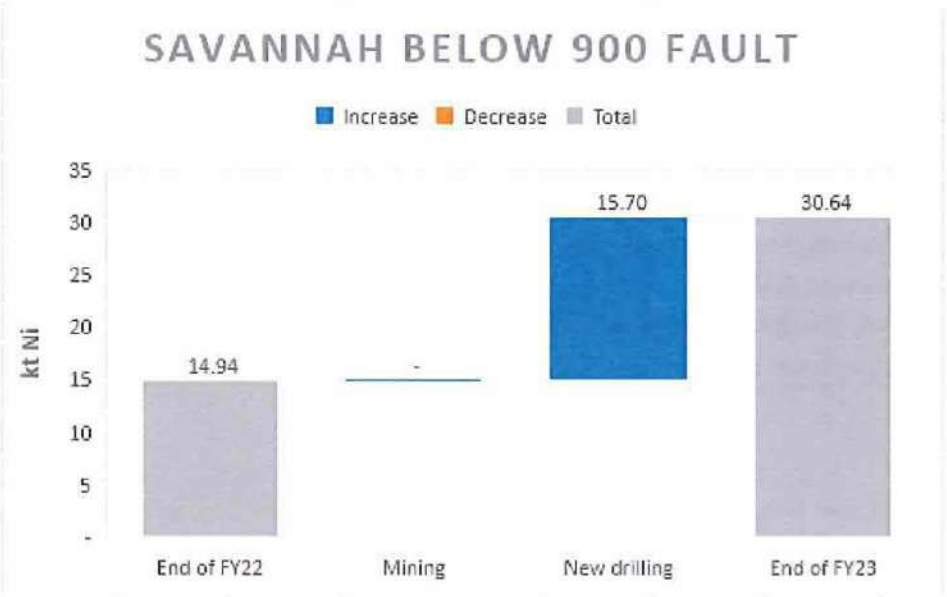


Figure 1: Cascade chart showing difference between Sept23 model versus the FY22

Figure 2 shows the Surpac block model summary.

Block model summary

Block Model

Name	2309_sub_900_eng.mdl
Description	Update of Savannah - Sub 900Fault MRE

Block Model Geometry

Min Coordinates	Y	1720	X	5200	Z	1070
Max Coordinates	Y	2100	X	5980	Z	1520
User block Size	Y	4	X	20	Z	10
Min. block Size	Y	0.5	X	2.5	Z	1.25
Rotation	Bearing	0	Dip	0	Plunge	0

Block Summary

Total No. Blocks	302987
Storage Efficiency %	99.64

Attributes

	Name	Type	Decimals	Background	Description / Expression
1	co	Float	3	-99.000	estimated co%
2	cu	Float	3	-99.000	estimated cu%
3	domain	Integer	-	999	mineralised domain number
4	gc_class	Integer	-	0	1=measured, 2=indicated, 3=Inferred, 0=U...
5	indctaid	Integer	-	0	binary indicator for indicated blocks
6	inferred	Integer	-	0	binary indicator for inferred blocks
7	measured	Integer	-	0	binary indicator for measured blocks
8	mined	Integer	-	0	1=mined; 0=insitu
9	ni	Float	3	-99.000	estimated ni%
10	nsr	Float	2	0.00	NSR using LOM inputs
11	sg	Float	2	-99.00	estimated density
12	sg_ok_pass_no	Integer	-	0	
13	unclass	Integer	-	0	binary indicator for unclassified blocks

Figure 2: Surpac block model summary

Cube has included a classification scheme that follows the previously reported MRE however there is scope to include more Inferred material in the central area that has sample spacing more than 75 metres. Figure 3 shows a three-dimensional view of the mineralised blocks coloured by the JORC classification.

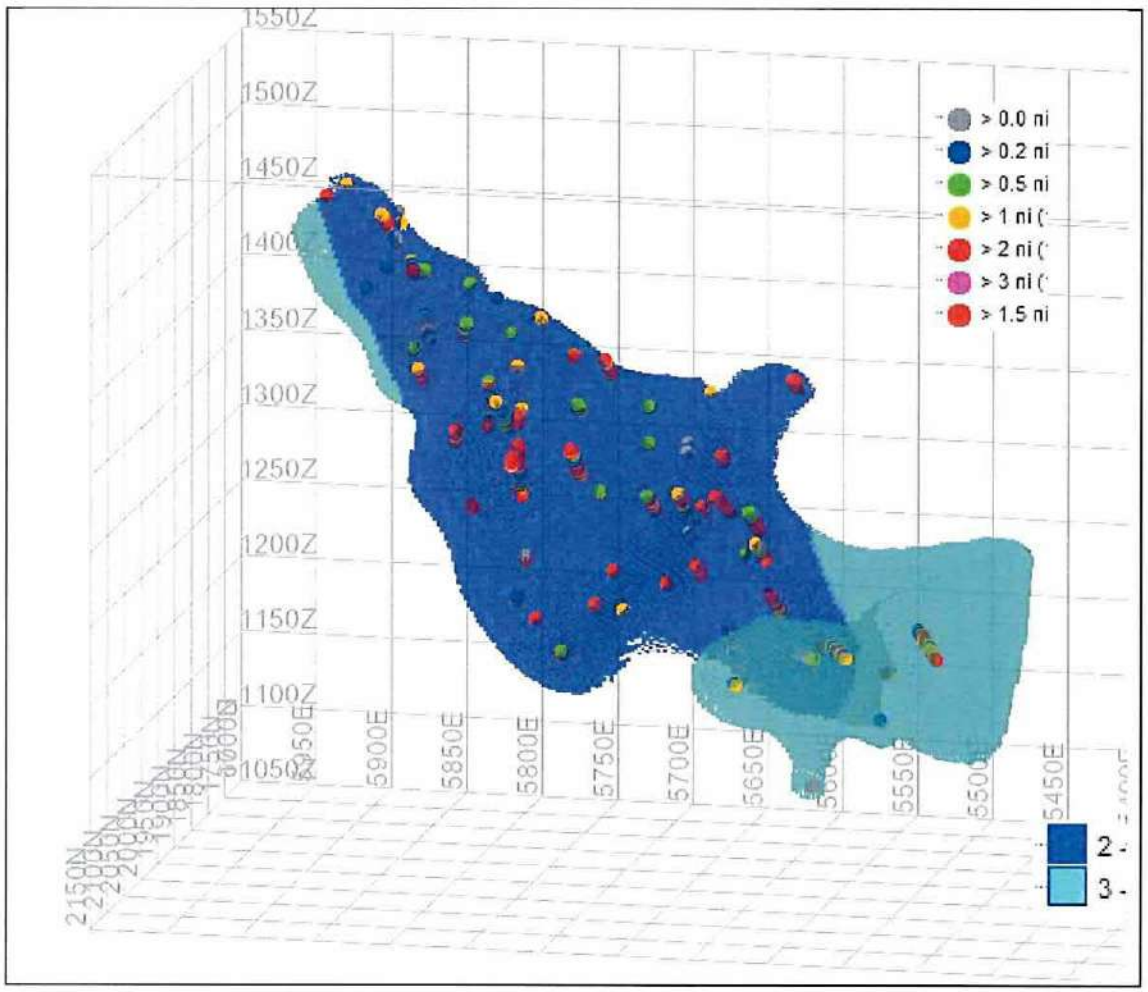


Figure 3: Sub-900 Fault zone 118 blocks JORC classification with composite locations coloured by nickel grade.

Recommendations

- Allow time during the next update to consider sub-domaining to improve the variography and final estimate quality.
- Infill widely spaced areas of the Sub-900 Fault (118) domain including the lateral extremities which are currently unsampled.
- Target extensional drilling around the KUD2245 intercept.

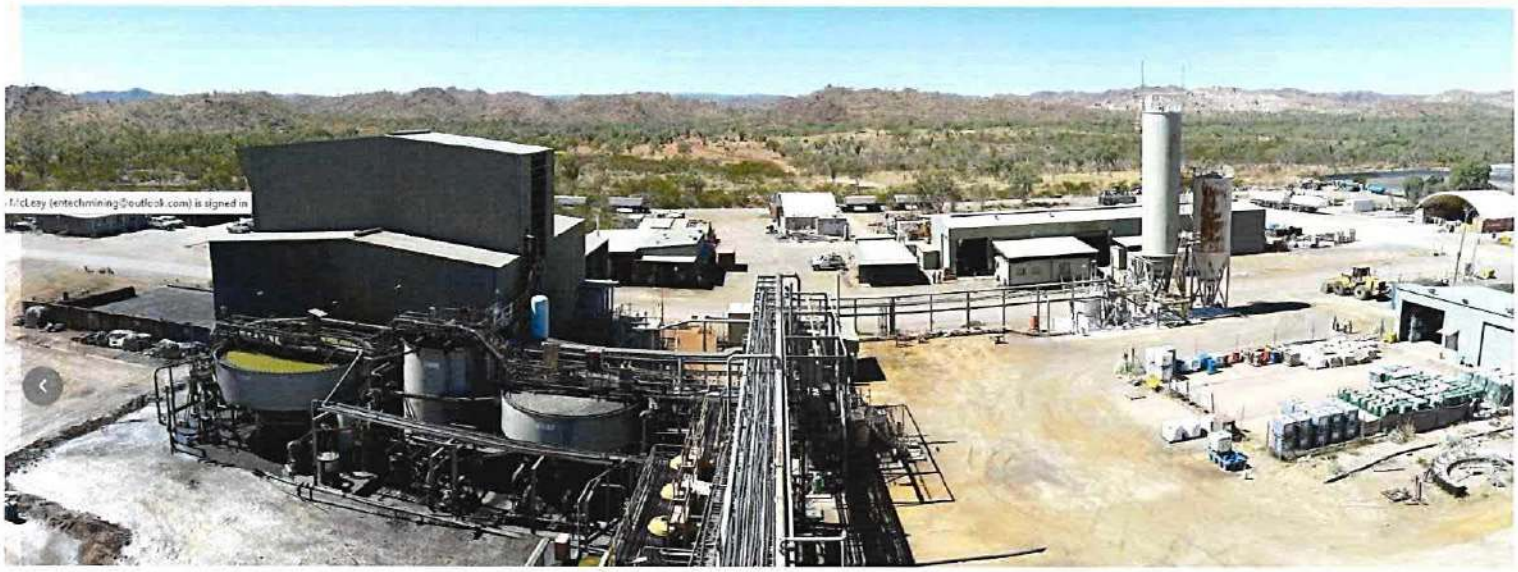
- Continue interpretation of sulphides within the intrusion, such as the intercept seen in KUD2050, that are not included in the mineralised envelope.

- As noted in previous memorandums and reports, an effort should be made to consolidate the MRE and ORE work from Savannah North, Savannah Main and Savannah below the 900 fault into a single document and associated data packs encompassing the whole project. A database of MRE and ORE inputs and outputs should also be considered.

PJD-31

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SAVANNAH UNDERGROUND NICKEL MINE

LIFE OF MINE PLAN AND ORE RESERVE REPORT

JULY 2020

Panoramic Resources Limited

Report Number: ENT_0592_PAN

Principal Author:

Shane McLeay BEng Mining (Hons) FAusIMM AWASM

Principal Reviewer:

Dan Donald BEng Mining (Hons) MBA MAusIMM MSME AWASM

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Author(s)	Shane McLeay BEng Mining (Hons) FAusIMM AWASM Christine Shore BSc Geology Grad Cert Geostatistics FAusIMM
Reviewed By	Dan Donald BEng Mining (Hons) MBA MAusIMM MSME
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2.0	Draft V2	Shane McLeay Alonso Tello	13/7/2020
3.0	Draft V3	Shane McLeay Alonso Tello	28/7/2020

Document Sign Off

Version	Competent Person	Position	Signature	Date

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entech.
MINING CONSULTANTS

Entech Pty Ltd. ABN 23 143 135 773

+61 (0) 8 6189 1800

8 Cook St, West Perth WA 6005
admin_au@entechmining.com

entechmining.com

28th July 2020

Victor Rajasooriar
Managing Director and CEO
Panoramic Resources Limited

electronic transmittal (*Victor.Rajasooriar@panres.com*)

RE: Savannah Life of Mine Plan and Ore Reserves Report, July 2020

Dear Mr. Rajasooriar,

Please find attached a report summarising the mine planning and Ore Reserve estimation works completed by Entech Pty Ltd in April to July 2020 on the Savannah underground nickel mine. The mining work has been completed to a feasibility study level of detail.

Signed for and on behalf of Entech Pty Ltd

Shane McLeay
Principal Mining Engineer

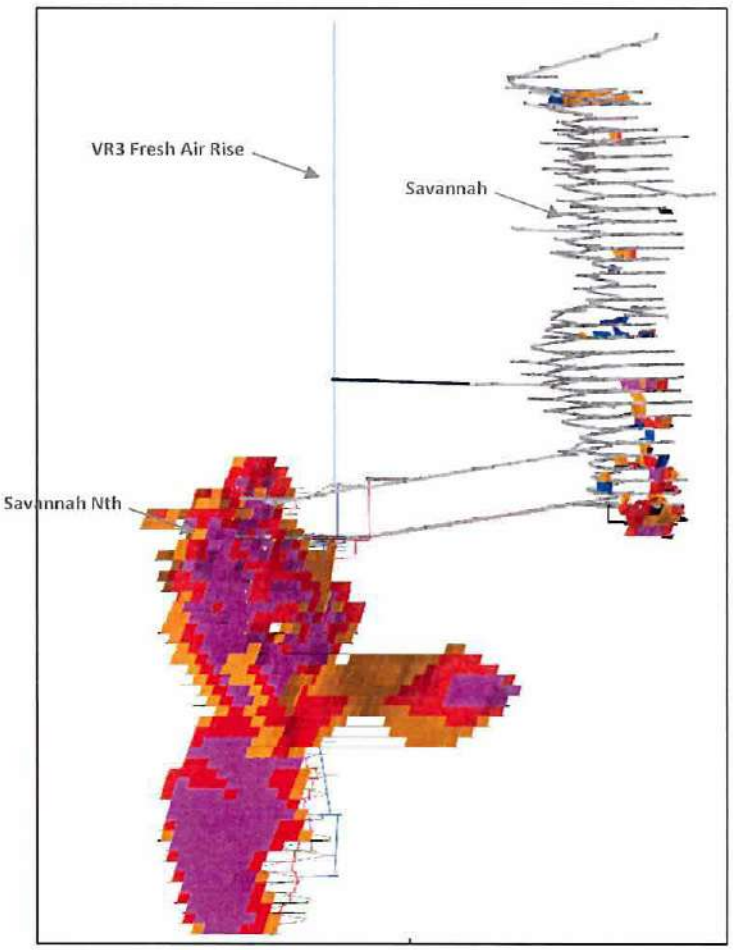
EXECUTIVE SUMMARY

Study Highlights

The Savannah operation was placed in to care and maintenance in April 2020 and remains this way as of 28 July 2020. This study assumes the recommencement of underground pre-production development in August 2020. [1] The pre-production underground development will focus on the completion of the VR3 fresh air raise which is critical to ramping the mine up to full production, and capital development in the Savannah Nth part of the mine.

The life of mine plan (LOM), for which is the basis of this study, primarily exploits the Savannah Nth area, supported by the declining resources from Savannah. The LOM layout and locations of the different lodes can be seen below in Figure 1. Historical development is shown in grey and old stopes are not shown. All stoping blocks shown are planned to be mined in the LOM.

Figure 1: Savannah LOM Plan Long-Section



[1] *The August 2020 recommencement of underground pre-production development assumption is made for the purposes of this study only, and operations may not proceed in this way,*

Key parameters of the LOM study are presented in Table 1.

Table 1: Key Life of Mine Parameters [1,2]

Deposit	Metal	Measured		Indicated		Inferred		Total		Metal Tonnes
		Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	
Savannah	Nickel	1,233,000	0.95					1,233,000	0.95	11,700
	Copper		0.66						0.66	8,100
	Cobalt		0.05						0.05	600
Savannah North	Nickel	1,866,000	1.16	5,515,000	1.26	2,087,000	1.28	9,468,000	1.25	118,200
	Copper		0.52		0.57		0.39		0.52	49,300
	Cobalt		0.08		0.09		0.08		0.09	8,100
Total	Nickel	3,099,000	1.08	5,515,000	1.26	2,087,000	1.28	10,701,000	1.21	129,900
	Copper		0.58		0.57		0.39		0.54	57,400
	Cobalt		0.07		0.09		0.08		0.08	8,700

Mine Costing	LOMP A$M	Upside Case A$M
Infrastructure and Site Establishment	26	26
LOM Mining Capital	176	176
LOM Mining Operating Cost	951	951
Total LOM cost	1,153	1,153
Production Parameters	**Value**	**Value**
Mine Life (yrs)	13.9	13.9
Peak Mining Production Rate (kt/yr)	965	965
Mining Cost (A$/lb Ni Payable)	$5.16	$5.16
By Product Credits (A$/lb Ni Payable)	($2.48)	($2.95)
Cash Cost (A$/lb Ni Payable)[3]	$6.04	$5.57
AIC (A$/lb Ni Payable)[4]	$7.86	$7.45
Financial Summary	**A$M**	**A$M**
Revenue	$2,341	$2,538
Free Cashflow	$448	$625
NPV_8	$254	$339

[1] Mined Measured Material represents ore shapes that primarily derive value from Measured Resource material, with the addition of dilution. Mined Indicated Material represents ore shapes that primarily derive value from Indicated Resource material, with the addition of dilution. Mined Inferred Material represents ore shapes that primarily derive value from Inferred Resource material, with the addition of dilution.

[2] Calculations have been rounded to the nearest 1,000 t of ore, 2 decimal places for grade and 100t for metal calculations.

[3] Cash Costs include Mining, Processing, G&A, Freight, Copper and Cobalt credits.

[4] All in Costs include Cash Costs plus Capital expenditure and Royalties.

An Ore Reserve was calculated by utilising the LOM plan and excluding Inferred resources. The mine design and schedule were updated and remodelled.

The Ore Reserve estimate as of 28 July 2020 is;

8.27 Mt @ 1.23% Ni, 0.59% Cu and 0.08% Co for contained metal of 102 kt Ni, 48.5 kt Cu and 7.0 kt Co

A summary of key parameters of the Savannah Ore Reserve is presented in Table 2.

Table 2: Key Reserve Parameters[1]

Ore Reserve	Metal	Proved		Probable		Total		Metal Tonnes
		Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	
Savannah	Nickel	1,233,000	0.95			1,233,000	0.95	11,700
	Copper		0.66				0.66	8,100
	Cobalt		0.05				0.05	600
Savannah North	Nickel	1,795,000	1.21	5,246,000	1.30	7,041,000	1.28	90,100
	Copper		0.54		0.58		0.57	40,400
	Cobalt		0.09		0.09		0.09	6,400
Total	Nickel	3,028,000	1.10	5,246,000	1.30	8,274,000	1.23	101,800
	Copper		0.59		0.58		0.59	48,500
	Cobalt		0.07		0.09		0.08	7,000

Mine Costing	Reserve LOMP A$M	Upside Case A$M
Infrastructure and Site Establishment	26	26
Reserve LOM Mining Capital	185	185
Reserve LOM Mining Operating Cost	767	767
Total LOM cost	977	977
Production Parameters	**Unit**	**Unit**
Mine Life (yrs)	13.0	13.0
Peak Mining Production Rate (kt/yr)	918	918
Mining Cost (A$/lb Ni Payable)	$5.31	$5.31
By Product Credits (A$/lb Ni Payable)	($2.62)	($3.06)
Cash Cost (A$/lb Ni Payable)[2]	$6.01	$5.57
AIC (A$/lb Ni Payable)[3]	$8.20	$7.81
Financial Summary	**A$M**	**A$M**
Revenue	$1,855	$1,991
Free Cashflow	$301	$421
NPV_8	$184	$243

[1] *Calculations have been rounded to the nearest 1,000 t of ore, 2 decimal places for grade and 100t for metal calculations.*

[2] *Cash Costs include Mining, Processing, G&A, Freight, Copper and Cobalt credits.*

[3] *All in Costs include Cash Costs plus Capital expenditure and Royalties.*

Geology & Resources

The Savannah North Mineral Resource has been estimated by independent geological consultants Cube Consulting Pty Ltd in May 2020. A summary of the Mineral Resource at a 0.5% Ni cut-off grade (COG) is shown in Table 3.

Table 3: Savannah Mineral Resource (0.5% Ni COG)

Classification	Domain	Tonnes (kt)	Ni (%)	Cu (%)	Co (%)	Ni (kt)	Cu (kt)	Co (kt)
Measured	Upper	1,840	1.48	0.66	0.10	27.20	12.10	1.90
	Other	46	1.71	0.49	0.12	0.80	0.20	0.10
	Sub-Total	**1,885**	**1.48**	**0.65**	**0.10**	**28.00**	**12.30**	**2.00**
Indicated	Upper	3,050	1.43	0.57	0.10	43.60	17.30	3.10
	Lower	2,654	1.84	0.90	0.13	48.80	23.80	3.40
	Other	414	1.34	0.48	0.09	5.50	2.00	0.40
	Sub-Total	**6,117**	**1.60**	**0.70**	**0.11**	**98.00**	**43.10**	**6.90**
Inferred	Upper	1,544	1.25	0.42	0.07	19.30	6.50	1.10
	Lower	958	1.67	0.73	0.11	16.00	7.00	1.10
	Other	470	1.93	0.46	0.12	9.10	2.20	0.60
	Sub-Total	**2,972**	**1.49**	**0.53**	**0.09**	**44.40**	**15.60**	**2.70**
TOTAL		**10,974**	**1.55**	**0.65**	**0.11**	**170.40**	**71.10**	**11.6**

The Savannah North Mineral Resource was updated due to the addition of 112 infill grade control diamond drillholes totalling 23,481m. The Savannah North orebody consists of two main zones and dips moderately (40-45 degrees) to the north-west. The Upper Zone is associated with the basal contact of the Savannah North Intrusion and the Lower Zone is remobilised mineralisation potentially associated with the 500 Fault. An additional four minor mineralised domains have also been interpreted within this resource. The orebody consists of pyrrhotite, pentlandite and chalcopyrite, varying from disseminated/matrix mineralisation to stringer and massive sulphide.

Mining

The mining methods utilised in the LOM plan is in line with the previous operation being a top-down, long hole open stoping mining method utilising paste fill. This mechanised, non-entry method has proven to be a safe, productive mining method at Savannah. The stope extraction sequence was geotechnically modelled by Beck Engineering for the 2017 Feasibility Study and has been retained.

The key design parameters used in the Savannah Nth are detailed below in Table 4.

Table 4: Key Mine Design Parameters

Design Parameter	Unit	Value
Decline stand off	m	50
Decline Radius (min)	m	23
Level interval (floor to floor)	m	20
Minimum stope footwall angle	Deg	50
Nominal stope length	m	20
Maximum hydraulic radius	m	6
Minimum stope width	m	3

The decline is sized at the previously constructed 5.2 m W x 5.8 m H, allowing sufficient room for 60 t class underground trucks, whilst the ore drives are sized at 4.8 m W x 5.0 m H to allow for 15 t loaders.

A minimum stope mining width (MMW) of 3.0 m (true width) was designed. Additional unplanned stope dilution assumptions were applied assuming 'skins' of a certain thickness on each hangingwall and footwall contact based on geotechnical advice and stope width and depth below surface (block C is the deepest) as summarised in Table 5. The resultant unplanned dilution is approx. 10.5% and 20.5% respectively.

Table 5: Dilution Assumptions

Mining Area	Footwall Dilution	Hangingwall Dilution
Block A, B and D	0.5 m	1.0 m
Block C	0.5 m	2.0 m

Mining recoveries of 90% were applied to stopes to allow for issues such as local orebody spatial variability and material left behind during remote loading.

The Key mining parameters are presented in Table 6.

Table 6: Key Mining Parameters

Parameters	Value
Schedule COG ($NSR average)	$122
Schedule COG (Ni Grade equivalent)	0.78%
Minimum Stope Width	3m
Minimum Footwall Angle	50 deg
Minimum Pillar Between stope	7m
Stope Recovery	90%
Stope Dilution	Block C: 0.5m FW, 2m HW
	Other Blocks: 0.5m FW, 1m HW
Development Recovery	100%
Development Dilution	0%
Stope Tonnes/Drill Meter	6 t/dm
Production Drilling	250 m/d
Development	100 m/mth
Rehab Rate	200 m/mth
Vertical Developments	4 m/d
Paste Wall Delays	5 days
Curing Time for Paste	7 days
Paste Fill Rate	(450 - 800 m3/d) Flexible depends on stope thickness, Plug filling + 1-day curing
Bogging Rate	Flexible depends on distance to stockpile
Production Drilling Rate	250 m/d
Stope Firing Delay	3 days
Block Model	sav_nth_res_9mar2020

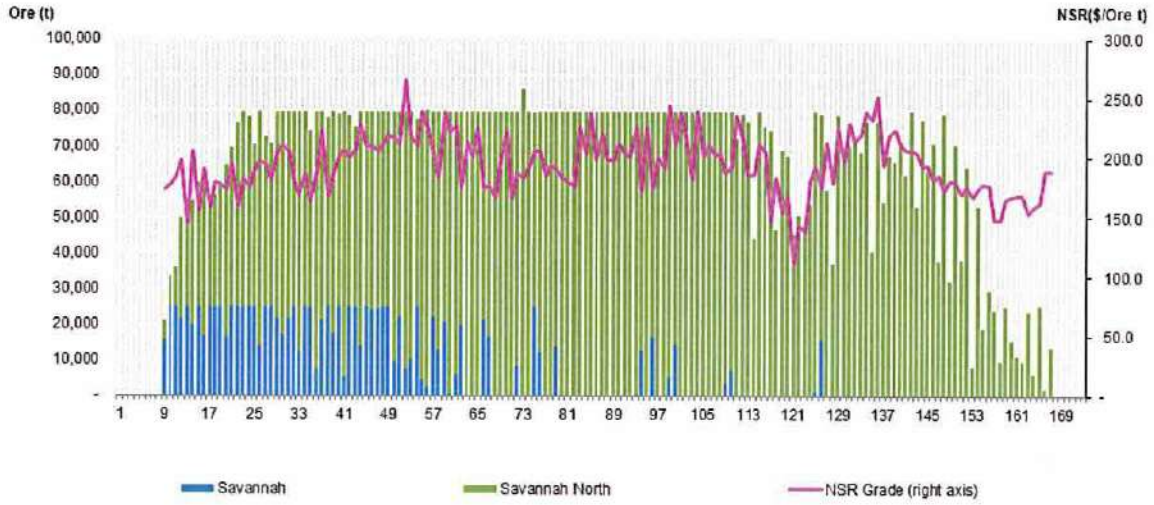
Mine Schedule

The mining schedule aims to ramp up ore production at ~960,000 ktpa as quickly as possible, whilst minimising any potential stoping tail at the end of the mine plan. The ramp involves an 8 mth period of jumbo development only, allowing the completion of the primary ventilation circuit and capital development to be established in the Savannah Nth. This aims to decongest the production equipment from the development.

Scheduling of the Savannah material was limited to 25,000 t/mth. This rate is reduced from previous mine schedule iterations so as to lessen the reliance on Savannah which has proven to be problematic due to ground rehabilitation requirements

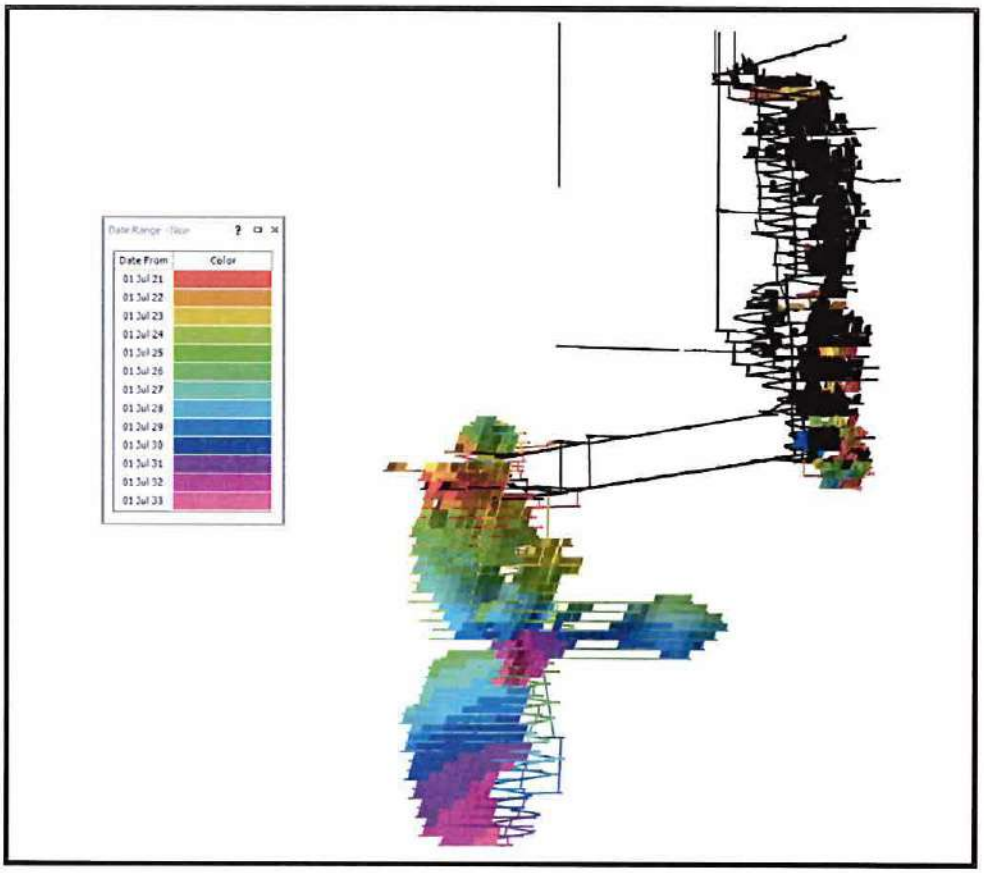
The monthly production profile is shown in Figure 3.

Figure 3: Monthly Ore Production



The mine plan coloured by year scheduled is shown in Figure 4.

Figure 4: Savannah Mine Schedule by Year (Long-Section Looking SE)



Mining Costing

Most mining costs have been estimated based on contractor rates that were obtained from the Barminco Limited Underground Mining Services Agreement of February 2020. Additional capital item costs have been sourced from historical costs provided by Panoramic or the Entech database. Mining capital costs are summarised in Table 5, and mining operating costs are summarised in Table 6 below.

Table 5: Savannah Mining Capital Cost Estimate

Item	LOMP Expenditure ($'000)	Reserve Expenditure ($'000)	Unit	LOMP Unit Cost	Reserve Unit Cost
Infrastructure/ Site Establishment	25,963	25,810	$/t ore	$2.43	$3.12
Decline Development	23,353	21,436	$/t ore	$2.18	$2.59
Capital Access	38,889	36,014	$/t ore	$3.63	$4.35
Ventilation	15,297	14,946	$/t ore	$1.43	$1.81
Escapeway	3,965	3,630	$/t ore	$0.37	$0.44
Other Lateral Development	16,896	16,811	$/t ore	$1.58	$2.03
Capital Mine Services	19,255	23,912	$/t ore	$1.80	$2.89
Capital Mine Overheads	55,099	64,578	$/t ore	$5.15	$7.81
Escalation + Adjustments	3,365	3,364	$/t ore	$0.31	$0.41
Total Capital	**202,081**	**210,501**	**$/t ore**	**$18.88**	**$25.44**

Table 6: Savannah Mining Operating Cost Estimate

Item	LOMP Expenditure ($'000)	Reserve Expenditure ($'000)	Unit	LOMP Unit Cost	Reserve Unit Cost
Op Access	50,848	43,138	$/t ore	$4.75	$5.21
Ore Drive	92,081	63,880	$/t ore	$8.60	$7.72
Stope	317,372	243,488	$/t ore	$29.66	$29.43
Operating Mine Services	112,678	96,537	$/t ore	$10.53	$11.67
Operating Mine Overheads	298,457	255,695	$/t ore	$27.89	$30.90
Dayworks	11,174	8,867	$/t ore	$1.04	$1.07
Grade Control	5,001	4,720	$/t ore	$0.47	$0.57
Pastefill	49,753	39,683	$/t ore	$4.65	$4.80
Escalation + Adjustments	13,320	10,513	$/t ore	$1.24	$1.27
Total	**950,685**	**766,520**	**$/t ore**	**$88.84**	**$92.64**

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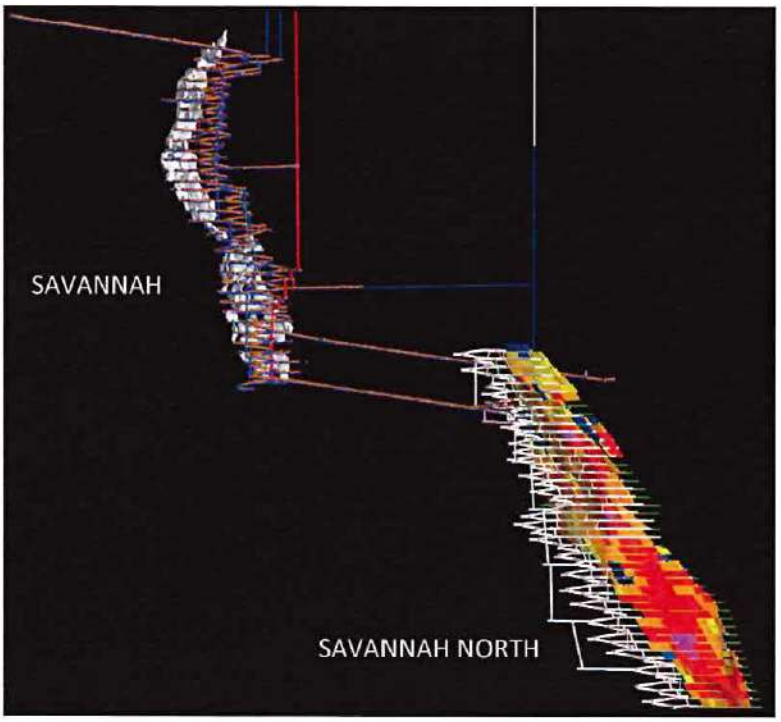
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1 INTRODUCTION

Entech were engaged to update the life-of-mine (LOM) plan and Ore Reserve Estimate based on a new Savannah Nth resource model completed by Cube Consulting in April 2020. This involved reviewing and evaluating the remaining mineralised material in the original Savannah mine, plus evaluation of the updated resource at Savannah Nth.

Figure 1 illustrated the locations of the two mining zones, Savannah and Savannah Nth.

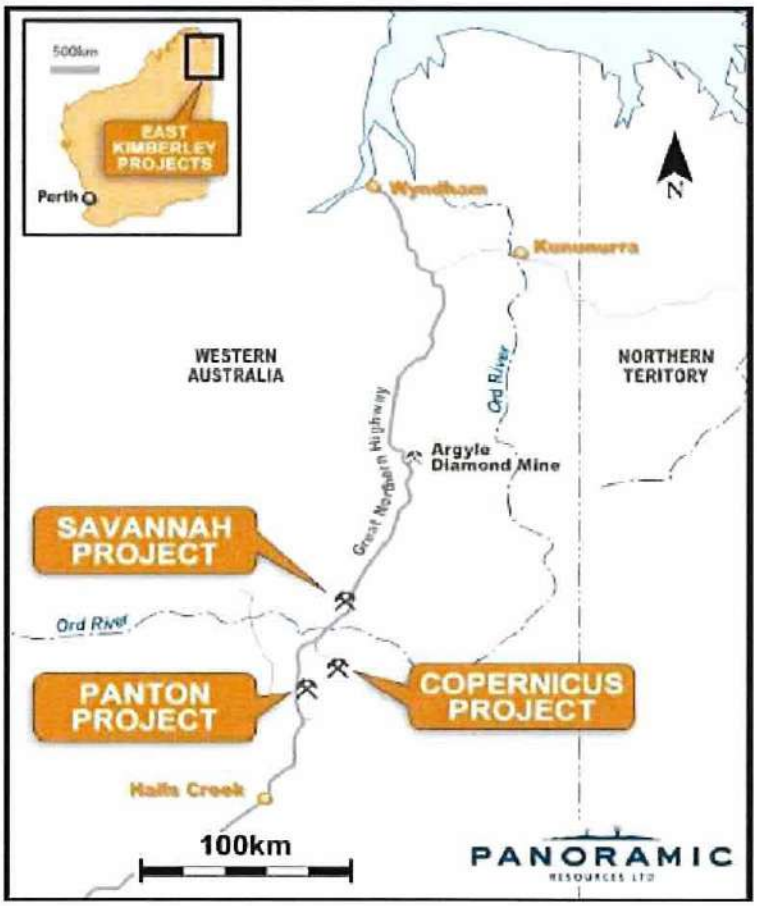
Figure 2: Savannah and Savannah Nth Proximity



2 PROJECT LOCATION

The Savannah Nickel Project is located 240 km south of Kununurra in the East Kimberley region of Western Australia (Figure 3).

Figure 3:Savannah Project Location



The mine is 1 km from the publicly gazetted and sealed Great Northern Highway. It is accessible from the highway over good private roads wholly contained within the tenement package.

3 PREVIOUS STUDIES

The Savannah nickel project operated from 2004 and was put on to care and maintenance in 2016 following a period of low nickel prices. During this period, 8.5 Mt was exploited from the Savannah lode at an average grade of 1.29% Ni, 0.65% Cu and 0.06% Co to produce 1.22 Mt of concentrate containing 94.6 kt Ni, 53 kt Cu and 5 kt Co.

The Savannah Nth orebody was discovered in 2014 and resource drilling began in 2015. Savannah North sits approximately 600 m to the north of the Savannah mine as shown in Figure 2. Following the release of the maiden Savannah Nth resource, a Feasibility Study was completed in Feb 2017. Based on the Feasibility Study, a maiden Ore Reserve for Savannah North was released, resulting in 6.65 Mt @ 1.42% Ni, 0.61% Cu and 0.10% Co for contained metal of 94.5 kt Ni, 41.9 kt Cu and 6.7 kt Co.

In Oct 2017, PAN carried out an Updated Feasibility Study (Updated FS), (Parkinson, 2017). The Updated FS supersedes the February 2017 Savannah Feasibility Study and July 2017 Savannah FS Optimisation. The Updated FS focussed on further improvements to the mine plan and schedule, additional metallurgical testwork leading to a better understanding of expected flotation performance, and updates to capital and operating costs to reflect recent movements in pricing since the earlier studies.

Key outcomes from the Updated FS were an 8.3-year mine life producing yearly 10.8 kt Ni, 6.1 kt Cu and 800 t Co. The mineral resource and mine production for the life of mine 2017 Updated FS is listed below in Table 7.

Table 7: Previous Study Resource and Mine Production

Key Indicator	Mt	Ni (%)	Cu (%)	Co (%)	Ni (kt)	Cu (kt)	Co (kt)
Mineral Resource	13.2	1.65	0.75	0.11	218.3	99.1	15.9
Mine Production	7.65	1.42	0.68	0.10	108.7	51.7	7.3

Mining recommenced in 2018, based on an 8-year plan that exploited both the newly discovered Savannah Nth, and the remainder of the original Savannah lode. The mine was once again put into care and maintenance in April 2020 due to a slower ramp up then planned, compounded by the impacts from Covid-19, including on commodity prices.

4 MINERAL RESOURCE ESTIMATE

4.1 INTRODUCTION

An update of the Mineral Resource Estimate (MRE) for Savannah North was generated by independent geological consultants Cube Consulting (Appendix C). The update was generated due to further infill grade control drilling completed in the upper parts of the deposit and the MRE was carried out with an effective cut-off date of 9th of April 2020 and reported in accordance with the guidelines outlined in the JORC Code 2012. The MRE at a 0.5% Ni cut-off grade (COG) is summarised in Table 8.

Table 8: Mineral Resource Summary Savannah North (0.5% Ni Cut-off)

Classification	Domain	Tonnes (kt)	Ni (%)	Cu (%)	Co (%)	Ni (kt)	Cu (kt)	Co (kt)
Measured	Upper	1,840	1.48	0.66	0.10	27.2	12.1	1.9
	Other	46	1.71	0.49	0.12	0.8	0.2	0.1
	Sub-Total	**1,885**	**1.48**	**0.65**	**0.10**	**28.0**	**12.3**	**2.0**
Indicated	Upper	3,050	1.43	0.57	0.10	43.6	17.3	3.1
	Lower	2,654	1.84	0.90	0.13	48.8	23.8	3.4
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Inferred	Upper	1,544	1.25	0.42	0.07	19.3	6.5	1.1
	Lower	958	1.67	0.73	0.11	16.0	7.0	1.1
	Other	470	1.93	0.46	0.12	9.1	2.2	0.6
	Sub-Total	**2,972**	**1.49**	**0.53**	**0.09**	**44.4**	**15.6**	**2.7**
TOTAL		**10,974**	**1.55**	**0.65**	**0.11**	**170.4**	**71.1**	**11.6**

- Note: Rounding errors may occur.

Key fields included in this Resource were:

- Nickel grade % (ni_ok)
- Density (sg_ok)
- Copper grade % (cu_ok)
- Cobalt grade % (co_ok)
- Domain (domain)
- Mined (mined: 1=insitu 0=mined)
- JORC Resource category (class)

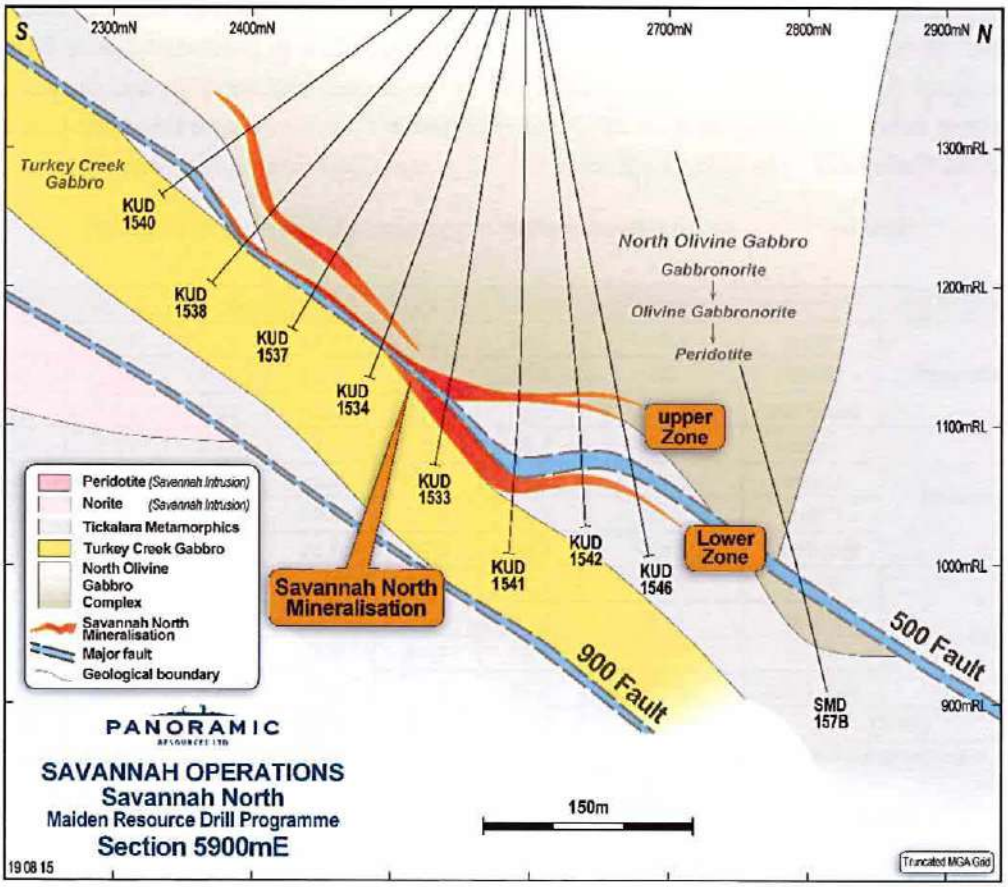
4.2 DEPOSIT GEOLOGY

The Savannah sulphide orebody lies within a marginal norite unit, developed at the base of the Savannah Layered Intrusive Complex (SI) which was intruded into a metamorphosed sequence of sedimentary and igneous rocks called the Tickalara Metamorphics.

The Savannah North mineralisation consists of pyrrhotite, pentlandite and chalcopyrite, ranges from disseminated/matrix to stringer and massive sulphide and dips moderately (40-45 degrees) to the north-west. Two main zones of mineralisation, the Upper Zone, has developed on the basal contact of the Savannah North Intrusion (SNI) and the second, the Lower Zone is a consistent remobilised zone

of massive sulphide mineralisation, in part associated with the 500 Fault (Figure 4: Savannah North Local Geology – Cross Section at 5,900 E (Looking West)).

Figure 4:Savannah North Local Geology – Cross Section at 5,900 E (Looking West)



4.3 MINERALISATION DOMAINING

The framework of the Savannah North mineralisation was based on the existing August 2016 MRE model and updated to include the recent close spaced grade control drilling.

The interpretation was guided by geological controls, primarily defined by the presence of strong, continuous zones of logged massive sulphide mineralisation. Two main zones of mineralisation were defined, the Upper Zone at the basal contact of the Savannah North Intrusion and the Lower Zone. Minor domains have also been interpreted northeast of the Upper Zone, representing an extension to the basal contact mineralisation and zones in the hanging wall to the Upper Zone. There are some instances where intervals of internal dilution have been included with the mineralisation envelope for geological control.

A total of six domains have been modelled and three dimensional views of the mineralisation interpretation in plan and section are shown in Figure 5 and Figure 6.

Figure 5:Interpretation Domains - Plan

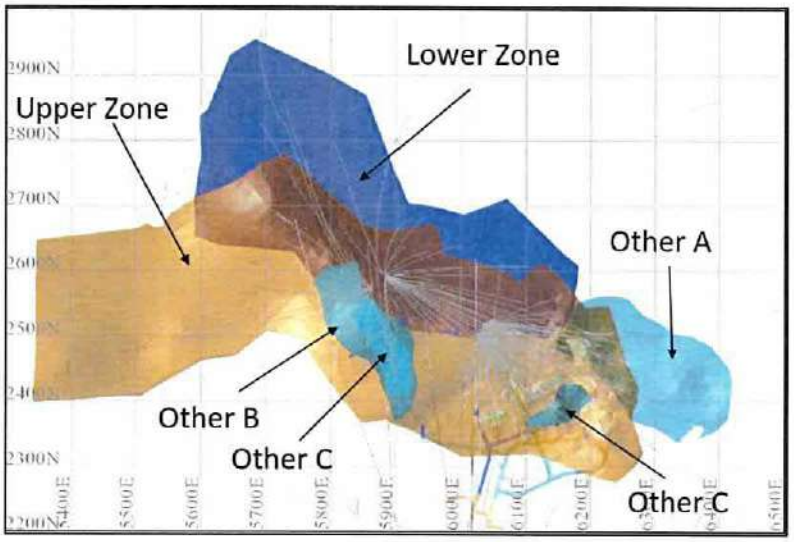
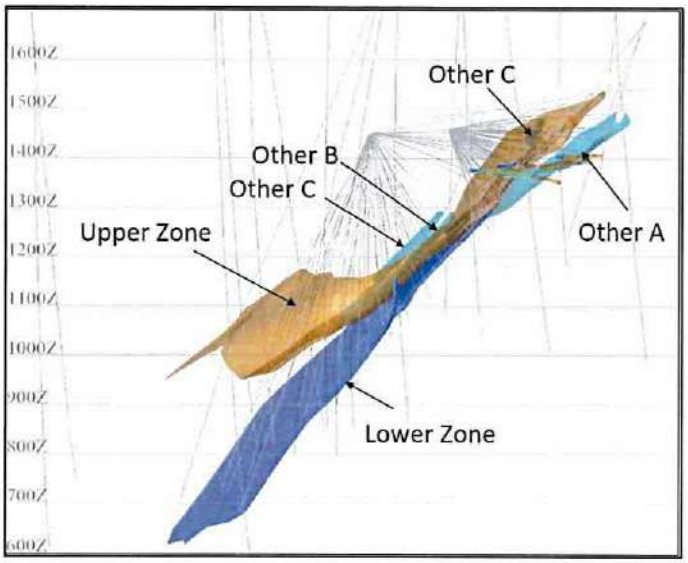


Figure 6:Interpretation Domains – Oblique view looking NE



4.4 BLOCK MODEL ESTIMATION

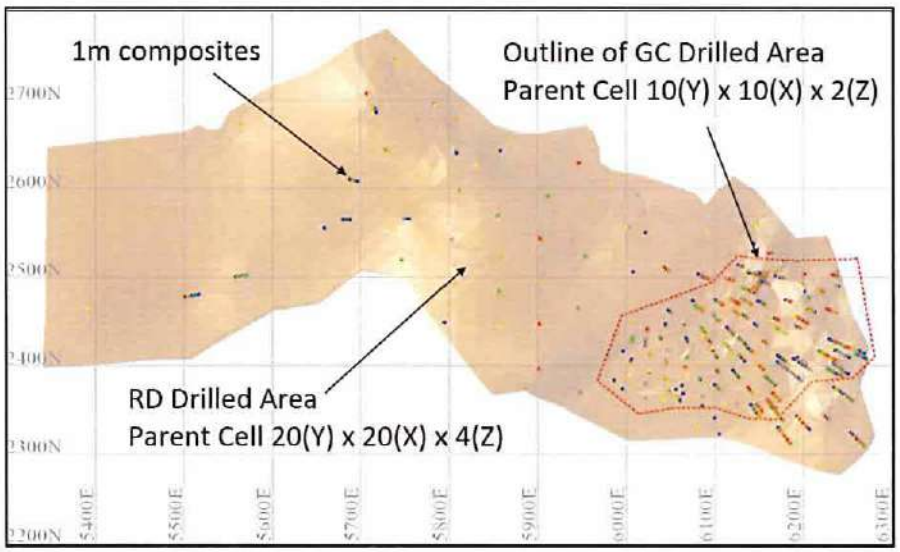
Due to the recent grade control infill drilling, it was determined that two estimation block model cell sizes would be used. The block model definition is shown in Table 9 below.

Table 9: Block Model definition Summary

Block Model File ID	sav_nth_res_9mar2020.mdl		
Type	Local Northing (m)	Local Easting (m)	RL (m)
Origin	2,200	5,000	300
Maximum	3,000	6,500	1,600
Extent	800	1,500	1,300
Parent Block Size	20	20	4
Sub-Cell Minimum	2.5	2.5	0.5
Rotation	None		

The model was estimated using Ordinary Kriging (OK) of 1 m downhole composites to estimate nickel, copper, cobalt, and density for each of the mineralised domain. Interpolation was carried out within the modelled domains on the 20 mN x 20 mE x 4 mRL parent cells for all domains except part of the Upper Zone defined by the close spaced GC drilling which was estimated into 10 mN x 10 mE x 2 mRL parent cell (Figure 7).

Figure 7:Block Model Parent Cell zones showing different estimation zones



The MRE was depleted for mining including development and stopes.

4.5 CLASSIFICATION AND REPORTING

The MRE has been classified nominally according to drillhole spacing. The Measured Mineral Resource is typically on a 20m x 20m spacing and only includes mineralisation defined within the recently drilled close spaced GC drilling within the Upper Zone and the smaller 3a domain. Indicated resources include areas where the drilling spacing is greater than 20 m x 20 m drilling and approximates a 50 m x 50 m grid. Inferred areas are where the data density is greater than 50 m x 50 m spacing, typically around the periphery and depth extent of the Upper and Lower Zones plus some of the minor domains (Figure 8 and Figure 9).

Figure 8: Savannah North Classification with Drillhole Intersections (Plan View)

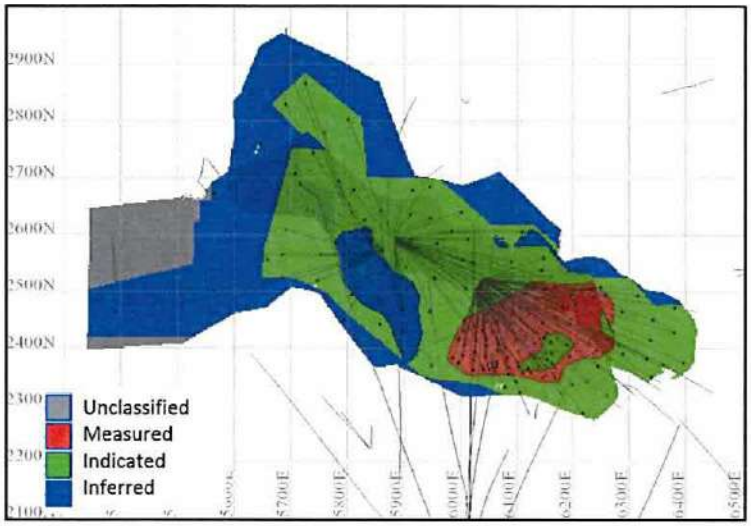
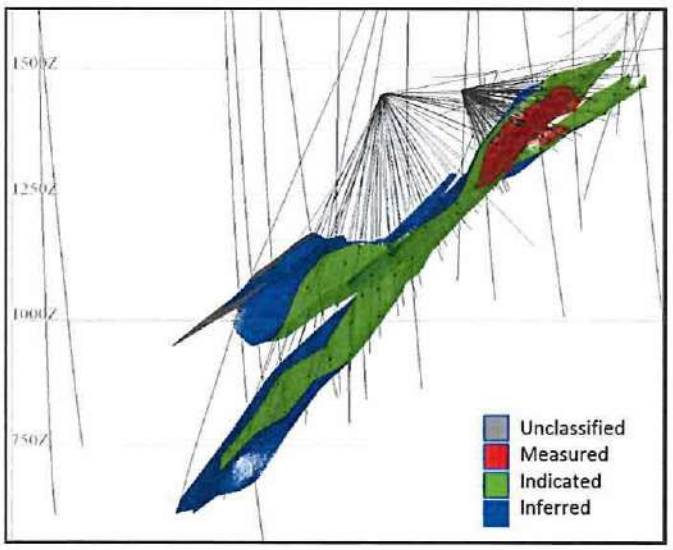


Figure 9: Savannah North Classification with Drillhole Intersections (Section view looking NE)



The estimated model has been reported above a nickel lower grade cut-off of 0.5% Ni.

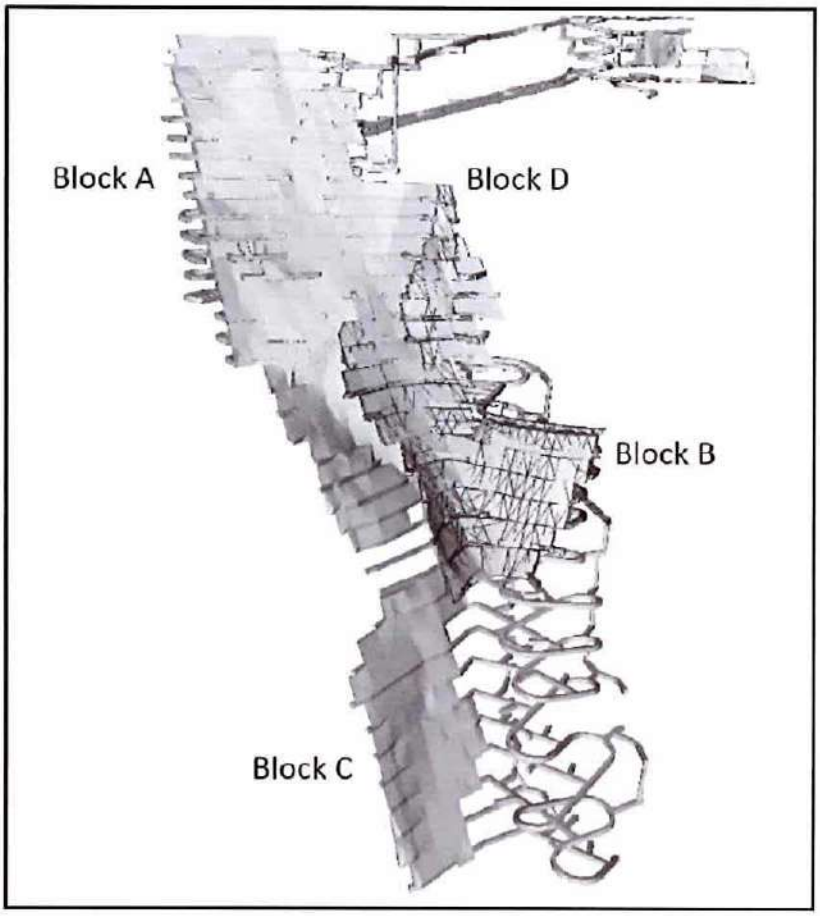
5 GEOTECHNICAL PARAMETERS

Geotechnical guidance for this design update was taken from the Geotechnical study completed by Beck Engineering Pty Ltd (Beck) in 2016. This guidance was the same as used in the 2017 Feasibility Studies, including the Updated FS (Parkinson, 2017).

The Beck Geotechnical study forecasted the mine scale stability and deformation for Savannah North. The method of analysis used was Discontinuum Finite Element modelling using geological structures on a mine scale. This method has previously been used by Beck Engineering (August 2015) to model rock damage and seismic activity at Savannah.

In general, Block A, Block B and Block D (lodes above the 1270 mRL and shown in Figure 10) have generally good mining conditions. Some localised areas of significant rock mass damage are forecast. These areas tend to occur at fault intersections or where there is unfavourable hangingwall geometry (a convex shape). In Block A there is an increase in the persistence of damage across both the footwall and hangingwall from about 1300 m below surface. This increase is considered to be a function of the stress field nearing the rock mass strength.

Figure 10: Blocks A to D at Savannah Nth



A comparison of the different stoping sequences in Block A shows no definitive geotechnical differences. Both sequences have been developed around maintaining an inclined, continuous mining front and avoiding retreating to pillars. From a geotechnical perspective, both sequences are considered fit for purpose.

Block C (below the 1270 mRL) has more challenging mining conditions. These conditions are largely due to the magnitude of stress forecast with the depth of mining and the current understanding of the rock mass strength for Block C. The assumptions that there is a linear increase in the stress gradient should be tested prior to development commencing in Block C.

Dilution allowances were modelled in Datamine MSO software. The inputs for each of the blocks and resultant unplanned dilution numbers are detailed in Table 10.

Table 10: Stope Dilution Inputs

Item	Unit	Blocks A, B and D	Block C
FW Dilution	m	0.5	0.5
HW Dilution	m	1.0	2.0
Av Dilution (Result)	%	10.5	20.5

6 MINE DESIGN

6.1 MINING METHODS

During the Updated FS (Parkinson, 2017), two mining methods were considered for Savannah Nth being mechanised cut and fill, and longhole stoping with paste fill. Both "top-down" and "bottom-up" extraction sequences were also considered for each method.

Long hole stoping with paste (top down) was chosen due to its lower extraction cost and suitability for any potential depth stress related issues. As a mechanised non-entry method, long hole stoping also provides safety and productivity benefits. This method was again utilised for this study.

The parameters used for the stope design are detailed below in Table 11.

Table 11: Stope Input Parameters

Optimisation Parameter	Unit	Blocks A, B, C and D
Level interval (floor to floor)	m	20
Minimum footwall angle	Deg	50
Nominal stope length	m	20
Maximum hydraulic radius	m	6
Minimum stope width	m	3

6.2 MINING FACTORS

6.2.1 MINING WIDTH & MINING DILUTION

An undiluted stope minimum mining width (MMW) of 3.0 m (true width) was applied to the Savannah Nth mining area. This is achievable based on the sub-level interval of 20 m floor to floor as from knowledge gained in the mining of the Savannah orebody.

Unplanned dilution was applied to stoping based on the geotechnical criteria described in Section 5 of this report. The stope shapes created include both planned and unplanned dilution.

A summary of stope dilution assumed in the mine plan is presented in Table 12. The total global average planned and unplanned stope dilution (i.e. mined material without Resource classification, including fill dilution) proportion within the mine plan stope shapes is 22%.

Table 12: MINE Stope Dilution Summary

Source	Tonnes
Dilution	2,143 kt
Contained Resource in Stopes	7,283 kt
Total Stope Dilution %	**22%**

No unplanned dilution (i.e. overbreak) was assumed for ore development as any actual dilution will be accounted for in the stope shape.

6.2.2 MINING RECOVERY

Mining recoveries of 90% were applied to stopes to allow for issues such as local orebody spatial variability and material left behind during remote loading.

As the mining sequence is based on 100% extraction, there has been no allowance for rib pillars, however one sill pillar is located at the 1040 mRL.

The total loss of ore tonnes and metal due to exclusion mining recovery and sill pillars is presented in Table 13. This represents a total global ore loss of 11% of stope ore and Ni metal.

Table 13: MINE Ore Loss Calculations

Ore Loss	t ('000)	Ni Grade (%)	Ni Metal (kt)
Sill Pillars	80	1.3	1.0
Mining Recovery	1,040	1.2	12.7
Total Ore Loss	**1,120**	**1.2**	**13.7**

A mining recovery of 100% was assumed for ore development.

6.2.3 REVENUE FACTORS

Mineral resource block values were calculated utilising metal prices as shown below in Table 14 and payability factors from the current offtake agreement.

Table 14: NSR Calculation Input Values

NSR	Unit	Value
Revenue Factors		
Nickel Price	A$/t	22,500
Copper Price	A$/t	9,000
Cobalt Price	A$/t	55,000
Transport (Concentrate)	A$/t	82.82
Royalty – Stage Govt and Traditional Owner	%	3.75

Metal unit values (A$/ % metal) were subsequently calculated for nickel, copper, and cobalt, with the resultant values shown below in Table 15.

Table 15: NSR Unit Values

NSR	Unit	Value
NSR – Unit Values	$/ % Ni	157.19
	$/ % Cu	44.62
	$/ % Co	198.32

Further detail on payability is noted in Section 14.3.3.

The mineral resource block model was stamped with an NSR value, providing a tool for optimisation against the mining cost (cut-off grade).

6.3 CUT-OFF GRADE

The COG for the initial Savannah Nth design was determined based on the following inputs:

- Mining and General & Administration (G&A) costs from the 2020 budget based on historical costs and the new Barminco contractor mining rates
- Revenue assumptions provided by PAN based on the most recent offtake agreement, transport costs and metal prices as outlined in Table 16
- Processing recovery assumptions as per PAN's empirical formula which is based on historical data
- Processing and surface haulage costs from PAN based on historical data and current agreements

The COG estimates used for stope optimisation and ore development classification are presented below in Table 16.

Table 16: Preliminary LOM Underground Cut-off Grade Calculation

Preliminary Cut-off Grades	Unit	Value		
Operating Costs		**Total Op Costs**	**Stoping Costs**	**Transport & Processing**
Mining Operating Costs				
Lateral Operating Development	*$/t ore*	*30.84*		
Stoping	*$/t ore*	*57.52*	*57.52*	
Geology	*$/t ore*	*2.43*		
Processing	$/t ore	31.85	31.85	31.85
General & Administration	$/t ore	12.83	12.83	12.83
Total Operating Cost	**$/t ore**	**135.46**	**102.19**	**44.67**
Economic Stope cut-off grade	$/t ore	135.46		
Incremental Stope cut-off grade	$/t ore		102.19	
Incremental Development cut-off grade	$/t ore			44.67

The fully costed stoping cut-off grade includes all costs for ore development, mining, and processing stope material. This value was used to generate focussed mining zones that determine the extents of ore development. The incremental stoping cut-off grade includes the costs of mining and processing of mineralised material, excluding the cost of development.

The development cut-off grade includes the costs of surface haulage and processing of ore only, on the assumption that this material must be mined and removed from underground regardless of grade, and that there are no further incremental costs of underground truck haulage from the portal to the ROM pad additional to hauling to the waste dump.

It should be noted that the costs summarised in Table 16 used for the initial design COG calculation differ from the final mining costs detailed in Section 13, which were based on the new mine plan. A reconciled COG calculation based on cost and revenue inputs from the final financial models is presented in Table 17.

Table 17: Final LOM Underground Cut-off Grade Calculation

Calculated Cut-off Grades	Unit	Value		
Operating Costs		**Total Op Costs**	**Stoping Costs**	**Transport & Processing**
Mining Operating Costs				
Lateral Operating Development	*$ / t ore*	*24.35*		
Stoping	*$ / t ore*	*64.49*	*64.49*	
Geology	*$ / t ore*	*0.47*		
Processing	$ / t ore	31.85	31.85	31.85
General & Administration	$ / t ore	12.83	12.83	12.83
Total Operating Cost	**$ / t ore**	**133.98**	**108.68**	**44.67**
Economic Stope cut-off grade	**$/t ore**	**133.98**		
Incremental Stope cut-off grade	**$/t ore**		**109.16**	
Incremental Development cut-off grade	**$/t ore**			**44.67**

Table 18: FS Plan Reconciled COG Calculation

These reconciled COG numbers are in line with the preliminary COG grade numbers.

6.4 STOPE DESIGN

6.4.1 STOPE OPTIMISATION

Stope optimisations were run on the Mineral Resource model using Datamine Software's Mineable Shape Optimiser® (MSO®) software. All Mineral Resource categories (Indicated and Inferred) were included during the optimisation process.

The parameters used to generate the MSO stope shapes are summarised below in Table 19.

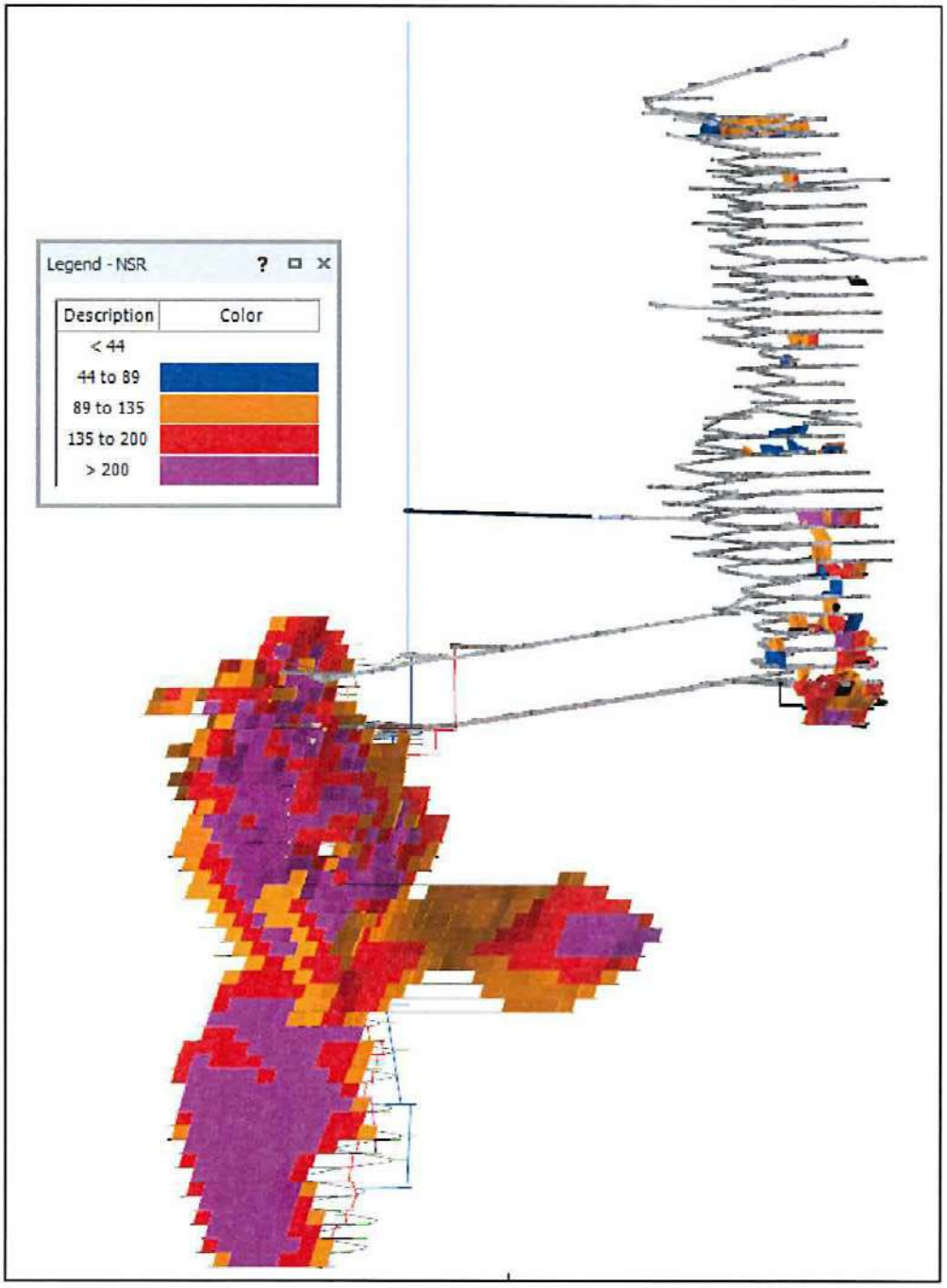
Table 19: MSO Parameters

Optimisation Parameter	Unit	Value
Stope Cut-off Grade	$/t NSR	135
Min. Mining Width (True Width)	m	3.0
Vertical Level Interval	m	20
Section Length	m	5.0
HW Dilution (True Width)	m	1-2 m
FW Dilution (True Width)	m	0.5 m
Min. Parallel Waste Pillar Width	m	7
Min. FW Dip Angle	°	50

The design parameters were based on consideration of the orebody spatial characteristics described in Section 4. The 20 m sub-level interval has been selected to allow for appropriate drill and blast control while avoiding excessive hangingwall exposure, particularly in the areas that approach a shallow 50° hangingwall dip angle.

The results of the raw stope optimisation process coloured by NSR block value are shown below in Figure 11.

Figure 11: Raw Optimisation Shapes (Long-Section Looking SE)



6.4.2 STOPE WIDTHS

A histogram of the distribution of average widths for 20 m sections generated by the MSO process and included in the mine plan is presented in Figure 12 , and a summary of the proportions of sections

falling within each width bin is provided in Table 20.

Figure 12: MSO Shape Width Distribution

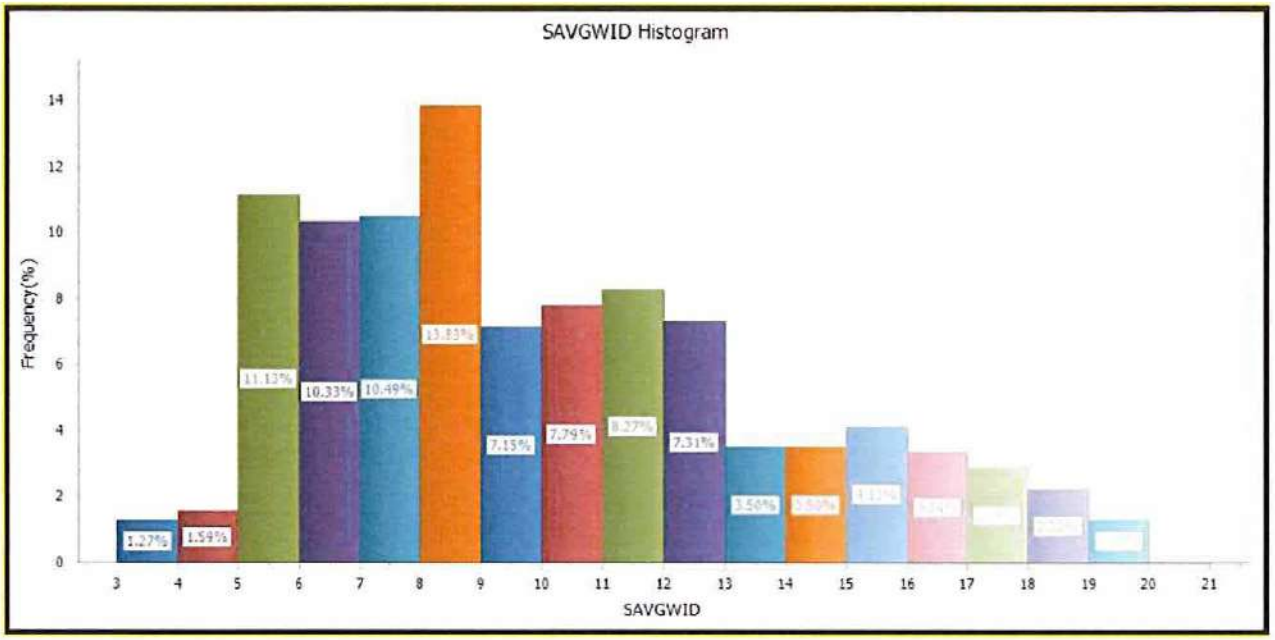


Table 20: Included MSO Shape Width Proportions

Stope Width	Proportion of Included MSO Shapes
< 5 m	3%
5 – 7 m	21%
7 – 9 m	24%
9 – 11 m	15%
11 – 13 m	16%
13 – 15 m	7%
> 15 m	14%

6.4.3 STOPE DESIGN

The optimisation results were reviewed for mineability. Levels were analysed to determine profitability based on the inputs used to generate the COG, and sub-economic levels were excluded from the mine plan. These areas generally required additional development to access stoping material that was unable to justify the cost of the development.

Based on the COG calculations detailed in Section 6.3, an incremental stoping COG of $109 /t NSR was applied to determine the final stoping envelope. A fully costed stope COG of $135 /t NSR was applied to determine stoping envelope extents along strike (i.e. stopes which pay for strike drive development).

The final stope design is shown in Figure 13 and Figure 14 coloured by NSR block value.

Figure 13: MINE Stope Design (Cross-Section Looking SE)

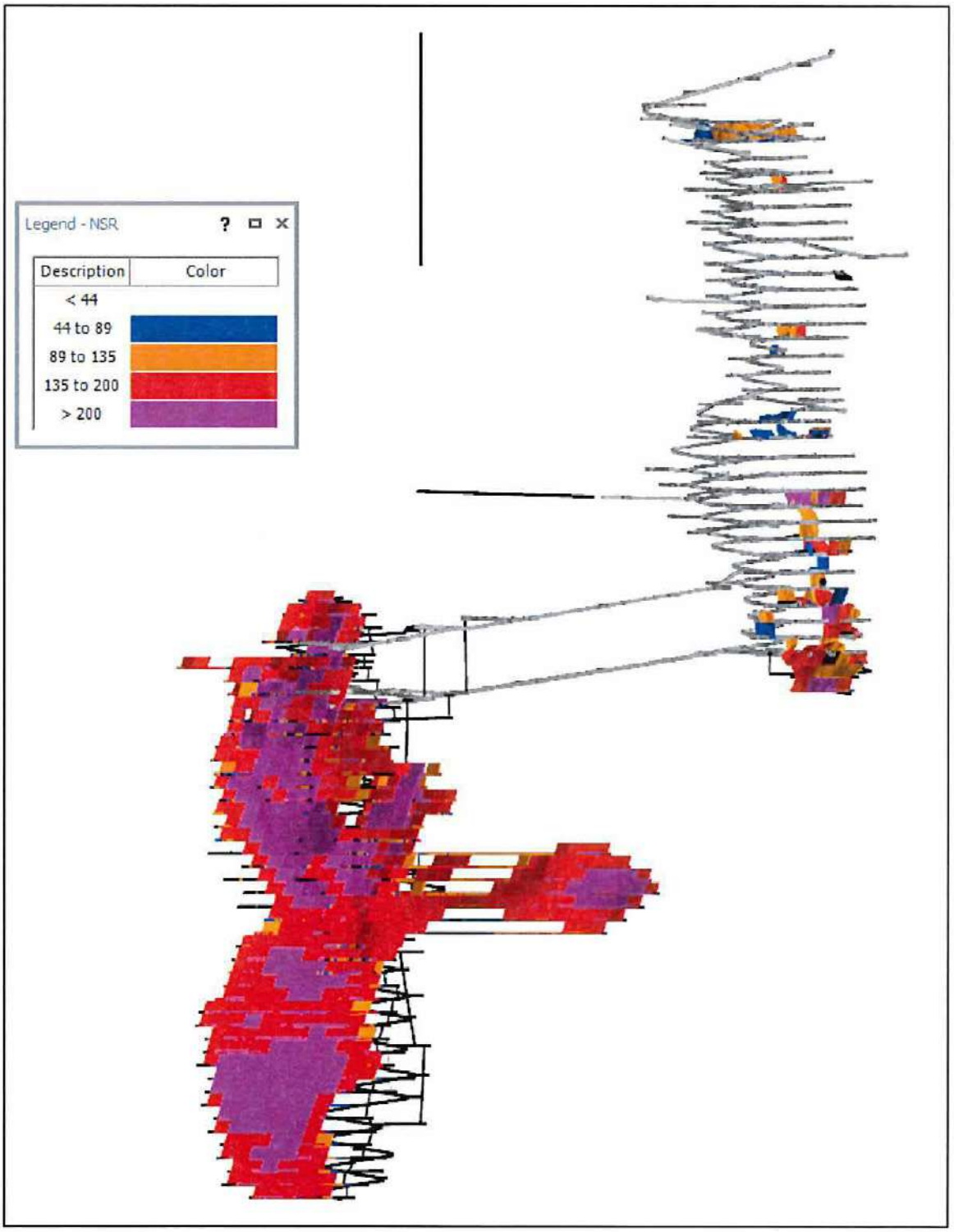
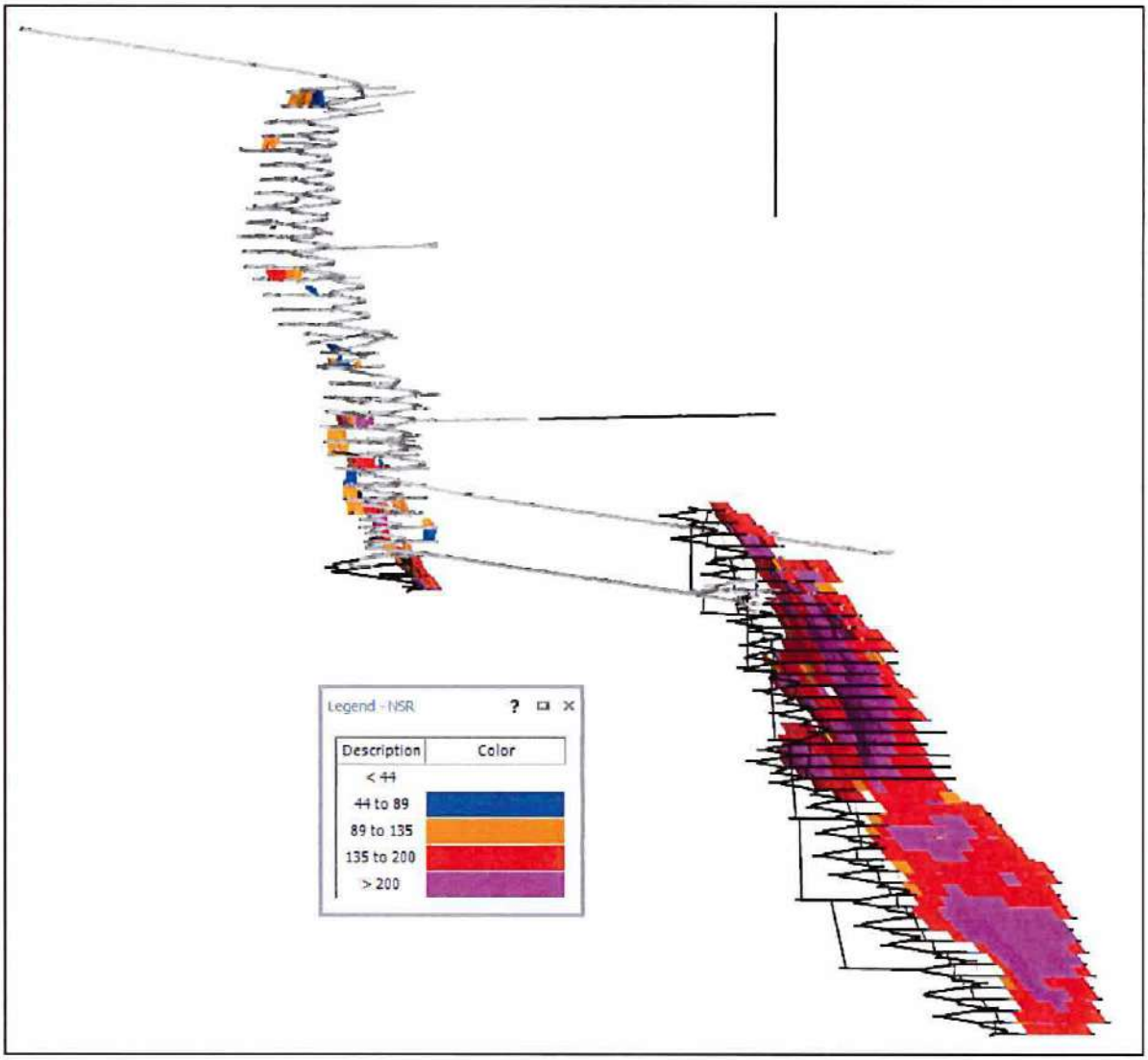


Figure 14: MINE Stope Design (Cross-Section Looking W)



6.4.4 STOPE DRILL AND BLAST

Drill and blast assumptions have been based on historical performance at Savannah. Long hole size is 89 mm diameter and drill metres are based on 6 t / drill m including slotting.

Stopes are assumed to be charged with ANFO and Nonel detonators.

6.4.5 PASTE FILLING

Paste filling has been used at Savannah since 2007. The existing fill system will be utilised for paste filling of the Savannah North stopes. A new paste fill hole is planned for the Savannah Nth, to be drilled from the surface via 1570DD. Dump valves shall be installed at intervals of 200 vertical metres to protect the paste line in case of paste blockages. Additionally, a backup hole is planned to be drilled to mitigate the risk of downtime due to unexpected blockages.

Where opportunities arise, waste rock will be backfilled into stopes either via a dedicated truck fill pass or by loader. When back filling with a loader, truck tipping bays will be mined and loaders will be used to transfer the waste into the stope with an appropriate stop-log. The study assumes that all stopes are paste filled.

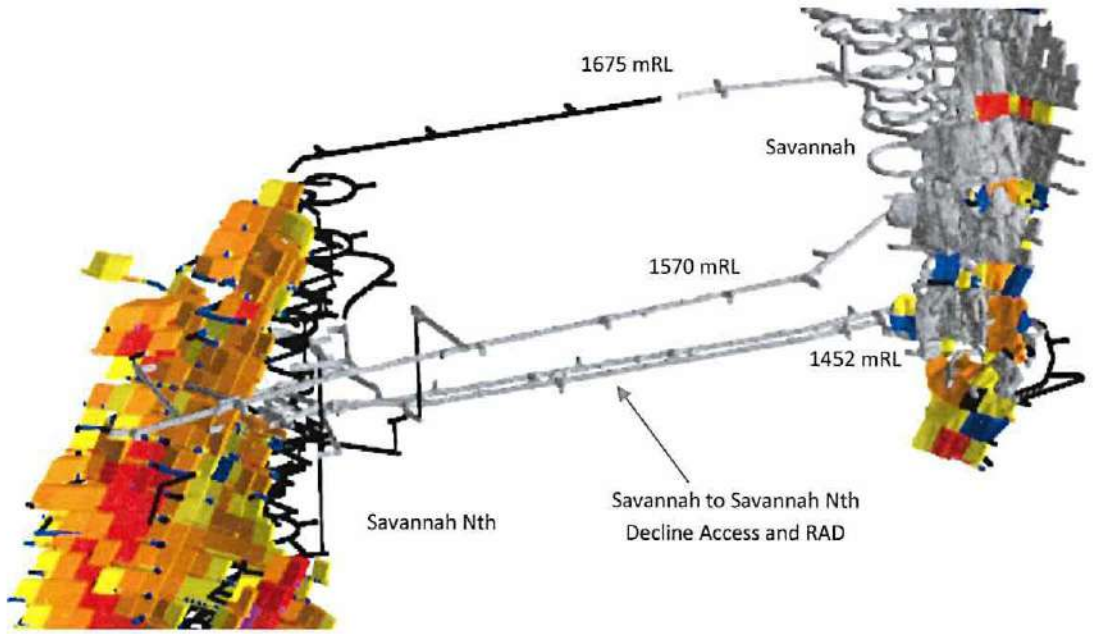
A cement strength of 2.7% was assumed for all paste placed.

6.5 DEVELOPMENT DESIGN

6.5.1 UNDERGROUND MINE ACCESS

The Savannah mine is accessed through a conventional ramp (decline) of 1:7 gradient and dimensions of 5.2 mW x 5.8 mH. Primary access to Savannah Nth from the Savannah decline is via a splinter decline from the 1452 mRL, consisting of two ramps, one for vehicle access and a second for a return air drive (RAD). The 1570 mRL drill drive also forms part of the access to the Savannah Nth. These development access drives can be seen below in Figure 15.

Figure 15: Savannah to Savannah Nth Decline and RAD

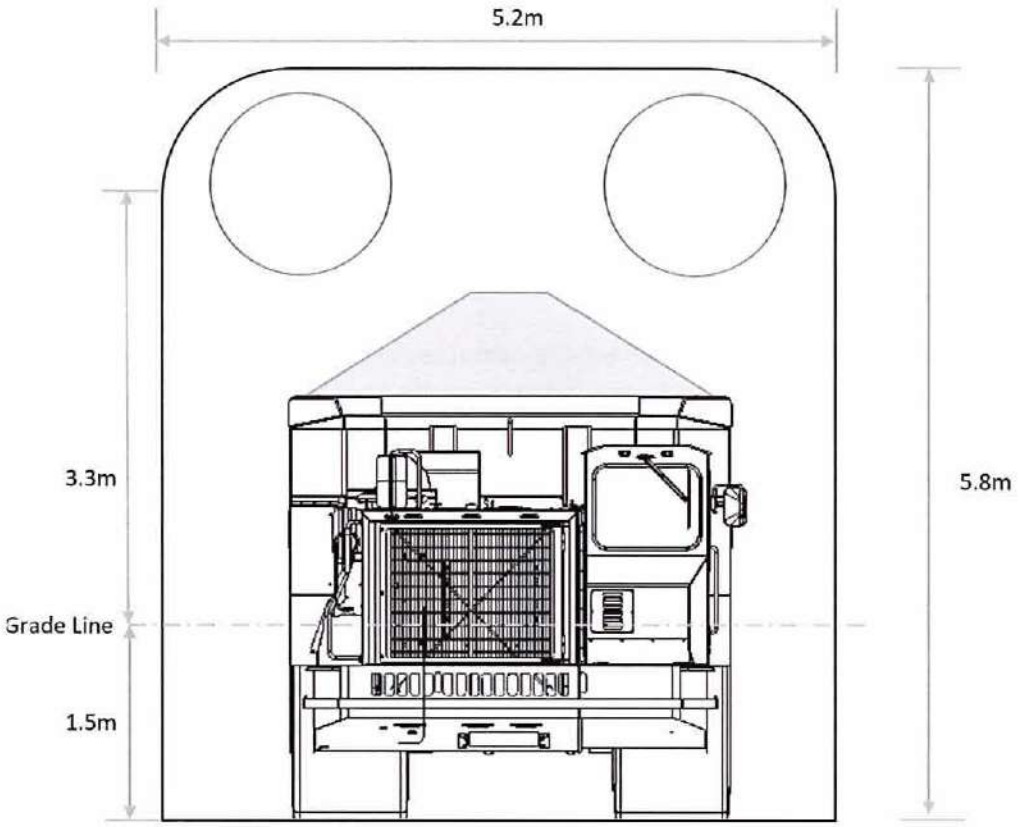


6.5.2 DECLINE DESIGN

The decline has been designed at a 50 m stand-off from the stoping voids based on geotechnical analysis. The decline is a spiral design with a minimum centreline radius of 23 m, allowing for the use of modern underground trucks.

A schematic cross-section profile of the 5.2 mW x 5.8 mH decline with a 60 t truck is shown in Figure 16. This profile conforms with the regulatory requirements on travel way clearance.

Figure 16: 5.2 mW x 5.8 mH Truck Access Profile with 60 t Truck



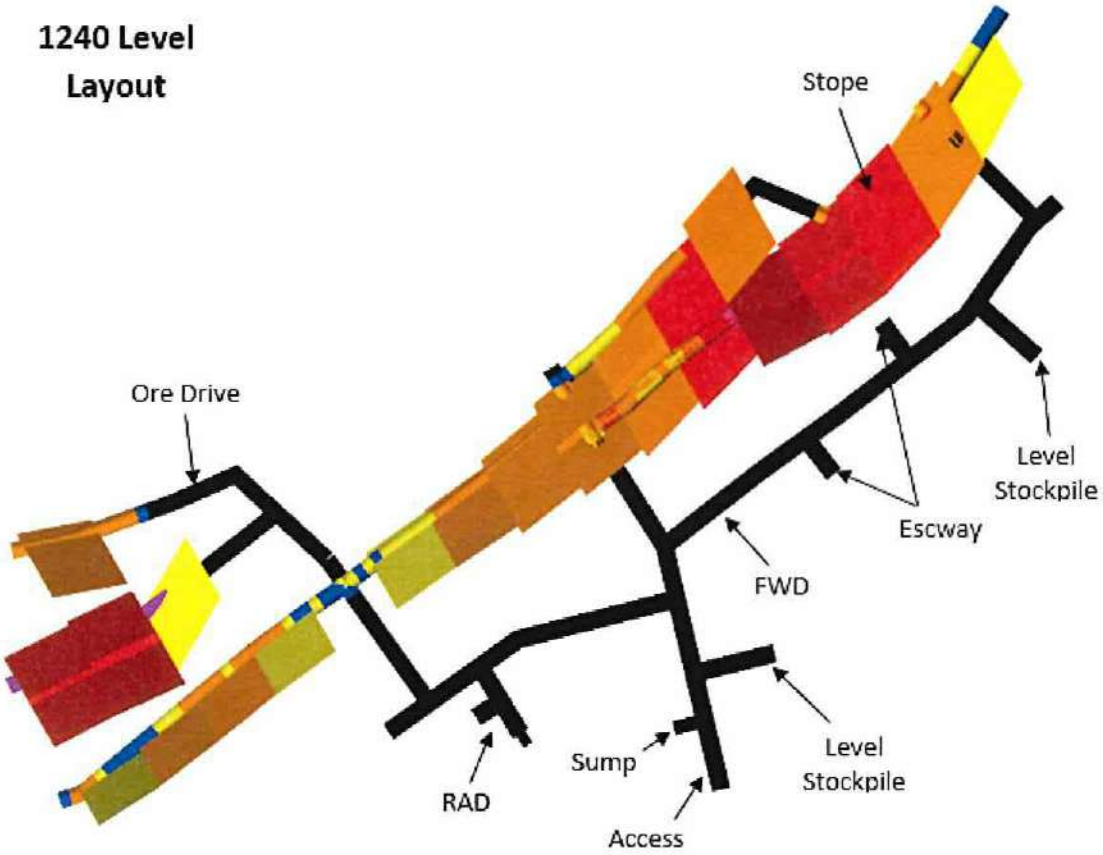
6.5.3 LEVEL CAPITAL DEVELOPMENT

Accesses were designed to be driven from the decline to cross-cut towards the ore at 5.5 mW x 5.5 mH in areas requiring truck access (i.e. to stockpiles).

Stockpiles were designed on each level at 5.0 mW x 5.0 mH and 20 m in length, for stockpiling of ore prior to loading onto trucks at decline intersections with levels.

A typical level layout is shown below in Figure 17

Figure 17: Typical Level Layout (Plan View -1240 Level)



6.5.4 VERTICAL CAPITAL DEVELOPMENT

A new 900 m long fresh air rise (VR3) is part way through construction and is the priority for completion at the recommencement of operations. Due to ground stability issues around the lower 150 m of VR3, reaming has been problematic and has resulted in a plan to re-access the rise above this area, allowing the reamer to be reattached. This new access drive has 450 m remaining and is the highest priority heading.

The lower section of VR3 has been completed at 4.0 m diameter, however the upper section will be completed at 3.8 m. This will ensure that there is enough clearance for the new reamer to traverse the completed section of the 4.0 m diameter hole.

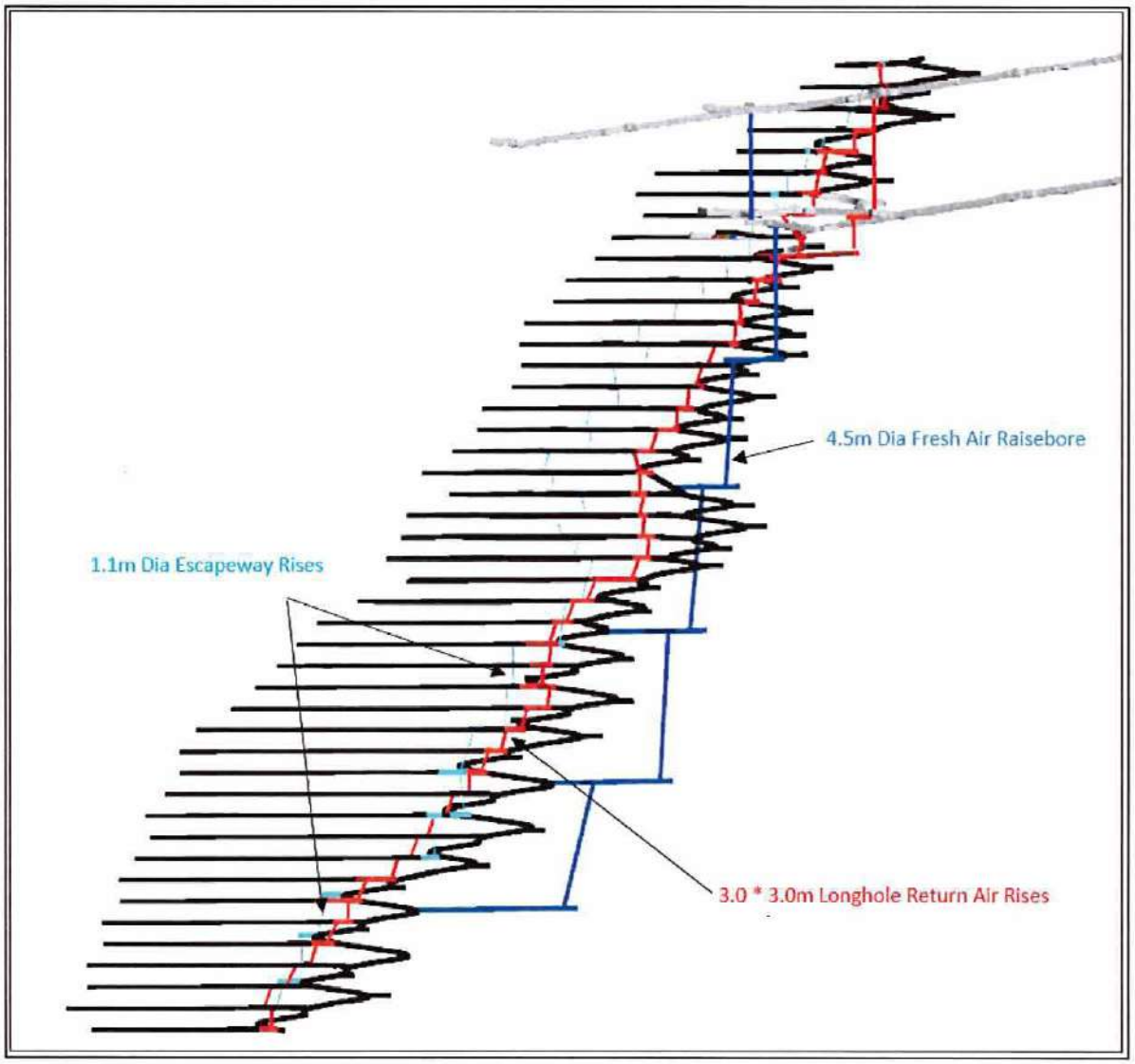
All vertical ventilation development in the Savannah Nth is designed to be completed at 3.0 x 3.0 m exhaust raises between levels and 4.5 m diameter fresh air raises alongside the decline.

The ventilation system is discussed in further detail in Section 10.

Escape ladders are assumed to be installed in dedicated 1.1 m diameter raises.

A diagram of the vertical capital development is provided in Figure 18

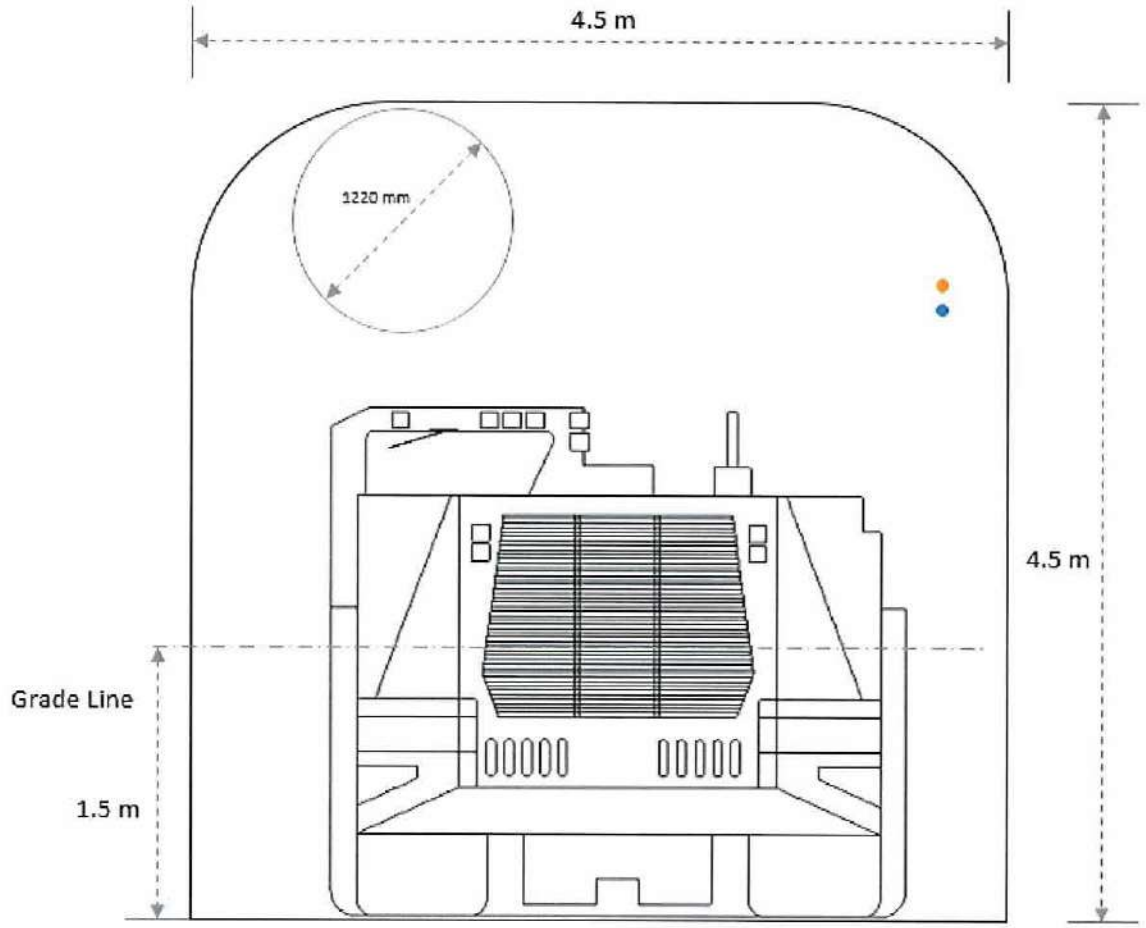
Figure 18: Capital Vertical Development Layout (Long-Section Looking W)



6.5.5 OPERATING DEVELOPMENT

Operating waste accesses (beyond truck travelways) were designed using a profile of 4.5 mW x 4.5 mH. A schematic of this ore drive profile with an indicative 7 m^3 loader (CAT R2900) is shown in Figure 19.

Figure 19: 4.5 mW x 4.5 mH Ore Drive Profile with CAT 2900 Loader



These dimensions are sufficient for the selected equipment fleet of 7 m^3 sized loaders (as per equipment manufacturer recommendations) and allow enough room for effective ground support installation, drilling and mining activities to occur without excessive damage to services and ground support. Ore drives were designed to follow the orebody along strike.

6.5.6 DEVELOPMENT PROFILES & GROUND SUPPORT

Development profiles and design ground support usage rates applied in the LOM plan are summarised in Figure 21.

The ground support usage is based on the site ground support standards, with bolting & meshing assuming a 10% additional allowance for intersections, rehabilitation etc.

Table 21: Development Profiles and Mesh & Bolt Usage

Development	3.0 m Split Sets units/m adv.	2.4 m Split Sets units/m adv.	MDX Bolt units/m adv.	Spiral Friction units/m adv.	Paste Bolt units/m adv.	0.9 m Stubby units/m adv.	0.9 m Chubby units/m adv.	Gal Mesh (m^2/m)	Seismic Gal Mesh (m^2/m)	Black Mesh (m^2/m)	Fibrecrete (m^3/m)
Capital											
5.2mW x 5.8mH (Decline)		11.8		0.0	0.0	3.4	2.1	13.9		2.8	2.8
5.2mW x 5.8mH (Decline Stockpile)	3.6	5.7		0.0	0.0	3.4	2.1	13.9		2.8	2.8
5.2mW x 5.8mH (Incline)		11.8		0.0	0.0	3.4	2.1	13.9		2.8	2.8
5.2mW x 5.5mW (Level Access)		10.2		0.0	0.0	2.9	1.6	11.6		2.8	2.8
4.0mH x 4.5mH (Level Sump)		10.2		0.0	0.0	2.9	1.6	11.6		2.8	2.8
5.2mW x 5.8mH (Level Stockpile)	3.6	5.7		0.0	0.0	3.4	1.6	13.9		2.8	2.8
5.2mW x 5.5mH (Footwall Drive)		0.0		8.6	0.0	2.9	1.6	11.6		2.8	2.8
5.2mW x5.8mH (Substation)		11.8		0.0	0.0	2.9	1.6	13.9		2.8	2.8
5.2mH x 5.8mH (Pump Station)		11.8		0.0	0.0	2.9	1.6	13.9		2.8	2.8
5.2mH x 5.5mH (Escapeway Drive)		0.0		8.6	0.0	2.9	1.6	11.6		2.8	2.8
5.2mW x 5.5mH (Fresh Air Drive)		10.2		0.0	0.0	2.9	1.6	11.6		2.8	2.8
5.2mW x 5.5mH (Return Air Drive)		10.2		0.0	0.0	2.9	1.6	11.6		2.8	2.8
5.2mH x 5.5mH (Refuge Chamber)		10.2		0.0	0.0	2.9	1.6	11.6		2.8	2.8
4.8mH x 4.8mH (Exploration Drive)		10.2		0.0	0.0	2.9	1.6	11.6		2.8	2.8
Operating											
4.8mW x 5.0mH (Crosscut)		0.0	3.9	6.0	0.0	1.6	1.6	0.0	11.6	2.8	2.8
4.8mW x 5.0mH (Ore Drive) INITIAL LEVELS		0.0	3.9	6.0	0.0	1.6	1.6	0.0	11.6	2.8	2.8
4.8mW x 5.0mH (Ore Drive) SUBSEQUENT LEVELS		2.9	8.6	0.0	0.0		1.6	0.0	11.6	2.8	2.8
5.2mH x 5.5mH (Orepass Drive)		0.0	0.0	8.6	0.0	2.9	1.6	11.6	0.0	2.8	2.8
4.8mH x 5.0mH (Flatback Drive)		2.9	8.6	0.0	0.0		1.6	0.0	11.6	2.8	2.8
4.8mH x 5.0mH (Development Through Paste)		0.0	0.0	0.0	7.9	2.9	1.6	11.6	0.0	2.8	2.8
Rehab - Bolt & Mesh		0.0	0.0	8.6	0.0	2.9	1.6	11.6	0.0	0.0	0.0
Rehab - Fibrecrete, Bolt & Mesh		2.9	8.6	0.0	0.0		1.6	0.0	11.6	0.0	0.0

Table 6-10 summarises cable bolt usage assumptions for wide spans generated at development intersections.

Table 22: Development Intersection and Stope brow Cable Bolt Usage

Activity	Unit	6m Cable Bolts
Development Intersection	bolts/intersection	11
Stope Brow Cable	bolts/stope	4

6.6 FINAL MINE DESIGN

The final LOM plan is shown in Figure 20 to Figure 22.

Figure 20: LOM Plan (Plan View)

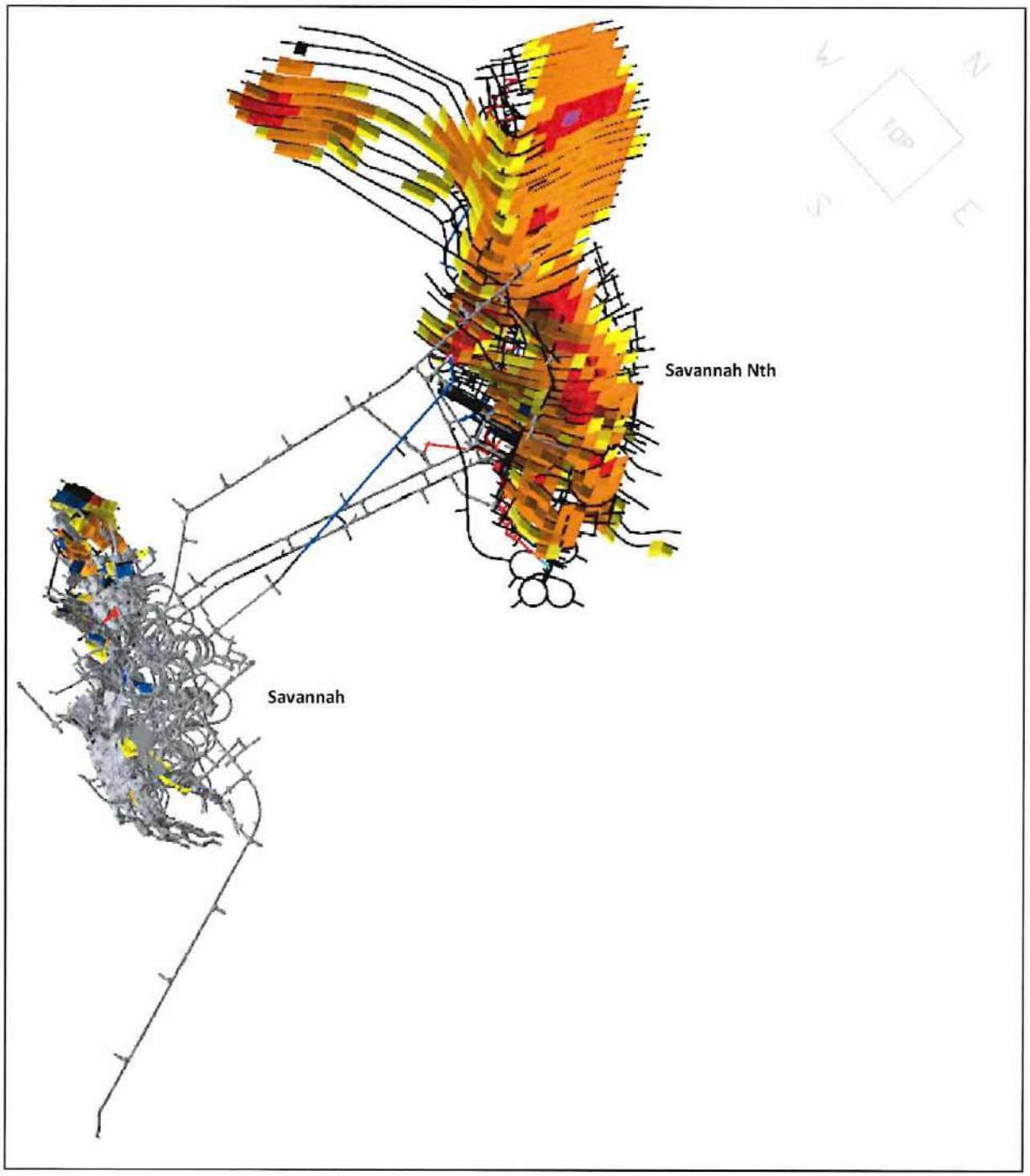


Figure 21: LOM Plan (Cross Section Looking NE)

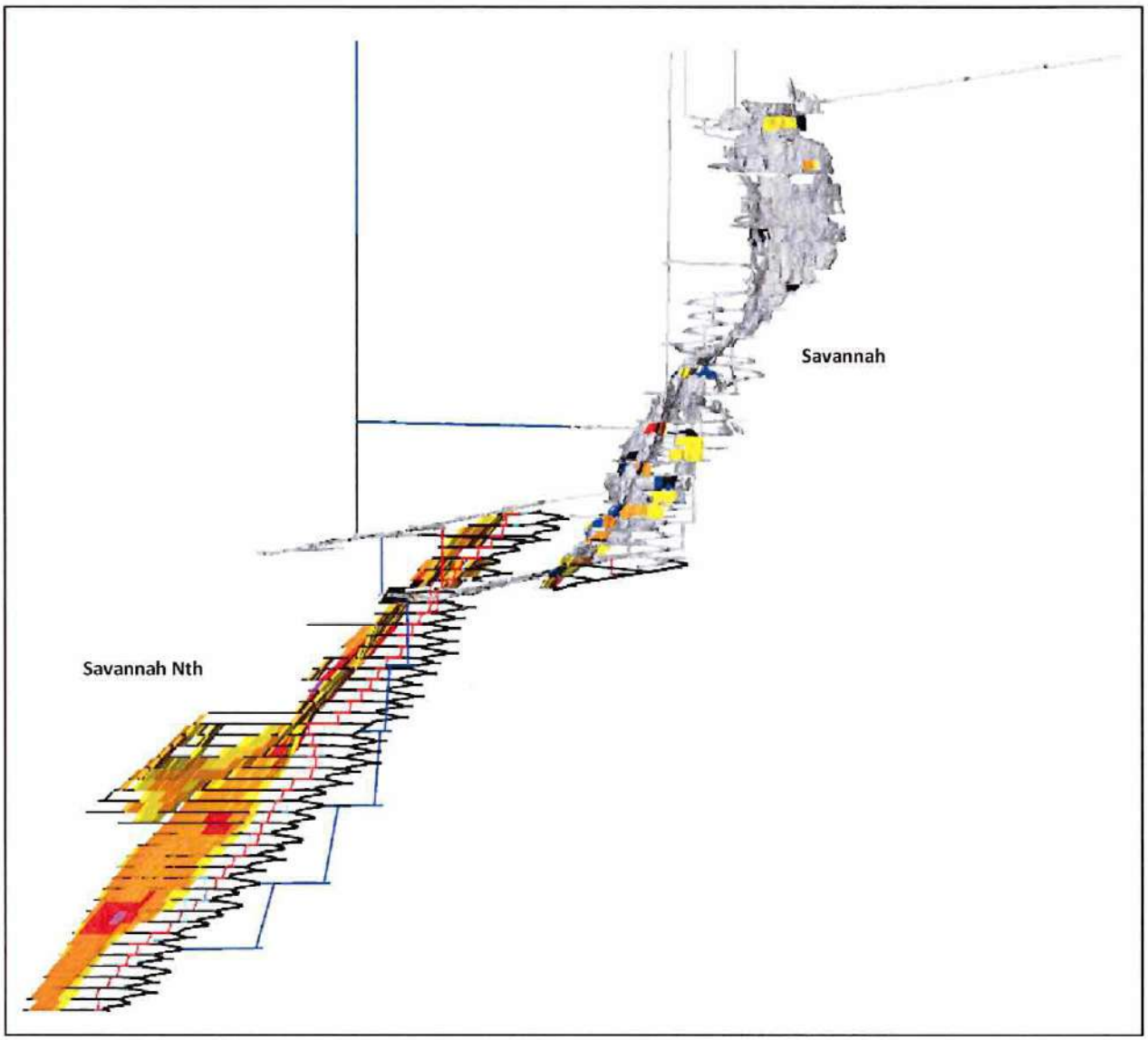
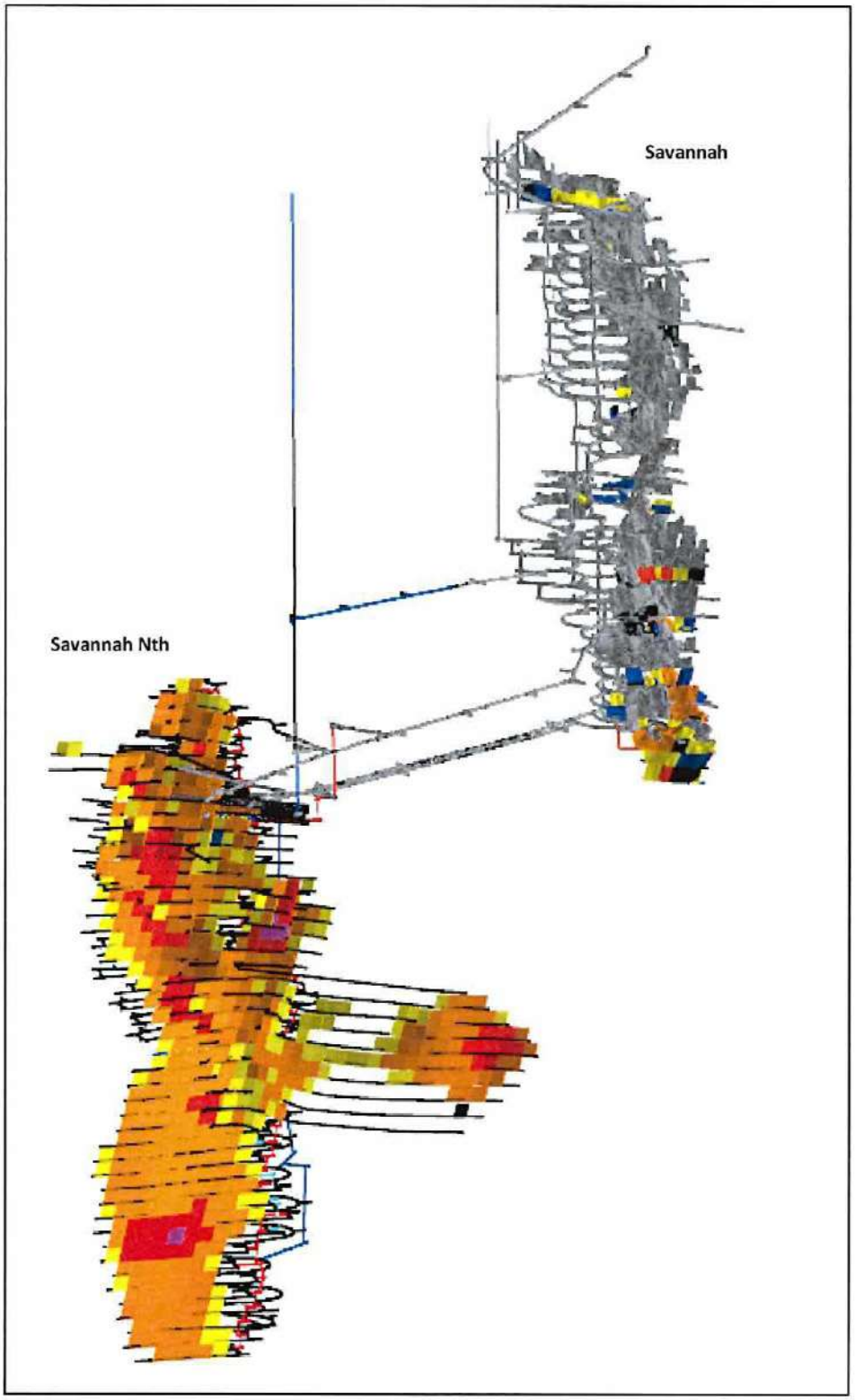


Figure 22: LOM Plan (Looking SE)



7 UNDERGROUND SCHEDULING

7.1 SCHEDULING OVERVIEW

The LOM plan was scheduled using Deswik Scheduler mine scheduling software.

Productivity assumptions used to generate the mine schedule were either:

- Carried over from the 2019 Feasibility Study Update with minor changes to stope bogging Rate.
- Confirmed with current PAN staff based on recent performance
- Sourced from the Entech database, based on similar equipment types and mining methods within the Western Australian hard rock mining industry, and assuming the engagement of an experienced and competent underground contractor.
- Determined from first principles.

General scheduling comments include:

- The mine was assumed to operate on two 12-hour shifts, 365 days/yr.
- All Equipment productivities and availability considered in resource rates.
- Ore production of ~80 Kt/month was targeted based on discussions with PAN.
- Loader tramming distances were based on distances from the design centroid of the excavation to the XY co-ordinates of the level stockpiles.
- Escapeways and return air systems servicing a level need to be complete before stopping on that level commences.
- Stope filling rate varies between 500 to 800 m3/d depends on the volume of plug and stope size.
- A "Grade Control Drilling Activity" assigned to the first stope in each level to allocate enough time for Grade control drilling
- Ore development grades were evaluated assuming 3.0 m cut lengths.
- During the bottom-up mining sequence, an entire stopping block needs to be completed before ore developments commence on the level above.
- From August 2020 to April 2021 , Development was scheduled to do just decline and other necessary capital development (Including 1675 Vent access) and then the focus will be on opening 1380 level as first production level and mining bottom up and top down from this Level.
- Part of 1040 Level to leave as sill pillar to maintain the ore production level around 80kt in almost first 10 years.

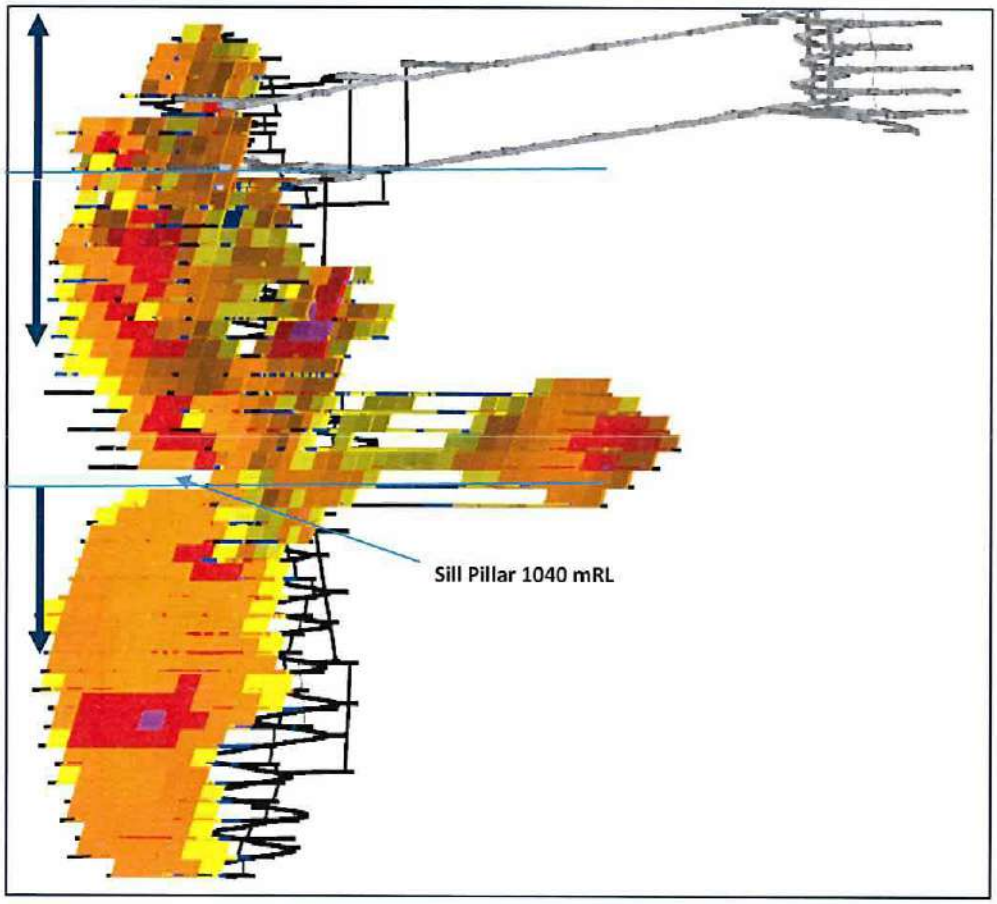
7.2 STOPING SEQUENCE

Stoping generally is planned to be carried out in a top-down manner except for the upper part of Savannah Nth which is mined bottom-up. Level extraction sequence avoids reducing pillars on level, thus is either centre-out or north to south along the level.

A sill pillar has been included in the LOM plan on the 1040 mRL to enable a second mining front. This sill reduces the production tail, enabling peak production to be maintained for longer, thus shortening the mine life. The peak production rate of 80 kt per month is maintained for almost 10 years.

The sill pillar was strategically located in a lower grade area of the mine and has been deemed unrecoverable. Material remaining in the sill pillar equates to 79 kt @ $175 NSR and can been seen in Figure 23.

Figure 23: LOM Production Sequence (Long Section Looking SE)



7.3 PRODUCTIVITY ASSUMPTIONS

7.3.1 JUMBO PRODUCTIVITY

The development productivities are based on using modern electric-over-hydraulic twin boom jumbo drills (e.g. Sandvik DD421-60 or equivalent). These drills will drill 45 mm blastholes for development advance and will be used for the installation of ground support.

A commencement ramp-up of 8 months was applied to the schedule to allow for capital development to advance ahead of the production front, allowing a buffer between development and production activities. During the ramp up period, the primary activity in the mine will be a single jumbo drill which will initially concentrate on the 1675 L access to the VR3 raise bore recovery position, before switching priority to capital development in the Savannah north. The single jumbo has been assumed at total advance rate of 250 m/mth during this period.

From month 9, a second jumbo added to the development fleet and bring up the total development rate to maximum 600 m/mth, with approx. 150 m being in Savannah, and 450 m in the Savannah North. The Savannah development is primarily ground support rehabilitation which has been account for in the schedule as the same as development metres thus is deemed conservative.

From month 20, the Savannah metres begin to drop and total development reduces to 500 m/mth, before dropping off to 250 – 300 m/mth from month 36.

Maximum development advance rates in individual headings were set to 3.4 m/d for decline and all lateral development. These advance rates are assumed to include all activities and delays related to the development cycle, including drill rig up, drill rig down, face drilling, charging and firing, re-entry, bogging, ground support installation, services installation, shift change and meetings, meal breaks, breakdowns, maintenance, face mark-up and geology/survey control delays.

Maximum jumbo unit productivities were set as **270 m/mth**.

7.3.2 VERTICAL DEVELOPMENT PRODUCTIVITY

A vertical development rate of **4 m/day** has been applied to longhole rise development. This includes rig up and rig down, drilling, reaming, charging and firing, re-entry, bogging, shift change and meetings, meal breaks, breakdowns, maintenance, and survey control delays.

A development rate of **3 m/day** has been applied to raiseboring. This includes rig up and rig down, pilot hole drilling, hole reaming, bogging and ladderway installation (where relevant).

7.3.3 PRODUCTION DRILLING PRODUCTIVITY

The production drilling requirements have been estimated by applying a calculated drill yield of 6 tonnes per drill metre (t/dm) which is consistent to historical performance at the mine. A drilling rate of **250 drill m/d** has been applied to the schedules, based on the capabilities of modern electric-over-hydraulic longhole drill rigs (e.g. Sandvik DL421-7 rig or similar). These drilling rates are assumed to include all activities and delays related to production drilling, including drill rig up, drill rig down, slot drilling, production drilling, shift change and meetings, meal breaks, breakdowns, maintenance, services installation, and geology/survey control delays.

7.3.4 STOPING/FILLING PRODUCTIVITY

Instantaneous stoping loading rates have been determined for varying tram distances from first principles and benchmarked against actual site performance. These figures are based on the use of 7 m^3 loaders (Caterpillar R2900 or similar), with modern auto-tracking remote capabilities. For the purposes of scheduling and costing, 60% of stope material has been assumed to be remote loaded, with 40% being loaded using conventional techniques. All development will be loaded conventionally. Table 7-1 outlines the scheduled productivity used for stope loading utilised in the mine schedule.

Table 23: Stope Bogging Productivity Estimates

Stope Distance to Stockpile	Average Productivity Rate (t/d)
< 100 m	1,250
100 - 150 m	1103
150 - 200 m	907
200 - 250 m	770
250 - 300 m	669
300 - 350 m	591
350 - 400 m	530
400 - 450 m	480
450 - 500 m	439
> 500 m	404
Mine Plan Steady Production Period Average	**909**

These stope loading rates include all activities and delays associated with stoping, including hole preparation, charging, firing, re-entry, remote equipment set-up and testing, truck loading, shift change and meetings, meal breaks, breakdowns, maintenance, services installation, and geology/survey/engineering inspection delays.

7.3.5 HAULAGE PRODUCTIVITY

Trucking fleet requirements are calculated on the number of tonne kilometres (tkm) required per scheduling period. No constraints were applied to the numbers of truck units available in the schedule

(i.e. truck fleet numbers are determined by the scheduling constraints applied for precursor material generating activities).

All ore and waste material from the mine is planned to be hauled to surface using conventional 60 t underground haulage trucks, being placed on the surface ROM pad (for ore) or surface waste dump (for waste).

A truck productivity of **120,000 tkm/mth** per truck has been applied to determine trucking fleet requirements. These figures are based on a 60 t class truck (IE Sandvik TH663). This productivity is assumed to allow for all delays associated with haulage including loading, hauling and dumping, shift change and meetings, meal breaks, breakdowns, maintenance and truck interactions.

The haul distance allowance from the portal to the ROM is 1275 m, and from the portal to the waste dump an allowance of 1407 m is assumed. There will likely be opportunities to deposit waste underground as co-disposal with paste fill or other stoping voids as loose waste; however the schedule assumes that all waste material will be trucked to the surface waste dump.

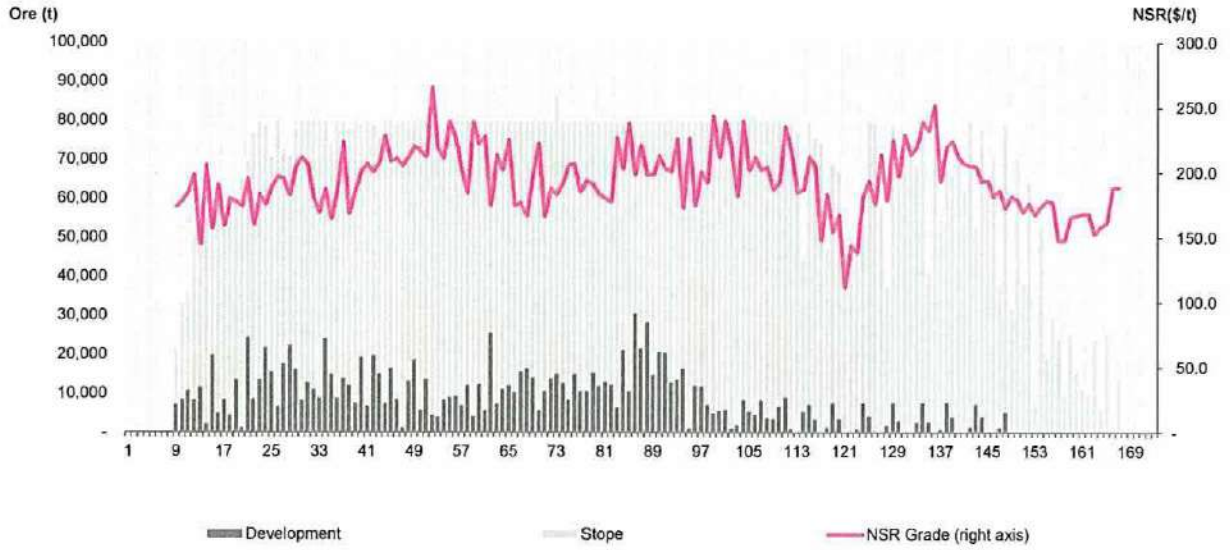
7.4 LOM SCHEDULE

The LOM schedule is presented in Table 24. A graphical summary of the ore production profile is presented in Figure 24.

Table 24: Mine Plan Physicals Schedule

Item	Row Total	FY20/21	FY21/22	FY22/23	FY23/24	FY24/25	FY25/26	FY26/27	FY27/28	FY28/29	FY29/30	FY30/31	FY31/32	FY32/33	FY33/34	FY34/35
Waste Tonnes (t)	3,337,688	87,466	168,485	376,614	309,741	293,017	289,951	129,371	86,161	92,646	74,914	91,999	78,505	48,809	0	0
Waste Development (t)	2,123,016	76,559	245,150	350,227	301,602	286,055	280,866	128,085	85,258	84,823	74,002	85,196	77,118	47,915	0	0
Waste Vertical (t)	76,791	10,906	18,235	3,505	8,139	6,962	9,085	1,286	903	7,823	922	6,703	1,387	894	0	0
Grade Control Drilling (m)	27,561	0	899	595	2,591	2,459	1,139	6,186	4,349	5,874	2,591	1,706	1,091	1,128	0	0
Backfilling (m3)	2,691,256	3,784	87,782	187,810	216,509	256,145	256,470	293,957	225,153	225,956	237,620	237,787	214,449	218,110	111,943	37,453
Total Development (m)	46,046	963	4,567	7,024	6,050	5,588	5,493	3,889	3,852	2,869	1,614	1,682	1,385	1,063	0	0
Development Savannah (m)	8,140	484	1,011	1,328	225	93	0	0	0	0	0	0	0	0	0	0
Development Savannah Nth (m)	42,906	480	3,556	5,696	5,825	5,494	5,493	3,889	3,852	2,869	1,614	1,682	1,385	1,063	0	0
Capital/Rehab Development (m)	21,701	808	2,270	3,746	3,187	3,153	2,992	831	695	914	785	944	809	488	0	0
Operating Development (m)	24,346	65	2,296	3,278	2,864	2,435	2,500	3,058	3,157	1,956	829	738	585	574	0	0
Final Recovered Ore (t)	10,701,288	0	421,169	840,222	951,750	958,911	957,892	965,289	959,074	959,365	947,421	734,680	782,002	759,264	368,763	80,498
NSR	200	0	172	182	189	216	215	192	208	212	206	191	216	199	172	169
NI	1.23	0.00	1.04	1.12	1.18	1.34	1.55	1.18	1.24	1.29	1.30	1.20	1.52	1.22	1.04	0.99
Final Recovered Stope Ore (t)	9,426,904	0	339,949	694,333	803,727	826,096	834,312	817,269	782,922	827,177	894,265	693,416	755,902	728,279	368,763	80,498
NSR	199	0	171	178	184	216	217	195	213	211	199	188	216	199	172	169
NI	1.23	0.00	1.04	1.09	1.15	1.35	1.55	1.19	1.25	1.28	1.26	1.18	1.52	1.22	1.04	0.99
Final Recovered Development Ore (t)	1,274,384	0	81,221	146,889	148,023	127,814	123,570	148,023	196,153	132,187	53,156	41,264	26,100	30,985	0	0
NSR	206	0	175	201	215	217	189	179	191	219	324	249	215	197	0	0
NI	1.28	0.00	1.07	1.26	1.34	1.28	1.16	1.15	1.22	1.37	1.97	1.49	1.34	1.23	0.00	0.00
SAVANNAH Nth																
Final Recovered Ore (t)	9,468,518	0	231,673	582,591	723,225	716,119	843,092	881,427	945,267	909,971	936,843	733,501	766,802	759,264	368,763	80,498
NSR	205	0	194	199	191	231	222	195	209	212	207	191	216	199	172	169
NI	1.27	0.00	1.21	1.24	1.20	1.44	1.59	1.22	1.25	1.30	1.31	1.20	1.53	1.22	1.04	0.99
Final Recovered Stope Ore (t)	8,242,845	0	150,717	442,776	589,507	590,555	719,522	733,404	749,114	777,784	883,687	692,237	740,202	728,279	368,763	80,498
NSR	205	0	202	198	185	235	228	198	214	211	200	188	216	199	172	169
NI	1.27	0.00	1.27	1.23	1.17	1.48	1.43	1.24	1.26	1.29	1.27	1.18	1.53	1.22	1.04	0.99
Final Recovered Development Ore (t)	1,225,673	0	70,955	139,809	157,717	125,758	123,570	148,023	196,153	132,187	53,156	41,264	26,100	30,985	0	0
NSR	207	0	175	204	216	218	189	179	191	219	324	249	215	197	0	0
NI	1.28	0.00	1.08	1.28	1.35	1.28	1.16	1.15	1.22	1.37	1.97	1.49	1.34	1.23	0.00	0.00
SAVANNAH																
Final Recovered Ore (t)	1,232,770	0	189,497	277,641	228,526	257,797	114,790	83,863	13,807	49,393	10,578	1,179	15,700	0	0	0
NSR	161	0	148	147	182	172	147	165	151	209	157	127	66	0	0	0
NI	0.95	0.00	0.86	0.88	1.10	1.05	0.87	0.83	0.82	1.12	0.85	0.75	0.55	0.00	0.00	0.00
Final Recovered Stope Ore (t)	1,184,059	0	189,232	251,557	213,219	233,741	114,790	83,863	13,807	49,393	10,578	1,179	15,700	0	0	0
NSR	160	0	146	143	182	172	147	165	151	209	157	127	66	0	0	0
NI	0.94	0.00	0.85	0.86	1.10	1.05	0.87	0.83	0.82	1.12	0.85	0.75	0.55	0.00	0.00	0.00
Final Recovered Development Ore (t)	48,711	0	10,265	26,084	10,308	2,056	0	0	0	0	0	0	0	0	0	0
NSR	185	0	177	184	197	182	0	0	0	0	0	0	0	0	0	0
NI	1.11	0.00	1.04	1.12	1.19	1.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TKM	127,531,799	609,812	5,117,594	9,520,729	10,266,848	10,926,161	11,790,921	10,553,215	10,774,144	11,364,357	11,426,997	9,479,567	10,395,412	9,998,129	4,435,829	927,079
TKM Dev	33,947,134	532,193	2,806,219	4,364,183	4,047,187	4,059,921	4,211,142	2,990,809	3,128,747	2,917,448	1,585,852	1,617,115	1,354,629	1,064,827	0	0
TKM Stope	92,872,501	0	2,584,026	5,228,408	6,149,873	6,820,717	7,485,254	7,547,716	7,654,923	8,757,576	9,851,797	7,710,049	9,012,715	8,921,516	4,435,829	923,079
TKM Ver	712,160	87,569	127,350	28,138	69,788	46,523	94,525	14,680	10,474	89,331	11,349	82,411	18,076	11,966	0	0
TKM Waste	31,570,075	609,813	2,055,113	3,008,716	3,752,512	3,861,238	3,044,116	1,414,307	969,588	1,084,098	922,762	1,162,551	1,023,372	652,068	0	0
TKM Ore	105,961,722	0	3,062,480	6,512,004	7,514,336	8,064,923	8,746,805	9,138,908	9,804,569	10,280,259	10,504,235	8,267,216	9,372,040	9,346,061	4,435,829	927,079

Figure 24: LOM Plan Production Profile



The split of mined Ni metal by Mineral Resource JORC category (RESCAT) (Indicated (IND) and Inferred (INF)) is summarised graphically in Figure 25 . Table 25 shows the LOMP split between resource classifications.

Figure 25: Mined Ni Metal Production by RESCAT

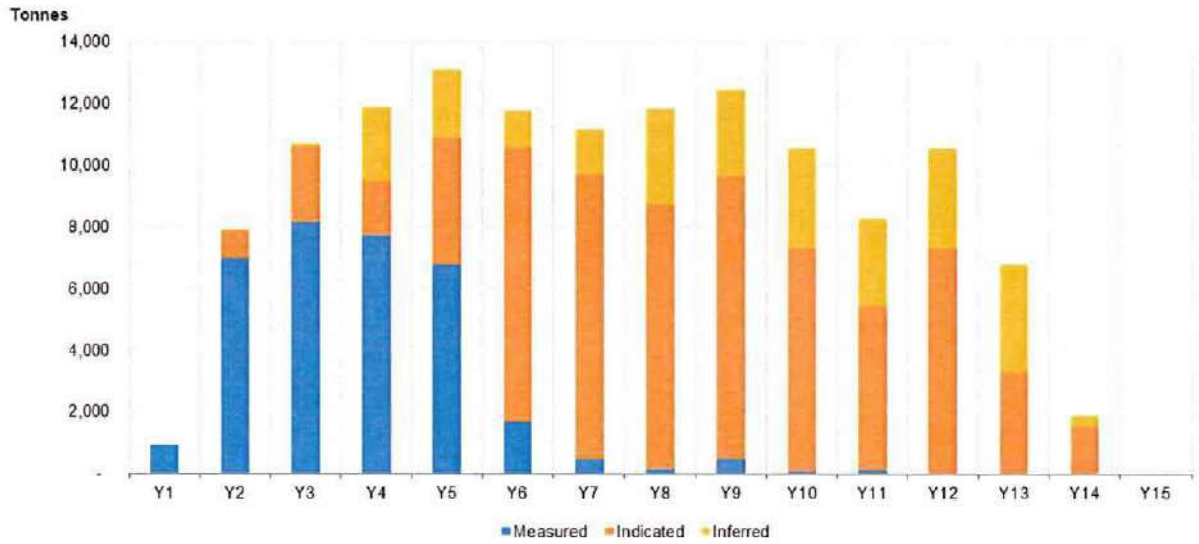
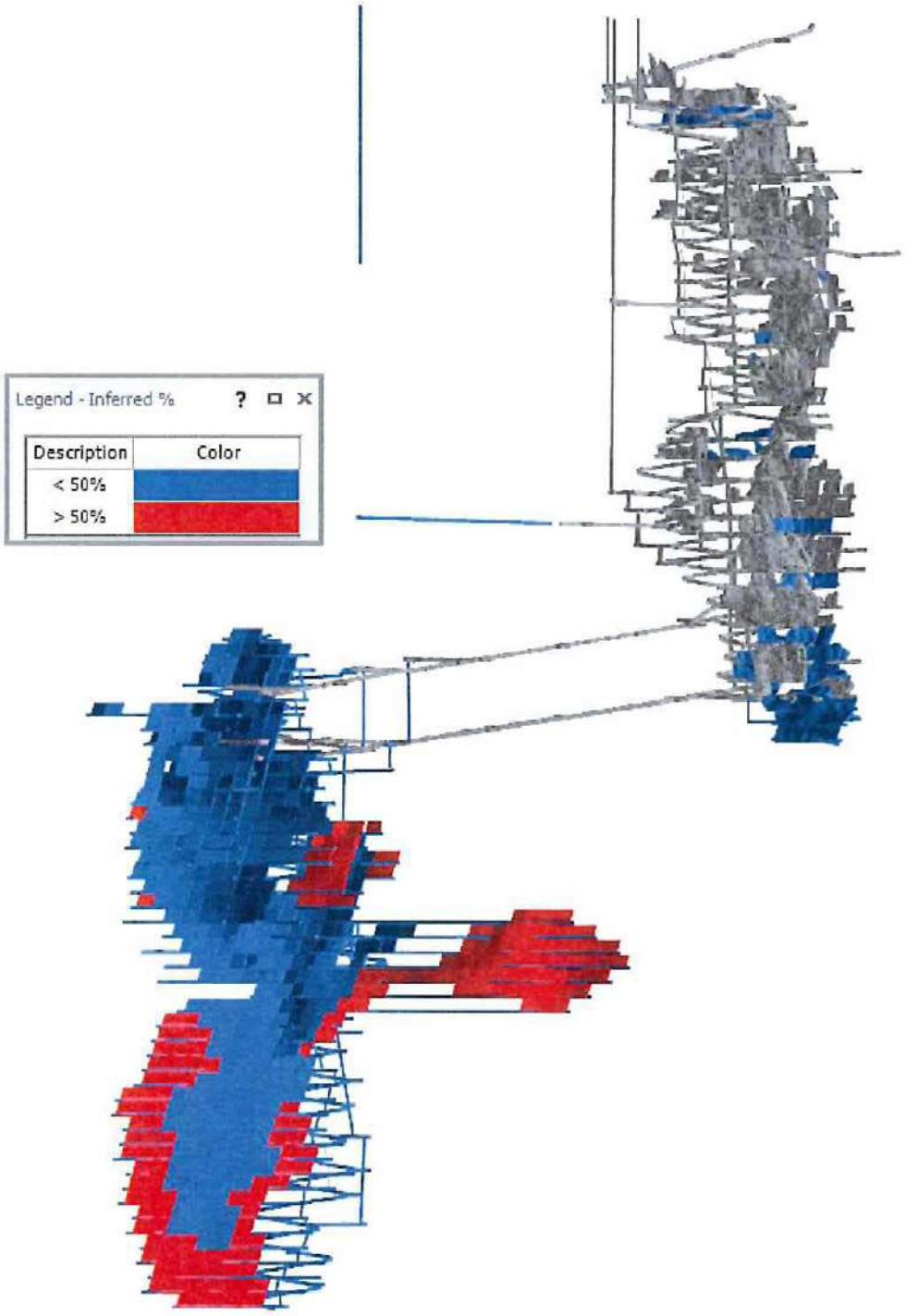


Table 25: Mined Material by Resource Classification

Mineral Resource	Percentage (%)
Measured	29.0
Indicated	51.5
Inferred	19.5

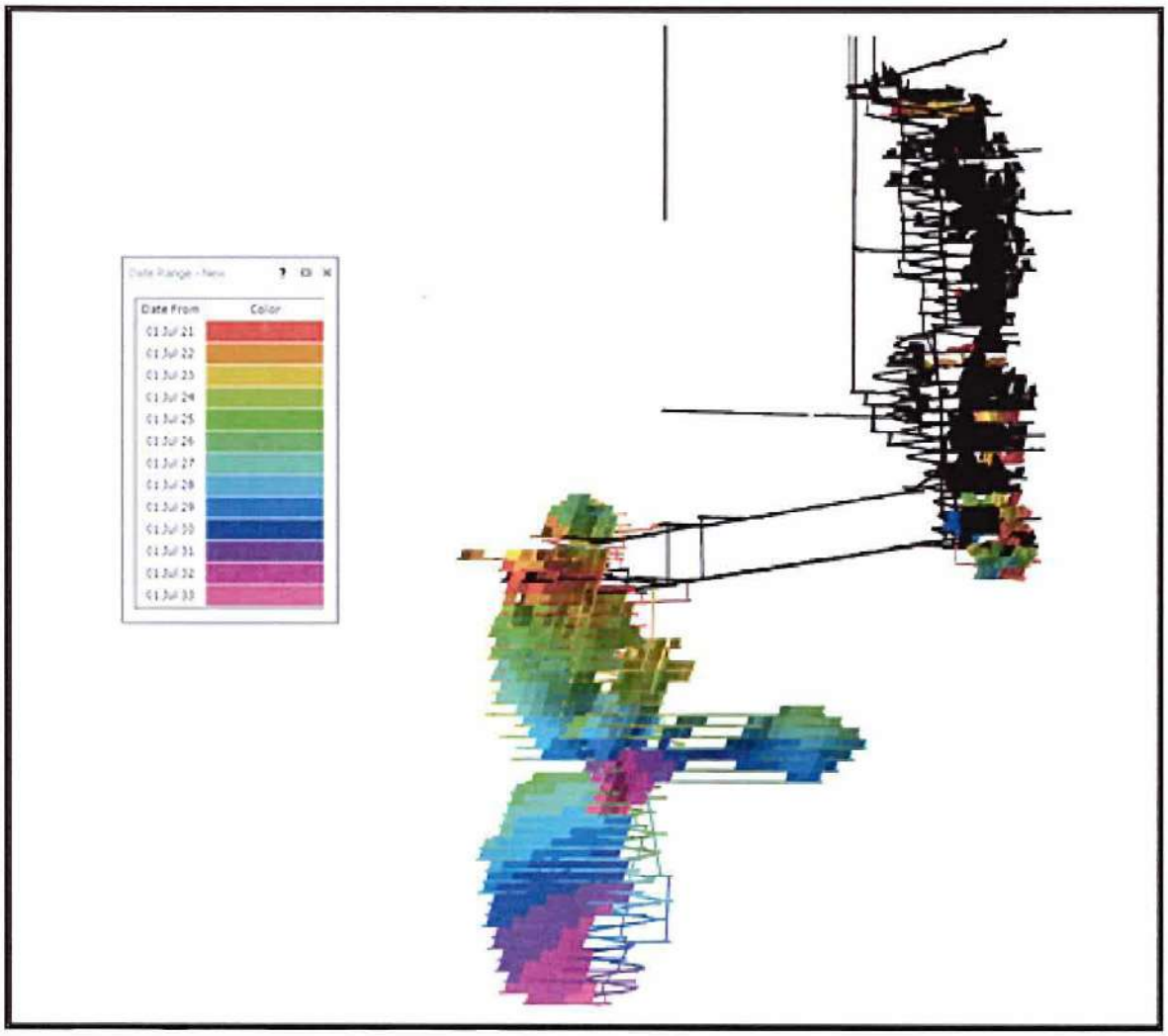
A graphical depiction of the mine plan extracting Indicated or Inferred material is shown in Figure 26. This figure shows inferred stopes are in the extremities of the mine plan.

Figure 26: Inferred Material percentage (Long-Section Looking SE)



A graphical depiction of the mine plan by financial year (FY) is shown in Figure 27.

Figure 27: Mine Plan by FY (Long-Section Looking SE)



8 MINING FLEET

The initial mining fleet assumptions were assumed based on the mine schedule and Entech database productivity estimates. The maximum estimated mobile fleet used in the FS ventilation calculations are presented in Table 26. Contractors subsequently provided fleet estimates in the tender process.

Table 26: FS Mobile Mining Fleet Estimate

Equipment List	Max. Qty.
Twin Boom Development Jumbo	3
Loader	3
Truck	9
Production Drill Large	2
Charge Up	2
Grader	1
Water Cart	1
Underground IT	3
Workshop IT	1
Agitator	1
Fibrecrete Sprayer	1
Light Vehicles	6

Mine productivity requirements and resourcing over the LOMP schedule are presented graphically in Figure 28 to Figure 31. Both the FS fleet estimate used for ventilation calculations and the selected contractor fleet estimates are shown in the graphs.

Figure 28: Jumbo Drill Resourcing

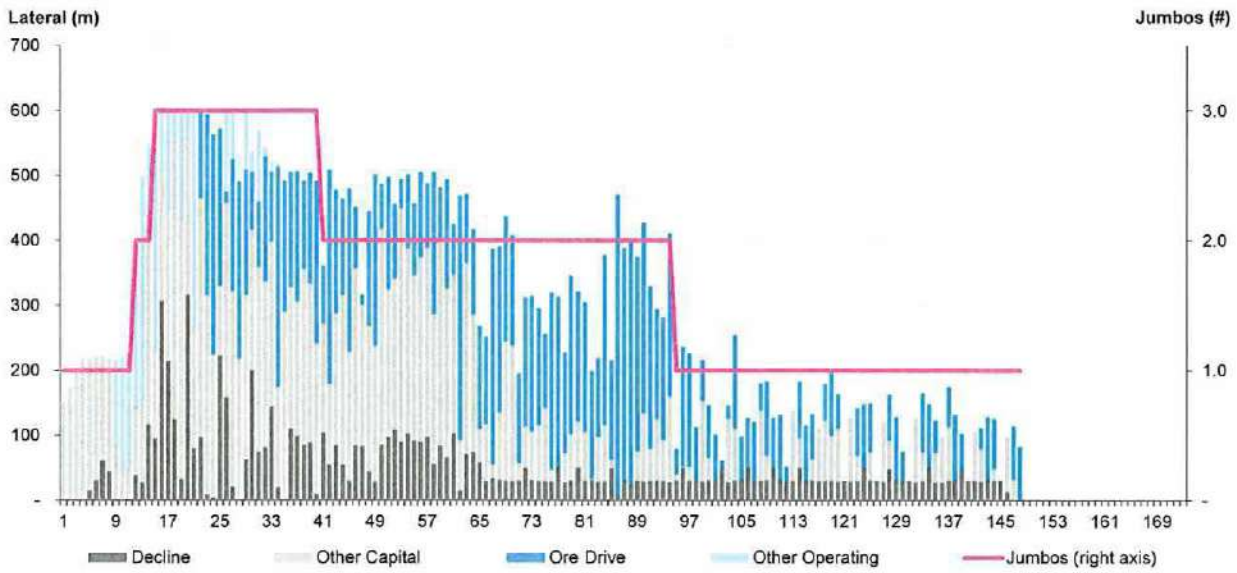


Figure 29: Production Drill Resourcing

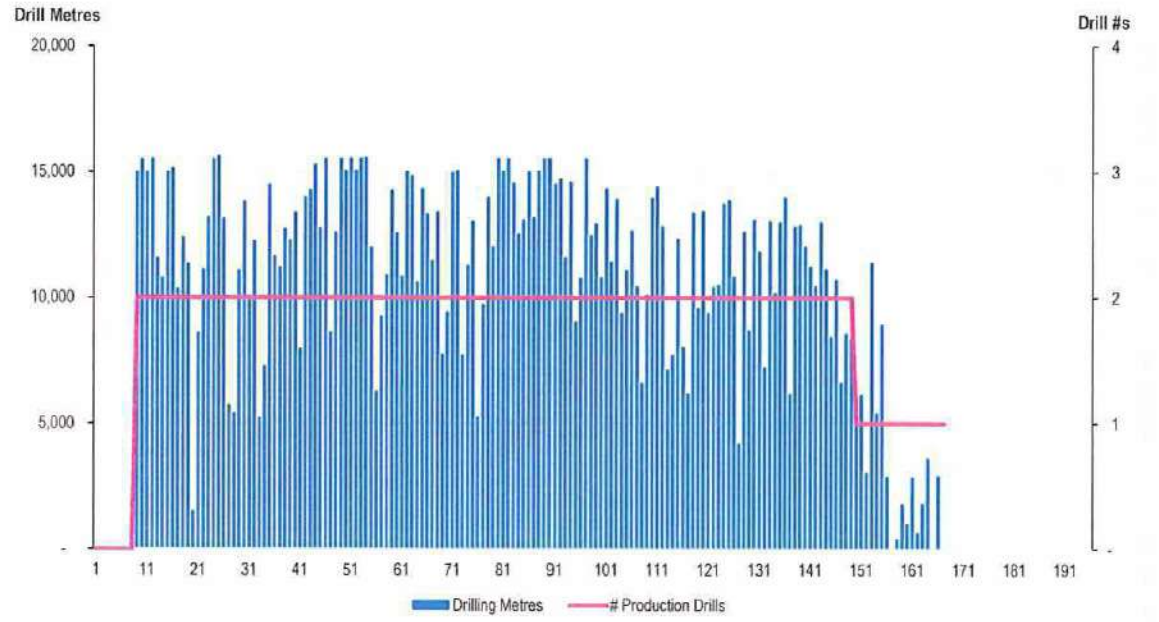


Figure 30: Loader Resourcing

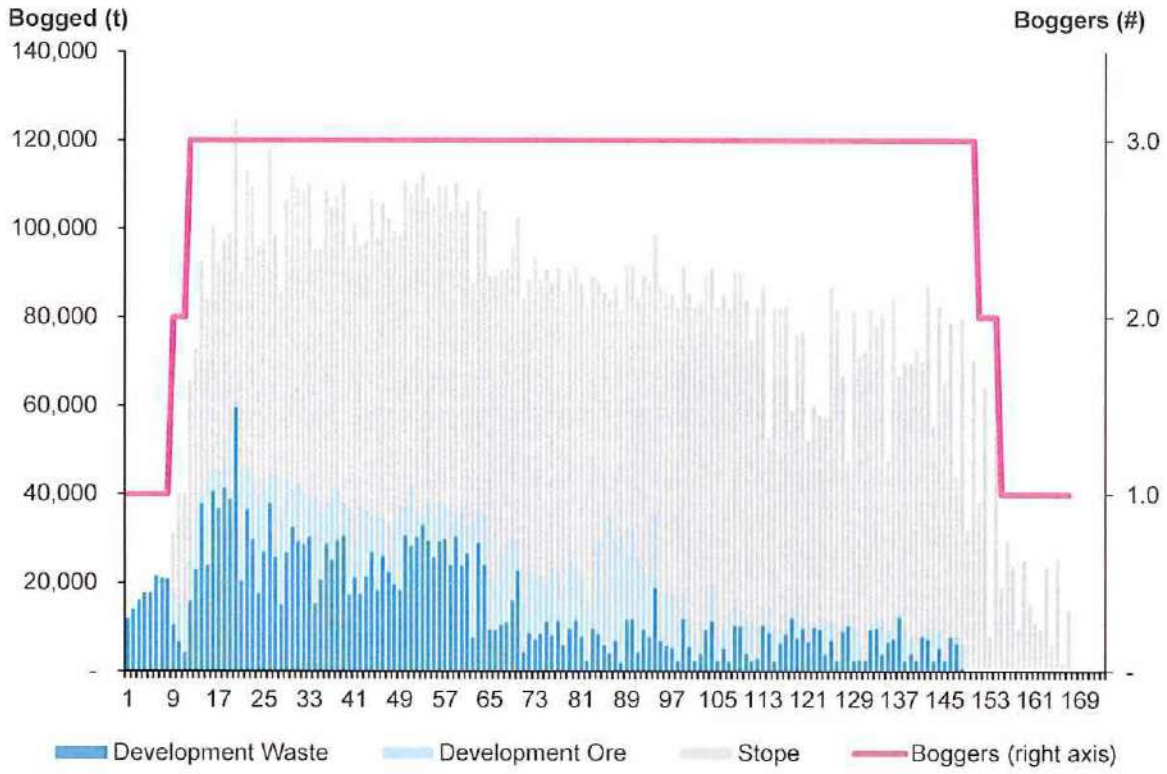
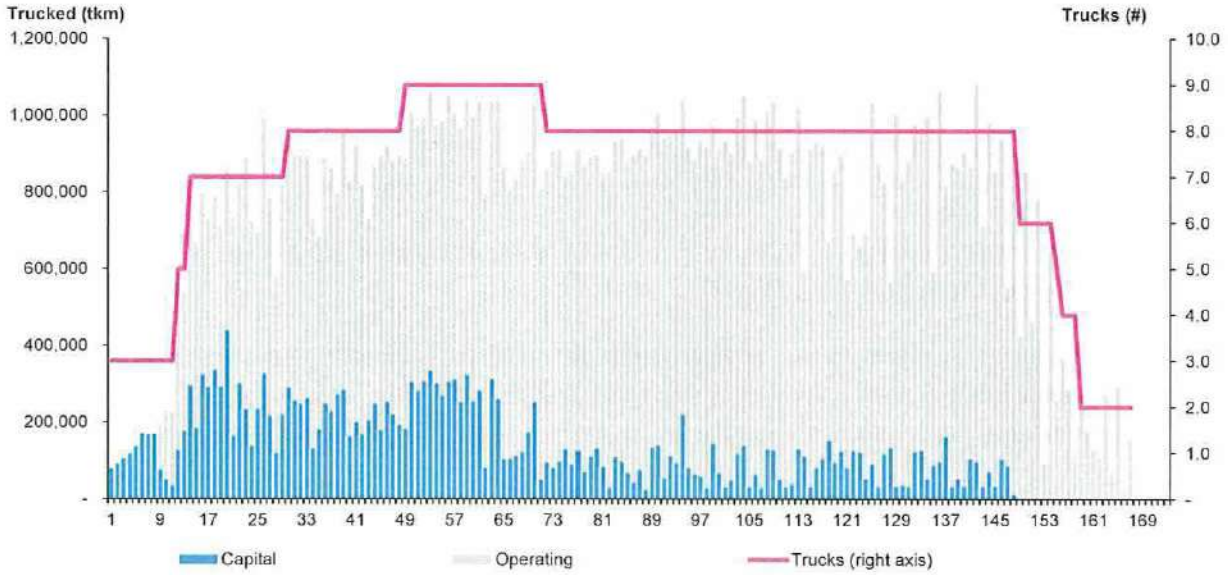


Figure 31: Truck Resourcing



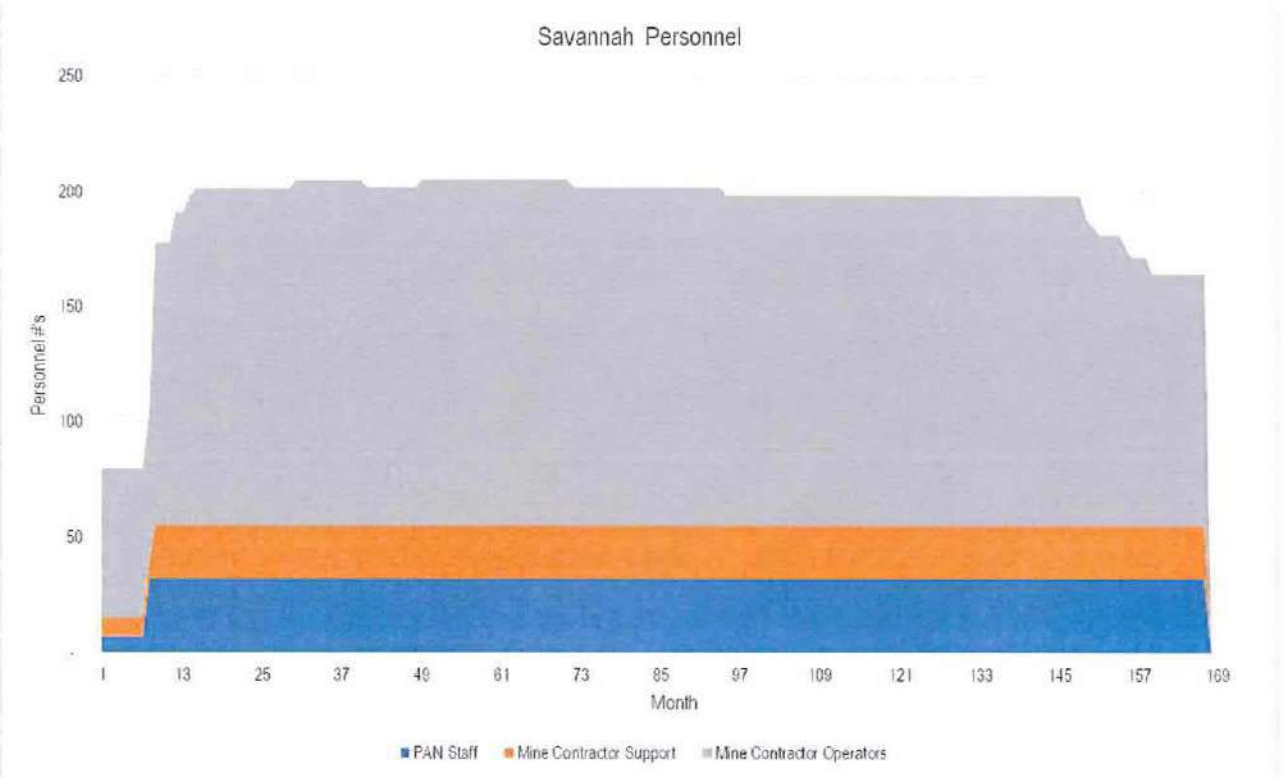
9 MANNING

It has been assumed that underground mining contractors would supply all personnel required to drill, blast, install ground support, install infrastructure and services, load, haul, maintain roads and surfaces, maintain equipment, and manage the contractor's activities. PAN will provide site management and technical support. The majority of personnel will be employed on a fly in-fly out (FIFO) roster from Perth and be based at the on-site accommodation camp.

Costs for both contractor and PAN technical staff flights and accommodation will be covered by PAN and have been modelled accordingly.

Staffing levels increase when the first ore is delivered in 9 Months after the operation begins. Contractor staffing levels and proposed rosters have been determined based on the contract tender. The estimated mining department manning requirements for the operation are shown in Figure 32.

Figure 32: Savannah Personnel Quantities



The estimated peak contractor and PAN manning requirement is 206.

The contractor and PAN manning requirements at this peak are provided in Table 27 and Table 28.

Table 27: Underground Mining Contractor Workforce

Position	Department	Peak Manning Point Quantity
Project Manager	Staff	2
Mine Foreman	Staff	2
Mining Engineer	Staff	2
Maintenance Supervisor	Staff	2
Electrical Supervisor	Staff	2
Underground Supervisors	Staff	6
Maintenance Planner	Staff	2
Safety and Training Co-ordinator	Staff	1
Trainer	Staff	2
Site Clerk	Staff	2
Jumbo Operator Rehab	Mining	1
Paste Fill Crew	Mining	4
Service Crew	Mining	11
Jumbo Operator - Twin Boom	Mining	7
Loader Operator	Mining	9
Truck Operator	Mining	32
Production Driller	Mining	7
Charge Up	Mining	8
Agitator Operator	Mining	4
Nozzleman	Mining	4
Grader Operator	Mining	2
Nipper	Mining	8
Storeman	Maintenance	8
Mechanical Tradesperson	Maintenance	38
Electrical Tradesperson	Maintenance	4
Resource Drilling	Maintenance	4
Total Max. Contractor Workforce		**174**

Table 28: Underground Mining Owner Workforce

Position	Department	Max. Qty.
Dev - UG Manager	UG Technical	1
Dev - UG Supervisor / Foreman	UG Technical	1
Dev - Surveyors	UG Technical	2
Dev - Graduate Engineer	UG Technical	-
Dev - Geologist	UG Technical	2
U/G Maintenance Superintendent	UG Technical	1
U/G Maintenance Planner	UG Technical	1
U/G Maintenance Leading Hand	UG Technical	2
U/G Fitter (HD, Truck & Drill)	UG Technical	2
Truck Fitter	UG Technical	2
LV Fitter	UG Technical	2
LV and Fitter Apprentice / Trades Assistant	UG Technical	2
Alternate Underground Manager	UG Technical	2
Mining Superintendent	UG Technical	2
Senior Engineer / Alt Mine Mgr	UG Technical	2
Planning, Production & Geotech Engineers	UG Technical	2
Paste And Vent Engineer	UG Technical	2
Graduate Mining Engineer	UG Technical	2
Total Max. PAN		**32**

10 VENTILATION

This section is based on Entech's ventilation analysis the Savannah and Savannah North ventilation system (Kok, 2020).

10.1 AIRFLOW REQUIREMENTS

The assumed airflow requirements for the Savannah mine are based on the proposed maximum diesel equipment fleet summarised below in Table 10-1. These airflows are based on conformance to the controlling regulations in the jurisdiction, in particular the Western Australian Mines Safety & Inspection Regulations 1995 (MSIR).

Table 29: Expected Ventilation Requirements Peak Underground Fleet

Mobile Equipment	Make	Model	Engine Rating (kW)	Airflow Requirment @ 0.05 m³/s/kW	Maximum quantity scheduled	Airflow Requirement (m³/s)	Remarks
Jumbo 1	Sandvik	DD421-60C	110	5.5	1	5.5	From Barminco contract (SKM_C45820022017470)
Jumbo 2	Sandvik	DD421-60C	110	5.5	1	5.5	From Barminco contract (SKM_C45820022017470)
Jumbo 3 (Rehab)	Sandvik	DD2710	74	3.7	1	3.7	From Barminco contract (SKM_C45820022017470), Entech assumed make and model.
Longhole 1	Sandvik	DL431-8C	110	5.5	1	5.5	From Barminco contract (SKM_C45820022017470)
Longhole 2	Atlas Copco	Simba L6	115	5.8	1	5.8	From Barminco contract (SKM_C45820022017470)
Loader 1	Sandvik	LH621	352	17.6	1	17.6	From Barminco contract (SKM_C45820022017470)
Loader 2	Sandvik	LH517	275	13.8	1	13.8	From Barminco contract (SKM_C45820022017470)
Loader 3	Sandvik	LH517	275	13.8	1	13.8	From Barminco contract (SKM_C45820022017470)
Loader 4 (Rehab)	Sandvik	LH517	275	13.8	1	13.8	From Barminco contract (SKM_C45820022017470)
Truck 1	Sandvik	TH663	567	28.4	1	28.4	From Barminco contract (SKM_C45820022017470)
Truck 2	Sandvik	TH663	567	28.4	1	28.4	From Barminco contract (SKM_C45820022017470)
Truck 3	Sandvik	TH663	567	28.4	1	28.4	From Barminco contract (SKM_C45820022017470)
Truck 4	Sandvik	TH663	567	28.4	1	28.4	From Barminco contract (SKM_C45820022017470)
Truck 5	Sandvik	TH663	567	28.4	1	28.4	From Barminco contract (SKM_C45820022017470)
Truck 6	Sandvik	TH663	567	28.4	1	28.4	From Barminco contract (SKM_C45820022017470)
Truck 7	Sandvik	TH663	567	28.4	1	28.4	From Barminco contract (SKM_C45820022017470)
Truck 8	Sandvik	TH663	567	28.4	1	28.4	From Barminco contract (SKM_C45820022017470)
Truck 9	Sandvik	TH663	567	28.4	1	28.4	From Barminco contract (SKM_C45820022017470)
Charge-up 1	Normet	MC605D	110	5.5	1	5.5	From Barminco contract (SKM_C45820022017470)
Charge-up 2	Normet	MC605D	110	5.5	1	5.5	From Barminco contract (SKM_C45820022017470)
Shotcrte Sprayer	Normet	SF050D	96	4.8	1	4.8	From Barminco contract (SKM_C45820022017470)
Agitator Truck	Mack	Metroliner	360	18.0	1	18.0	From Barminco contract (SKM_C45820022017470)
Grader	Caterpillar	14H	179	9.0	1	9.0	From Barminco contract (SKM_C45820022017470)
Integrated Tool Carrier 1	Volvo	L120	148	7.4	1	7.4	From Barminco contract (SKM_C45820022017470)
Integrated Tool Carrier 2	Volvo	L120	148	7.4	1	7.4	From Barminco contract (SKM_C45820022017470)
Integrated Tool Carrier 3	Volvo	L120	148	7.4	1	7.4	From Barminco contract (SKM_C45820022017470)
Integrated Tool Carrier 4	Volvo	L50	90	4.5	1	4.5	From Barminco contract (SKM_C45820022017470)
Water Cart	Mack	Metroliner	360	18.0	1	18.0	From Barminco contract (SKM_C45820022017470)
Service Truck	Hino	Hino 300	153	7.7	1	7.7	From Barminco contract (SKM_C45820022017470), Entech assumed range and kW rating
Stores Truck	Hino	Hino 300	153	7.7	1	7.7	From Barminco contract (SKM_C45820022017470), Entech assumed range and kW rating
Light Vehicles	Toyota	Landcruiser dual cabs and traybacks	151	7.6	6	45.3	From Barminco contract (SKM_C45820022017470), quantity from "Savannah Progress Claim Mar2020_Revision1_Approved".
			Total (m³/s)			488	

Underground infrastructure such as the underground fuel bay and magazine is ventilated with used air off the main decline and has therefore been excluded from the airflow calculations.

All leakage paths of the air are between the decline and the return airway system. This subsequently forms part of the primary exhaust system. With diesel equipment mostly distributed through the mine and with leakage made up by used air, Entech excluded leakage from the calculations as well. It is however important to minimise leakage throughout the mine to ensure sufficient ventilating air is available at the bottom of the mine to ventilate the diesel and other work activities effectively.

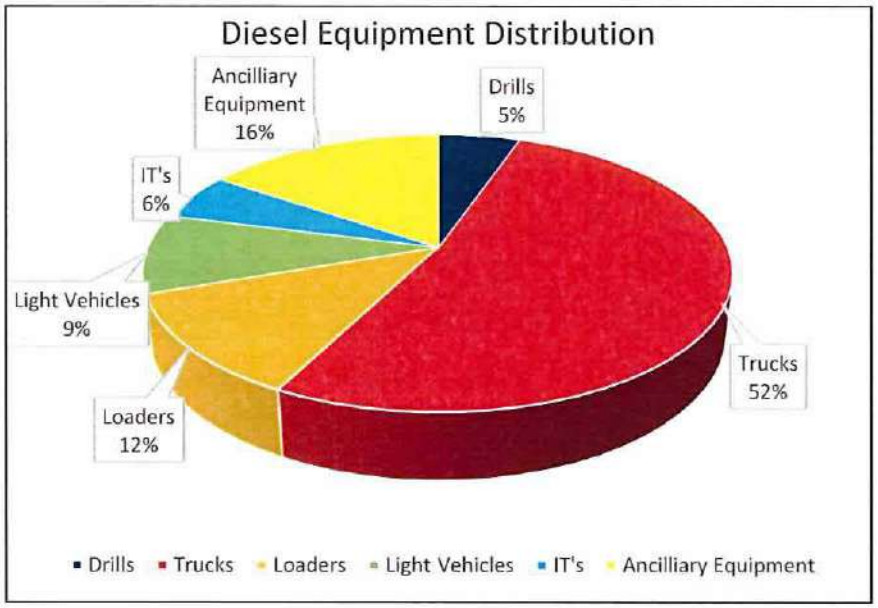
Table 30 summarises the airflow analysis for Savannah and Savannah North Mine:

Table 30: Ventilation Summary

Total (m^3/s)	488
Average Density in Savannah North (kg/m^3)	1.24
Required Massflow at average depth (kg/s)	605
Surface Fan Inlet Density (kg/m^3)	1.09
Required Surface Fan Quantity at average depth (m^3/s)	555
Density at full depth (kg/m^3)	1.29
Required Massflow at full depth (kg/s)	630
Required Surface Fan Quantity at full depth (m^3/s)	578

Figure 33 illustrates the overall make-up of the ventilation requirements for the mine and it is evident that the trucks, loaders and ancillary equipment requires a large portion of the ventilating air:

Figure 33: Airflow Distribution



10.2 FIRST PRINCIPLE HEAT LOAD BALANCE

A first principle heat load study was conducted based on the latest diesel fleet and mine design of Savannah North Mine. Table 31 provides detail of the parameters used in the calculations as well as Ventsim Design™:

Table 31: Ventsim Design Input Parameters

	Criteria	Input Value	Remarks
1	Geothermal Gradient	1.5 °C/100 m	Values were adopted from previous studies conducted by BBE, Ozvent and Entech between 2015 and 2019.
2	Rock Density	3,230 kg/m^3	
3	Rock Thermal Conductivity	3.63 W/m°C	
4	Rock Thermal Diffusivity	1.277 x 10^{-6} m^2/s	
5	Rock Specific Heat	880 J/kg°C	
6	Surface Barometric Pressure	97.0 kPa	
7	Surface Rock Temperature	30 °C	
8	Surface wet bulb temperature	24.4 °C	
9	Surface dry bulb temperature	31.4 °C	
10	Diesel Load Factor	0.35	Used to obtain similar heat load from diesel equipment as calculated.

Using various utilisation factors for the different diesel equipment, the heat load from the diesel equipment was calculated using the formula:

$$Diesel\ Heat\ (kW) = (Rated\ Diesel\ Power\ (kW) / Engine\ Efficiency\ (\%))\ x\ Availability\ (\%)\ x\ Utilisation\ (\%)\ x\ Load\ (\%)$$

A load factor of 0.8 and diversity factor of 0.85 was applied to secondary fans to determine heat.

An average Savannah North Mine depth below the surface of ~1,400 m was used for the strata and Auto-compression heat calculations.

Table 32 summarises the heat loads:

Table 32: Heat Load Summary

Criteria	Load (kW)	Remarks
Total Heat from Diesel (kW)	7,504	
Total Heat from Auto Compression (kW)	8,625	
Heat from Strata (kW)	3,745	Calculated only
Heat from Fans (kW)	1,513	
Total heat from ground water (kW)	821	10 l/s allowed for in the calculations.
Total Heat from Sub Stations (kW)	225	3 x 1.5 MVA sub stations
Total Heat Load (kW)	**22,433**	

Figure 34 illustrates the estimated heat load distribution of all the general heat sources. Figure 35 illustrates the heat load distribution of the diesel equipment:

Figure 34: Overall Heat Load Distribution

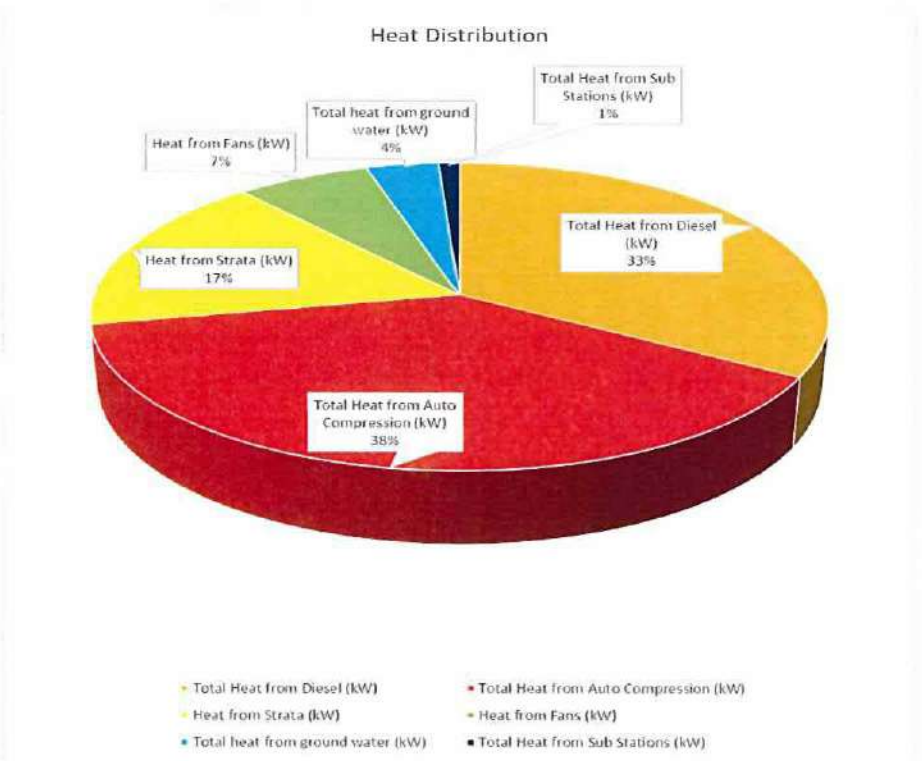
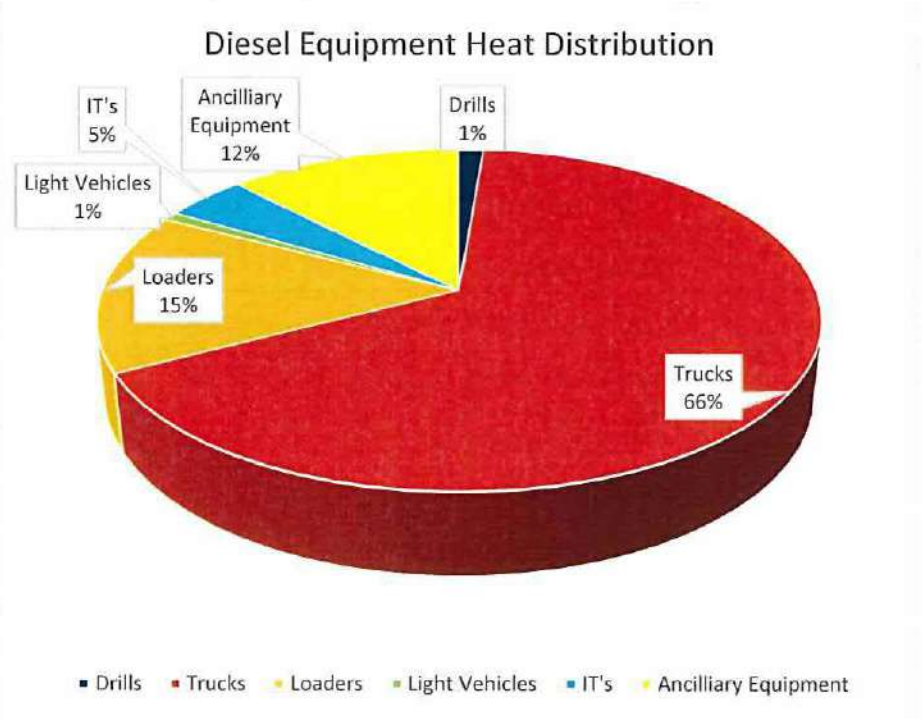


Figure 34 shows that Diesel equipment and heat from Auto-compression makes up ~73% of the total heat loads of the mine.

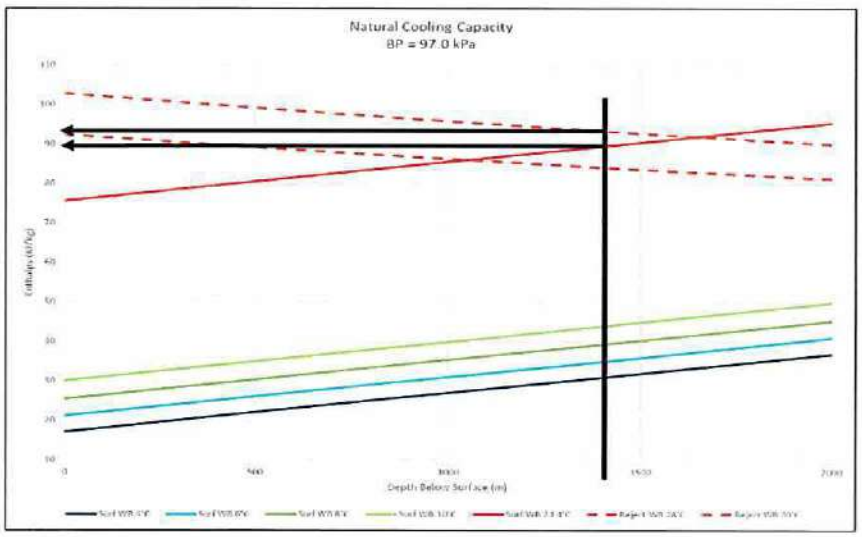
Figure 35: Diesel Equipment Heat Load Break-down



From Figure 35 it is evident that heat from trucks and loaders makes up ~79% of the diesel heat and it is therefore important to consider how the diesel equipment is utilised to lower the heat load produced by the diesel equipment.

A reject Wet-Bulb temperature of 30 °C was used to determine the natural cooling capacity of the mine and the subsequent artificial cooling requirements. Figure 36 illustrates the cooling capacity versus depth at the surface conditions of Savannah Mine:

Figure 36: Natural Cooling Capacity



Due to the depth of the mine and the surface climate conditions, the natural cooling capacity of the air based on a reject wet-bulb temperature of 30 °C, is 3.90 kJ/kg.

Table 33 summarises the heat balance for the life of mine:

Table 33: Heat Balance Summary

Total Heat Load (kW)	**22,433**
Natural Cooling Factor at depth (kJ/kg)	3.90
Natural Cooling Capacity (kW)	**2,449**
Current Artificial Cooling (kW)	**6,000**
Total Cooling (kW)	**8,449**
Heat Balance (kW)	**13,984**
Heat Balance (MW)	**14.0**

Entech recommended a total of 15 MWr cooling in May 2019 (Refer to "Entech_02052019_PRL_Savannah_Ventilation_Review_FINAL_ISSUED") issued in May 2019.

This was based on a detailed analysis of the production schedule over the life mine. The updated mobile equipment fleet with the latest mine design of Savannah North Mine resulted in an increase of the artificial cooling requirement to support peak worst-case conditions. Entech recommends that an updated detailed heat load and cooling optimisation study is undertaken for Savannah mine.

10.3 PRIMARY VENTILATION STRATEGY

Chasm Consulting's Ventsim Design ™ software was used to generate a primary ventilation model for the Savannah mine plan, based on the mine design and the air requirements outlined in Table 29. Intake air into the mine will enter the mine via the main decline, FAR1 and FAR3. Air will be exhaust via the RAR1 and RAR2 (former FAR2 intake shaft) shafts.

Table 34 summarises the intake and exhaust airway capacities:

Table 34: Airway Capacity Summary

	Cross-sectional area (m^2)	Ideal Air Speed (m/s)	Maximum Air Speed (m/s)	Ideal Air Quantity (m^3/s)	Maximum Air Quantity (m^3/s)
Intake					
Decline	30.9	5	6	155	185
FAR1	8.0	6	10	48	80
Planned FAR3 (1 x 3.8 m diameter)	11.3	15	25	170	283
Total Intake Capacity	**50.2**			**388**	**548**
Required Intake at average Depth					528
Required Intake at full Depth					550
Exhaust					
RAR1	19.6	12	22	235	431
RAR2 (Former FAR2)	12.6	12	22	151	277
Totals	32.2			386	708
Maximum Required Exhaust					578

From Table 34 it is evident that the planned ventilation system will support the airflow requirements, however there is no spare capacity within the intake airways for any further ventilation increases and an additional intake airway will be required should further airflow increases be required over the life of mine.

The exhaust capacity will support the life of mine ventilation requirements with some spare capacity within the exhaust system.

Entech analysed seven different options for the life of mine ventilation design:

Figure 37 to Figure 43 illustrate each of the seven different options:

Figure 37: Life of Mine Ventilation Option 1

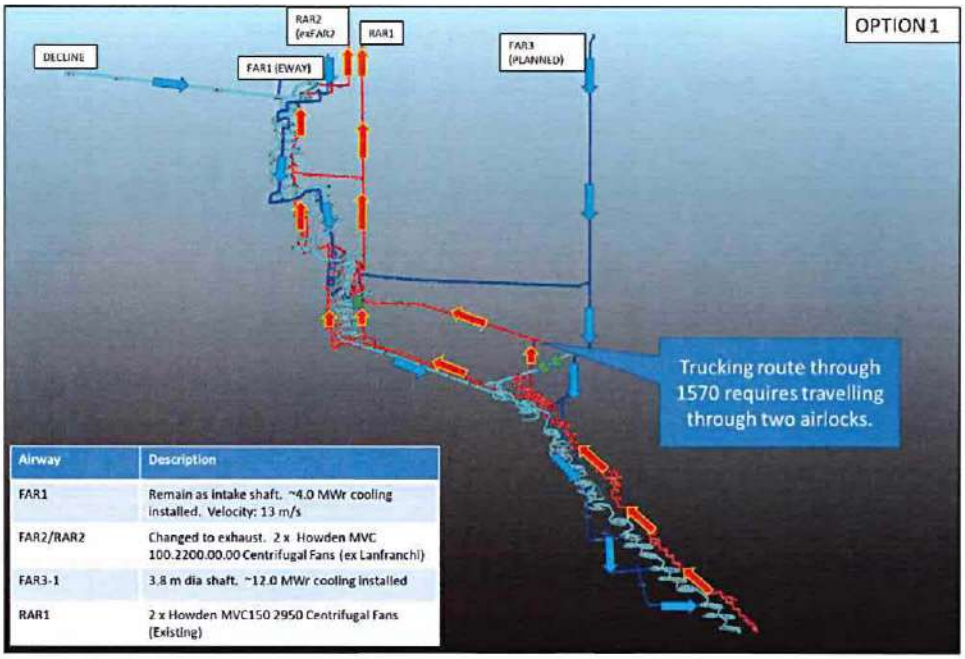


Figure 38: Life of Mine Ventilation Option 2

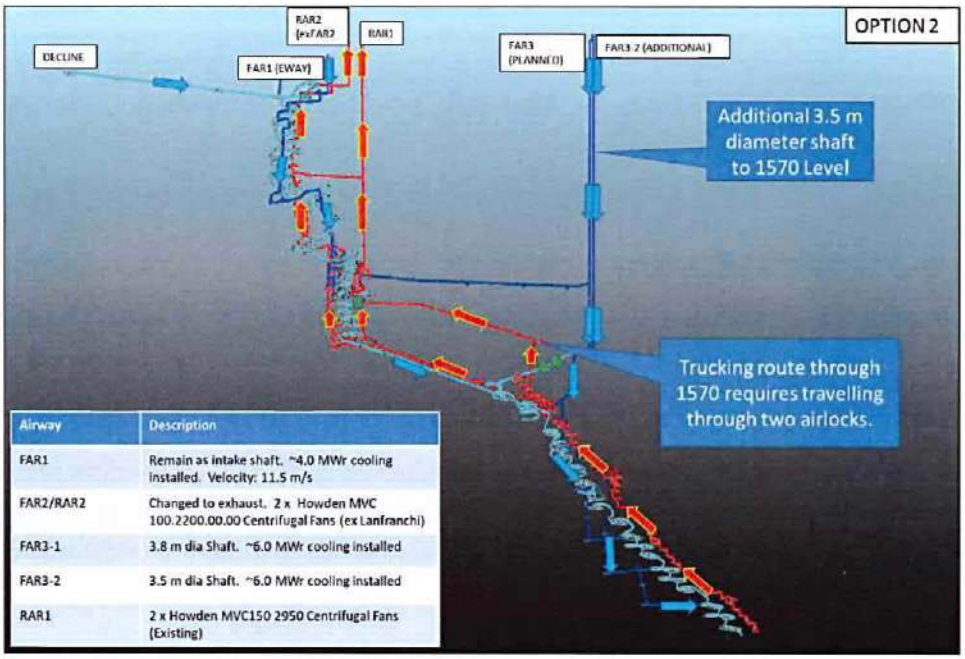


Figure 39: Life of Mine Ventilation Option 3

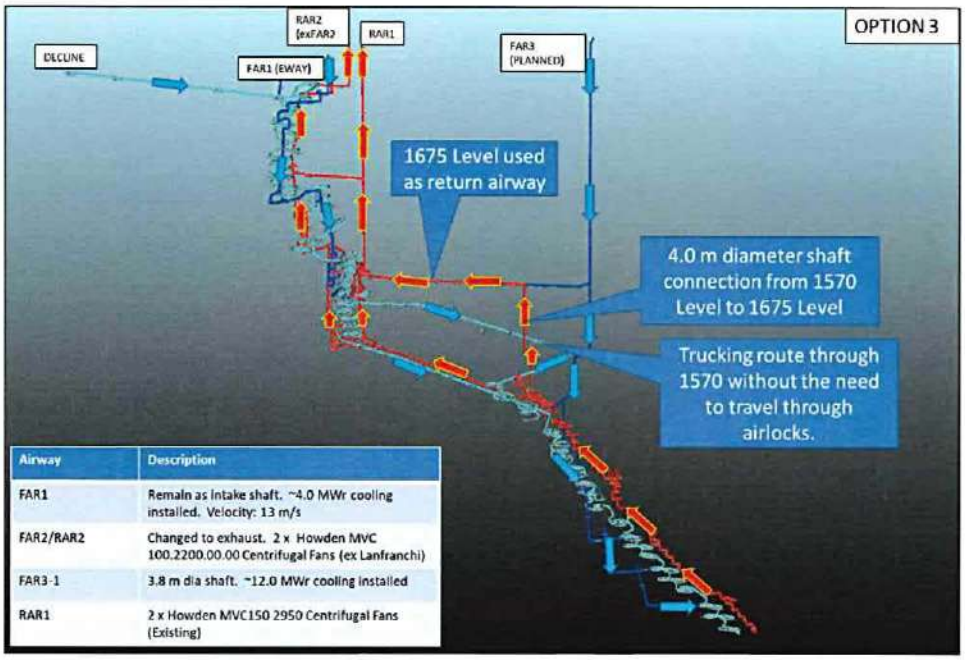


Figure 40: Life of Mine Ventilation Option 4

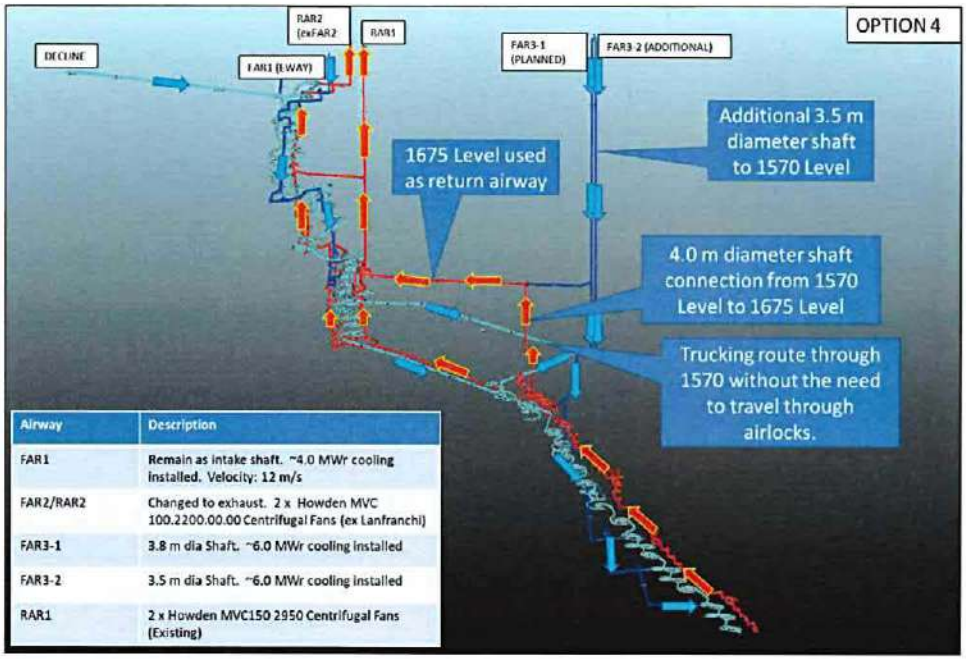


Figure 41: Life of Mine Ventilation Option 5

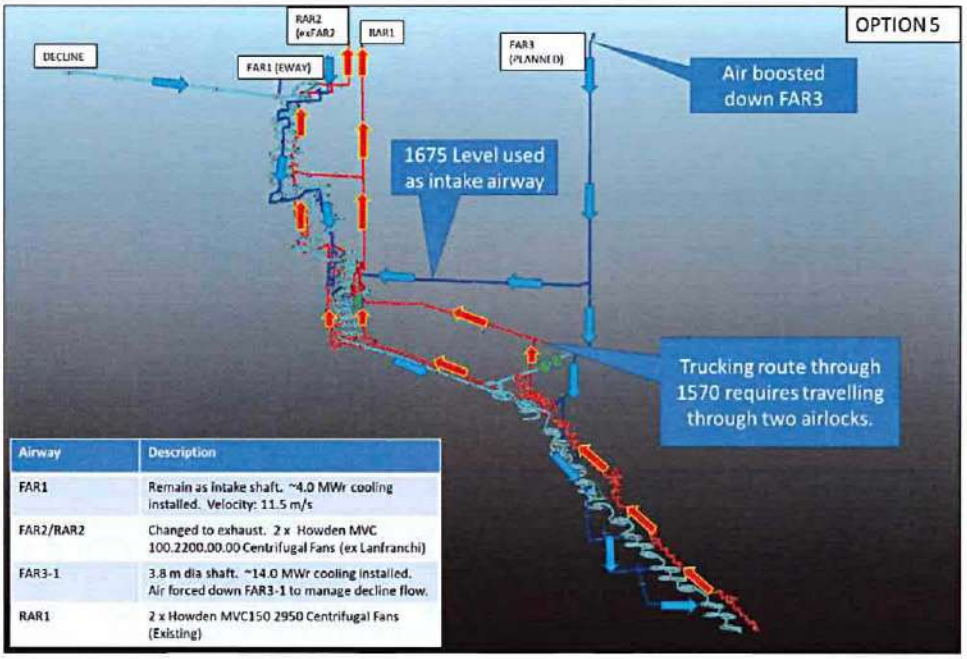


Figure 42: Life of Mine Ventilation Option 6

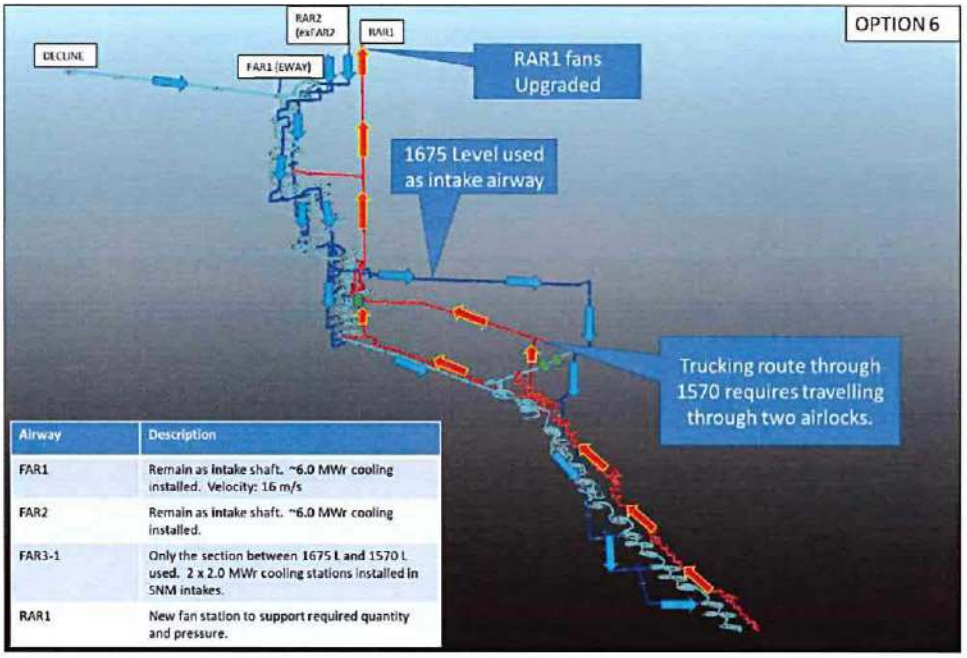
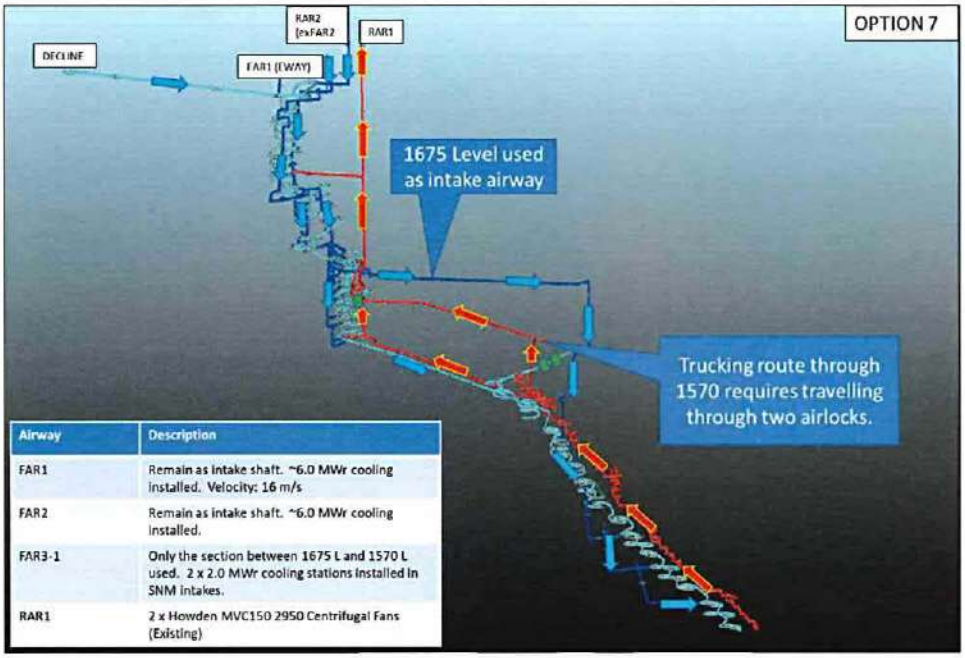


Figure 43: Life of Mine Ventilation Option 7



The seven different options as illustrated were assessed in terms of suitability, power and cost. Table 35 provide details of the comparative assessment carried out on the seven options:

Table 35: Ventilation Option Comparison

	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7
Required Massflow at Average Depth (kg/s)	602	602	602	602	602	602	602
Required Massflow at Full Depth (kg/s)	626	626	626	626	626	626	626
Required Fan Quantity at Average Depth (m^3/s)	552	552	552	552	552	552	552
Required Fan Quantity at Full Depth (m^3/s)	574	574	574	574	574	574	574
Achieved Massflow (kg/s)	628	629	626	628	638	625	417
Achieved Fan Quantity (m^3/s)	576	577	574	576	585	590	391
Primary Fan Input Power (kW)	2957	2583	2915	2613	3290	4488	1216
Power per/volume Ratio ($kW/m^3/s$)	5.13	4.48	5.08	4.54	5.62	7.61	3.11
Bottom Reject Wetbulb (Deg C)	30.7	30.5	30.5	29.6	30.9	30.1	30.1
Simulated Total Input Power (kW)	7528	7153	7468	7184	8434	9051	6520
Cooling (MWr)	16	16	16	16	18	16	14
Trucks Supported	9	9	9	9	9	9	5
Loaders Supported	4	4	4	4	4	4	3
Full Diesel Fleet Supported? (1-yes, 0-no)	Yes	Yes	Yes	Yes	Yes	Yes	No
Decline Air Speed (m/s)	6.3	5.6	6.3	6.0	5.5	6.8	3.4
FAR1 Escape-way air speed (m/s)	12.9	11.5	12.8	12.2	11.4	15.9	15.8
Annual FAN OPEX @ $0.25/kWh	$ 6,475,830	$ 5,656,770	$ 6,383,850	$ 5,722,470	$ 7,205,100	$ 9,828,720	$ 2,663,040
FAN OPEX LOM @ 8% interest over 7 years	$ 33,715,761	$ 29,451,407	$ 33,236,877	$ 29,793,468	$ 37,512,633	$ 51,172,248	$ 13,864,851
FAR3-2 cost @ $4,500/m	$ -	$ 4,095,000	$ -	$ 4,095,000	$ -	$ -	$ -
1570 to 1675 shaft @ $5,000/m	$ -	$ -	$ 950,000	$ 950,000	$ -	$ -	$ -
New RAR1 fan	$ -	$ -	$ -	$ -	$ -	$ 7,000,000	$ -
FAR3-1 Booster	$ -	$ -	$ -	$ -	$ 1,000,000	$ -	$ -
Total CAPEX ($AUD)	$ -	$ 4,095,000	$ 950,000	$ 5,045,000	$ 1,000,000	$ 7,000,000	$ -
TOC LOM ($AUD) over 7 years	$ 33,715,761	$ 33,546,407	$ 34,186,877	$ 34,838,468	$ 38,512,633	$ 58,172,248	$ 13,864,851
Weighted Rating	**720**	**103680**	**3072**	**29167**	**8363**	**1**	**0**
Rating Key	Weighted Rating calculated by product of individual ratings divided by 9						
1							
2							
3							
4							
5							
6							
7							

The capital cost of the cooling plants and the operating cost of underground secondary fans were excluded from this analysis.

The analysis detailed in Table 35 shows that although Option 2 is the best option in terms of the weighted rating and total owing cost, Option 4 provides the ability to truck through the 1570 Level as well without the requirement to travel through two sets of airlocks. The additional intake shaft will also provide dilution of the used air and introduces cooling to the top of the Savannah North Mine.

The additional FAR3 intake shaft helps keep the decline velocities below 6.0 m/s and maintains a reasonable air velocity inside the FAR1 escape-way ladder.

Options 6 and 7 will result in excessive air velocities in the FAR1 escape-way ladder which in turn may require the primary fans to be adjusted for personnel to safely use the escape-way ladder to surface.

The primary fan power draw will change over time as the mine advances deeper. Entech used the Option 4 modelling to obtain the expected power draw of the primary ventilation system at different mine depths. The secondary fan and cooling plant power draw are also summarised in Table 36. The secondary fan power draw was based on an 80% load and 85% utilisation factor. The cooling plant power draw was based on a coefficient of performance (COP) of 4.

Table 36: Ventilation Power Draw Estimates

	Mine at 1055 m below surface	Mine at 1280 m below surface	Mine at 1540 m below surface	Mine at 1760 m below surface
Primary Fan Quantity (m^3/s)	634	619	610	597
Mine Resistance ($N.s^2/m^8$)	0.0078	0.0085	0.0089	0.0085
Average Collar Total Pressure (Pa)	3,140	3,260	3,310	3,030
Simulated Primary Fan Input Power (kW)	2,638	2,649	2,642	2,574
Secondary Fan Input Power (kW)	1,513	1,513	1,513	1,513
Cooling Plant (MWr)	4.0	6.0	12.0	18.0
Cooling Plant Input Power @ 4.0 COP (kW)	1,000	1,500	3,000	4,500
Expected Input Power (kW)	**5,151**	**5,662**	**7,155**	**8,587**

10.4 SECONDARY VENTILATION STRATEGY

Secondary ventilation will be achieved using single stage 55 kW, single stage 90 kW and twin 110 kW fans located in fresh air on the decline, force ventilating faces through flexible ventilation ducting. The primary exhaust will be situated either in the level entrance or inside a level. Typical layouts are illustrated in Figure 44 and Figure 45.

Figure 44: Secondary Ventilation Layout 1

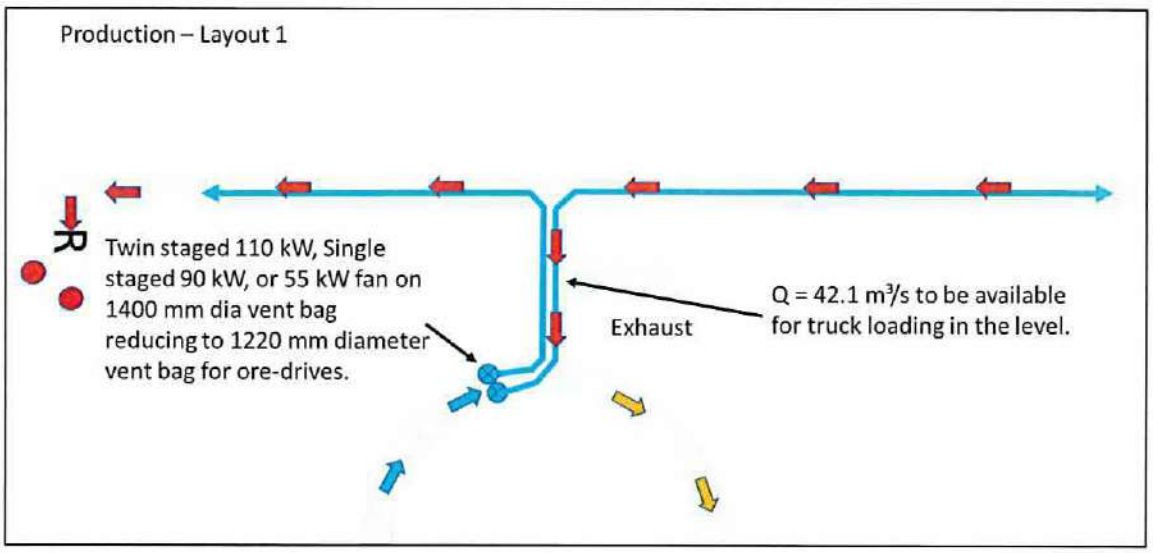
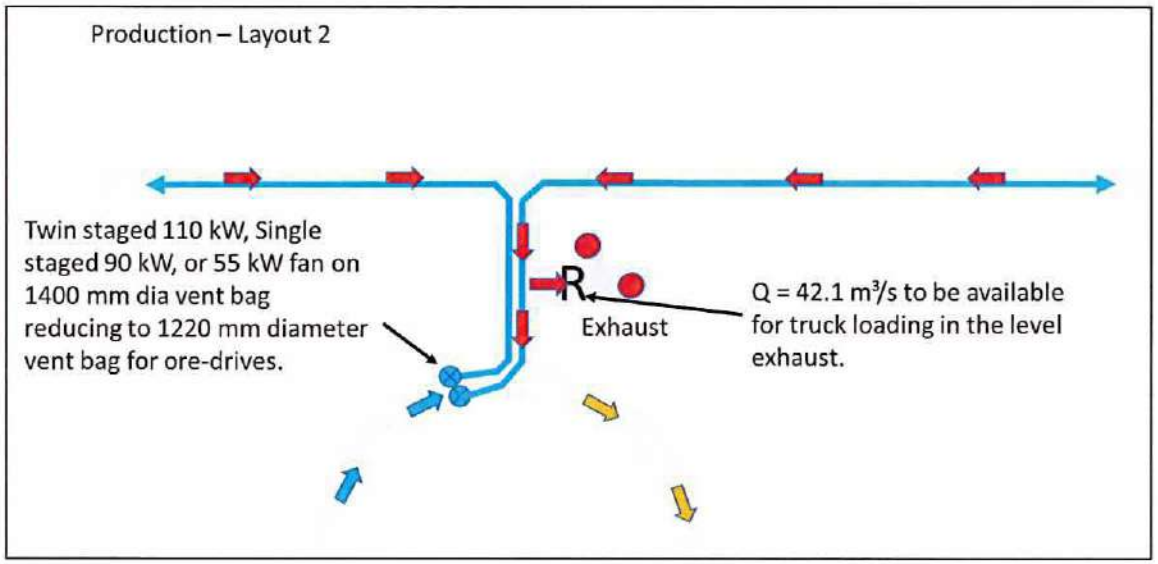


Figure 45: Secondary Ventilation Layout 2



The maximum secondary ventilation requirements estimate for power cost estimation are two twin staged 110 kW fans, eighteen single staged 90 kW fans and three single staged 55 kW fans. A fan load factor of 80% and a diversity factor of 85% was applied for power draw and heat load estimations. Entech recommends that analysis be undertaken on fitting of VSD on secondary fans for a 'ventilation-on-demand' system. Coupled with equipment sensors and personnel training, these systems have the potential for significant power savings by ensuring that secondary fans are only providing enough ventilation as required by activities occurring within a level.

11 MINE SERVICES

11.1 SURFACE INFRASTRUCTURE

All buildings, workshops and associated facilities required for the works are existing and in good order. The contractor is required to maintain these facilities and the costs are included in the schedule of rates.

All mine waste rock will be dumped on the existing waste dump located on the surface close to the underground mine boxcut.

All site roads are established, and the contractor will maintain all site surface roads during operations, with the cost included in the tender rates. Surface infrastructure layout is shown below in Figure 46.

Figure 46: Site Layout



11.2 WASTE ROCK MANAGEMENT

All waste rock is assumed to be trucked to the surface for deposition on the waste dump. Where opportunities arise, waste rock will be backfilled into stopes either via a dedicated truck fill pass or by loader. When back filling with a loader, truck tipping bays will be mined and loaders will be used to transfer the waste into the stope with an appropriate stop-log.

For scheduling and costing purposes, 100% of the waste is assumed to go to the surface and any waste deposited underground is deemed an operational opportunity. Over the LOM, 2.2M t of waste is schedule to be trucked to the surface, representing 18% of the total material trucked.

11.3 MINE DEWATERING

Historically the Savannah mine is considered to be a fairly "dry" mine with historic water inflow of up to 10 l/s, with the majority of inflow being above the 2070 level. Mine water used for drilling, dust suppression and paste fill operations.

The dewatering system consists of two distinct systems being:

1. Normal Dewatering – Capacity 20 l/sec

   A conventional dewatering system consisting of a series of sump pumps (Flygt) and helical rotor pumps (WT103 and WT104) that move water from the bottom of the mine, discharging to either:
   - WSF3 on the surface
   - In the pit for re-use
   - TSF1 for process water circuit.

   This system will continue to be extended down the mine as it deepens, with a new pump station installed every 200 m vertical consisting of two helical rotor pumps (WT104), each capable of 20 l/sec each. Although they can operate together (40 l/sec), they generally operate in duty and standby mode for contingency purposes.

2. Flood System – Capacity 80 l/sec

   During significant rain events, four helical rotor pumps (WT104) located at 2215mRL, dewater the pit during into WSF1 (Figure 47)

Figure 47: 2115 mRL Flood Pumps – Model WT104



11.4 COMMUNICATIONS

Underground mine communications are provided by leaky feeder type radio systems and fibre. Four main channels of leaky feeder radio network provide from the surface, along the decline down to the bottom of the mine. The fibre network is based around a 12 pair optical cable and provide data to and from numerous systems including paste reticulation sensors, seismic system sensors and remote loading hardware. These systems will be extended as the mine develops deeper in the Savannah Nth.

11.5 SERVICES

Compressed air is reticulated throughout the mine and is provided through two compressors located on the surface and a third located underground at the 1640 L. The underground compressor will be relocated further underground as the mine deepens.

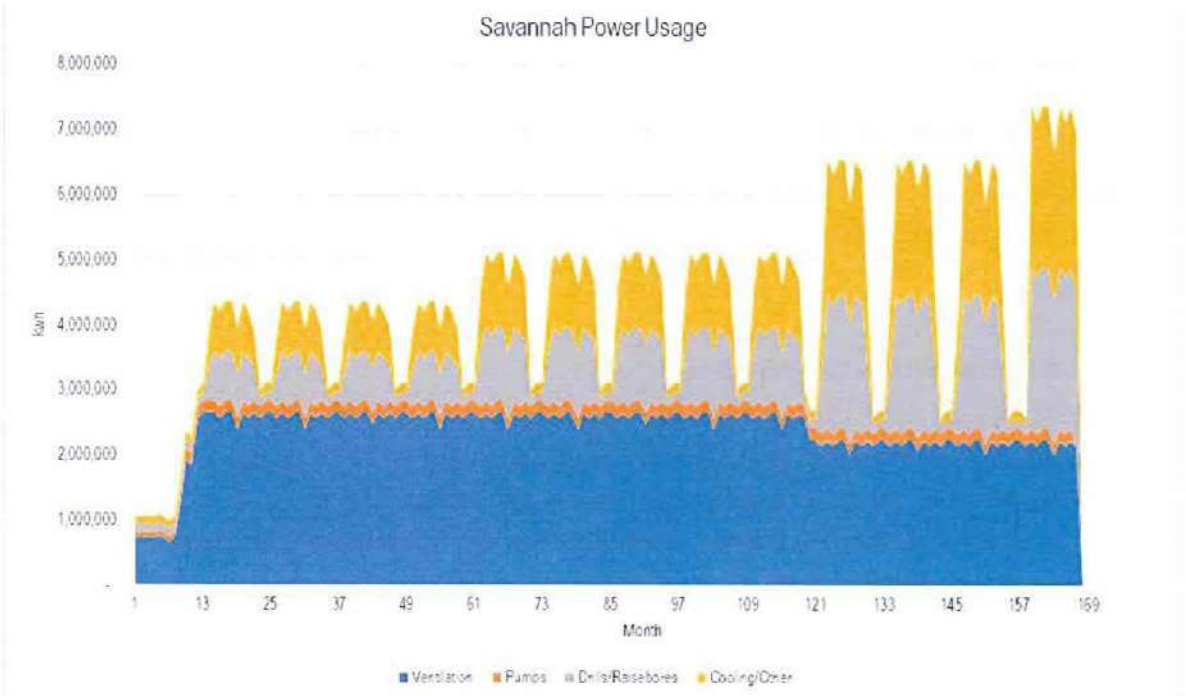
Service water is reticulated through the decline will be via 110 mm HDPE line hung in the backs of development, with 64 mm HDPE branches into working levels. A second water feed from the surface was installed in 2015 to increase the volume of water available to the lower part of the mine. These water mains join again at the 1716 mRL.

11.6 POWER

Site power is produced on the surface utilising a diesel power station owned and operated by Contract Power Management Australia Pty Ltd. Power is reticulated underground at 11,000 V to five substations that step the power down to the mine operating voltage of 1000 V. This system will continue to be extended as the mine develops.

The average expected power draw for the underground mine is 4,849 kW. A diagram summarising forecast power usage over the Savannah mine life is shown in Figure 48.

Figure 48: Forecast Savannah Power Usage



12 SAFETY

12.1 SECONDARY EGRESS AND REFUGE CHAMBERS

Refuge chambers are located and installed throughout the mine as it develops so that travelling distance from any active working areas to a chamber is not more than 750m.

Three portable four-man chambers are used to mitigate entrapment risk and are moved to any required area to provide safe refuge in the event of fire. Fresh air bases are to be established in between the permanent refuge chambers in the escape way.

The existing Savannah escape way route will be extended to Savannah North by using the Safescape module ladder way installed in a 1.1m diameter raise bored hole between all production levels. The Savannah escape way route consists of the Wilshaw style of steel module ladders in the upper levels and Safescape module ladder in the lower levels of the mine.

13 MINING COST ESTIMATION

13.1 BASIS OF ESTIMATE

Mining costs have been estimated based on the contractor rates outlined in the Barminco Limited Underground Mining Services Agreement from February 2020. The cost model file referenced in this section is "PAN Cost model_200710_Pillar_Schedule_LOMP_200725" & "PAN Cost model_200710 Reserve Schedule_200725". Rates have been escalated by 2% to allow for expected inflation from the time of the original submission in 2019.

Diesel usage estimates have been based on PAN historical values if available or the Entech database.

Capital and infrastructure costs for items not being provided by the contractor have been determined based on quotes where possible.

Business services costs have been estimated based on historical PAN operations and quotes from suppliers.

The mining cost estimate is presented in Australian dollars unless otherwise stated.

No allowances have been included within the cost estimates stated in this report for the following items:

- Taxes;[1]
- Escalation or inflation;[2]
- Contingencies;
- Cost changes due to currency fluctuation;
- Head office/corporate costs;
- Closure costs;[3]
- Exploration;
- Permits or cost of permits;
- Financial charges of any description; or
- Interest.

[1] *The Group has available tax losses of approximately $170 million at 31 December 2019 which could be used to reduce taxable incomes generated from the Savannah Project.*

[2] *Costs are presented in real terms and are therefore not subject to escalation or inflation other than as set out in the report.*

[3] *Closure costs in relation to the Savannah Project are estimated at present value of $22 million as at 30 June 2020.*

13.2 MINING CAPITAL COST

Mining capital costing was determined based on the following:

- The contractor rates include supply, installation, and maintenance of the following infrastructure:
  - Dewatering systems- Face and sump pumps only;
  - Ventilation fans- Additional secondary fans only;
- The following capital items required for the LOM mine plan were assumed to be supplied/paid for by PAN;
  - Supply and fit-out of **any additional** facilities, including workshop, offices, ablutions/change room, storage, vehicle washdown, surface magazine, muster room and crib room; and
  - Equipment and buildings for first aid provision and underground emergency response capabilities.
  - Surface Paste Fill plant and underground paste lines.
  - All equipment, software and light vehicles required for provision of mine management and technical services; and
  - Establishment of boxcut and site roads, earthworks and clearing for surface infrastructure.
  - Diesel gensets for power supply;
  - HV and low voltage power reticulation cabling and equipment;
  - Refuge chambers;
  - All required infrastructure for provision of mine services, including air compressors and header tanks.
- Lump sum contractor mobilisation and establishment costs were estimated based on the underground mining service agreement rates;
- Variable capital development costs (including ventilation walls, ground support and escape ladder installation) were based on the underground mining service agreement rates; and
- Other lump sump one-off costs were gathered from PAN's Capital expenditure schedule. No allowance has been made for closure costs, which are estimated at approximately $22.0M.

A summary of the Savannah mining capital costs is presented in Table 37

Table 37: Savannah Mining Capital Costs

Item	LOMP Expenditure ($'000)	Reserve Expenditure ($'000)	Unit	LOMP Unit Cost	Reserve Unit Cost
Infrastructure & Site Establishment	25,963	25,810	$/t ore	$2.43	$3.12
Decline Development	23,353	21,436	$/t ore	$2.18	$2.59
Capital Access	38,889	36,014	$/t ore	$3.63	$4.35
Ventilation	15,297	14,946	$/t ore	$1.43	$1.81
Escapeway	3,965	3,630	$/t ore	$0.37	$0.44
Other Lateral Development	16,896	16,811	$/t ore	$1.58	$2.03
Capital Mine Services	19,255	23,912	$/t ore	$1.80	$2.89
Capital Mine Overheads	55,099	64,578	$/t ore	$5.15	$7.81
Escalation + Adjustments	3,365	3,364	$/t ore	$0.31	$0.41
Total Capital	**202,081**	**210,501**	**$/t ore**	**$18.88**	**$25.44**

Site Establishment and Infrastructure

Details of the site establishment and life of mine infrastructure costs are presented in Table 38.

Table 38: Underground Site Establishment & Infrastructure

Mining Capital	LOMP ($'000)	Reserve ($'000)
Offices & Other	837	837
Surface Infrastructure	4,710	4,710
Paste Fill Systems	1,955	1,955
Communications and Safety	354	354
Underground Electrical	2,625	2,625
Pumping	1,730	1,730
Miscellaneous - Underground Works	1,407	1,289
Ventilation	11,760	11,725
Mining Workshop	585	585
Total	**25,963**	**25,810**

These costs have been sourced from Panoramic based upon the latest capital expenditure schedule for the site. Certain one-off costs not driven by the scheduled physicals have been placed in the infrastructure bucket.

Lateral and Vertical Development

Decline Development, Capital Access Development, Ventilation, Escapeway and Other Lateral Development comprise nearly forty percent of the capital expenditure and total $98.4M for the LOMP. These costs were derived from the Mine services agreement rates.

Mine Services

Capital mine services total $19.3M for the LOMP. This expense represents the power/diesel cost of running fans, cooling systems, pumps, ancillary mining fleet and other electrical infrastructure associated with the underground mine.

Power costs are allocated as a capital/operating associated expense based on the distribution of mining variable costs.

Mine Overheads

Mine Overheads costs are inclusive of:

- Salaries (inclusive of on-costs) of non-operational personnel associated with the underground mining (ie management, technical and administrative personnel)
- Fixed Contractor Personnel and Equipment rates
- Messing and accommodation costs for all operational & non-operational employees and contractors associated with the underground mining,
- Flights for fly-in-fly-out personnel, and
- General expenses.

Capital mine overheads total $55.1M for the LOMP. These costs have been capitalised based on the capital and operating cost split from the mining physicals.

Price Escalation + Adjustments

Contractor rates have been escalated by 2% to allow for the timing difference from submission of the rates to mining execution. An additional rate escalation of 10% of the mining variable costs has been modelled for the first 9 months to reflect limited site activity during this period.

13.3 MINING OPERATING COST

Mining operating costing for the Savannah LOM mine plan was determined based on the following:

- Variable operating costs (including operating development and ground support, stoping, filling and material movement) were sourced from the contractor rates. These rates included allowances for supply of power, all consumables (excluding diesel), all personnel and equipment required for the works (except for specific items below);
- PAN staff salaries were based on current budgeted salaries and recent market salary data. Barminco contractor personnel are the fixed costs from the contractor rates;
- All PAN and Barminco staff were assumed to be employed on a FIFO basis from Perth. FIFO and accommodation cost estimates were provided by PAN based on historical budget costs;
- PAN diesel light vehicle running costs were assumed based on historical operations;
- Diesel for mobile equipment and power generation was assumed to be supplied at PAN's cost. Diesel usage for contractor equipment (including gensets) and power usage was estimated in the Entech cost model. The diesel cost assumed was $0.90/L (post rebate);
- Geology and grade control costs were based on PAN provided budgeted costs.
- General expenses including clothing, PPE, consultants and other consumables have also been modelled based on the PAN budget.
- A 10% increase in contractor variable costs have been modelled for the first 9 months to reflect the expected increase in re-tender costs.

A summary of the Savannah LOM mining operating costs is presented in Table 39.

Table 39: Mining Operating Cost Summary

Item	LOMP Expenditure ($'000)	Reserve Expenditure ($'000)	Unit	LOMP Unit Cost	Reserve Unit Cost
Op Access	50,848	43,138	$/t ore	$4.75	$5.21
Ore Drive	92,081	63,880	$/t ore	$8.60	$7.72
Stope	317,372	243,488	$/t ore	$29.66	$29.43
Operating Mine Services	112,678	96,537	$/t ore	$10.53	$11.67
Operating Mine Overheads	298,457	255,695	$/t ore	$27.89	$30.90
Dayworks	11,174	8,867	$/t ore	$1.04	$1.07
Grade Control	5,001	4,720	$/t ore	$0.47	$0.57
Pastefill	49,753	39,683	$/t ore	$4.65	$4.80
Escalation + Adjustments	13,320	10,513	$/t ore	$1.24	$1.27
Total	**950,685**	**766,520**	**$/t ore**	**$88.84**	**$92.64**

Lateral Development

Lateral Development operating costs consists of Operating access and Ore drive development and total $142.9M for the LOMP.

Stope

The stope category considers the following activities:

- Establish longhole rise slot
- Drill charge and blast 89mm blastholes
- Remove broken rock from stope and truck to surface

The total costs for stoping were $317.4M for the LOMP or $29.66/t ore.

Operating Mine Services

Operating Mine Services total $112.7M over the for the LOMP schedule.

Operating Mine Overheads

Operating Mine overheads total $298.5M for the LOMP. General expenses included in mine overhead costs are summarised in Table 40 below.

Table 40: Underground General Expenses

General Expenses	Unit	Value
Mining Training - External and Internal	$/mth	$4,116
Consumables - Mining Safety	$/mth	$25,695
Clothing and PPE	$/mth	$19,447
Consultants	$/mth	$8,000
Contract Labour	$/mth	$2,750
Consumables - Tech services	$/mth	$2,500
Mining - Communications	A$/lateral m	$7.05
Total LOM General Expenses Cost	**$,000**	**$10,516**
Total LOM General Expenses Cost	**$/t ore**	**$0.98**

Dayworks

Dayworks are considered as a 2.0% factor of the total lateral, vertical and stoping costs.

Grade Control

Grade control operating costs have been modelled at 500 grade control metres per level in Savannah North after consultation with Panoramic. Sludge Drill metres derived from the mine plan have also been considered in this value. Grade control costs total $5.0M.

Paste fill

Paste fill costs were generated from the schedule physicals and total $49.8M.

Price Escalation + Adjustments

Operating costs associated with Price escalation plus ramping up adjustments total $13.3M.

14 ORE RESERVE ESTIMATE

This section of the report summarises any additional information required to satisfy the reporting requirements of the JORC Code for a publicly announced Ore Reserve that is not covered in the previous sections.

14.1 MINING

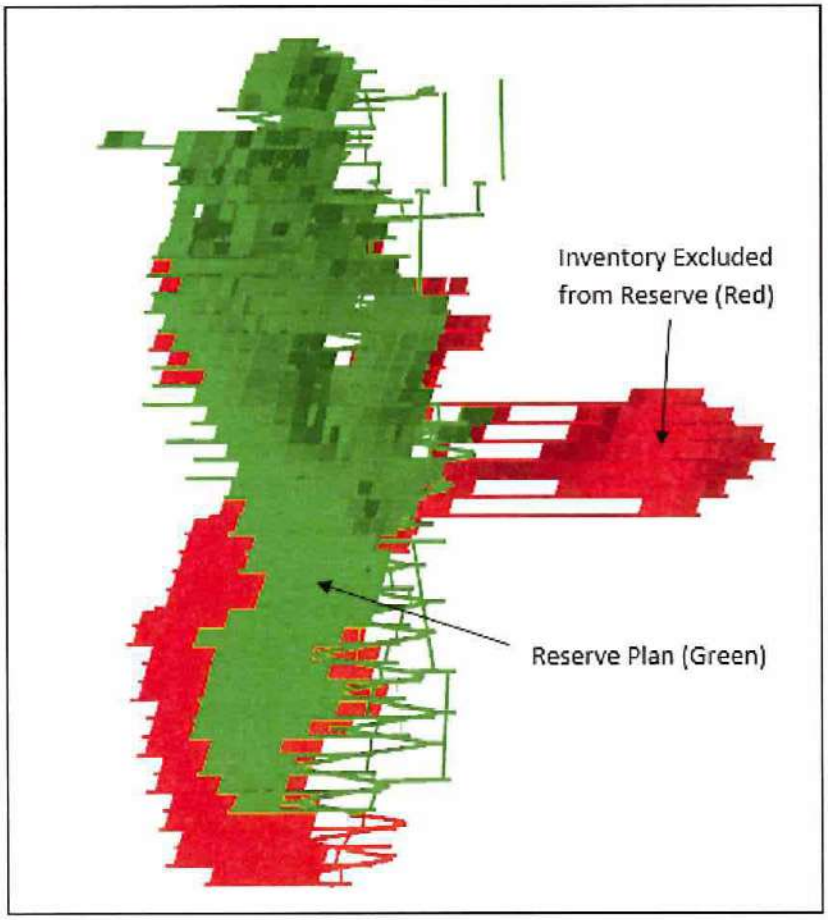
The Savannah Nth Ore Reserve is based on that portion of the mine plan that is economic when all Inferred metal is excluded, assuming the costs and revenue factors detailed in this report.

The Ore Reserve mine plan and economic analysis was generated as follows:

- Inferred material was set to waste grade;
- All stopes subsequently falling below COG were removed from the mine plan;
- Levels were then evaluated to ensure that they still paid for access development. Any levels rendered sub-economic by setting Inferred material to waste grade were removed from the schedule; and
- The remaining design was re-scheduled and input into the detailed financial model to ensure all areas provided a positive economic return.

A diagram showing the Ore Reserve mine plan compared to the LOM plan (i.e. inclusive of Inferred material) is shown in Figure 49.

Figure 49: LOM vs Reserve Material Design Shapes (Long-Section Looking SE)



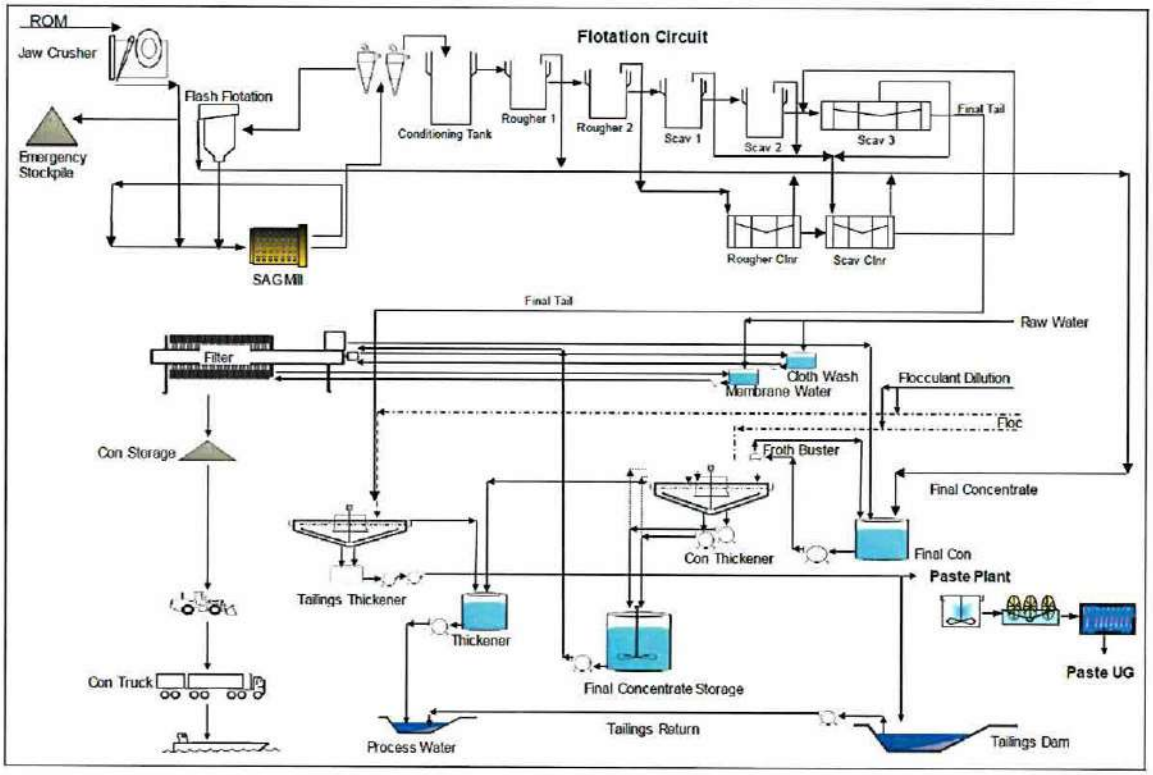
All other aspects of the Ore Reserve mine plan are unchanged from the inventory case as detailed previously in this report.

14.2 PROCESSING

14.2.1 PROCESSING PLANT

The Savannah processing plant consists of conventional crushing, grinding, flotation, and concentrate handling, producing a bulk nickel-copper-cobalt concentrate for sale to third-party. The nominal throughput capacity of the Savannah plant is approximately 1.0Mtpa. The plant processing flowsheet is shown below in Figure 50.

Figure 50: Processing Flowsheet



The Savannah plant operated continuously from August 2004 to May 2016, with continuous improvements in recoveries and throughput achieved from changes in operating practices and minor circuit modifications.

Prior to restarting in in December 2018, the processing plant was refurbished at a cost of $12M, with work encompassing refurbishment of the ROM bin, apron feeders, conveyors; a SAG mill reline; all pumps; flotation cells including replacement of cleaner cells; refurbishment of thickeners and the concentrate filter; enclosing the courier on stream analyser and replacing key components; installing fusion furnaces and installing an XRF in the laboratory. At the paste plant the paste disc filters were refurbished and paste mixer was replaced. All PLC's were upgraded and instrumentation and wiring was replaced. A 3 m lift was also completed on the tailings storage facility which will provide 3 years storage.

Subsequent to the restart further works were completed including the replacement of the Jaw

crusher and SAG mill motor. A full set of filters plates is onsite ready for installation. The Wyndham concentrate storage shed roof was also replaced.

Ore processed; concentrated and paste produced during the restart (Dec 2018 to April 2020) in shown in Table 41.

Table 41: Processed Physicals during Restart

Parameter	Tonnes (kt)	m3 (000's)	Ni (%)	Cu (%)	Co (%)
Feed	665		1.08%	0.59%	0.05%
Tailings	585		0.23%	0.06%	0.01%
Recovery			80.7%	91.3%	84.9%
Concentrate	80		7.24%	4.17%	0.37%
Paste	226	149			

The plant was again put on care and maintenance in April 2020 and remains in good condition ready for a restart of processing.

14.2.2 METALLURGY AND RECOVERY

Processing recoveries at the target concentrate grade will vary with each ore type. Over the mine life, recoveries average 83% Ni, 98% Cu and 92% Co, based on historical plant performance for Savannah ore and the 2017 metallurgical testwork results on Savannah Nth samples.

The Savannah Nth concentrate is low in impurities and has attractive Fe:MgO and Ni:Fe ratios, making it an ideal blending feed for nickel concentrate smelters. Typical concentrate specifications, based on analysis of concentrates from the 2017 metallurgical testwork program, are shown in Table 42

Table 42: Savannah North typical concentrate specifications

Element	Typical
Nickel (Ni)	8%
Copper (Cu)	4.5%
Cobalt (Co)	0.6%
Magnesium Oxide (MgO)	<1%
Iron (Fe)	46%
Sulphur (S)	35%
Arsenic (As)	<5ppm
Lead (Pb)	<100ppm
Selenium (Se)	<100ppm
Fluorine (F)	<100ppm
Chlorine (Cl)	<50ppm

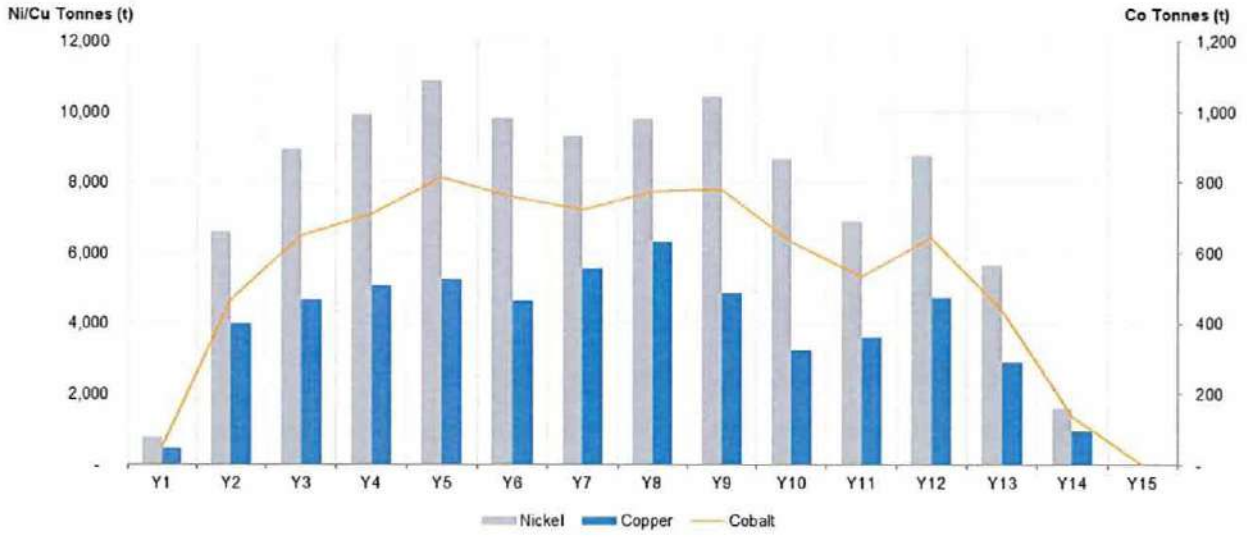
Savannah North ore, whilst mineralogically similar to Savannah ore, has a higher pyrrhotite:pentlandite ratio than Savannah. Nickel in solid solution with pyrrhotite in the Savannah North Upper Zone (SNUZ) and Savannah North Lower Zone (SNLZ) composites accounts for 16-17% of the overall nickel content, compared to 12% in the Savannah ore.

Based upon extensive flotation test work Savannah North and targeting a concentrate grade of 8% Ni recoveries are expected to be:

- Savannah North Upper Zone : A nickel recovery of 81.7%, copper recovery of 98.8% and cobalt recovery of 92.0%.
- Savannah North Lower Zone : A nickel recovery of 83.7%, copper recovery of 99.3% and cobalt recovery of 95.2%.

Yearly breakdown of the metal produced is shown in Figure 51.

Figure 51 : Processed recovered metal (Financial Year)



14.2.3 PROCESSING COSTS

Processing operational costs were determined based on the 2020 budget as detailed in Table 43. These costs are uninflated.

Table 43: Processing Costs

Cost	Unit	Commodity
Processing - Common Services	$/t ore processed	$9.55
Processing - Primary Crushing	$/t ore processed	$1.54
Processing - Grinding	$/t ore processed	$8.03
Processing - Flotation	$/t ore processed	$5.15
Processing - Concentrate Handling	$/t ore processed	$0.65
Processing - Tailings Disposal	$/t ore processed	$0.56
Processing - Raw Water	$/t ore processed	$0.25
Processing - Mobile Equipment	$/t ore processed	$1.31
Processing - Laboratory	$/t ore processed	$0.90
Processing - Paste Plant	$/t ore processed	$1.39
Admin - Village & Flights	$/t ore processed	$2.51
Total Operating Cost	**$/t ore processed**	**$31.85**

14.3 ECONOMIC ANALYSIS

14.3.1 COMMODITY PRICE & EXCHANGE RATE

Commodity prices and exchange rates assumed for the Ore Reserve estimate were advised by PAN in collaboration with Entech and based on comparisons with PAN's peers. The Competent Person considers that these assumptions are reasonable given recent price history and consensus forecasts.

These commodity price and exchange rate assumptions used to determine the Ore Reserve plan economic viability are summarised in Table 44. These assumptions are used as base case scenario .

Table 44: Base Case Commodity Price and Exchange Rate Assumptions

Item	AU$/t	US$/t	AUD:USD
Nickel	22,500	15,750	0.7
Copper	9,000	6,300	0.7
Cobalt	55,000	38,500	0.7

A further upside case was modelled based on a consensus market forecast[1] with the commodity price and exchange rates used shown in Table 45 below.

Table 45: Upside Case Commodity Price and Exchange Rate Assumptions

Item	2020	2021	2022	2023	2024	2025	2026+
Nickel (US$/t)	12,606	13,903	14,741	15,012	15,628	16,077	17,595
Copper (US$/t)	5,335	5,787	6,154	6,258	6,469	6,765	7,351
Cobalt (US$/t)	36,206	38,512	42,668	43,539	46,794	48,950	53,457
AUD:USD	0.7	0.7	0.7	0.7	0.7	0.7	0.7

14.3.2 ROYALTIES

Royalties were advised by PAN as summarised in Table 46.

Table 46: Royalty Assumptions

Concentrate	WA Govt.[2]	Traditional Owner[3]
Nickel	2.5%	1.25%
Copper	2.5%	1.25%
Cobalt	2.5%	1.25%

The State Government royalty is based on the realised value of the sold product, i.e. on the theoretical revenue that would be generated by the sold metal prior to payability being applied. The Traditional Owner royalty is based on the net smelter return.

14.3.3 PAYABILITY

The Savannah mine has a long history of concentrate production, sales, recovery, and treatment costs. The assumptions used for the Ore Reserves are based on the recent actuals for these items.

Table 47 below outlines these assumptions, payabilities based on the recent offtake agreement was also used:

[1] *Consensus Economics, June 2020.*

[2] *Calculated on metal value in concentrate.*

[3] *Calculated on metal value in concentrate minus transportation and State Govt Royalty Costs*

Table 47: Payability Assumptions

Item	Unit	Value
Concentrate Moisture Content	%	7.5
Concentrate Grade Ni	%	7.5
Concentrate Grade Cu	%	4.0
Concentrate Grade Co	%	0.4
Concentrate Transport Cost[1]	A$ / t_{wet}	$82.82

Based on the above assumptions and commodity price forecast, the Net Smelter Return (NSR) unit values are as shown in Table 48.

Table 48: NSR Unit Values

Item	Unit	Value
Nickel	A$ / % grade	157.19
Copper	A$ / % grade	44.62
Cobalt	A$ / % grade	198.32

The NSR value algorithm utilised to assign value to both the Savannah and Savannah North resource block is:

$$NSR = t \times \frac{Ni\% \times 157.19 \times Ni_{rec}\%}{100} \times \frac{Cu\% \times 44.62 \times Cu_{rec}\%}{100} \times \frac{Co\% \times 198.32 \times Co_{rec}\%}{100}$$

The recovery algorithms have been developed from metallurgical testwork are detailed in Table 49.

Table 49: Recovery rates

Item	Savannah Blocks	Sav Nth Blocks A,B and D	Sav Nth Blocks Block C
Ni_{rec}	84.6%	81.7%	83.7%
Cu_{rec}	94.8%	98.8%	99.3%
Co_{rec}	88.1%	92.0%	95.2%

[1] *Includes Road Haulage to Wyndham, ocean freight and associated costs to China*

14.3.4 SECONDARY CREDITS

No secondary credits have been modelled in the Ore Reserve mine plan and LOMP aside from the copper and cobalt included in the NSR calculation.

14.3.5 DELETERIOUS ELEMENTS & PENALTIES

The concentrate produced at the Savannah mine is a "clean concentrate" and does not have any deleterious elements that attract payment penalties.

14.3.6 DISCOUNT RATES AND INFLATION

A real discount rate of 8% has been applied to determine each net present value (NPV).

A one off 2% escalation has been attributed to the underground contractor's charges. This has been modelled through the rise and fall mechanism which forms part of the Barminco mining contract.

No other inflation has been applied in the Ore Reserve mine plan and LOMP financial evaluation with costs reflected in real terms.

14.3.7 UNIT COSTS

Unit costs for the Ore Reserve financial evaluation are summarised in Table 50.

Table 50: Ore Reserve Financial Evaluation Unit Costs

Item	Unit	Cost
Mining	$/t ore	$92.64
Processing	$/t ore	$31.85
G&A	$/t ore	$12.83
Freight	$/t ore	$13.34
Cash Cost (C1)	**$/t ore**	**$150.65**
Capital	$/t ore	$27.47
Royalties	$/t ore	$10.69
Total All In Costs	**$/t ore**	**188.82**

14.3.8 CASHFLOW

The LOMP generates $448M in surplus cash over a mine life of 167 months for an NPV_8 of $254M (on an unfunded project basis). IRR of 67%, AIC of $7.86/lb of Nickel payable and a maximum negative cash balance of $44M [1].

The pre-tax cashflow for the Savannah Mine LOMP is presented graphically in Figure 52.

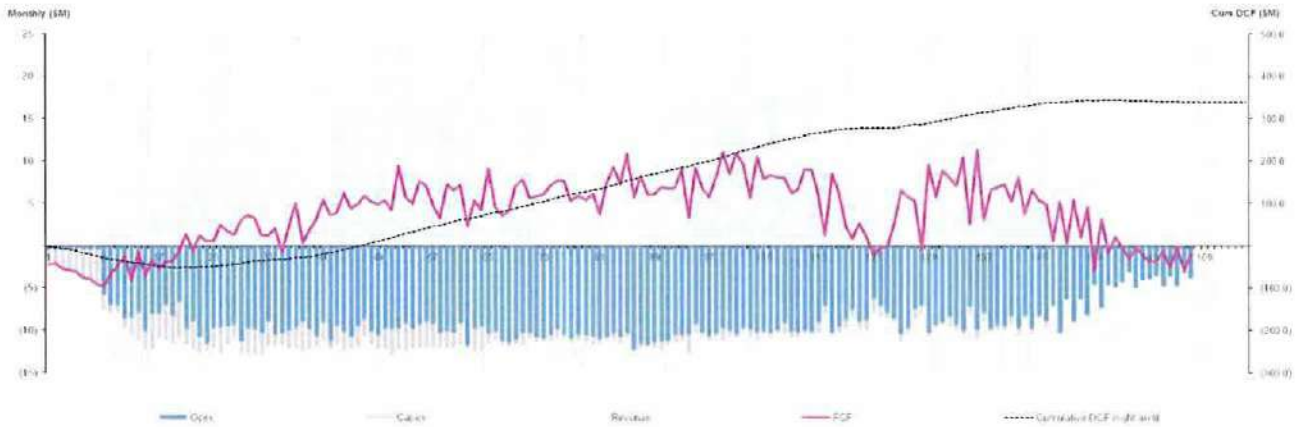
Figure 52: Life of Mine Plan Cashflow



A further LOMP upside scenario based on the consensus forecast economic assumptions outlined in Table 45 was also completed. This mine plan generates $625M of surplus cash over a mine life of 167 months for an NPV_8 of $339m (on an unfunded project basis). IRR of 61%, AIC of $7.45/lb of Nickel payable and a maximum negative cash balance of $55M[1].

The pre-tax cashflow for the consensus forecast plan is presented graphically in Figure 53.

Figure 53: Upside Case LOMP Cashflow

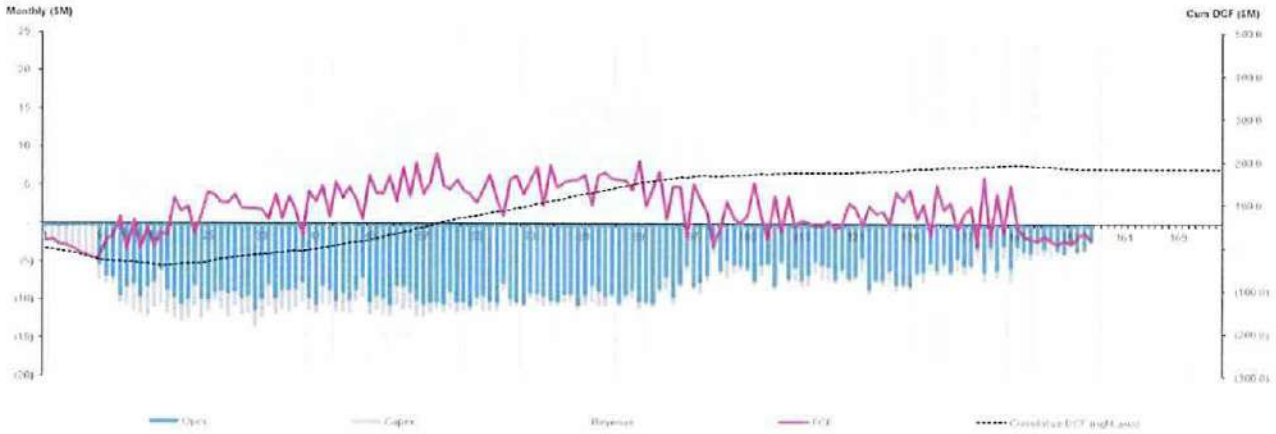


[1] *The maximum negative cash balance does not take into PAN's existing cash on hand and liquidity of approximately $37 million, of which a significant proportion is planned to be expended on Infrastructure and site establishment mining capital.*

The Ore Reserve mine plan generates $300M in surplus cash over a mine life of 156 months for an NPV_8 of $184m (on an unfunded project basis). IRR of 64%, AIC of $8.20/lb of Nickel payable and a maximum negative cash balance of $45M[1].

The pre-tax cashflow for the Savannah Mine Ore Reserve Plan is presented graphically in Figure 54.

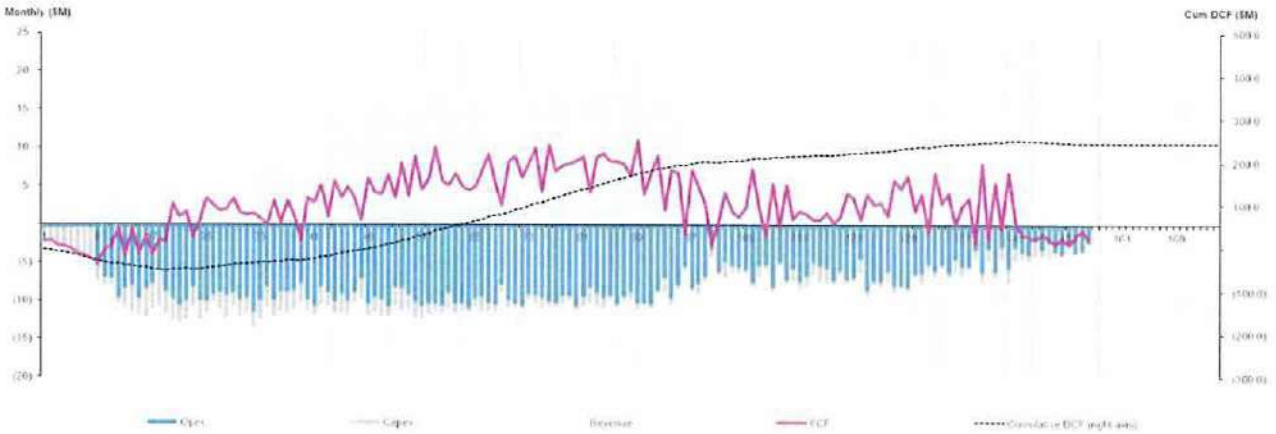
Figure 54: Ore Reserve Plan Cashflow



A further Ore Reserve upside scenario based on the consensus forecast outlined in Table 45 was also completed. This mine plan generates $421M in surplus cash over a mine life of 156 months for an NPV_8 of $243m (on an unfunded project basis). IRR of 58%, AIC of $7.81/lb of Nickel payable and a maximum negative cash balance of $55M[1].

The pre-tax cashflow for the consensus forecast Ore Reserve Plan is presented graphically in Figure 55.

Figure 55: Upside Case Ore Reserve Plan Cashflow



[1] *The maximum negative cash balance does not take into PAN's existing cash on hand and liquidity of approximately $37 million, of which a significant proportion is planned to be expended on Infrastructure and site establishment mining capital.*

14.3.9 SENSITIVITY ANALYSIS

A sensitivity analysis was conducted on the following variables:

- NSR price;
- Mine Opex;
- Discount Rate;
- Mine Capex; and
- Diesel Price

This is graphically presented in Figure 56 and Figure 57.

Figure 56: LOMP NPV Sensitivity Tornado Graph

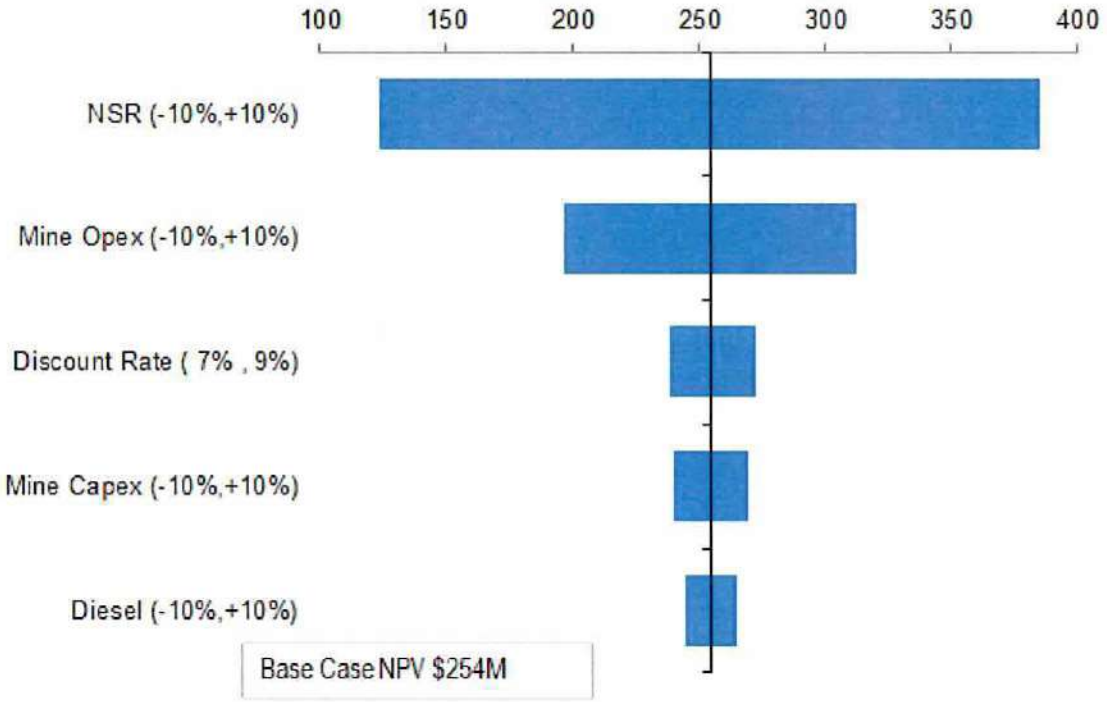
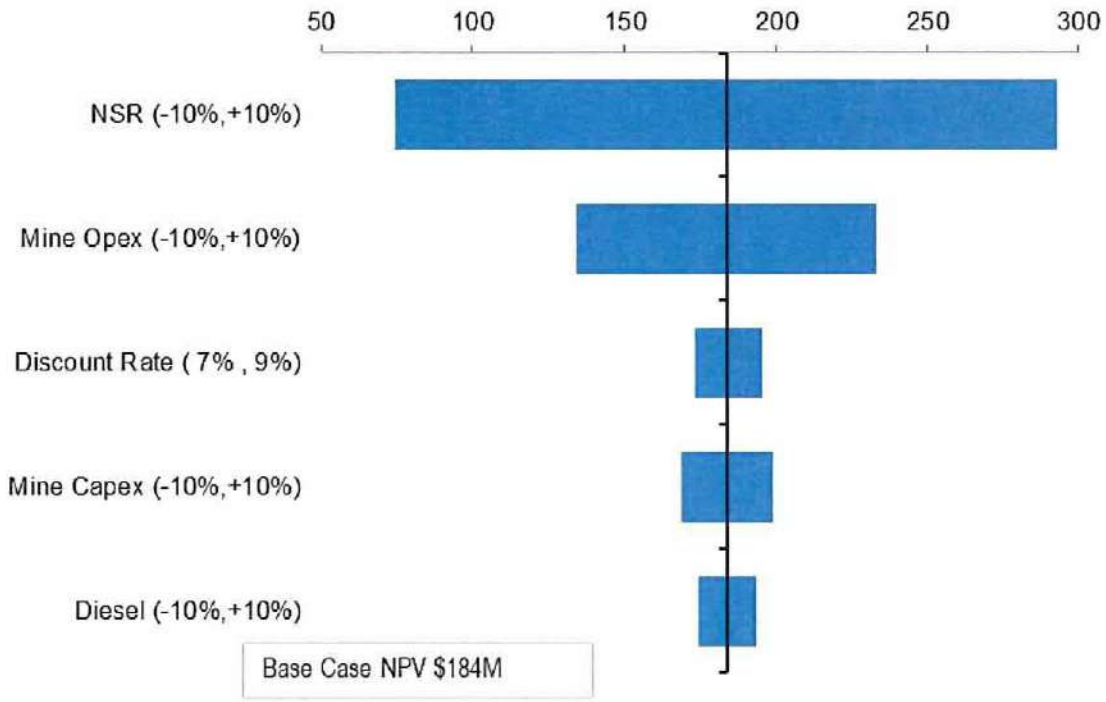


Figure 57: Reserve LOMP NPV Sensitivity Tornado Graph



14.4 MARKET ASSESSSMENT

This section has been sourced from the 2017 Savannah Updated Feasibility Study and the May 2020 Investor Update.

The current offtake agreement with Sino/Jinchuan expires in 2023. The current agreement is in respect to both Savannah and Savannah North ore.

Demand and a strong price outlook are expected to be driven by electric vehicles (EV). The move to electric vehicles is continuing to gain momentum with vehicle manufacturers globally announcing significant new production forecasts, driven largely by consumer demand and government legislation surrounding emissions and the reduction of internal combustion engines. Figure 58 and Figure 59 illustrate the relationship between predicted demand in the EV market and nickel.

Figure 58: Anticipated Growth in Electronic Vehicles[1]

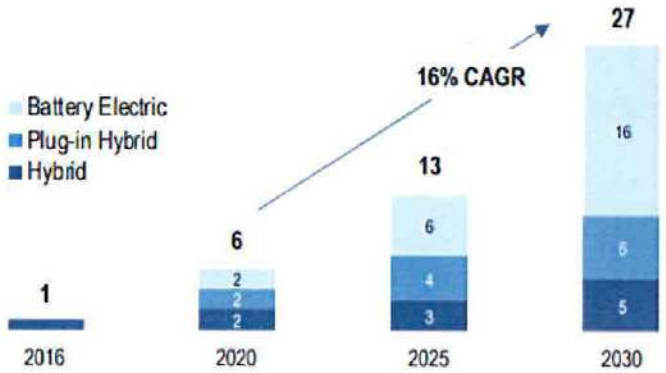


Figure 59: Demand for Class 1 Nickel (ktpa[2])

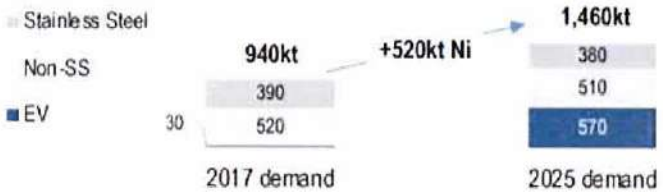
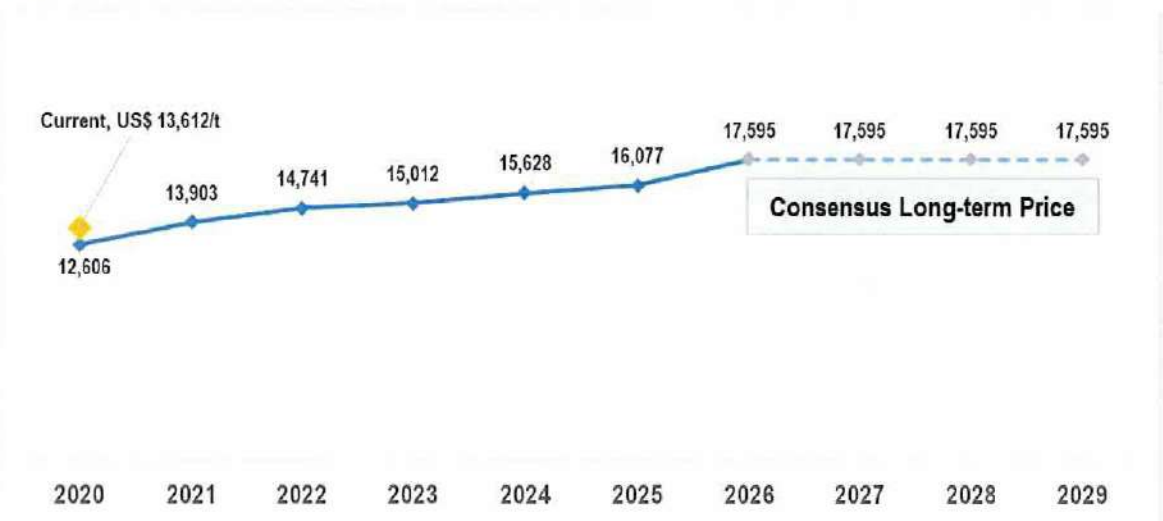


Figure 60 shows the commodity price forecast. Following Corona -virus concerns, the nickel price has retreated to around US$13,612/t in late July 2020, which remains below the longer term consensus nickel price forecasts and the nickel price assumption in the study (US$15,750/t Ni). However, the Competent Person considers that the assumed commodity price is reasonable for use in estimation of the 2020 Ore Reserve.

[1] *Lithium and Cobalt – a Tale of Two Commodities (McKinsey & Company, 2018). Note base case is shown, aggressive case anticipates even greater growth rates.*

[2] *The future of nickel: a class act (McKinsey & Company, 2017). Class 1 Nickel defined as a product with 99.8% Ni content or above.*

Figure 60: Consensus Forecast (US$/t)



14.5 ENVIRONMENTAL, SOCIAL AND APPROVALS

The Savannah minesite is fully permitted and will not require any additional approvals for the mine restart other than the standard notifications required under the Mines Safety and Inspection Act 1994 (WA).

The site groundwater licence issued by the Department of Water and the Licence to Operate issued by the Department of Environment Regulation remain current. The site has maintained its understanding of the water balance which has been supported by 15 years of operational history.

A 3m lift was completed on the tailings storage facility in December 2018 which provides 3 years of capacity to RL 378m. A mining proposal has been approved for a further 4m lift which will provide LOM capacity. A Works approval will need to be submitted and approved prior to any construction activity.

The Project is located within the Native Title claim areas of the Purnululu and Malarngowem People. The common law of Australia recognises a form of Native Title which reflects the entitlement of indigenous people, in accordance with their laws or customs, to enjoy their traditional lands.

Panoramic values the relationship which has been established with the Traditional Owners of the Land on which the Project is located.

The Project has previously operated, and plans to continue to operate under the existing The Kimberley Nickel Co-Existence Agreement to manage the relationship between the Project, Panoramic Resources and the registered Native Title parties. The Kimberley Nickel Co-Existence Agreement outlines the processes for acknowledgement and engagement with traditional owners and has given rise to employment and business opportunities, heritage and cultural awareness training and other support and services in health, education, sports and arts for local communities. This agreement remains in place and applies to the recommencement of operations and life of mine production.

The Project and the Kimberly Land Council Aboriginal Corporation also have a Work Program Clearance Agreement which outlines the process for Aboriginal Heritage assessments prior to exploration or mining activities. There are two areas in the Project area which require assessing and the Company plans to undertake this assessment in accordance with the existing agreement. Based on previous assessments in the areas, it is considered that these approvals will be sought and available as required.

The Project has also maintained strong social and heritage relationships with the various pastoralists and other local business and community groups over the last twelve years.

14.6 STATEMENT OF ORE RESERVE

The Ore Reserve for the Savannah Underground Nickel Mine at 28 July 2020 is 8,274 kt of ore grading at 1.2% Ni for 102kt of Ni metal.

This Ore Reserve is summarised in Table 51.

Table 51: Savannah Ore Reserve July 2020

Ore Reserve	Metal	Proved		Probable		Total		Metal Tonnes
		Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	
Savannah	Nickel	1,233,000	0.95			1,233,000	0.95	11,700
	Copper		0.66				0.66	8,100
	Cobalt		0.05				0.05	600
Savannah North	Nickel	1,795,000	1.21	5,246,000	1.30	7,041,000	1.28	90,100
	Copper		0.54		0.58		0.57	40,400
	Cobalt		0.09		0.09		0.09	6,400
Total	Nickel	3,028,000	1.10	5,246,000	1.30	8,274,000	1.23	101,800
	Copper		0.59		0.58		0.59	48,500
	Cobalt		0.07		0.09		0.08	7,000

** Calculations have been rounded to the nearest 1,000 t of ore, 2 decimal places for grade and 100t for metal calculations.*

The Mineral Resource used as the basis for the Ore Reserve estimate was announced to market in May 2020. Indicated Resources have been converted to Probable Ore Reserves based on mine design physicals and an economic evaluation. No Measured material was contained in the Resource. Any Inferred material contained within the (reserve) mine plan has been treated as host rock waste. The Ore Reserves have been defined at delivery to the ROM pad at the Savannah processing facility.

The Ore Reserve estimate is based on financials and modifying factors determined as part of a LOM plan. This statement relates to a global estimate.

Material uncertainties relating to this Ore Reserve estimate are discussed below:

- There is a degree of uncertainty associated with geological estimates. The Reserve classifications reflect the levels of geological confidence in the estimates;
- Commodity price (including the Nickel price) and exchange rate assumptions are subject to market forces and present an area of uncertainty; and
- There is a degree of uncertainty regarding estimates of impacts of natural phenomena including geotechnical assumptions, hydrological assumptions, and the modifying mining factors, commensurate with the DFS level of detail of the study.

Factors in favour of confidence in the Ore Reserve estimate include:

- The mine plan assumes a low complexity mechanised mining method that has been successfully previously implemented by PAN at Savannah;
- Costs are based on detailed tendered rates and historical site performance;

- Metallurgical testing indicates that the ore will be able to be successfully processed;
- The project is fully permitted and only requires DMR notification for recommencement.

The required documentation for public reporting of the Ore Reserve is attached as Appendix A.

15 REFERENCES

1. Parkinson, 2017. *Savannah Updated Feasibility Study*. Panoramic Resources; Perth, WA.

2. Duplancic, 2016. *Analysis of Mine Scale Stability and Deformation Savannah North Nickel Mine*. Beck Engineering, Chatswood West, NSW.

3. Zammit, 2020. *Mineral Resource Estimate, Savannah North, Savannah Nickel Project*. Cube Consulting, West Perth, WA

16 DIGITAL FILES SUMMARY

The key digital files relating to the LOM plan outlined in this document are summarised in Table 15-1.

Table 52: Digital Files Summary

File	Description	Source
Mine Design		
LOMP Design & Schedule - MI&I	LOMP Design	Entech
Reserve Design & Schedule - MI	Reserve Design	Entech
Scheduling		
LOMP Design & Schedule - MI&I	LOMP Schedule	Entech
Reserve Design & Schedule - MI	Reserve Schedule	Entech
Cost Modelling		
PAN Cost model_200710 Reserve Schedule_200725	Reserve Cost Model	Entech
PAN Cost model_200710 Reserve Schedule_200725_Analyst_Consensus	Upside Reserve Cost Model	Entech
PAN_Cost_model_200710_Pillar_Schedule_LOMP_200728_Analyst_Consensus	Upside LOMP Cost Model	Entech
PAN_Cost_model_200710_Pillar_Schedule_LOMP_200725	LOMP Cost Model	Entech

Appendix A JORC Sign-off and Table 1 Section 4

PJD-32

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PANORAMIC
RESOURCES LTD

ABN: 47 095 792 288

Level 9, 553 Hay St
Perth, WA 6000

T: +61 8 6374 1700
E: info@panres.com

ASX ANNOUNCEMENT

29 September 2022

Savannah Project
2022 Mineral Resource and Ore Reserve Statement

KEY POINTS

- Total Savannah Project Mineral Resources at 1 July 2022 stand at 13.88Mt @ 1.52% Ni, 0.69% Cu and 0.10% Co for 211.2kt Ni, 95.3kt Cu and 13.9kt Co contained metal
- Total Savannah Ore Reserve (including Savannah North) at 1 July 2022 stand at 8.5Mt @ 1.21% Ni, 0.58% Cu and 0.09% Co for 102.7kt Ni, 49.4kt Cu and 7.2kt Co contained metal
- Savannah North Ore Reserves increased by 3,500t Ni (4%), 2,900t Cu (7%) and 400t (6%) Co contained metal after mining depletion in FY22
- The Savannah North orebody remains open along strike and at depth, providing significant potential to bring more material into future Ore Reserves and mine plans with additional resource definition and exploration drilling continue into FY23
- The recent drilling below the historical workings of Savannah have not been included in the above Resource calculations with drilling in that area expected to continue for the remainder of this calendar year

Panoramic Resources Limited (ASX: PAN) (**Panoramic** or **the Company**) is pleased to report the 2022 Mineral Resource and Ore Reserve statement for the Savannah Nickel Project (**Savannah** or **the Project**). In the period since the Mineral Resource and Ore Reserve statements were reported in July 2021, a broad spaced Resource definition drilling program was completed between the 1500 and 1250 RL levels within the Savannah North deposit.

Commenting on the Mineral Resource and Ore Reserve statement, Managing Director & CEO, Victor Rajasooriar said:

"We're pleased to have achieved an uplift in our Resources and Reserves in FY22, after the restart of mining operations running in parallel with the grade control and resource definition drilling at the Savannah North orebody. This relatively modest drill program was able to expand the Mineral Resource and Reserves after accounting for ore depletion during the first year of operations. This also excludes the more recent success we've had drilling at the Savannah deposit. The updated Resource and Reserve will be incorporated into an updated Mine Plan which will capture additional ore within the Resource close to planned workings and outside the current mine plan. With two drill rigs currently operating we look forward to a larger expansion in Resource and Reserves in FY23."

Mineral Resource

The Mineral Resource Estimate (**MRE**) for the Savannah Nickel Project is 13.88 million tonnes grading 1.52% Ni, 0.69% Cu and 0.10% Co for a total contained metal in Resource of 211,200t Ni, 95,300t Cu and 13,900t Co (Table 1). The MRE is current as of 1 July 2022. All MREs for the Project are reported to 2012 JORC standards and at a cut-off grade of 0.50% Ni. Details regarding the preparation of the MRE and associated 2012 JORC reporting requirements are included in Appendix 1. The MRE summarised in Table 1 forms the basis of the Ore Reserve for the Savannah Nickel Operation.

Table 1: 2022 Savannah Project MRE

Resource	Metal	Resource Date	Measured		Indicated		Inferred		Total		Metal Tonnes
			Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	
Savannah Above 900F	Nickel	Apr-20	900,000	1.37	498,000	1.73	0	0.00	1,399,000	1.50	21,000
	Copper			0.77		1.46		0.00		1.02	14,200
	Cobalt			0.07		0.08		0.00		0.07	1,000
Savannah Below 900F	Nickel	Jun-15	0	0.00	780,000	1.64	125,000	1.72	905,000	1.65	14,900
	Copper			0.00		0.76		0.75		0.76	6,900
	Cobalt			0.000		0.09		0.09		0.09	900
Savannah North	Nickel	Jun-22	1,998,000	1.41	5,540,000	1.67	4,034,000	1.36	11,573,000	1.52	175,300
	Copper			0.59		0.75		0.52		0.64	74,200
	Cobalt			0.10		0.12		0.08		0.10	12,000
Total Savannah Project	Nickel		2,898,000	1.40	6,818,000	1.67	4,159,000	1.37	13,876,000	1.52	211,200
	Copper			0.65		0.80		0.53		0.69	95,300
	Cobalt			0.09		0.12		0.08		0.10	13,900

**Mineral Resource Estimates have been rounded to the nearest 1,000t, 0.01% Metal grade and 100t of metal*

Ore Reserve

The 1 July 2022 Savannah Nickel Project (including Savannah North) Ore Reserve stands at 8.5Mt grading 1.21% Ni, 0.58% Cu and 0.09% Co for total contained metal of 102,700t Ni, 49,400t Cu and 7,200t Co (Table 2). All key assumptions and modifying factors applied during preparation of the Ore Reserve and associated 2012 JORC reporting requirements are included in Appendix 1.

Table 2: 2022 Savannah Nickel Project Ore Reserve

Ore Reserve	Metal	Proved		Probable		Total		Metal Tonnes
		Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	
Savannah	Nickel	970,000	0.94			970,000	0.94	9,100
	Copper		0.63				0.63	6,100
	Cobalt		0.05				0.05	400
Savannah North	Nickel	1,805,000	1.24	5,683,000	1.25	7,489,000	1.25	93,600
	Copper		0.54		0.59		0.58	43,300
	Cobalt		0.09		0.09		0.09	6,800
Total	Nickel	2,775,000	1.13	5,683,000	1.25	8,458,000	1.21	102,700
	Copper		0.57		0.59		0.58	49,400
	Cobalt		0.07		0.09		0.09	7,200

**Calculations have been rounded to the nearest 1,000t of ore, 0.01% metal grade and 100t of metal*

The largely undeveloped Savannah North orebody at Savannah remains open along strike and at depth, providing significant potential to bring more material into the Mine Plan with future exploration and underground drilling to be carried out as mine development advances deeper into the Savannah North orebody.

FY22 Mining Summary

Operations at Savannah were restarted in 2021 and the Project was successfully recommissioned with first concentrate shipment achieved in December 2021. Mining successfully started at Savannah North and also targeted the remnants of Savannah. In total 0.4Mt @ 1.05% Ni, 0.54% Cu and 0.07% Co for 4.3kt Ni, 2.2kt Cu and 0.3kt Co contained metal was mined in FY22. The updated Resource and Reserve statements as of 1 July 2022 takes into consideration this depletion.

FY22 Drilling Summary

The drilling program in Savannah North consisted of a broad spaced drill out between the 1250 and 1500 RL providing the framework for mine development and stoping in the central, eastern and western sections of the Savannah North deposit (Figure 1). The Resource definition program throughout FY22 concluded a total of 9,682m drilled in Savannah North, which included 4,898m of grade control drilling.

In June, the Company commenced a new underground drill program to test and infill the poorly drilled area of the Savannah orebody located immediately below historical workings and above the 900 Fault (Figure 1). The drill program is being undertaken from a drill cuddy on the 1425m Level that was recently developed as part of ongoing mine access to this area of the Savannah mine.

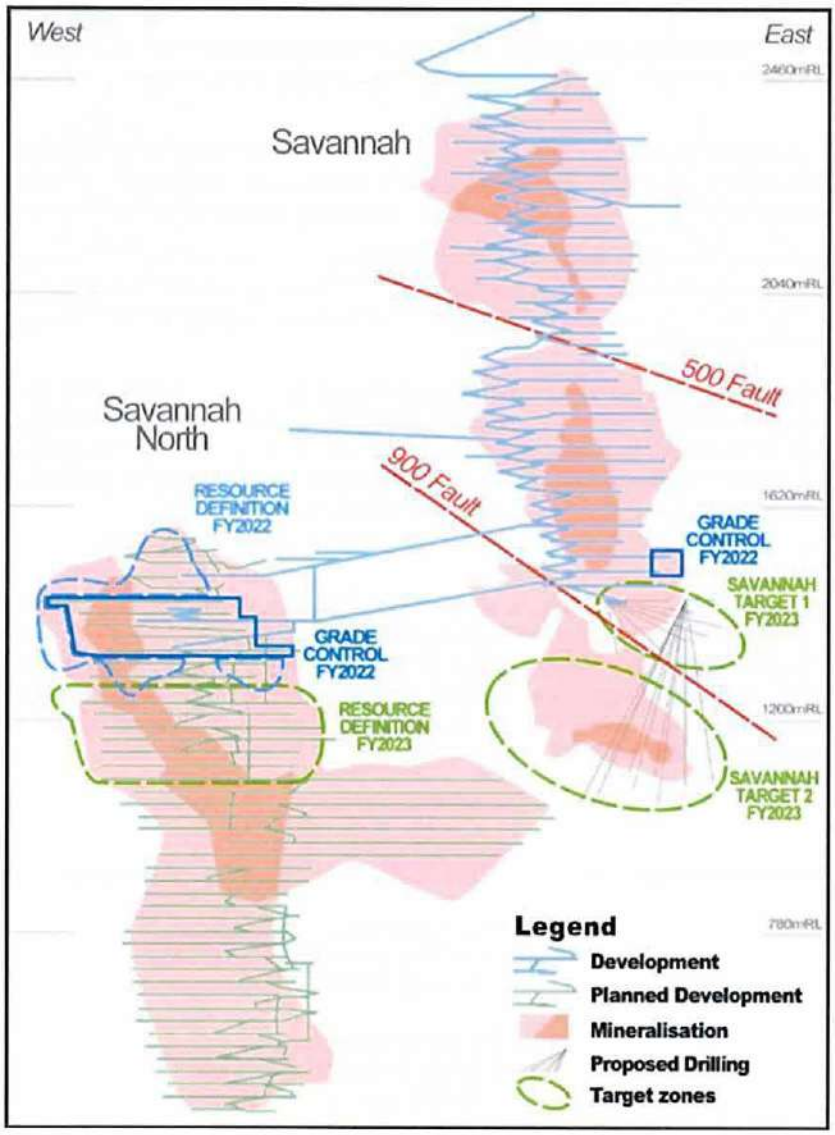
Results for the initial drilling completed above the 900 Fault from the 1425m cuddy have returned significantly thicker mineralisation intercepts than predicted by the current Savannah resource model for this area of the orebody (Figure 1). The increased thicknesses are particularly noticeable at depth as the orebody approaches the 900 Fault and is therefore likely to increase the current Mineral Resource in this area. At this stage, the drilling program continues and the updated Mineral Resource is yet to incorporate the additional drilling results. At Savannah, the only depletion of the Resource has taken place as a result of mining during FY22.

Resource Definition FY23

The drilling focus at Savannah North for FY23 will shift to below the 1250 RL. A dedicated drill platform in the 1321 central access drive has been developed and is well positioned to drill both the upper and lower mineralisation lenses between the 1250 and 900 RL.

At Savannah, the 1425m level and subsequent mine development in this area will provide improved (near perpendicular to strike) drill angles to help evaluate this part of the Savannah orebody. When completed this development is also ideally positioned to continue testing the orebody below the 900 Fault which currently contains a Mineral Resource of 14,900 nickel tonnes at an average grade of 1.65% nickel and open in all directions.

Figure 1 - Schematic long -section showing grade control and resource definition drilling areas in FY22 and planned drill areas for FY23



Competent Person

The information in this release that relates to Exploration Drilling at Savannah and Savannah North, and the Mineral Resources at Savannah is based on information compiled by Andrew Shaw-Stuart. Andrew Shaw-Stuart is a member of the Australian Institute of Geoscientists (AIG) and is a full-time employee of Panoramic Resources Limited.

The information in this release that relates to Mineral Resources at Savannah North is based on information compiled by Mark Zammit. Mr Zammit is a member of the Australasian Institute of Geoscientists and is a Principal Consultant Geologist and full-time employee of Cube Consulting based in Perth, Western Australia.

The information in this release that relates to Ore Reserves for Savannah and Savannah North is based on information compiled by or reviewed by Shane McLeay. Mr McLeay is a Fellow of the Australasian Institute of Mining and Metallurgy (AusIMM) and is a Principal Mining Engineer and full-time employee of Entech Consulting based in Perth, Western Australia.

The aforementioned persons have sufficient experience that is relevant to the style of mineralisation and type of target/deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Messrs Shaw-Stuart, Zammit and McLeay consent to the inclusion in the release of the matters based on the information in the form and context in which it appears.

About Panoramic:

Panoramic Resources Limited (ASX: PAN) is a company headquartered in Perth, Western Australia, which owns the Savannah Nickel Project in the East Kimberley. Operations at Savannah were restarted in 2021 and the project was successfully recommissioned with first concentrate shipment achieved in December 2021. Savannah has a 12-year mine life with clear potential to further extend this through ongoing exploration. The asset provides excellent leverage to the nickel, copper and cobalt markets which are heavily linked to global decarbonisation and vehicle electrification.

This ASX announcement was authorised on behalf of the Panoramic Board by: Victor Rajasooriar, Managing Director & CEO

For further information contact:
Victor Rajasooriar, Managing Director & CEO
+61 8 6374 1700

Media inquiries:
Michael Vaughan, Fivemark Partners
+61 422 602 720

Appendix 1 – 2012 JORC Disclosures

Savannah Project - Table 1, Section 1 - Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • Aspects of the determination of mineralisation that are Material to the Public Report. • In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	• The Savannah mine and surrounding exploration areas are typically sampled by diamond drilling techniques. Over 1600 holes have been drilled within the mine for a total in-excess of 220,000m. The majority of holes were drilled from underground platforms. • Initial Resource definition drilling is conducted on a nominal 50 x 50 metre grid spacing with subsequent infill grade control drilling conducted on a nominal 25 x 25 metre grid spacing. • Historically, all drill hole collars were surveyed using Leica Total Station survey equipment by a registered surveyor. Down hole surveys are typically performed every 30 metres using either "Reflex EZ Shot" or "Flexit Smart Tools". • All diamond core is geologically logged with samples (typically between 0.2 metre to 1 metre long) defined by geological contacts. Analytical samples are dominantly sawn half core samples.
Drilling techniques	• Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	• Greater than 90% of the mine drill hole database consists of LTK60 and NQ2 size diamond holes. Exploration and Resource definition drill holes are typically NQ2 size. Infill grade control holes are typically LTK60. Historically, some RC holes were drilled about the upper part of the mine. • The diamond drill holes pertaining to this announcement were a combination of NQ2 and LTK60 size.
Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure representative nature of the samples. • Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	• Diamond core recoveries are logged and recorded in the database. Overall recoveries are typically >99% and there are no apparent core loss issues or significant sample recovery problems. • Hole depths are verified against core blocks. • Regular rod counts are performed by the drill contractor. • There is no apparent relationship between sample recovery and grade.
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and	• All diamond holes pertaining to this announcement were geologically logged in full. • Geotechnical logging was carried out for recovery and RQD. The number of defects

Criteria	JORC Code explanation	Commentary
	metallurgical studies. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. • The total length and percentage of the relevant intersections logged.	(per interval) and their roughness were recorded about ore zones. • Details of structure type, alpha angle, infill, texture and healing is also recorded for most holes and stored in the structure table of the mine drill hole database. • Logging protocols dictate lithology, colour, mineralisation, structural (DDH only) and other features are routinely recorded. • All diamond core was photographed wet.
Sub-sampling techniques and sample preparation	• If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	• Analytical core samples pertaining to this announcement were half core. • Sample sizes are considered appropriate to represent the Savannah North style of mineralisation. • SG determinations by water immersion technique are restricted to Resource definition and Exploration holes at Savannah and are not performed on grade control holes. • All core sampling and sample preparation follow industry best practice. • QC involves the addition of purchased CRM and Savannah derived CRM assay standards, blanks, and duplicates. At least one form of QC is inserted in most sample batches on average one in every 20 samples. • Original versus duplicate assay results have always shown strong correlation due to the massive sulphide rich nature of the Savannah North mineralisation.
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. • Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	• Prior to 2019 all sample preparation included pulverising to 90% passing 75 µm followed by either a 3 acid digest & AAS finish at the Savannah onsite laboratory or a total 4 acid digest with an ICP OES finish if the samples are analysed off-site. • Since 2019 Bureau Veritas has operated the on-site laboratory. Sample preparation and assaying of all drill samples now involves crushing and pulverizing the sample to 80% passing 75µm followed by Ni, Cu, Co, Fe, MgO and S analysis by XRF of metaborate fused glass beads. The XRF brand is a ZETIUM Pan-analytical instrument. • No other analytical tools or techniques are employed. • The onsite laboratory uses internal standards, duplicates, replicates, blanks and repeats and carries out all appropriate sizing checks. • External laboratory checks are occasionally performed by ALS Geochemistry Australia. No analytical bias has been identified.

Criteria	JORC Code explanation	Commentary
Verification of sampling and assaying	• The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data.	• Drilling and sampling procedures at SNM have been inspected by many stakeholders since the project began. • Throughout the life of the mine, there have been several instances where holes have been twinned to confirm intersections and continuity. • In respect to the drill holes pertaining to this announcement, no holes were twinned. • Holes are logged into OCRIS software on Toughbook laptop computers before the data is transferred to SQL server databases. • All drill hole and assay data is routinely validated by site personnel. • No adjustments are made to assay data.
Location of data points	• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. • Specification of the grid system used. • Quality and adequacy of topographic control.	• All diamond drill hole collars are picked up using Leica TS15, R1000 instrument by a registered mine surveyor. • Downhole surveys are performed using an Axis Champ North Seeking Gyro instrument. Survey interval no more than 30m. • Visual checks to identify any obvious errors regarding the spatial position of drill holes collars or downhole surveys are routinely performed in a 3D graphics environment using Surpac software. • The mine grid is a truncated 4 digit (MGA94) grid system. • Conversion from local grid to MGA GDA94 Zone 52 is calculated by applying truncated factor to local coordinates is E: +390000, N: +8080000. • High quality topographic control is established across the mine site. RL equals AHD + 2,000m.
Data spacing and distribution	• Data spacing for reporting of Exploration Results. • Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. • Whether sample compositing has been applied.	• The Savannah and Savannah North Project nominal underground Resource Definition drill hole spacing is 25m (E) by 25m (RL) but does range from 50m (E) by 50m (RL) to 5m (E) by 5m (RL). • The mineralized domains delineated by the drill hole spacing show enough continuity to support the classification applied under the JORC Coe (2012 Edition). • No sample compositing is undertaken.
Orientation of data in relation to geological structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. • If the relationship between the drilling orientation and the orientation of key	• Where possible drill holes are designed to be drilled perpendicular to the target area being tested. • No orientation sampling bias has been identified.

Criteria	JORC Code explanation	Commentary
	mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	
Sample security	• The measures taken to ensure sample security.	• Drill samples are collected and transported to the on-site laboratory by SNM staff. Samples sent off site are road freighted.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• No recent audits/reviews of the Savannah drill sampling protocols have been undertaken. The procedures are considered to be of the highest industry standard. Mine to mill reconciliation records throughout the life of the Savannah Project provide confidence in the sampling procedures employed at the mine.

Savannah North Project - Table 1, Section 2 - Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. • The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	• The Savannah Nickel Mine (SNM), incorporating the Savannah North Project is an operating mine secured by five contiguous Mining Licences, ML's 80/179 to 80/183 inclusive. All tenure is current and in good standing. SNM has the right to explore for and mine all commodities within the mining tenements. • SNM has all statutory approvals and licences in place to operate. The mine has a long standing off-take agreement to mine and deliver nickel sulphide concentrate to the Jinchuan Group Co., LTD.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	• Since commissioning in 2004, SNM has conducted all surface and underground exploration and drilling related activities on the site.
Geology	• Deposit type, geological setting and style of mineralisation.	• The SNM is based on mining ore associated with the Savannah and Savannah North palaeo-proterozoic mafic/ultramafic intrusions. The "Savannah-style" Ni-Cu-Co rich massive sulphide mineralisation occurs as "classic" magmatic breccias developed about the more primitive, MgO rich basal parts of the two intrusions.
Drill hole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length. • If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	• All in-mine drilling at SNM is conducted on the Savannah mine grid, which is a "4 digit" truncated MGA grid. Conversion from local to MGA GDA94 Zone 52 is calculated by applying truncated factor to local coordinates of: E: +390000, N: +8080000. RL equals AHD + 2,000m. • Additional drill hole information pertaining to this announcement includes: • All diamond holes were either NQ2 or LTK60. • All core is oriented and photographed prior to logging, cutting and sampling. • All intersection intervals are reported as down-hole lengths and not true widths. • All reported assay results were performed by the on-site laboratory.
Data aggregation methods	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. • Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	• All analytical drill intercepts pertaining to reporting exploration results are based on sample length by grade weighted averages using a 0.5% lower cut-off, a minimum reporting length of 1m and maximum of 2m on consecutive internal waste. No top-cuts have been applied. • Cu and Co grades are determined for the same Ni interval defined above using the same procedures.

Criteria	JORC Code explanation	Commentary
	• The assumptions used for any reporting of metal equivalent values should be clearly stated.	
Relationship between mineralisation widths and intercept lengths	• These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. • If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	• All exploration results intersection lengths are reported as down hole lengths and not true widths. • Where reported, estimates of True Width are stated only when the geometry of the mineralisation with respect to the drill hole angle is sufficiently well established.
Diagrams	• Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	• Refer to figures in the document.
Balanced reporting	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	• Results from all drill-holes in the Mineral Resource have been reported and their context discussed and considered to be sufficiently balanced.
Other substantive exploration data	• Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	• No other data is considered material to this release at this stage.
Further work	• The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling). • Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	• The infill Resource Definition drill results reported herein for the Savannah North orebody are part of an ongoing program. Further results will be reported when they become available.

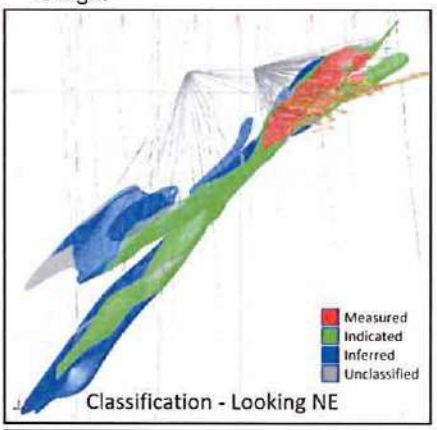
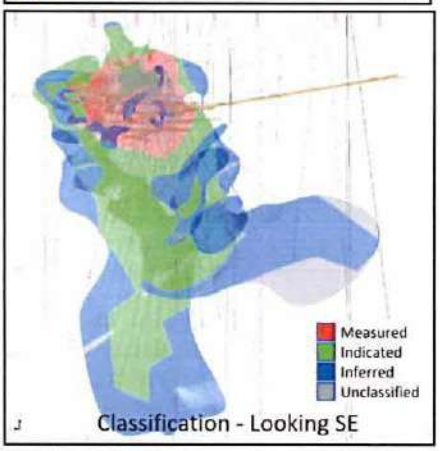
Savannah North Project - Table 1, Section 3 – Estimation and Reporting of Mineral Resources

Criteria	JORC Code explanation	Commentary
Database integrity	• Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. • Data validation procedures used.	• An Excel logging template with lookup tables and fixed formatting is used for logging and data collection. • Data validation checks are performed every time a drill hole is entered into the database

Criteria	JORC Code explanation	Commentary
		using a checklist.
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• Mr Mark Zammit, Principal Geologist at Cube Consulting Pty Ltd is the Competent Person for preparing the estimate and has undertaken a number of site visits to the Savannah Nickel Project with the most recent being for two days on 27th and 28th June 2015. • Mr Andrew Shaw-StuartManager Geology & Exploration at Panoramic Resources is the Competent Person for data collection, is a full-time employee of the Company and has undertaken numerous site visits.
Geological interpretation	• Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit. • Nature of the data used and of any assumptions made. • The effect, if any, of alternative interpretations on Mineral Resource estimation. • The use of geology in guiding and controlling Mineral Resource estimation. • The factors affecting continuity both of grade and geology.	• The Savannah North mineralisation dips moderately (40-45 degrees) to the north-west and comprises two main zones, the Upper Zone is developed on the basal contact of the North Olivine Gabbro, the second Lower Zone is a consistent remobilised zone of massive sulphide mineralisation, in part associated with the 500 Fault. Both zones are well defined by the drilling and the interpretation is considered sufficiently robust for resource modelling. Additional minor mineralised zones include one as an NE extending basal contact domain and nine domains in the hanging wall position to the Upper Zone. • No other interpretations have been considered as the current model is demonstrably robust. Recent extension and infilling drilling has confirmed the geological interpretation. • Geological controls were used to create the mineralised domains. The interpretation has been defined by the presence of strong and continuous zones of massive sulphide mineralisation. • Post mineralisation faulting and barren dykes have been interpreted and accounted for.
Dimensions	• The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	• The Savannah North mineralisation has been defined over a strike length of approximately 1km. The Mineral Resource reported herein relates to an area with a strike length of 1,125m from 5,300mE to 6,425mE and extends from 615m to 1,575m below surface with an average domain thickness of approximately 4 to 5 metres.
Estimation and modelling techniques	• The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used. • The availability of check estimates, previous estimates and/or mine production records and	• Ordinary Kriging of 1m downhole composites was used to estimate Ni, Cu Co and density for all mineralised domains. • The parent estimation block dimensions used in the model were 20m(Y) x 20m(X) x 4(Z). A parent block size of 10m(Y) x 10m(X) x 4(Z) and 5m(Y) x 5m(X) x 2(Z) was also used for areas defined by closer spaced drilling. The parent block size(s) were selected on the basis of being approximately 50% of the average drill hole spacing in the deposit. Block

Criteria	JORC Code explanation	Commentary
	whether the Mineral Resource estimate takes appropriate account of such data. • The assumptions made regarding recovery of by-products. • Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation). • In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. • Any assumptions behind modelling of selective mining units. • Any assumptions about correlation between variables. • Description of how the geological interpretation was used to control the resource estimates. • Discussion of basis for using or not using grade cutting or capping. • The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	descretisation points were set to 5(Y) x 5(X) x 2(Z) points. The final 3D block dimensions used for volume definition were 1.25 m (Y) x 1.25m(X) x 0.5m(Z). • Top cut analysis was undertaken for each domain using grade histograms, log-probability plots and spatial review and no extreme values were detected and therefore no top cuts were applied. A search radius of 65m (Ni), 45m (Cu), 55m (Co) and 206m (Density) was used, with a minimum of 4 and a maximum of 16 1m composites. A second pass strategy was used with between 2 and 3.7x search distance and the same minimum and maximum composites. Dynamic anisotropy using local rotations was used to reflect the general trend for each domain. • Check estimates using Inverse Distance and Nearest Neighbour methods are comparable. These estimates supported the OK estimate and yielded similar characteristics. • By-product credits for Cu and Co have formed part of the previous off-take agreement. • No deleterious elements have been modelled in the Mineral Resource estimate; the Savannah orebody has low MgO and negligible arsenic levels. • No selective mining units were assumed in the estimate. • Ni and Co show a very strong correlation. Nickel and copper are much more variable. Variography and search neighborhoods were modelled separately for the grade attributes Ni, Cu and Co based on 1m composites for the Upper 1 domain and these models were adopted to the remaining domains. • The mineralisation interpretation was based on a combination of grade and geological characteristics such as massive sulphide content, lithology and structural boundaries. These were wireframed and used as hard boundaries to flag sample data for estimation. • Statistical analysis of the grade populations indicated no extreme values and a low coefficient of variation. • Validation has included comparing the raw data statistics to block estimates, volumes of wireframes to block model volumes, drill holes and block model value plots were produced for a visual checking of the grades. Good reconciliation data exists between mined and milled figures.
Moisture	• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	• Tonnages are estimated on a dry basis.

Criteria	JORC Code explanation	Commentary
Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	• The presence of logged massive sulphide in addition to an approximate 0.5%Ni cut-off was used when defining the mineralised wireframes.
Mining factors or assumptions	• Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	• Mining at Savannah has been ongoing since 2004. Underground, sub-level open stoping is used effectively to extract the ore. No further assumptions were made on mining factors. Mining factors are applied during Ore Reserve conversion. Similar mining assumptions have been made and are in progress at the Savannah North Project.
Metallurgical factors or assumptions	• The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	• Savannah ore has been successfully treated through a 1Mtpa SAG mill and flotation circuit since commissioning in 2004. The metallurgical nature of the mineral resource in this estimate has not changed. Metallurgical factors are addressed in Ore Reserve conversion.
Environmental factors or assumptions	• Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	• Savannah operates under the conditions set out by an environmental license to operate.
Bulk density	• Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples. • The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit. • Discuss assumptions for bulk density	• Bulk density is determined using the water displacement method where possible for all resource definition samples. Where density measurements are missing, a regression formula incorporating S% is used such that a density value is present for all samples. • Voids within the mineralised zones are not common. • Density assignment for all mineralised domains was via Ordinary Kriging of 1m composites with variography and search

Criteria	JORC Code explanation	Commentary
	estimates used in the evaluation process of the different materials.	parameters based on the density data. Waste material was assigned a value of 2.88.
Classification	• The basis for the classification of the Mineral Resources into varying confidence categories. • Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). • Whether the result appropriately reflects the Competent Person's view of the deposit.	• The classification adopted is based largely on drill data density and an understanding of the contact, and fault related mineralisation. Measured resources only includes mineralisation defined within the close spaced GC drilling within the Upper Zone and also the smaller areas of the TCG East and Upper Splay domains. The drilling here ranges from 5 m x 5 m up to 20 m x 20 m spacing. Indicated resources include areas where the drilling spacing is greater than the close spaced GC drilling but approximates 50 m x 50 m. Inferred resources – includes areas are where the data density is greater than 50 m x 50 m spacing, typically around the periphery and depth extent of the Upper and Lower Zones plus the minor domains. • Overall, the confidence in the continuity of mineralisation and the quality of the input data is high.  Classification - Looking NE  Classification - Looking SE • The estimate and classification appropriately reflects the view of the Competent Person.

Criteria	JORC Code explanation	Commentary
Audits or reviews	• The results of any audits or reviews of Mineral Resource estimates.	• The Mineral Resource estimate has been peer reviewed by the Panoramic corporate technical team.
Discussion of relative accuracy/ confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. • The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. • These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	• The relative accuracy of the Mineral Resource estimate is considered robust as it has been compiled in accordance with the guidelines of the 2012 JORC Code, and knowledge gained from extensive operational history of the mine. • The statement relates to global estimates of tonnes and grade. • Mine to mill reconciliation records throughout the life of the Savannah Project provide confidence in the accuracy of the Mineral Resource estimate.

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	• Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve. • Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	• The Mineral Resource used as the basis for this Ore Reserve was estimated by independent geology consultants Cube Consulting with an effective date of 30 June 2022. • These models were updated due to mining depletion, sterilization, and geological interpretations based on results from ore development, face sampling, drive mapping and pre-production drilling. • Mineral Resources are reported inclusive of Ore Reserves
	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• The Competent Person has visited the site on several occasions in 2019 and is familiar with the area and access routes. The Competent Person is comfortable from these site visits and reports from other experts and colleagues, and survey data for the estimation of the Ore Reserve.
Study status	• The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves. • The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have	• The current mine design, mining method, operating parameters, modifying factors, actual costs and knowledge gained from over 10 years of production are used in the Ore Reserve estimate. • The work completed for this estimate utilized the assumptions from the 2017 Feasibility Study (FS) and recent updates including contracted mining

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td>determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.</td><td>services costs. All these assumptions were reviewed and updated at a Pre-Feasibility Study level or better.
• The update indicates that that the Ore Reserve mine plan is technically achievable and economically viable.</td></tr>
<tr><td>Cut-off parameters</td><td>• The basis of the cut-off grade(s) or quality parameters applied.</td><td>• The mine Mineral Resource block model was updated with a block value field (Net Smelter Return (NSR) $/t) after consideration of the contained metal, smelter/refining payability, concentrate transport cost, and WA state government and traditional owner royalties.
• Cut-off grades were calculated as a dollar per ore tonne, based on the forecast operating costs in the current financial model.
• Economic analysis is carried out for each planned stope and only stopes with a positive return are included in the Ore Reserve estimate.
• Cut-off NSR values were calculated to be
o Fully costed stoping – $135/t ore;
o Incremental stoping – $102/t ore; and
o Ore development – $45/t ore.</td></tr>
<tr><td>Mining factors or assumptions</td><td>• The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).
• The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.
• The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc), grade control and pre-production drilling.
• The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).
• The mining dilution factors used.
• The mining recovery factors used.
• Any minimum mining widths used
• The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.
• The infrastructure requirements of the selected mining methods.</td><td>• Mining at Savannah North will utilise long-hole open stoping with paste fill. This mining method has been utilized successfully at the Savannah operation.
• Stopes were designed on 5 m sections utilizing Datamine's Mine Stope Optimizer (MSO) software. The stopes were optimized on the fully costed cut-off grade.
• As a part of the FS, Beck Engineering Pty Ltd was engaged to undertake a geotechnical study to forecast mine-scale stability and deformation. The method of analysis was Discontinuum Finite Modelling using geological structures on a mine scale. This method has previously been used by Beck Engineering (August 2015) to accurately model rock damage and seismic activity at Savannah. This analysis coupled with historical performance formed the basis of the geotechnical assumptions for the mine design.
• The primary mine design inputs are noted below. Blocks A, B and D are above the 1270 mRL (730 mbs) and Block D is below.
<table>
<tr><th>Optimisation Parameter</th><th>Unit</th><th>Blocks A, B and D</th><th>Block C</th></tr>
<tr><td>Stope Cut-off Grade</td><td>$ NSR</td><td>135</td><td>135</td></tr>
<tr><td>Min. Mining Width (True Width)</td><td>m</td><td>3</td><td>3</td></tr>
<tr><td>Vertical Level Interval</td><td>m</td><td>20</td><td>20</td></tr>
<tr><td>Section Length</td><td>m</td><td>5</td><td>5</td></tr>
</table></td></tr>
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<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>HW Dilution (True Width)</td><td>m</td><td>1.0</td><td>2.0</td></tr>
<tr><td>FW Dilution (true Width)</td><td>m</td><td>0.5</td><td>0.5</td></tr>
<tr><td>Min. Parallel Waste Pillar Width</td><td>m</td><td>10</td><td>10</td></tr>
<tr><td>Min. FW Dip Angle</td><td>deg</td><td>50</td><td>50</td></tr>
</table>
Infrastructure requirements (other than future capital development) for the selected mining method are established or currently being installed.
</td></tr>
<tr><td>Metallurgical factors or assumptions</td><td>The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.
Whether the metallurgical process is well-tested technology or novel in nature.
The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.
Any assumptions or allowances made for deleterious elements.
The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.
For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?</td><td>The metallurgical process is a conventional sulphide flotation technique involving crushing, grinding and flotation to produce a bulk nickel, copper, and cobalt concentrate.
Savannah ore has been successfully treated through the 1Mtpa SAG mill and flotation circuit first commissioned in 2004.
The metallurgical nature of the Savannah North deposit is characterized by an upper zone and a lower zone, separated at 1270 mRL horizon, and which exhibit slight performance difference in average metallurgical recovery. Savannah North Upper Zone averages nickel recovery of 81.7%, copper recovery of 98.8% and cobalt recovery of 92.0% for a concentrate grade of 8% Ni.
Savannah North Lower Zone averages nickel recovery of 83.7%, copper recovery of 99.3% and cobalt recovery of 95.2% for a concentrate grade of 8% Ni.
Metallurgical recoveries for the Savannah deposit are calculated from plant feed grades in the LOM plan and are based on over 10 years of historical plant performance. Average recoveries exhibited are 85% for Nickel, 95% for Copper and 88% for Cobalt.
Savannah produces a clean bulk nickel, copper, and cobalt concentrate and since commissioning in 2004 there have been no deleterious material penalties. As such no allowance has been made for deleterious material.
The Ore Reserve estimate has been based on appropriate mineralogy and metallurgical factors to meet the existing concentrate off-take specifications.</td></tr>
<tr><td>Environmental</td><td>The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.</td><td>Savannah operates under the conditions set out by an environmental license to operate.
Waste is placed on approved waste dumps or used as backfill in mined voids.
The existing tailings storage facility (TSF1) has an estimated three years of capacity to the final approved height at the modelled production rates.
An additional tailing storage facility (TSF2) will be</td></tr>
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<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>required from Year 3 of Savannah North production. Coffey Mining Pty Ltd undertook an options study, and a preferred option has been selected, designed and costed for a life-of-mine tailings facility.
• Discussions have been held with relevant regulatory bodies, and the Company expects no issues with the approvals process for TSF2.</td></tr>
<tr><td>Infrastructure</td><td>• The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.</td><td>• The Savannah mine has substantial infrastructure in place including a paste fill plant, major electrical and pumping networks, a 1Mtpa processing plant, a fully equipped laboratory, extensive workshop, administration facilities, a 215 single person quarters village and tailings storage facility.</td></tr>
<tr><td>Costs</td><td>• The derivation of, or assumptions made, regarding projected capital costs in the study.
• The methodology used to estimate operating costs.
• Allowances made for the content of deleterious elements.
• The source of exchange rates used in the study.
• Derivation of transportation charges.
• The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.
• The allowances made for royalties payable, both Government and private.</td><td>• Costs are based on a combination of actual costs occurred in processing, and transportation over the FY2022 financial year and mining costs based on contract rates established under a 3-year mining services agreement awarded in February 2020.
• Capital underground development costs are derived from the LOM plan and actual costs as per above.
• Other capital costs are related to equipment and infrastructure costs and are based on quotes or historical actual costs.
• Closure costs have not been included.
• Metal prices and exchange rate assumptions are based on the median of a range of external market analysts medium term forecasts.
• Flat rate metal prices for nickel, copper, and cobalt as per the table below.
<table>
<tr><th>Item</th><th>Unit</th><th>Value</th></tr>
<tr><td>Nickel Price</td><td>A$/t</td><td>27,143</td></tr>
<tr><td>Copper Price</td><td>A$/t</td><td>10,714</td></tr>
<tr><td>Cobalt Price</td><td>A$/t</td><td>71,429</td></tr>
<tr><td>Exchange Rate</td><td>USD: AUD</td><td>0.70</td></tr>
</table>
• Net Smelter Return (NSR) factors were sourced from the existing concentrate offtake contract.
• WA government and Traditional Owner royalty costs are included in the NSR calculation.</td></tr>
<tr><td>Revenue factors</td><td>• The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.
• The derivation of assumptions made of</td><td>• Revenue factors are based on metal production in concentrate from the LOM plan, flat metal prices for nickel, copper, and cobalt (above), flat rate A$:US$ exchange rate (above) and the NSR factors in the existing concentrate offtake contract.</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
	metal or commodity price(s), for the principal metals, minerals and co-products.	
Market assessment	• The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future. • A customer and competitor analysis along with the identification of likely market windows for the product. • Price and volume forecasts and the basis for these forecasts. • For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	• The concentrate is contracted for sale to Jinchuan Group of China until February 2023 and to Trafigura from March 2023 to February 2028. The Savannah concentrate is being trucked to Wyndham Port and then shipped to Jinchuan's smelter/refinery in the Gansu province, northwest China.
Economic	• The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc. • NPV ranges and sensitivity to variations in the significant assumptions and inputs.	• Internal cash flow estimates apply an 8% real discount rate for NPV analysis and only economically viable ores are considered for mining based on a stope only cut-off grade. • Sensitivity analysis of key financial and physical parameters is applied to the LOM plan.
Social	• The status of agreements with key stakeholders and matters leading to social licence to operate.	• The Savannah Mine is fully permitted and has a coexistence agreement in place with Traditional Owners.
Other	• To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves: • Any identified material naturally occurring risks. • The status of material legal agreements and marketing arrangements • The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	• No significant unresolved material matters relating to naturally occurring risks, third party agreements or governmental/statutory approvals currently exist.
Classification	• The basis for the classification of the Ore Reserves into varying confidence categories. • Whether the result appropriately reflects the Competent Person's view of the deposit. • The proportion of Probable Ore Reserves that have been derived from Measured	• The classification adopted is based on the level of confidence as set out in the 2012 JORC guidelines • Proved Ore Reserves are based on Measured Mineral Resources subject to economic viability. • Probable Ore Reserves are based on Indicated Mineral Resources subject to the economic viability. • The estimate appropriately reflects the view of the

Criteria	JORC Code explanation	Commentary
	Mineral Resources (if any).	competent person.
Audits or reviews	• The results of any audits or reviews of Ore Reserve estimates.	• The Ore Reserve estimate, along with the mine design and life of mine plan, cost and revenue modelling has been peer-reviewed by Entech internally, and by Panoramic technical and management staff.

Discussion of relative accuracy/ confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.
	• The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.
	• Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.
	• It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.
		• The relative accuracy of the Ore Reserve estimate is considered robust as it is based on the knowledge gained from extensive operational history of the mine. Design and scheduling have been completed to a feasibility standard.
		• All currently reported Ore Reserve estimations are considered representative on a global scale.
		• Mine to mill reconciliation records throughout the life of the Savannah Mine provide confidence in the accuracy of the Ore Reserve
		• Considerations that may result in a lower confidence in the Ore Reserves include:
		  • There is a degree of uncertainty associated with geological estimates. The Ore Reserve classifications reflect the levels of geological confidence in the estimate;
		  • Nickel price and exchange rate assumptions are subject to market forces and present an area of uncertainty; and
		  • There is a degree of uncertainty regarding estimates of impacts of natural phenomena including geotechnical assumptions, hydrological assumptions, and the modifying mining factors, commensurate with the FS level of detail of the study.
		• Considerations in favour of a higher confidence in the Ore Reserves include:
		  • The mine plan assumes a low complexity mechanised mining method that has been successfully previously implemented by PAN at the site for over 10 years.
		  • Costs are based on historical data, underground contractor awarded rates, and a current offtake agreement.
		• The Ore Reserve is based on a global estimate. Modifying factors have been applied at a local scale.

Savannah Project Ore Reserve Estimate –1 July 2023

The updated Ore Reserve estimate for the Savannah Nickel mine as of July 2023 is:

8.47 Mt @ 1.22% Ni, 0.55% Cu and 0.08% Co for contained metal of 103.7 kt Ni, 46.9 kt Cu and 7.2 kt Co

The final Ore Reserves summary is presented in Table 1.

Table 1 July 2023 Savannah Ore Reserve Estimate

2023 Ore Reserve Estimate								
Ore Reserve	Metal	Proven		Probable		Total		Metal Tonnes
		Tonnes	%	Tonnes	%	Tonnes	%	
Savannah	Nickel	318,027	1.37	820,850	1.50	1,138,876	1.47	16,707
	Copper		0.65		0.78		0.75	8,490
	Cobalt		0.07		0.09		0.08	919
Savannah North	Nickel	1,897,307	1.29	5,436,608	1.15	7,333,915	1.19	86,995
	Copper		0.53		0.52		0.52	38,401
	Cobalt		0.10		0.08		0.09	6,270
Total	Nickel	2,215,334	1.30	6,257,457	1.20	8,472,791	1.22	103,702
	Copper		0.55		0.56		0.55	46,891
	Cobalt		0.09		0.08		0.08	7,189

The Ore Reserve represents an update to the previous Ore Reserve "Savannah Project 2022 Mineral Resource and Ore Reserve Statement" announced to market on 22 July 2022. Detailed in Table 2 is the mining depletion since the previous Ore Reserve statement. A comparison of this current Ore Reserve estimate to the 2022 estimate is presented in Table 3.

Table 2 Mining Depletion since Last Reserve Update

MINE	Metal	Mined		Metal Tonnes
		Tonnes	%	
Savannah	Nickel	239,241	0.91	2,170
	Copper		0.55	1,318
	Cobalt		0.04	106
Savannah North	Nickel	440,888	1.09	4,802
	Copper		0.49	2,168
	Cobalt		0.08	348
Total	Nickel	680,129	1.03	6,972
	Copper		0.51	3,486
	Cobalt		0.07	454

Table 3 Comparison with Previous Ore Reserve

Ore Reserve/Mine	Metal	Proven		Probable		Total		Metal
		Tonnes	%	Tonnes	%	Tonnes	%	Tonnes
July 2023 Ore Reserve Estimate								
Savannah	Nickel	318,027	1.37	820,850	1.50	1,138,876	1.47	16,707
	Copper		0.65		0.78		0.75	8,490
	Cobalt		0.07		0.09		0.08	919
Savannah North	Nickel	1,897,307	1.29	5,436,608	1.15	7,333,915	1.19	86,995
	Copper		0.53		0.52		0.52	38,401
	Cobalt		0.10		0.08		0.09	6,270
Total	Nickel	2,215,334	1.30	6,257,457	1.20	8,472,791	1.22	103,702
	Copper		0.55		0.56		0.55	46,891
	Cobalt		0.09		0.08		0.08	7,189
July 2022 Ore Reserve Estimate								
Savannah	Nickel	970,000	0.94			970,000	0.94	9,100
	Copper		0.63				0.63	6,100
	Cobalt		0.05				0.05	400
Savannah North	Nickel	1,805,000	1.24	5,683,000	1.25	7,489,000	1.25	93,600
	Copper		0.54		0.59		0.58	43,300
	Cobalt		0.09		0.09		0.09	6,800
Total	Nickel	2,775,000	1.13	5,683,000	1.25	8,458,000	1.21	102,700
	Copper		0.57		0.59		0.58	49,400
	Cobalt		0.07		0.09		0.09	7,200
VARIANCE								
Savannah	Nickel	(651,973)		820,850		168,876		7,607
	Copper							2,390
	Cobalt							519
Savannah North	Nickel	92,307		(246,392)		(155,085)		(6,605)
	Copper							(4,899)
	Cobalt							(530)
Total	Nickel	(559,666)		574,457		14,791		1,002
	Copper							(2,509)
	Cobalt							(11)

Estimate for Inferred material which moved from Resources to Reserves were also computed and shown in Table 4. And depicted in a waterfall graph in Figure 1.

Table 4 Depletion & Conversion Table

Description	Tonnes	%			Ni Metal Tonnes			Comment
		Nickel	Copper	Cobalt	Nickel	Copper	Cobalt	
2023 reserve	8,472,791	1.22	0.55	0.08	103,702	46,891	7,189	
2022 Reserve	8,458,000	1.21	0.58	0.09	102,700	49,400	7,200	
Depletion	(680,129)	1.03	0.51	0.07	(6,972)	(3,486)	(454)	Depletion due to mined blocks
Conversion (from drilling)	694,921	1.15	0.14	0.06	7,974	976	443	Conversion due to Exploration Drilling

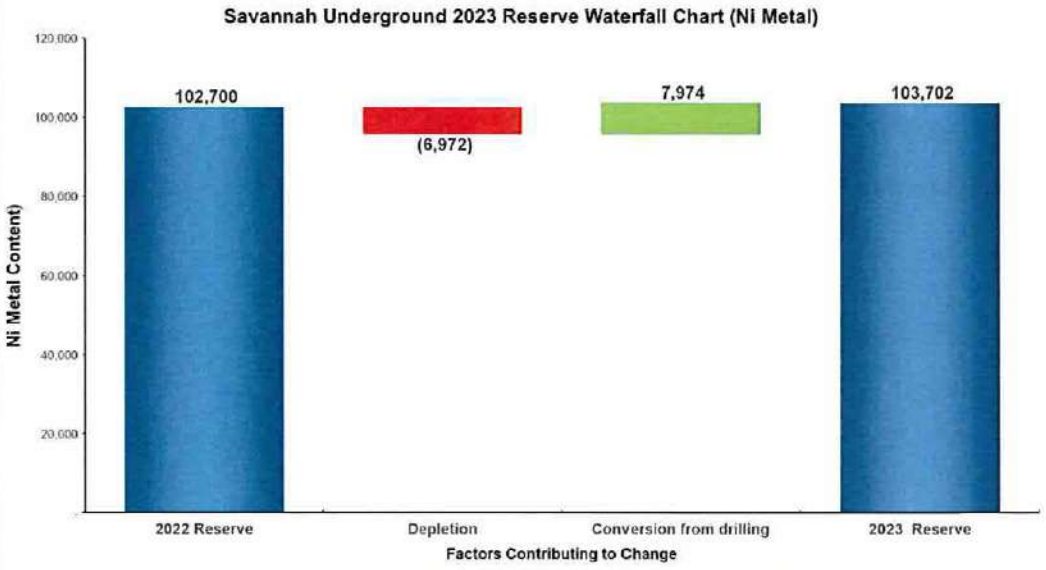


Figure 1 2023 Reserve Waterfall Chart for Ni Metal

The Mineral Resource used as the basis for the Ore Reserve estimate is announced concurrently. Measured and Indicated Mineral Resources have been converted to Proven and Probable Ore Reserves respectively, subject to mine design physicals and an economic evaluation. Any Inferred Mineral Resource material contained within the mine plan has been treated as waste.

The Ore Reserve estimate is based on financials and modifying factors determined as part of a Life on Mine study undertaken on the project. This statement relates to a global estimate.

COMPETENT PERSON'S CONSENT FORM

Pursuant to the requirements of ASX Listing Rules 5.6, 5.22 and 5.24 and clause 9 of the 2012 JORC Code (Written Consent Statement)

Report Description

Savannah Nickel Mine, Ore Reserve Estimate, September 2023

Panoramic Resources Limited

Savannah Nickel Mine

1st July 2023

Statement

I, ... confirm that:

- I have read and understood the requirements of the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012 JORC Edition)
- I am a Competent Person as defined by the JORC Code 2012 Edition, having five years' experience which is relevant to the style of mineralisation and type of deposit described in the Report, and to the activity for which I am accepting responsibility.
- I am a member or Fellow of The Australasian Institute of Mining and Metallurgy or the Australian Institute of Geoscientists or a 'Recognised Overseas Professional Organisation' ("ROPO" included in a list promulgated by ASX from time to time).
- I have reviewed the Report to which this consent statement applies.
- I am a full-time employee of Panoramic Resources Limited and have prepared the documentation for the Savannah Nickel Mine on which the Report is based, for the period 1st July 2023.

I have disclosed to the company the full nature of the relationship between myself and the company, including any issue that could be perceived by investors as a conflict of interest.

I verify that the Report is based on and fairly and accurately reflects in the form and context in which it appears, the information in my supporting documentation relating to Ore Reserves.

CONSENT

I consent to the release of the Report and this consent statement by the directors of:

Entech Pty Ltd

1st July 2023

Signature of Competent Person

Date

Professional Membership: FAusIMM

Membership Number: 222752

Daniel Donald

Signature of Witness

Perth, Australia

Print Witness Name and Residence (eg Town)

Additional Deposits covered by the Report for which the Competent Person signing this form is accepting responsibility:

NA.....
.....
.....
.....
.....

Additional Reports related to the deposit for which the Competent Person signing this form is accepting responsibility:

NA.....
.....
.....
.....
.....

Signature of Competent Person

Date

Professional Membership:

Membership Number:

Signature of Witness

Print Witness Name and Residence
(eg Town)

Section 4 Estimation and Reporting of Ore Reserves
(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	• *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* • *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	• The Mineral Resource used as the basis for this Ore Reserve was estimated by independent geology consultants Cube Consulting with an effective date of 04 August 2023. • These models were updated due to mining depletion, sterilization, and geological interpretations based on results from ore development, face sampling, drive mapping and pre-production drilling. • Mineral Resources are reported inclusive of Ore Reserves
	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• The Competent Person has visited the site on several occasions in 2019 and is familiar with the area and access routes. The Competent Person is comfortable from these site visits and reports from other experts and colleagues, and survey data for the estimation of the Ore Reserve.
Study status	• *The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.* • *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.*	• The current mine design, mining method, operating parameters, modifying factors, actual costs and knowledge gained from over 10 years of production are used in the Ore Reserve estimate. • The work completed for this estimate utilized the assumptions from the 2017 Feasibility Study (FS) and recent updates including contracted mining services costs. All these assumptions were reviewed and updated at a Pre-Feasibility Study level or better. • The update indicates that that the Ore Reserve mine plan is technically achievable and economically viable.

Cut-off parameters	• *The basis of the cut-off grade(s) or quality parameters applied.*	• The mine Mineral Resource block model was updated with a block value field (Net Smelter Return (NSR) $/t) after consideration of the contained metal, smelter/refining payability, concentrate transport cost, and WA state government and traditional owner royalties.
		• Cut-off grades were calculated as a dollar per ore tonne, based on the forecast operating costs in the current financial model.
		• Economic analysis is carried out for each planned stope and only stopes with a positive return are included in the Ore Reserve estimate.
		• Cut-off NSR values were calculated to be
		  o Fully costed stoping – $153/t ore;
		  o Incremental stoping – $115/t ore; and
		  o Ore development – $53/t ore.

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr>
<td>Mining factors or assumptions</td>
<td>

The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).
The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.
The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc), grade control and pre-production drilling.
The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).
The mining dilution factors used.
The mining recovery factors used.
Any minimum mining widths used
The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.
The infrastructure requirements of the selected mining methods.

</td>
<td>

Mining at Savannah North will utilise long-hole open stoping with paste fill. This mining method has been utilized successfully at the Savannah operation.
Stopes were designed on 5 m sections utilizing Datamine's Mine Stope Optimizer (MSO) software. The stopes were optimized on the fully costed cut-off grade.
As a part of the FS, Beck Engineering Pty Ltd was engaged to undertake a geotechnical study to forecast mine-scale stability and deformation. The method of analysis was Discontinuum Finite Modelling using geological structures on a mine scale. This method has previously been used by Beck Engineering (August 2015) to accurately model rock damage and seismic activity at Savannah. This analysis coupled with historical performance formed the basis of the geotechnical assumptions for the mine design.
The primary mine design inputs are noted below. Blocks A, B and D are above the 1270 mRL (730 mbs) and Block D is below

<table>
<tr><th>Optimisation Parameter</th><th>Unit</th><th>Blocks A, B and D</th><th>Block C</th></tr>
<tr><td>Stope Cut-off Grade</td><td>$NSR</td><td>153</td><td>153</td></tr>
<tr><td>Min. Mining Width (True Width)</td><td>m</td><td>3</td><td>3</td></tr>
<tr><td>Verical Level Interval</td><td>m</td><td>20</td><td>20</td></tr>
<tr><td>Section Length</td><td>m</td><td>5</td><td>5</td></tr>
<tr><td>HW Dilution (true Width)</td><td>m</td><td>1.0</td><td>2.0</td></tr>
<tr><td>FW Dilution (true Width)</td><td>m</td><td>0.5</td><td>0.5</td></tr>
<tr><td>Min. Parallel Waste Pillar Width</td><td>m</td><td>10</td><td>10</td></tr>
<tr><td>Min. FW Dip Angle</td><td>deg</td><td>50</td><td>50</td></tr>
</table>

Infrastructure requirements (other than future capital development) for the selected mining method are established or currently being installed.

</td>
</tr>
</table>

Metallurgical factors or assumptions	• *The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.* • • *Whether the metallurgical process is well-tested technology or novel in nature.* • *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.*	• The metallurgical process is a conventional sulphide flotation technique involving crushing, grinding and flotation to produce a bulk nickel, copper, and cobalt concentrate. • Savannah ore has been successfully treated through the 1Mtpa SAG mill and flotation circuit first commissioned in 2004. • The metallurgical nature of the Savannah North deposit is characterized by an upper zone and a lower zone, separated at 1270 mRL horizon, and which exhibit slight performance difference in average metallurgical recovery.

Criteria	JORC Code explanation	Commentary
	• *Any assumptions or allowances made for deleterious elements.* • *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.* • *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*	Savannah North Upper Zone averages nickel recovery of 81.7%, copper recovery of 98.8% and cobalt recovery of 92.0% for a concentrate grade of 8% Ni. • Savannah North Lower Zone averages nickel recovery of 83.7%, copper recovery of 99.3% and cobalt recovery of 95.2% for a concentrate grade of 8% Ni. • Metallurgical recoveries for the Savannah deposit are calculated from plant feed grades in the LOM plan and are based on over 10 years of historical plant performance. Average recoveries exhibited are 85% for Nickel, 95% for Copper and 88% for Cobalt. • Savannah produces a clean bulk nickel, copper, and cobalt concentrate and since commissioning in 2004 there have been no deleterious material penalties. As such no allowance has been made for deleterious material. • The Ore Reserve estimate has been based on appropriate mineralogy and metallurgical factors to meet the existing concentrate off-take specifications.
Environmental	• *The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	• Savannah operates under the conditions set out by an environmental license to operate. • Waste is placed on approved waste dumps or used as backfill in mined voids. • The existing tailings storage facility (TSF1) has an estimated three years of capacity to the final approved height at the modelled production rates. • An additional tailing storage facility (TSF2) will be required from Year 3 of Savannah North production. Coffey Mining Pty Ltd undertook an options study, and a preferred option has been selected, designed and costed for a life-of-mine tailings facility. • Discussions have been held with relevant regulatory bodies, and the Company expects no issues with the approvals process for TSF2.
Infrastructure	• *The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	• The Savannah mine has substantial infrastructure in place including a paste fill plant, major electrical and pumping networks, a 1Mtpa processing plant, a fully equipped laboratory, extensive workshop, administration facilities, a 215 single person quarters village and tailings storage facility.
Costs	• *The derivation of, or assumptions made, regarding projected capital costs in the study.* • *The methodology used to estimate operating costs.*	• Costs are based on a combination of actual costs occurred in processing, and transportation over the FY2023 financial year and mining costs based on contract rates established under a 3-year mining services agreement awarded in February 2020. • Capital underground development costs are derived from the LOM plan and

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td>• Allowances made for the content of deleterious elements.

• The source of exchange rates used in the study.

• Derivation of transportation charges.
• The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.

• The allowances made for royalties payable, both Government and private.</td><td>actual costs as per above.
• Other capital costs are related to equipment and infrastructure costs and are based on quotes or historical actual costs.
• Closure costs have not been included.
• Metal prices and exchange rate assumptions are based on the median of a range of external market analysts medium term forecasts.
• Flat rate metal prices for nickel, copper, and cobalt as per the table below.
<table><tr><th>Item</th><th>Unit</th><th>Value</th></tr><tr><td>Nickel Price</td><td>A$/t</td><td>27,143</td></tr><tr><td>Copper Price</td><td>A$/t</td><td>10,714</td></tr><tr><td>Cobalt Price</td><td>A$/t</td><td>71,429</td></tr><tr><td>Exchange Rate</td><td>USD: AUD</td><td>0.70</td></tr></table>• Net Smelter Return (NSR) factors were sourced from the existing concentrate offtake contract.
• WA government and Traditional Owner royalty costs are included in the NSR calculation.</td></tr>
<tr><td>Revenue factors</td><td>• The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.
• The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.</td><td>• Revenue factors are based on metal production in concentrate from the LOM plan, flat metal prices for nickel, copper, and cobalt (above), flat rate A$:US$ exchange rate (above) and the NSR factors in the existing concentrate offtake contract.</td></tr>
<tr><td>Market assessment</td><td>• The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.
• A customer and competitor analysis along with the identification of likely market windows for the product.
• Price and volume forecasts and the basis for these forecasts.
• For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.</td><td>• The concentrate is contracted for sale to Jinchuan Group of China until February 2023 and to Trafigura from March 2023 to February 2028. The Savannah concentrate is being trucked to Wyndham Port and then shipped to Jinchuan's smelter/refinery in the Gansu province, northwest China.</td></tr>
<tr><td>Economic</td><td>• The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.
• NPV ranges and sensitivity to variations in the significant assumptions and inputs.</td><td>• Internal cash flow estimates apply an 8% real discount rate for NPV analysis and only economically viable ores are considered for mining based on a stope only cut-off grade.
• Sensitivity analysis of key financial and physical parameters is applied to the</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
		LOM plan.
Social	• *The status of agreements with key stakeholders and matters leading to social licence to operate.*	• The Savannah Mine is fully permitted and has a coexistence agreement in place with Traditional Owners.
Other	• *To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:* • *Any identified material naturally occurring risks.* • *The status of material legal agreements and marketing arrangements* • *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.*	• No significant unresolved material matters relating to naturally occurring risks, third party agreements or governmental/statutory approvals currently exist.
Classification	• *The basis for the classification of the Ore Reserves into varying confidence categories.* • *Whether the result appropriately reflects the Competent Person's view of the deposit.* • *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	• The classification adopted is based on the level of confidence as set out in the 2012 JORC guidelines • Proved Ore Reserves are based on Measured Mineral Resources subject to economic viability. • Probable Ore Reserves are based on Indicated Mineral Resources subject to the economic viability. • The estimate appropriately reflects the view of the competent person.
Audits or reviews	• *The results of any audits or reviews of Ore Reserve estimates.*	• The Ore Reserve estimate, along with the mine design and life of mine plan, cost and revenue modelling has been peer-reviewed by Entech internally, and by Panoramic technical and management staff.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include*	• The relative accuracy of the Ore Reserve estimate is considered robust as it is based on the knowledge gained from extensive operational history of the mine. Design and scheduling have been completed to a feasibility standard. • All currently reported Ore Reserve estimations are considered representative on a global scale. • Mine to mill reconciliation records throughout the life of the Savannah Mine provide confidence in the accuracy of the Ore Reserve • Considerations that may result in a lower confidence in the Ore Reserves include: • There is a degree of uncertainty associated with geological estimates.

Criteria	JORC Code explanation	Commentary
	assumptions made and the procedures used. • *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.* • *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	The Ore Reserve classifications reflect the levels of geological confidence in the estimate; • Nickel price and exchange rate assumptions are subject to market forces and present an area of uncertainty; and • There is a degree of uncertainty regarding estimates of impacts of natural phenomena including geotechnical assumptions, hydrological assumptions, and the modifying mining factors, commensurate with the FS level of detail of the study. • Considerations in favour of a higher confidence in the Ore Reserves include: • The mine plan assumes a low complexity mechanised mining method that has been successfully previously implemented by PAN at the site for over 10 years. • Costs are based on historical data, underground contractor awarded rates, and a current offtake agreement. • The Ore Reserve is based on a global estimate. Modifying factors have been applied at a local scale.

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ABN: 47 095 792 288
Level 9, 553 Hay St
Perth, WA 6000
T: +61 8 6374 1700
E: info@panres.com

ASX ANNOUNCEMENT

25 May 2023

KEY POINTS

- Regional exploration at Savannah gathering momentum as multiple intrusion targets are tested for the first time
- Surface Down Hole Electromagnetic (DHEM) surveying underway at Savannah targeting:
  - Stoney Creek Intrusion
  - Northern Ultramafic Granulite
- Surface exploration diamond drilling underway at Savannah targeting:
  - Dave Hill / Wilsons Intrusion
  - Keller Creek Graphite prospect
- Results from diamond drilling and DHEM surveying expected during the September quarter

Panoramic Resources Limited (ASX:PAN) ("**Panoramic**" or the "**Company**") is pleased to provide an update on regional exploration programs currently underway at the Company's Savannah Nickel Project in Western Australia.

Surface DHEM

DHEM surveys in previously drilled holes SMD188 and SMD190 in the Stoney Creek Intrusion and SMD191 and SMD192 in the Northern Ultramafic Granulite Intrusion are currently underway (Figure 1). All four holes have been cased in preparation for the survey in combination with the underground diamond drill holes which were recently drilled through the Savannah Extension, above and below the 900 Fault (see announcement *Savannah Drilling and DHEM Program Update* 8/05/2023).

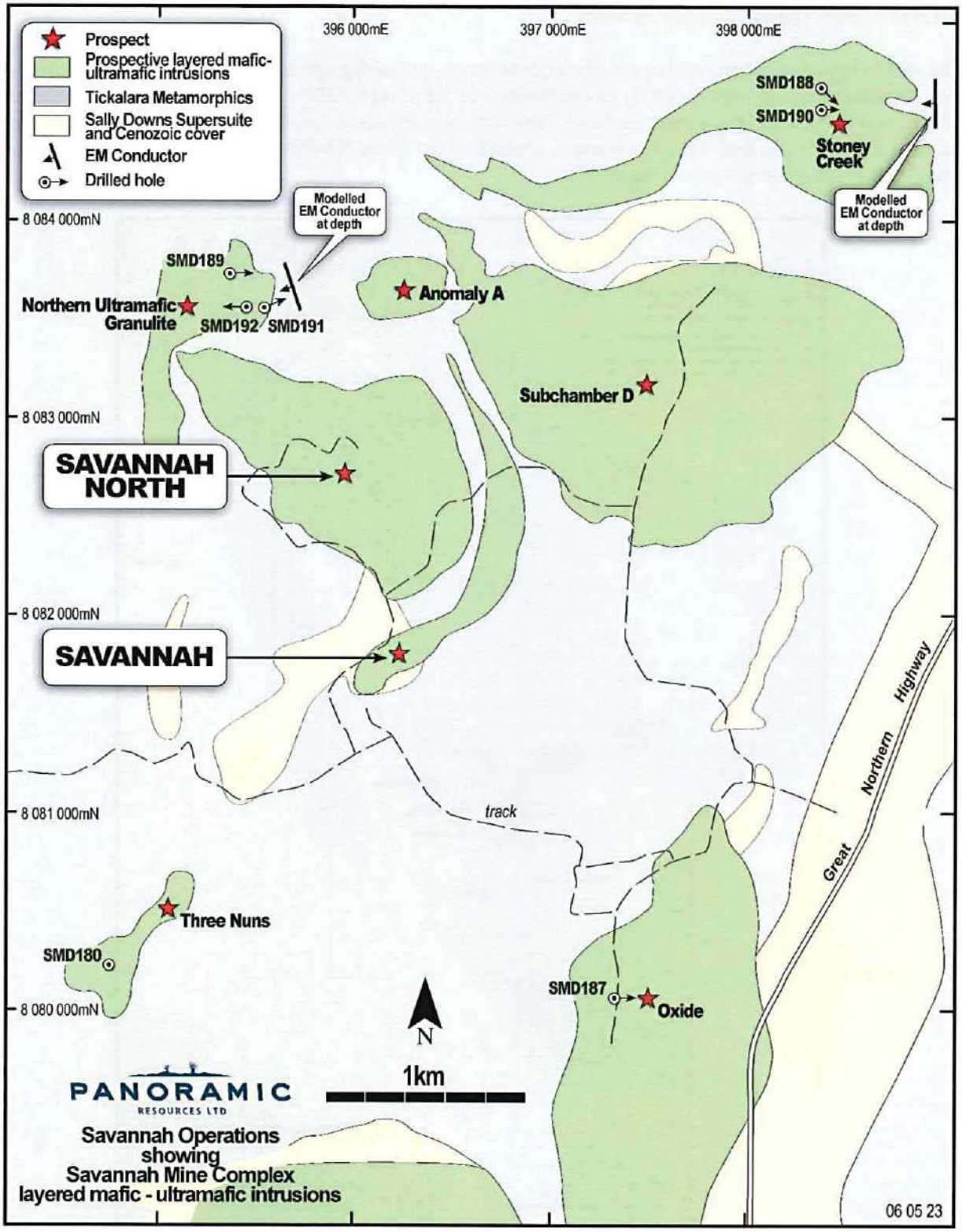


Figure 1: Ultramafic intrusions of the Savannah Intrusive Complex highlighting recent drilling to be DHEM surveyed in May 2023

Surface Drill Targets at Savannah

The Kimberley dry season has begun with access tracks and drill pads now established in preparation for surface exploration diamond drilling to commence at Savannah. DDH1 Drilling has been contracted to initially drill at least three surface diamond holes for approximately 1,500m this dry season. The focus of the drill program is to test the southeastern contact of the Dave Hill Intrusion and follow up holes at the Keller Creek Graphite prospect (Figure 2).

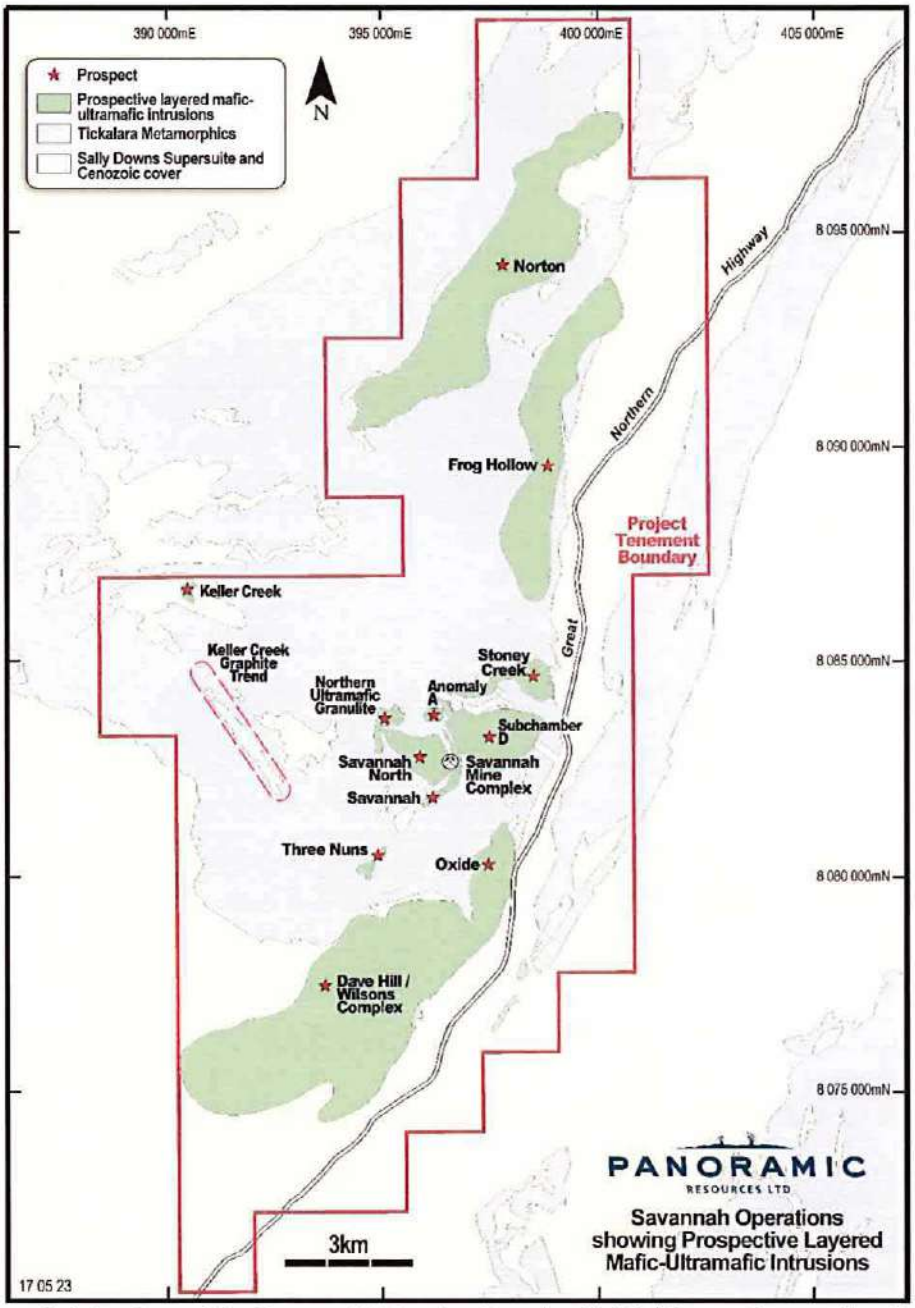


Figure 2: Ultramafic intrusions of the Savannah Intrusive Complex highlighting surface exploration targets and ultramafic lithology

Dave Hill / Wilson Creek Complex

The Dave Hill / Wilson Creek Complex is located immediately to the south of Savannah. The Dave Hill and Wilson Creek layered cumulate bodies were previously considered to be two separate intrusions, however mapping, drilling and other studies by Panoramic indicate they belong to a single complex intrusion.

A 2018 drill program at Dave Hill / Wilson Creek provided a much clearer understanding of the 3D architecture of this layered complex. It supported the idea that Dave Hill and Wilson Creek are part of a large single intrusion that has a broad "bathtub" shape, similar to the Savannah North intrusion. However, it differs from Savannah North in that the more prospective MgO rich (ultramafic) lithologies appear confined to a "tube-like" conduit, situated centrally within the intrusion rather than at the base of the intrusion as is the case at Savannah North. A renewed focus on surface mapping has found a secondary area prospective for ultramafic rocks on the southeastern margin of the intrusion. Drilling is planned to test this contact area at depths previously impenetrable by surficial geophysical techniques.



Figure 3: Surface drilling on the Dave Hill prospect at Savannah Nickel Mine May 2023

Keller Creek Graphite

The Keller Creek Graphite prospect is located immediately to the west of Savannah. Regional airborne electromagnetic surveys conducted by the Company in search of nickel sulfide mineralisation, identified several large stratigraphic horizons of graphite bearing meta-sediments (Tickalara Metamorphics) across the entire Keller Creek tenement.

In 2019, Panoramic conducted a preliminary reverse circulation (RC) drill test of the main graphite bearing horizon over a strike length of approximately 5 kilometres. The program consisted of 14 RC drill holes comprising a total of 1,368 drill metres, with a total of 1,074 one-metre graphite bearing samples collected and submitted for assay (see announcement *Quarterly Report* September 2019).

The aim of the 2023 diamond drilling program is to improve on the RC program and determine the true thickness and Total Graphitic Carbon content of the graphite bearing horizon. The option to further understand the lithogeochemistry, graphite flake potential and complete metallurgical testwork will also be available following the drilling program.

Competent Person

The information in this release that relates to Exploration Drilling at Savannah is based on information compiled by Andrew Shaw-Stuart. Andrew Shaw-Stuart is a member of the Australian Institute of Geoscientists (AIG) and is a full-time employee of Panoramic Resources Limited.

The aforementioned has sufficient experience that is relevant to the style of mineralisation and type of target/deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Shaw-Stuart consents to the inclusion in the release of the matters based on the information in the form and context in which it appears.

About Panoramic:

Panoramic Resources Limited (ASX: PAN) is a company headquartered in Perth, Western Australia, which owns the Savannah Nickel Project in the East Kimberley. Operations at Savannah were restarted in 2021 and the project was successfully recommissioned with first concentrate shipment achieved in December 2021. Savannah has a 12-year mine life with clear potential to further extend this through ongoing exploration. The asset provides excellent leverage to the nickel, copper and cobalt markets which are heavily linked to global decarbonisation and vehicle electrification.

This ASX announcement was authorised on behalf of the Panoramic Board by: Victor Rajasooriar, Managing Director & CEO

For further information contact:
Victor Rajasooriar, Managing Director & CEO
+61 8 6374 1700

Media inquiries:
Michael Vaughan, Fivemark Partners
+61 422 602 72

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PANORAMIC RESOURCES LTD

31 October 2019



VISION | COMMITMENT | RESULTS

ASX:PAN

Quarterly Report for the period ending 30 September 2019

Significant Points

NICKEL

Savannah

- Safety – Lost Time Injury Frequency Rate (LTIFR) of 4.2 at the end of the quarter, no Lost Time Injuries reported
- Concentrate shipments – two concentrate shipments from Wyndham, aggregate provisional value of A$19.5 million
- Revenue – positive final QP pricing adjustments of A$4.1 million received due to the increased US$ nickel price
- Mining – total lateral development of 1,054m, up 21% quarter-on-quarter
- Processing – average nickel recovery of 85.1% is now at target
- Metal production – 1,342t Ni, 855t Cu and 64t Co in concentrate, Ni down 12%, Cu up 5% on previous quarter
- Savannah North decline access development – advancement rates continue to improve
- Savannah North ventilation rise – significant improvement in reaming rates, on-track for completion date in the March 2020 quarter
- Savannnah North Fresh Air Raise (FAR) – drilling of pilot-hole commenced in late October
- Savannah North Upper Zone Resource infill drilling - better than expected results returned including the interection of significant high-grade mineralisation outside the existing Ore Reserve

GOLD

Gum Creek (51% Indirect)

- Zinc - Altair Zn-Cu-Ag mineralisation could extend over 8kms
- Gold - Scoping Study commenced on mining the Swan and Swift free milling Resources

PGMs

Panton

- Project review completed

Thunder Bay North (TBN)

- Benton Resources Inc. to buy TBN Project for C$9 million on a deferred payment basis – initial C$4.5 million payment expected by the end of 2019

CORPORATE

- Group Cash - $20.2 million in available and restricted ($180k) cash
- Capital Raising - $27.2 million net proceeds received from two for eleven Pro-Rata Rights Issue at 28c per new Share
- Board and management changes announced

Nickel – Savannah Project

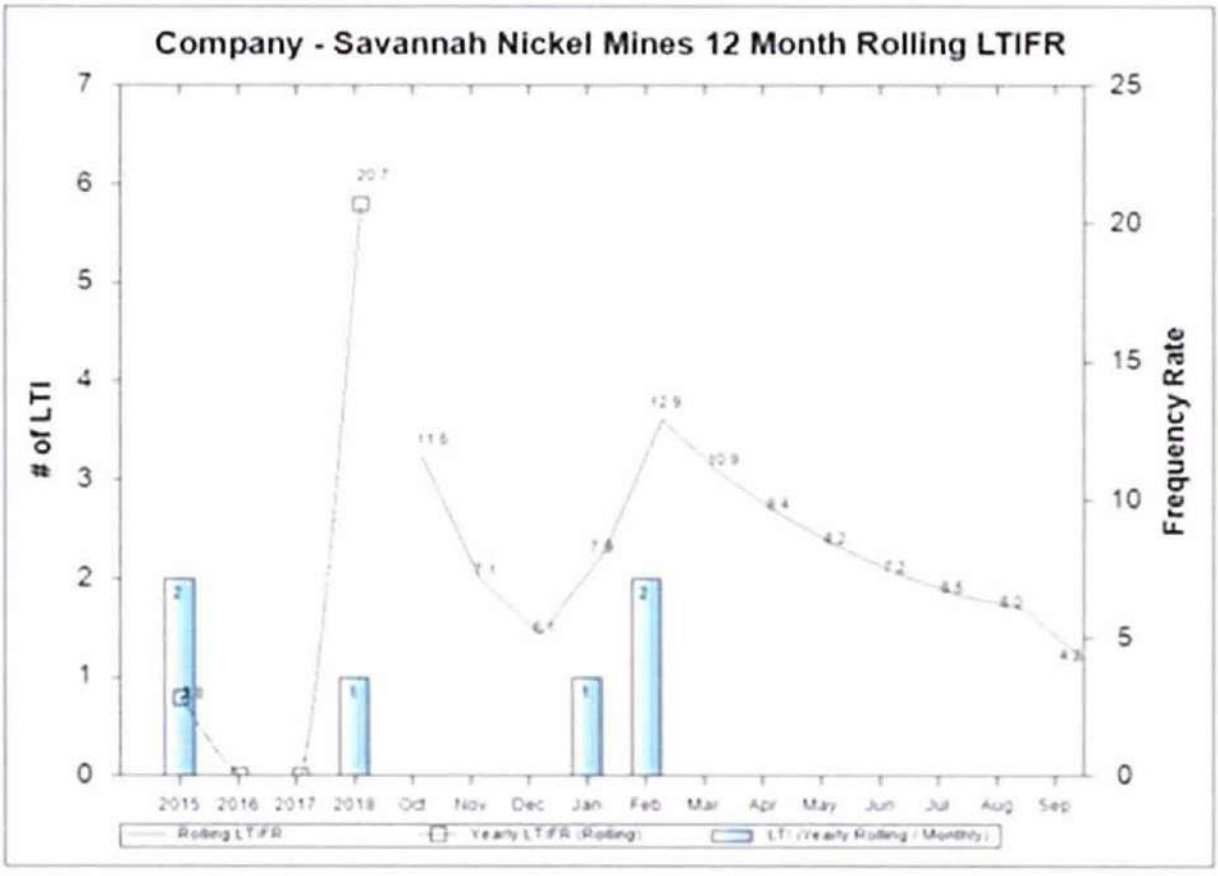
Safety

The Savannah 12 month rolling average Lost Time Injury Frequency Rate (LTIFR) as at 30 September 2019 was 4.2 (*Figure 1*). There were no Lost Time Injuries (LTIs) recorded during the quarter. This result demonstrates the marked improvement in the site's safety performance since February 2019.

The one significant reportable injury in the quarter was to a driller working on a long hole drill rig at the time of the underground seismic event in July. He sustained strains to the neck and back from the movement of the drill rig. Other minor reportable and first aid injuries consisted of mainly soft tissue strains and sprains, which were attended to on site.

Across all departments, there is a strong focus on visible safety leadership in the field with two safety leadership coaching workshops held during the quarter. The focus of these workshops was site leaders influencing safety culture by conducting interactions in the field, which includes identifying high risk tasks and checks to ensure operators are implementing the correct critical controls by the use of area inspections (SHEDs).

Figure 1 – Savannah Project 12 month Rolling LTIFR as at 30 September 2019



Environment

During the quarter, the site was maintained within all statutory, regulatory and licence conditions.

The annual Tailings Storage Facility (TSF) Audit was carried out in July by the WA Department of Mines, Industry Regulation and Safety (DMIRS) with no issues of a material nature found.

The National Pollutant Inventory (NPI) and National Greenhouse and Energy Reporting (NGER) information was collected from each department during the quarter. This environmental information is lodged with the Commonwealth each year in September and October, respectively.

Operating Statistics

In the September 2019 quarter, the Savannah Project produced 1,342t Ni, 855t Cu and 64t Co contained in concentrate. Two concentrate shipments departed Wyndham containing an aggregate 1,141t Ni, 606t Cu and 59t Co, with a total provisional value of A$19.5 million.

Table 1 – Savannah Project Operating Statistics

Area	Details	Units	3 mths ending 30 Sep 2019	3 mths ending 30 June 2019	2018/19 YTD
Mining	Ore mined	dmt	**119,334**	141,613	281,817
	Ni grade	%	**1.24**	1.27	1.17
	Ni metal contained	dmt	**1.480**	1.797	3,290
	Cu grade	%	**0.70**	0.61	0.60
	Co grade	%	**0.06**	0.06	0.06
Milling	Ore milled	dmt	**120,771**	140,806	276,039
	Ni grade	%	**1.31**	1.27	1.16
	Cu grade	%	**0.76**	0.64	0.60
	Co grade	%	**0.06**	0.06	0.06
	Ni Recovery	%	**85.1**	84.8	77.8
	Cu Recovery	%	**93.1**	91.1	89.0
	Co Recovery	%	**88.5**	88.2	81.8
Concentrate Production	Concentrate	dmt	**17,195**	21,591	35,608
	Ni grade	%	**7.80**	7.03	6.98
	Ni metal contained	dmt	**1,342**	1,518	2,484
	Cu grade	%	**4.97**	3.77	4.14
	Cu metal contained	dmt	**855**	814	1,474
	Co grade	%	**0.37**	0.37	0.36
	Co metal contained	dmt	**64**	80	130
Concentrate Shipments	Concentrate	dmt	**15,734**	21,467	34,222
	Ni grade	%	**7.25**	6.85	6.89
	Ni metal contained	dmt	**1,141**	1,471	2,357
	Cu grade	%	**3.85**	3.40	3.89
	Cu metal contained	dmt	**606**	731	1,331
	Co grade	%	**0.37**	0.36	0.36
	Co metal contained	dmt	**59**	78	125

At 30 September 2019, 3,312wmt of concentrate was on hand valued at A$5.0 million.

Payable Cash Costs

Table 2 – Savannah Project Payable Cash Costs

	Units	Savannah 3mths ending 30 Sep 2019	Savannah 3mths ending 30 June 2019
Costs Per Pound Payable Nickel			
Mining	A$ per lb	4.71	4.58
Milling	A$ per lb	3.02	2.28
Administration	A$ per lb	2.93	2.19
Payable Operating Cash Costs (Mine Gate)	**A$ per lb**	**10.66**	**9.05**
Port Charges/Shipping/Haulage	A$ per lb	1.03	0.96
Net By-product Credits	A$ per lb	(2.27)	(2.21)
Royalties	A$ per lb	0.57	0.49
Total Payable Operating Cash Costs[a]	**A$ per lb**	**9.99**	**8.29**
Total Payable Operating Cash Costs [b]	***US$ per lb***	***6.85***	***5.80***

(a) Savannah capital development cash cost for the quarter was A$2.56/lb. This cost is not included in Table 1. Capital development costs represent capitalised mining cash costs for deposits in production, being the Savannah deposit. These costs do not include the pre-production costs incurred on the Savannah North deposit.

(b) Average July - Sep 2019 RBA A$:US$ FX settlement rate of US$0.6860 (June 2019 quarter – US$0.6999).

Mining

A total of 119,334t of ore was mined in the quarter, a decrease of 16% quarter-on-quarter. The mined average nickel grade was 1.24%, which was down 2% on the previous quarter. Mining from the Savannah remnant ore reserve continues to have its challenges with production impacted by a localised seismic event on 15 July, resulting in a floor heave on the 1515 Level which restricted access into the 1490 Level area, a key production area for the quarter. This delayed access to an area containing approximately 150,000t of ore, which is now scheduled to be mined in the December 2019 quarter.

Total lateral development (including Savannah North development) for the quarter was 1,054m compared to 869m for the previous quarter, a 21% improvement.

Processing

Mill throughput over the quarter was 120,771t of ore, which was down 14% on the previous quarter. The mill produced 17,195t concentrate containing 1,342t Ni, 855t Cu and 64t Co. The nickel recovery continues to average ~85%, which is on budget.

Concentrate shipped was 15,734t, containing 1,141t Ni, 606t Cu and 59t Co, down 27% on the previous quarter. The September monthly shipment of 5,146wmt was delayed and departed for China on 14 October 2019 with a provisional value of A$7.4 million.

Savannah North Development

Significant improvements were recorded in lateral development and raise bore advancement during the quarter.

The twin declines were within 200m of the first Savannah North ore by the end of September 2019 and access development is on schedule to commence in late October 2019, with first ore from Savannah North on track to be mined in November this year.

The Savannah North raise bore advanced 205m over the quarter, more than a 100% improvement on the previous quarter. As at 24 October 2019, the hole was up 420m (47% complete), with project completion on track for the June 2020 quarter.

Planning for the construction of the Savannah North Fresh Air Raise (FAR) and Return Air Raise (FAR) holes was undertaken in the quarter. Drilling of the FAR pilot-hole commenced in late October.

The Savannah North Ore Reserve infill drilling commenced in June 2019, with 9,298 drill metres completed in the quarter. Details and results to-date of the infill drilling program are contained in the "Savannah Exploration" section of this report.

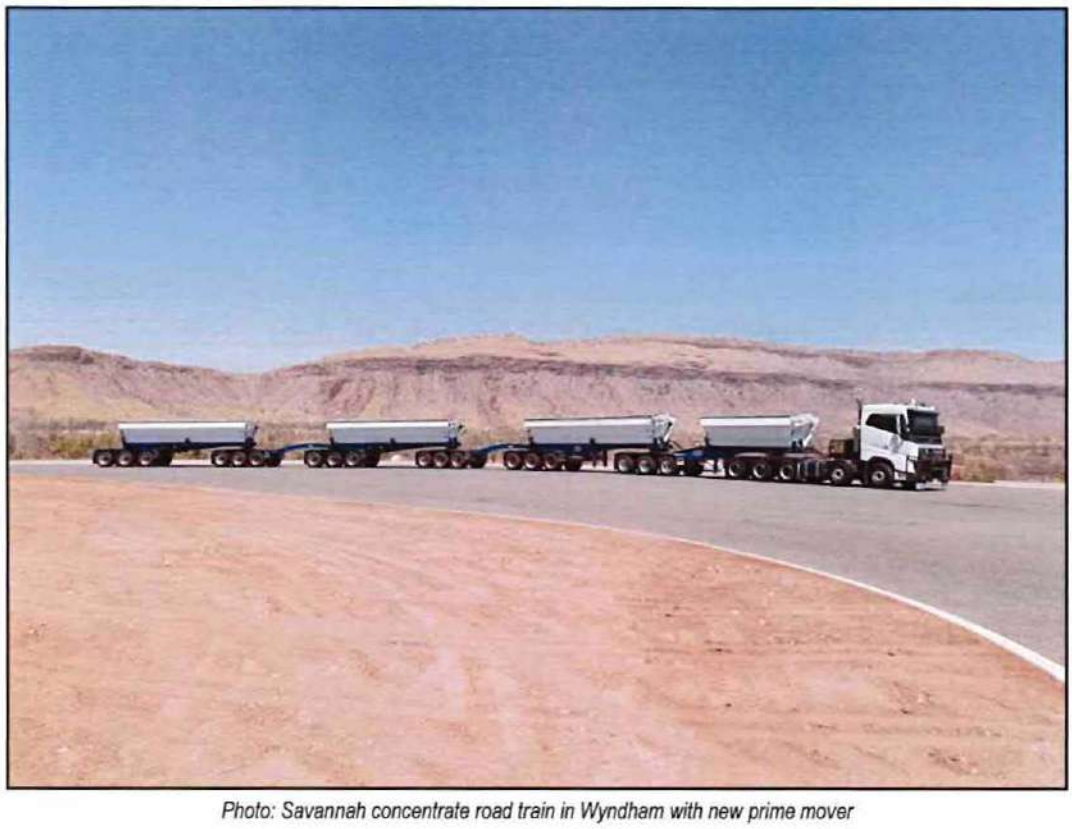


Photo: Savannah concentrate road train in Wyndham with new prime mover

Hedging

Savannah did not add to its hedge book during the quarter.

As at 30 September 2019, the Savannah hedge book had a negative valuation ("out-of-the-money") of $59.1 million, as summarised in Table 3.

Table 3: Savannah Hedge Book – A$ Mark-to-Market Valuation as at 30 September 2019

Commodity	Mark-to-Market 30 Sep 2019	Mark-to-Market 30 June 2019
Nickel Forwards	**($57.1 million)**	$0.6 million
Copper Forwards	**($1.4 million)**	($0.9 million)
Bought Nickel Put Options	-	$0.1 million
Unmatched A$:US$ FX Fwds	**($0.6 million)**	-
Total Mark-to-Market	**($59.1 million)**	($0.2 million)

Table 4: Savannah Hedge Book – Delivery Profile as at 30 September 2019

Commodity	Quantity 30 Sep 2019	Average Price/Rate 30 Sep 2019
Nickel - **Forwards** (delivery Jul 2020-June 2021)	4,826t	A$17,968/t **A$8.15/lb**
Forwards (delivery Jul 2021-Mar 2022)	3,164t	A$17,490/t **A$7.93/lb**
Copper - **Forwards** (delivery Jul 2020-June 2021)	1,556t	A$8,070/t **A$3.60/lb**
Forwards (delivery Jul 2021-Mar 2022)	1,080t	A$7,718t **A$3.50/lb**

Savannah Project Loan

On 2 September 2019, the $40 million Savannah Facility Agreement with Macquarie Bank was restructured with $20 million (50%) of the $40 million facility being repaid early on 30 September 2019. The repayment was funded from the September pro-rata Rights Issue. The outstanding nickel, copper and A$:US$ FX hedges were rolled with deliveries to commence in the September 2020 quarter, thereby matching the amended repayment schedule of September 2020 to March 2022.

The deferment of the nickel and A$:US$ FX hedging contracts gives the Company full exposure to the current high spot nickel prices and lower A$:US$ FX spot rate. The US$ nickel price has increased strongly since mid-2019, averaging US$7.04/lb (A$10.29/lb) over the quarter, up 27% on the previous quarter.

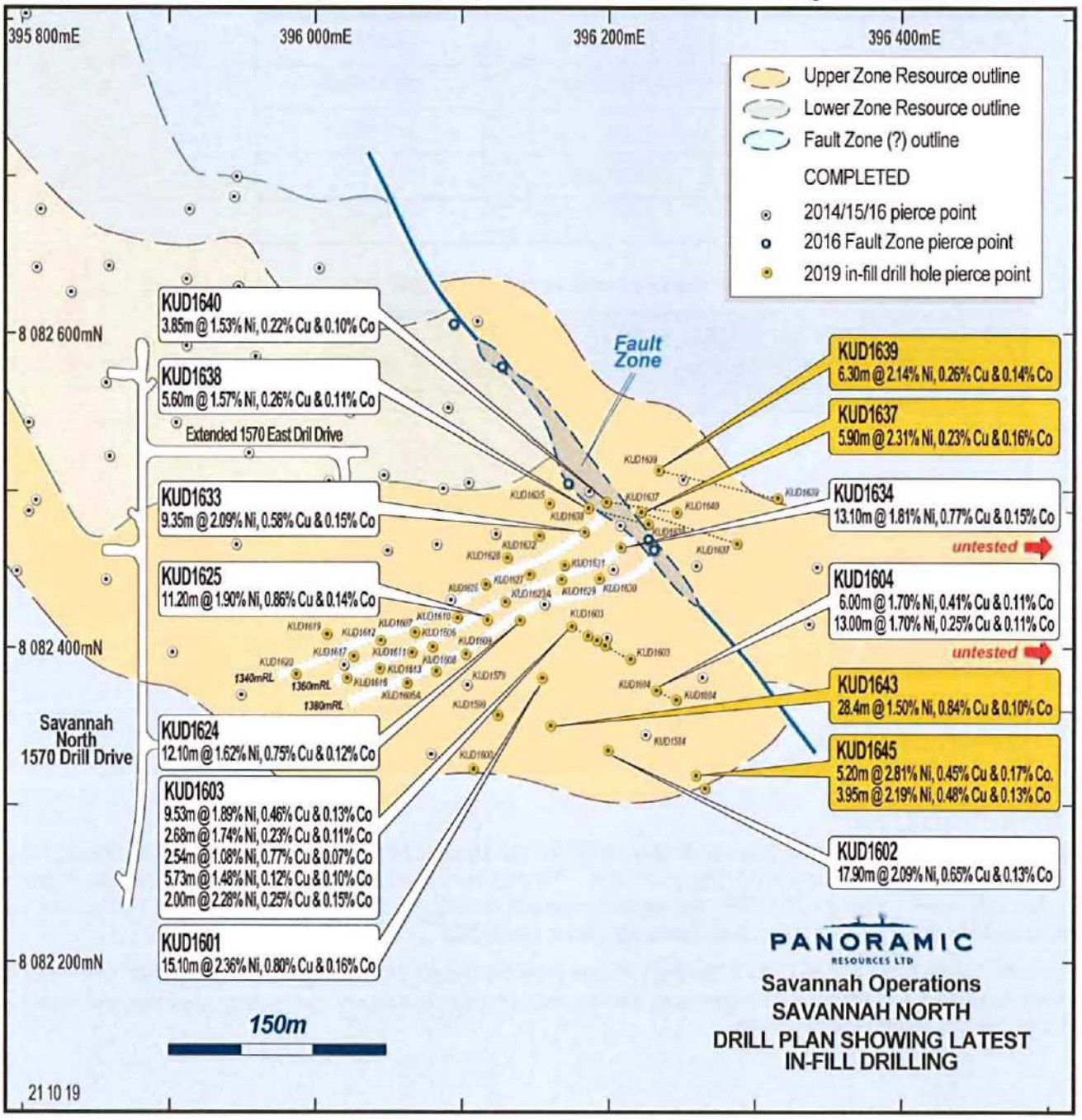
Savannah Exploration

The following in-mine drilling and off-mine exploration related activities were undertaken during the quarter.

Infill Grade Control Drill Program

In June 2019, the Company completed a 150m extension of the Savannah North 1570 Drill Drive 150m to the east to facilitate infill grade control and stope definition drilling of the Savannah North orebody (*Figure* 2). In July and August 2019, drilling from the extended drive was conducted using one rig with a second rig mobilised in early September. At the end of the quarter, a total of 44 holes had been drilled from the extended 1570 Drill drive for a combined total of 8,555 drill metres.

Figure 2 – Savannah North Project Plan showing 1570 East Drill Drive and latest infill grade control drill results



The Savannah North infill grade control drill program has three main aims:

1. to provide greater geological and grade detail in the area between 1350mRL and 1390mRL, covering the first three planned Savannah North production levels at 1340mRL, 1360mRL and 1380Mrl. This phase of the infill drill program is now complete;
2. to complete an initial drill test of the sparsely drilled area of the orebody above the planned production level at 1380mRL. A total of six holes were completed in this area during the quarter; and
3. to conduct an initial drill test in the vicinity of the Fault Zone and to the east of this zone where the current drill density is insufficient to convert the existing Inferred Mineral Resources in these areas to Ore Reserves. Four drill holes were completed in this area during the quarter.

More complete details of the infill drill program can be found in the Company's ASX announcement of 10 October 2019. Drilling is ongoing and is now targeting areas above and below the proposed 1380mRL and 1340mRL Savannah North production levels.

Infill geological grade control drilling, covering the first three proposed Savannah North production levels, is now complete. This area is part of the Savannah North orebody Upper Zone which has a reported Mineral Resource grade of 1.53% Ni. Significant drill intercepts from this program that returned better than expected results include:

- ***2.30m @ 2.37% Ni, 0.39% Cu and 0.17% Co from 154.6m (KUD1601);***
- ***6.35m @ 1.58% Ni, 0.37% Cu and 0.11% Co from 153.0m (KUD1609);***
- ***3.31m @ 2.25% Ni, 0.51% Cu and 0.16% Co from 153.7m (KUD1612);***
- ***5.55m@ 2.01% Ni, 0.38% Cu and 0.14% Co from 155.9m (KUD1613);***
- ***12.10m @ 1.62% Ni, 0.75% Cu and 0.12% Co from 154.6m (KUD1624);***
- ***11.20m @ 1.90% Ni, 0,86% Cu and 0.14% Co from 149.5m (KUD1625);***
- ***4.40m @ 2.32% Ni, 0.92% Cu and 0.17% Co from 149.4m (KUD1626);***
- ***5.50m @ 2.27% Ni, 0.78% Cu and 0.17% Co from 160.3m (KUD1628);***
- ***10.8m @ 1.72% Ni, 0.77% Cu and 0.12% Co from 166.0m (KUD1629);***
- ***7.80m @ 1.80% Ni, 0.35% Cu and 0.13% Co from 179.0m (KUD1630);***
- ***8.40m @ 2.31% Ni, 0.84% Cu and 0.17% Co from 166.0m (KUD1631);***
- ***13.30m @ 1.45% Ni, 0.53% Cu and 0.11% Co from 156.0m (KUD1632);***
- ***9.35m @ 2.09% Ni, 0.58% Cu and 0.15% Co from 168.8m (KUD1633);***
- ***13.10m @ 1.81% Ni, 0.77% Cu and 0.13% Co from 185.9m (KUD1634); and***
- ***3.00m @ 2.58% Ni, 0.70% Cu and 0.19% Co from 157.4m (KUD1635).***

All drill intercept lengths for this phase of the infill drill program are effectively True Widths. Mine plans and stope designs based on this latest drill information are currently being prepared, with the first Savannah North development and stoping ore on schedule to commence from this area in November 2019 and in the March 2020 quarter, respectively.

For the sparsely drilled area above the proposed Savannah North 1380m RL production level, a total of six new holes have been completed (*Figure 2*). In terms of the historical drill results for this area, the two previous best results were 9.8m @ 1.33% Ni in KUD1579 and 7.6m @ 2.49% Ni in KUD1584. Four of the six new infill holes returned the following, much better than expected, drill results:

- ***15.10m @ 2.36% Ni, 0.80% Cu and 0.16% Co from 192.3m (KUD1601);***
- ***17.90m @ 2.09% Ni, 0.65% Cu and 0.13% Co from 237.3m (KUD1602);***
- ***9.53m @ 1.89% Ni, 0.46% Cu and 0.13% Co from 165.9m (KUD1603);***
- ***2.68m @ 1.74% Ni, 0.23% Cu and 0.11% Co from 189.0m (KUD1603);***
- ***2.54m @ 1.08% Ni, 0.77% Cu and 0.07% Co from 194.2m (KUD1603);***
- ***5.73m @ 1.48% Ni, 0.12% Cu and 0.10% Co from 199.4m (KUD1603);***
- ***2.00m @ 2.28% Ni, 0.25% Cu and 0.15% Co from 212.7m (KUD1603);***
- ***6.00m @ 1.70% Ni, 0.41% Cu and 0.10% Co from 247.0m (KUD1604); and***
- ***13.00m @ 1.70% Ni, 0.25% Cu and 0.11% Co from 256.50m (KUD1604).***

The estimated True Width for all the intercepts in this area (including the historical holes) varies between 70 and 85 percent of the intercept length. Drilling in this area is ongoing.

Drilling results have also been received for four of six holes that were drilled from the 1570 Drill Drive, eastwards towards the Fault Zone (*refer to Figure 2*) and beyond. The drill results have shed new information on this area as well as returning several significant intercepts, including:

- ***5.90m @ 2.31% Ni, 0.23% Cu and 0.16% Co from 190.7m (KUD1637);***
- *1.70m @ 0.86% Ni, 1.85% Cu and 0.06% Co from 207.4m (KUD1637);*
- ***5.60m @ 1.57% Ni, 0.26% Cu and 0.11% Co from 163.0m (KUD1638);***
- *2.30m @ 2.00% Ni, 0.54% Cu and 0.14% Co from 211.8m (KUD1638);*
- ***6.30m @ 2.14% Ni, 0.26% Cu and 0.14% Co from 201.7m (KUD1639);***
- *1.80m @ 1.27% Ni, 0.19% Cu and 0.07% Co from 288.3m (KUD1639);*
- ***3.85m @ 1.53% Ni, 0.22% Cu and 0.10% Co from 175.0m (KUD1640); and***
- *6.20m @ 0.75% Ni, 0.22% Cu and 0.05% Co from 230.7m (KUD1640).*

None of the reported intercepts in the area of the Fault Zone fall within the current Savannah North Ore Reserve and mine design.

The poor shallow drill angles and increased geological variability in this area preclude the estimation of True Widths for the intercepts at this early stage. Where two intercepts are reported in the same hole, the first mentioned intercept relates to mineralisation that is either caught-up in the Fault Zone or, like the intercepts located to the west of the Fault Zone, is primary in-situ mineralisation developed at the base of the Savannah North intrusion. The second reported intercept is due to a split in the Savannah North mineralisation caused by the 500 Fault and emplacement of the Turkey Creek Gabbro below the base of the Savannah North intrusion (*Figure 3*). These intercepts are typically thinner and lower grade than the primary mineralisation developed at the base of the Savannah North intrusion.

The poor shallow drill angles between this area east of the fault and the extended 1570 drill drive make testing of the mineralised overlying base of the Savannah North intrusion in this area difficult. Further drill testing of this area will be undertaken once development has been completed higher up in the Savannah North mine (say the 1460mRL or 1480mRL).

The preliminary interpretation and modelling of the new drill intercepts about the Fault Zone indicate that the intercepts of **5.60m @ 1.57% Ni in KUD1638 and 3.85m @ 1.53% Ni in KUD1640**, which have intercept RLs of approximately 1388mRL, reflect mineralisation that is caught-up in the Fault Zone. Whereas, more importantly, the drill intercept of **5.90m @ 2.31% Ni in KUD1637** and **6.30m @ 2.14% Ni in KUD1639**, which have intercept RLs of approximately 1405mRL, reflect in-situ mineralisation developed at the base of the Savannah North intrusion east of the Fault Zone. **These two results are significant, in that they indicate that the Savannah North Upper Zone mineralisation continues strongly east of the Fault Zone in this area.**

Since the end of the quarter, three more holes have been completed above the planned 1380mRL production level, two of which returned the following significant intercepts:

- ***28.4m @ 1.50% Ni, 0.84% Cu and 0.10% Co from 196.6m (KUD1643);***
- ***5.20m @ 2.81% Ni, 0.45% Cu & 0.17% Co from 302.6m (KUD1645); and***
- ***3.95m @ 2.19% Ni, 0.48% Cu & 0.13% Co from 313.2m (KUD1645).***

The two KUD1645 intercepts, which plot at approximately 1515mRL at the previously interpreted very top edge of the Savannah North Upper Zone resource, indicate that the mineralisation may extend higher up-plunge in this area.