SCOTTS HILL AND MT VULCAN PROJECT
TASMANIA
EL2/2017

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Tenement Holder/Manager
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Note: All figures and grids are according to the GDA94 datum and MGA94 grid system.

ABSTRACT/EXECUTIVE SUMMARY

The main focus of Tasmania Energy Metals Pty Ltd ("TEM" or "the Company") at the Scotts Hill and Mt Vulcan Project is lateritic nickel-cobalt mineralisation. TEM aims to develop an open pit mining operation at Scotts Hill and Mt Vulcan with production of intermediate nickel (Ni) and cobalt (Co) products undertaken off-site in Tasmania.

Work completed in the reporting year 2022-2023 included a three-stage leaching test with CSIRO and further testwork on magnetite production. This reflected the outlook for nickel and cobalt, where by-product credits (across available Fe, Cr, Al or Sc) would be needed to reach economic hurdles for development.

The development focus at Scotts Hill and Mt Vulcan remains metallurgical testing and engineering works as part of the feasibility assessment of the project. Financial modelling to integrate project advantages associated with its location (i.e., low statewide electricity costs and nearby infrastructure as well as credits associated with by-products) will be important in being able to progress towards development. Work-to-date has confirmed that development of the Scotts Hill and Mt Vulcan deposits with the nearby Barnes Hill deposits is required to give the project improved scale and greater commercial viability.

Exploration completed during the reporting period has included a further integrated test of the 3-stage leaching flowsheet and further testwork towards the production of a saleable magnetite concentrate through (1) a finer ground application of Low Intensity Magnetic Separation (LIMS) and (2) gravity separation polishing of a Wet High Intensity Magnetic Separation (WHIMS) magnetite concentrate using a wet shaking table.

Other works in the period included geochemical and physical assessment of historical bulk samples held in the near-site storage. These have been confirmed as suitable for further bulk scale work focus on magnetite concentrate production. Geological desktop work has also now confirmed an operating procedure acceptable under the JORC-code for application of magnetic susceptibility measurement, on historical core and pulps, to enable the estimation of an Fe mineral resource and for magnetite recovery to be included in feasibility modelling.

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1 INTRODUCTION

The Scotts Hill and Mt Vulcan Project (EL2/2017) is located in northern Tasmania. The exploration licence contains a JORC 2012 inferred resource of 7.7Mt at 0.67% Ni and 0.047% Co (on a 0.5% Ni cut-off grade). The resource is made up of two interconnected resources known as the Scotts Hill and Mt Vulcan deposits (see Figure 1).

The Scotts Hill and Mt Vulcan Hill Project is located 5km west of the township of Beaconsfield near the Tamar River in northern Tasmania. The Scotts Hill and Mt Vulcan resource can be directly accessed using Tattersall's Road, just west of Beaconsfield.

The exploration licence covers an area of $13km^2$ and was granted on 15th August 2017 for an initial period of five years. It is owned 100% by Tasmania Energy Metals Pty Ltd (TEM). It is not subject to any current agreements with other companies. The exploration target is lateritic nickel-cobalt mineralisation that can act as feed for the proposed development of the adjacent Barnes Hill mine (on Lease 1872P/M) also held by TEM.

The land tenure plan shows EL2/2017 is covered by both Crown and Private Land. The Crown Land is variously classified. The private land only minorly impacts the Scotts Hill Ni-Co mineralisation to the east of the Tattersalls Road. Exploration and mining are permitted on Private Land but must be preceded by negotiation of an access and compensation agreement with the landowner and its lodgement with Mineral Resources Tasmania (MRT). However, no exploration is currently proposed for private land.

The relevant areas of Crown Land are classified either as Future Potential Production Forest (FPPF), Regional Reserve, and Conservation Area. The Scotts Hill mineralisation sits on FPPF, while Mt Vulcan sits on FPPF west of the Tattersalls Road and the Dans Hill Conservation Area east of the Tattersalls Road.

The development focus is metallurgical testing and engineering works as part of the feasibility assessment of the project. Given the grade of resources hosted at Scotts Hill and Mt Vulcan, development will turn on achieving co-production of viable by-products. Several stages of metallurgical testing have been undertaken with a view to other valuable contained elements including Al, Cr, Fe, Mn and Sc.

Exploration completed during the reporting period has included an integrated application of the leaching flowsheet and physical beneficiation to improve the quality and mass available as an iron (Fe) concentrate through a cleaning stage of magnetic separation and application of a stage of gravity upgrading. During this reporting period, the successful LIMS was followed-up through two investigations:

a. Davis Tube Recovery "DTR" response to grind size on LIMS magnetic material (i.e., 1,000 Gauss mags) for Saprolite Ore and Saprock Ore;
b. Gravity upgrade by Wet Shaking Table on +38µm WHIMS magnetic material (i.e., 8,000 Gauss mags) for Limonite Ore, Transition Ore, Saprolite Ore and Saprock Ore.

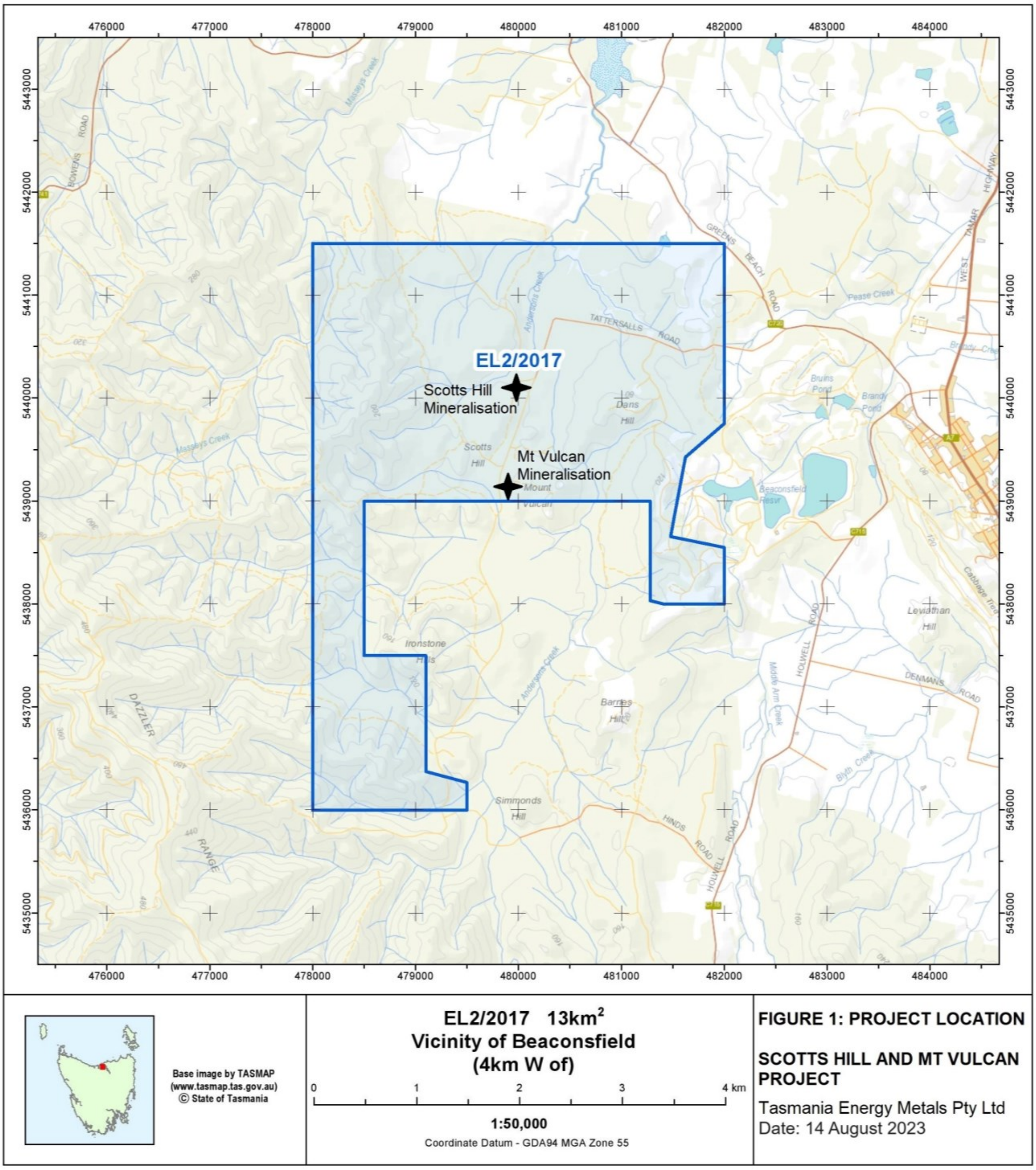

FIGURE 1 SUMMARY ACTIVITY MAP FOR SCOTTS HILL AND MT VULCAN

2 REVIEW OF PREVIOUS WORK AND GEOLOGICAL SETTING

Substantial exploration has been carried out at Scotts Hill and Mt Vulcan over the last 50 years. A summary table is included in the 2021 Annual Report (Richard, 2021).

A review of previous work and explanation of geological setting, being weather regolith associated with the Andersons Creek Ultramafic Complex (ACUC), as well as historical minerals resource and metallurgical testwork was presented in the 2017-2018 Annual report for EL 2/2017 (Richard, 2018) and may be used for reference.

3 EXPLORATION COMPLETED DURING THE REPORTING PERIOD

Pre-feasibility study level testwork in ongoing. This reporting period saw further samples drawn from the metallurgical composite (itself from the 2019 drilling program) and utilised in further leach testing to verify earlier results and to further pursue the extraction of a saleable Iron Ore concentrate through a polishing stage of magnetic separation (to boost Fe levels in some fractions containing material volumes but returning subeconomic grades of Fe concentrate) and also a gravity separation stage. These additional circuits were identified by earlier testwork and desktop analysis supported them as having low margin production costs, and hence being viable (e.g., application of the shaking table to already ground and wet material was cost at <$2/t. As noted previously, LIMS on scrubbed ores was very successful and produced a Fe concentrate with low impurities that is likely to be suitable for sale. WHIMS also extracted Fe values, but significant nickel and cobalt were also extracted to these concentrates and the head Fe grade was subeconomic, particularly for the saprolite and saprock ores. However, saprolite and saprock represent over three-quarters of the available resource (see table 1 below as reported in Richard, 2020), and carry material magnetite as returned by testwork (as shown in table 2).

Class	Domain	Tonnes (Mt)	Ni %	Co %	MgO %	Fe_2O_3 %	SiO_2 %	Al_2O_3 %	MnO %
Inferred	Transitional	1.2	0.65	0.093	3.7	42.4	29.9	8.5	0.5
	Saprolite	3.0	0.76	0.052	12.0	29.8	38.7	5.7	0.4
	Saprock	3.5	0.61	0.025	26.6	15.7	42.8	2.7	0.2
Total		7.7	0.67	0.047	17.3	25.4	39.2	4.8	0.3

Mineral Resource Estimate at 0.5% Ni cut-off grade (Snowden Mining Industry Consultants Pty Ltd)

Note: Small discrepancies may occur due to rounding

TABLE 1 SCOTTS-VULCAN MINERAL RESOURCE ESTIMATE, MARCH 2020

Ore Domain	Magnetite (%vol)
Limonite	19
Transitional	12
Saprolite	12
Saprock	9

TABLE 2 MAGNETITE BY VOLUME (CSIRO BY ELECTRON PROBE MICRO ANALYZER)

This undermined the potential economic attractiveness of the method on most realistic commodity price scenarios. Only in extreme commodity price cases would the additional by-product volumes outweigh the loses of Ni and Co to the proposed leaching operations. It was suggested that supplementing WHIMS with a gravity method might reduce these losses, and this was tested in the reporting period.

4 DISCUSSION OF RESULTS

The results met expectations and support a multi-stage processing pathway for the development of the project. The main results are discussed in this section.

4.1 Leaching Testwork

An integrated 3-stage (primary, secondary and tertiary) leaching test was run by CSIRO in Perth on the optimal conditions identified in metallurgical assessment undertaken during the reporting year to August 2023. The testwork was undertaken on a representative sample drawn from drilling composites.

The conditions used for the additional tests are given in Table 3 and were unchanged from the previous test. As was previously the case, after the Primary leach step, Secondary ore and further water were added to the Primary leach slurry to conduct the Secondary leach step. Subsequently, dry Tertiary Ore was added to the Secondary leach slurry to neutralise acid generated during Secondary leaching.

Test Condition	Ore Type		
	Primary ore	Secondary ore	Tertiary ore
Ore addition (g)	500	255	140
Ore proportion (%)	54	30	17
Water addition (g)	929	473	0
Acid addition (g)	475	0	0
Target Acid/Dry Ore (kg/t)	950	N/A	N/A
Target pulp density (% w/w)	26	35	N/A
Leach time (h)	6	3	5
Temperature (°C)	95	170	95

TABLE 3 TEST CONDITIONS FOR ADDITIONAL SERIES OF LATERITE LEACH TESTS

The results achieved excellent Ni and Co extractions. Lower levels of extraction occurred in the tertiary leach stage, which sought to commence neutralisation of the process liquor and maximise the utilisation of acid added in the earlier leaching stages. The final level of iron extraction was low at 15.9%, reflecting a suitable process where acid was winning nickel units rather than leaching Fe. These were strong results confirming that the Scotts Hill and Mt Vulcan ore as readily leachable under low-moderate intensity conditions.

		Leaching Extractions			
Stage	Time (min)	Ni %	Co %	Fe %	Mg %
Stage 1 Primary	360 (final)	95.4	95.9	72.2	97.3
Stage 2 Secondary	180 (final)	94.0	93.3	23.3	95.5
Stage 3 Tertiary	60	90.7	91.0	19.4	74.7
	120	91.4	90.7	18.7	77.1
	180	91.4	92.1	17.2	78.9
	240	91.4	91.2	16.5	80.1
	300 (final)	91.8	91.8	15.9	81.1

TABLE 4 3-STAGE LEACH CUMULATIVE METAL EXTRACTIONS

4.2 Magnetic Separation

Following the earlier LIMS and WHIMS work (including the larger scale test), follow-up testing was undertaken with IHC Royal. The LIMS magnetic separation had been successful and produced what has been preliminarily assessed to be a saleable Fe concentrate with low impurities. However, the LIMS concentrates produced from Saprolite and Saprock ore were low in Fe values (49.9% and 29.4% respectively), and even at lower volumes would depress the overall value of the product. Importantly, the removal of an Fe by-product resulted in improved leach feed parameters including higher Ni/Co grades and lower Fe. However, for the Saprolite and Saprock ore, the Fe grade (at 55.1% Fe and 39.5% Fe respectively as shown in table XX below) was low and would require blending. The Saprolite and Saprock were also the main leaching feed streams and material units of Ni and Co reported to the magnetic concentrates that would not be subject to subsequent leaching. Any ability to retain additional units of Ni and Co would also benefit the overall process.

			Assay				Metals Distributions			
Ore Type	**Fraction**	**Dry Mass %**	**Ni %**	**Co %**	**Mg %**	**Fe %**	**Ni %**	**Co %**	**Mg %**	**Fe %**
Limonite Ore	LIMS Mag	44.2	0.34	0.08	0.83	60.7	26.8	23.2	24.7	62.2
Transition Ore	LIMS Mag	16.9	0.19	0.06	0.50	64.0	4.6	7.1	3.1	37.1
Saprolite Ore	+38µm LIMS Mag	20.1	0.33	0.06	1.83	55.1	7.0	18.2	5.7	51.7
Saprock Ore	+38µm LIMS Mag	19.9	0.34	0.03	8.90	39.5	11.5	23.0	10.3	65.2

TABLE 5 MAGNETIC SEPARATION OF LATERITIC NICKEL ORE

The Davis Tube Recovery (DTR) method was used to assess the ability to further improve concentrate quality through refinement of the grind size (through finer grinding or regrinding of below specification magnetic separation concentrates) generated by LIMS: Sub-samples of the -125µm +38µm LIMS ~1,000 Gauss Mags (ID: 2172 T2 Mag) from the Saprolite Ore and the Saprock Ore were ground to a P80 of ~75µm and ~38µm and subjected to standardised DTR tests at various magnetic field strengths. The tests aimed to determine if fine grinding would improve liberation and allow 'lost' Ni and Co units to be recovered from the +38µm LIMS ~1,000 Gauss Mags stream. Previous tests demonstrated the Ni/Fe and Co/Fe selectivity during ~1,000 Gauss magnetic separation to be poorer for -38µm material (e.g. 2172 T4 Mag/Non-Mag) than for +38µm material (e.g. 2172 T2 Mag/Non-Mag). The testwork was undertaken by physical separation specialist IHC Royal in Queensland.

The Saprolite Ore material tested was ground to -125µm and wet screened (deslimed) at +38µm and was derived from the LIMS (~1,000 Gauss) magnetic stream. Sub-samples of this material were further ground to 86% passing 75µm and 81% passing 38µm. These two re-ground sub-samples were then split into three aliquots for standardised DTR testing at 500 Gauss, 800 Gauss and 1,000 Gauss. Some potential sampling bias was observed between this batch of saprolite sub-samples and the previous LIMS Mag head assay sample (assay disparity), however the DTR performance trend aligned with the other tests results. The same process was applied to the Saprock Ore where the material tested was ground to -125µm and deslimed at +38µm and again was derived from the LIMS (~1,000 Gauss) magnetic stream. Sub-samples of this material were further ground, and achieved 85% passing 75µm and 86% passing 38µm. These two re-ground sub-samples were then split into three aliquots for standardised DTR testing at 500 Gauss, 800 Gauss and 1,000 Gauss.

Results made a material difference to the Fe grade for both Saprolite and Saprock Ore. For the Saprolite ore feed, the 49.9% Fe was upgraded to 65.1%, 65.4% and 65.5% Fe for the three tests (at 500, 800 and 1,000 gauss respectively) on saprolite ore using 38µm grind size and from 44.6% to 63.8%, 64% and 64.1% Fe at 75µm. Mass recoveries were approximately 67% for the finer tests and 60% for the coarser grind. Results for the Saprock Ore were also impressive with 29.4% Fe upgraded to 66.5%, 66.1% and 66.4% Fe (again at 500, 800 and 1,000 gauss) for the three tests using 38µm grind size and from 28.6% to 64.3%, 64.4% and 64.5% Fe at a P80 75µm grind. Mass recoveries were lower in this upgrading being approximately 37% for the finer tests and 39% for the coarser grind. These concentrates continued to hold low levels of impurities (e.g., Mg and Si) and were comparable to concentrates previously assessed as saleable under market studies.

Importantly the tests delivered non-magnetic fractions with increased levels of Ni. For the Saprolite ore feed, the 0.42% Ni was upgraded to 0.77%, 0.84% and 0.85% Ni (500, 800 and 1,000 gauss) for the three non-magnetic tails (which would be leaching feed) in the tests using 38µm grind size and from 0.54% Ni to 1.01%, 1.00% and 1.01% Fe at 75µm. Results for the Saprock Ore were also strongly positive with 0.43% Fe upgraded to 0.54%, 0.56% and 0.56% Ni

(500, 800 and 1,000 gauss) for the three tests using 38μm grind size and from 0.43% to 0.57% Ni for all three tests at a P80 75μm grind. Cobalt results were more mixed, with the Saprolite results upgrading cobalt and the impact reversed for Saprock, where the Co reporting to the non-magnetic fraction was reduced through higher losses to the magnetic fraction.

Intensity	Stream	Mass	Assay					Distribution				
Gauss			Ni	Co	Mg	Fe	Si	Ni	Co	Mg	Fe	Si
		%	%	%	%	%	%	%	%	%	%	%
Saprolite Ore, P80 38μm												
	Mag	64.0	0.22	0.039	0.62	65.1	0.98	34.0	44.6	13.3	83.7	9.6
500	N/Mag	36.0	0.77	0.086	7.21	22.6	16.5	66.0	55.4	86.7	16.3	90.4
	Mag	67.5	0.22	0.039	0.60	65.4	0.89	35.4	47.1	13.4	88.6	9.1
800	N/Mag	32.5	0.84	0.091	8.04	17.5	18.5	64.6	52.9	86.6	11.4	90.9
	Mag	68.0	0.22	0.040	0.60	65.5	0.91	35.8	48.3	13.6	89.3	9.4
1000	N/Mag	32.0	0.85	0.091	8.12	16.6	18.7	64.2	51.7	86.4	10.7	90.6
-	Feed	100.0	0.42	0.056	3.01	49.9	6.60	100.0	100.0	100.0	100.0	100.0
Saprolite Ore, P80 75μm												
	Mag	60.0	0.22	0.046	0.76	63.8	1.29	25.0	41.6	14.4	85.6	8.3
500	N/Mag	40.0	1.01	0.097	6.79	16.1	21.3	75.0	58.4	85.6	14.4	91.7
	Mag	59.5	0.22	0.044	0.73	64.0	1.25	24.7	39.7	13.7	85.3	8.0
800	N/Mag	40.5	1.00	0.098	6.76	16.2	21.1	75.3	60.3	86.3	14.7	92.0
	Mag	59.5	0.22	0.044	0.72	64.1	1.24	24.5	39.7	13.5	85.5	7.9
1000	N/Mag	40.5	1.01	0.098	6.78	16.0	21.1	75.5	60.3	86.5	14.5	92.1
-	Feed	100.0	0.54	0.066	3.17	44.6	9.28	100.0	100.0	100.0	100.0	100.0
Saprock Ore, P80 38μm												
	Mag	36.0	0.22	0.032	1.01	66.5	0.94	18.8	40.0	2.9	80.9	2.8
500	N/Mag	64.0	0.54	0.027	18.8	8.82	18.3	81.2	60.0	97.1	19.1	97.2
	Mag	37.5	0.22	0.033	1.08	66.1	0.98	19.4	43.2	3.3	84.6	3.0
800	N/Mag	62.5	0.56	0.026	19.2	7.24	18.8	80.6	56.8	96.7	15.4	97.0
	Mag	38.0	0.22	0.031	1.01	66.4	0.90	19.8	41.3	3.1	85.9	2.8
1000	N/Mag	62.0	0.56	0.027	19.4	6.66	19.0	80.2	58.7	96.9	14.1	97.2
-	Feed	100.0	0.43	0.029	12.4	29.4	12.1	100.0	100.0	100.0	100.0	100.0
Saprock Ore, P80 75μm												
	Mag	38.5	0.22	0.034	1.5	64.5	1.30	19.3	46.0	4.5	86.4	4.0
500	N/Mag	61.5	0.57	0.025	19.70	6.34	19.3	80.7	54.0	95.5	13.6	96.0
	Mag	39.0	0.22	0.034	1.52	64.4	1.34	19.5	47.5	4.7	87.4	4.2
800	N/Mag	61.0	0.57	0.024	19.9	5.91	19.4	80.5	52.5	95.3	12.6	95.8
	Mag	39.0	0.22	0.034	1.52	64.3	1.33	19.5	47.5	4.7	87.7	4.2
1000	N/Mag	61.0	0.57	0.024	19.8	5.75	19.5	80.5	52.5	95.3	12.3	95.8
-	Feed	100.0	0.43	0.028	12.7	28.6	12.4	100.0	100.0	100.0	100.0	100.0

TABLE 6 LIMS RESULTS ON REGROUND SAPROLITE AND SAPROCK LIMS CONCENTRATES

At 75μm, increasing magnetic intensity did not increase mass distribution to mags. However, on finer grinding there was some impact such that at 38μm, increasing magnetic intensity caused an increase in mass distribution to mags (more so in the Saprolite Ore).

Decreasing grind size caused more mass to report to the mag fraction for the same magnetic intensity. This suggests some possible liberation improvement between 75μm and 38μm grind sizes. However, as shown in the results above, decreasing grind size caused a higher distribution of Ni and Co to report to the mag fraction for the same magnetic intensity – ultimately, this reduced Ni/Fe and Co/Fe selectivity (again more so in the Saprolite Ore). This suggests that 75μm is sufficient to increase liberation without increasing loses of Ni and Co.

Intensity	**% Increase (grinding from 75μm →38μm)**			
(Gauss)	**Mass**	**Ni**	**Co**	**Fe**
500	6.7	36.0	7.4	2.3
800	13.4	43.5	18.5	3.8
1000	14.3	46.1	21.5	4.5

TABLE 7 SAPROLITE ORE CHANGE IN RECOVERY TO MAGNETIC CONCENTRATE

Intensity	**% Increase (grinding from 75μm →38μm)**			
(Gauss)	**Mass**	**Ni**	**Co**	**Fe**
500	6.5	2.8	13.0	6.4
800	3.8	0.5	9.0	3.3
1000	2.6	1.8	13.1	2.0

TABLE 8 SAPROCK ORE CHANGE IN RECOVERY TO MAGNETIC CONCENTRATE

This suggests that, counteractive to the possible improved liberation, the paramagnetic particles (e.g. Ni- and Co-bearing minerals) are more likely to remain in the Davis Tube's magnetised zone when they are finer (magnetic suspension force > gravity settling force). This is less likely to occur in a LIMS unit due to the more turbulent fluid dynamics overcoming the weak magnetic force on the paramagnetic particles.

One final experimental result of note was that although the feed material was originally derived from ~1,000 Gauss LIMS mags, a significant mass to non-mags was recorded for the re-ground ~1,000 Gauss DTR non-mags (~30-40% for Saprolite Ore and ~60-65% for Saprock Ore). This suggests that the ~1,000 Gauss LIMS mags contained some paramagnetic or non-magnetic material that was entrained or locked with magnetic particles during the LIMS separation.

4.3 Gravity Upgrading

Results reported in the previous year showed that WHIMS beneficiation did not produce a sufficiently clean Fe-concentrate. The WHIMS Mag grades were below seaborne market standard Iron Ore Fe-levels (i.e., >56% Fe min). In most cases the Fe was too low for even blending consideration (being well below 40% Fe). The WHIMS also pulled significant Ni/Co. Ni, was concentrated to the magnetic concentrate and despite some variability in the Co results, but in several cases Co was also concentrated to the Mag concentrate. These suggests that paramagnetic species carrying Ni and Co (such as paramagnetic goethite) were being pulled by the WHIMS along with their included Ni/Co.

During the reporting period a further test was undertaken that took these WHIMS concentrates and sought to pull a cleaner Fe product. This would potentially allow blending into saleable Fe concentrates, but also allow the tailings of such a process to be returned to the leaching circuit. A first test was arranged on the samples already held at the laboratory and this saw a gravity upgrade of the WHIMS Mags using a wet shaking table.

Sub-samples of the WHIMS ~8,000 Gauss Mags from the Limonite Ore, Transition Ore, Saprolite Ore and the Saprock Ore were subjected to further gravity separation by wet shaking table. The tests aimed to determine if gravity separation could improve the Fe grade to allow the direct sale of the Fe concentrate, or to reduce the dilutionary effect that such a concentrate would have in being blended with the high-Fe magnetite fines that could be produced from LIMS. A secondary aim was to recover/upgrade 'lost' Ni and Co units from the WHIMS ~8,000 Gauss Mags stream.

For the Limonite and Transition Ore the material tested was P80 250µm and was derived from the WHIMS (~8,000 Gauss) magnetic stream. The material was deslimed at 38µm and processed over wet shaking tables. For the Saprolite and Saprock Ore the material tested was finer, being P80 125µm derived from the WHIMS (~8,000 Gauss) magnetic stream, and again and was deslimed at 38µm.

Ore Type	Product	Dry Mass (kg)	Dry Mass (%)	Assay (XRF)					Distribution				
				Ni %	Co %	Fe %	Cr %	Si %	Ni %	Co %	Fe %	Cr %	Si %
	Conc	0.20	29	0.45	0.31	44.80	10.50	2.93	17	37	34	76	9
	Mids	0.44	65	0.93	0.22	36.04	1.42	12.95	78	58	61	23	86
	Tails	0.03	5	0.81	0.24	38.40	1.20	10.40	5	5	5	1	5
Limonite Ore	Feed	0.68	100	0.78	0.24	38.74	4.09	9.86	100	100	100	100	100
	Conc	0.31	20	0.69	0.50	31.80	15.70	4.22	12	39	22	76	6
	Mids	1.00	66	1.43	0.21	27.96	1.34	17.68	77	53	64	21	80
	Tails	0.20	13	1.05	0.17	31.20	1.11	15.20	11	9	14	3	14
Transitional Ore	Feed	1.50	100	1.23	0.27	29.17	4.24	14.60	100	100	100	100	100
	Conc	0.35	15	0.47	0.16	27.30	17.00	7.45	6	22	22	67	5
	Mids	1.71	71	1.16	0.09	15.79	1.39	25.19	77	64	63	27	80
	Tails 1	0.36	15	1.24	0.09	18.00	1.57	21.90	17	13	15	6	15
Saprolite Ore	Feed	2.42	100	1.07	0.10	17.79	3.69	22.13	100	100	100	100	100
	Conc	0.10	8	0.28	0.08	23.30	22.20	4.81	4	15	22	63	2
	Mids	0.92	72	0.55	0.04	6.77	1.13	19.39	71	69	60	30	77
	Tails	0.25	20	0.72	0.03	7.67	0.93	19.70	25	15	19	7	21
Saprock Ore	Feed	1.27	100	0.57	0.04	8.22	2.71	18.33	100	100	100	100	100

TABLE 9 WET SHAKING TABLE APPLICATION TO DESLIMED WHIMS CONCENTRATES

The Fe upgrading was below requirements for all four ore types, with minor upgrades for the Limonite (to 44.80% Fe) and Transitional Ore (to 31.80% Fe), but well below saleable grades. Although increases for the Saprolite and Saprock Ore were larger in both absolutely and relative terms, these were very far short of saleable Fe levels at 27.30% for the Saprolite and 23.30% for the Saprock feed.

The deportment of the nickel was more promising, with the concentrate carrying relatively less No compared to the mass reporting to the stream. Nickel was significantly lower across the concentrates for all four ore types, being 0.45% Ni (from 0.78%) for the limonite, 0.69% Ni (from 1.23%) for the transitional, 0.47% Ni (from 1.07%) for the saprolite and 0.28% Ni (from 0.57%) for the saprock. These results suggested gravity could be a useful tool when targeting Ni values. Unfortunately, results for cobalt suggested significant losses of Co to the concentrate (see table XX above), and so this would only be applicable and worth of investigation for limited purposes where only low Co values are involved.

For most samples, the Fe recovery % to the gravity concentrate was in between that of Ni recovery % and Co recovery %. This implies that in order to achieve a Ni and Co upgrade, and reject Fe, the Co would need to report to a concentrate, the Fe would report to a gangue middlings stream, and the Ni would report to the lighter gravity tailings stream. This suggests that multiple stages of wet tables would be required in order to perform an effective separation.

However, these results are not highly promising and this would most likely result in significant Ni and Co losses and only partial removal of Fe.

5 CONCLUSIONS

The 3-stage leach test was an important verification of the leaching approach proposed for the Scotts Hill and Mt Vulcan ore. It achieved high Nickel and Cobalt recoveries (both 91.8%) after three leach stages, which included recovery of Ni and Co units from neutralising ore added in a tertiary leach stage. This is an important green initiative, with a reduction in the required consumption of limestone and lime, which would usually emit CO2 in the course of neutralising the barren process liquor.

The DTR delivered significantly improved Fe grades for the Saprolite and Saprock WHIMS concentrates. This suggested increased liberation of Fe in grinding beyond the initial 125μm and the magnetite concentrates from both grinding conditions met saleable specifications. The DTR suggested minorly improved Fe liberation between the 75μm and 38μm material for both Saprolite Ore and Saprock Ore samples. However, the DTR test achieved a lower Ni and Co recovery to non-mags at a lower grind size, possibly due to the magnetic suspension force exceeding the gravity settling force for the finer-ground paramagnetic particles containing Ni and Co minerals. Fortunately, this effect would not likely occur in a LIMS separator due to the more turbulent fluid dynamics in the separation bath. This will be a subject for further testwork using larger scale LIMS equipment. Nevertheless, the 75μm condition is likely to be preferred due to the lower grinding costs and other materials handling implications.

As such, the LIMS may have some performance improvement with respect to Ni and Co upgrading (and Fe rejection) at fine grind sizes. A cost assessment will need to be undertaken to balance the cost of additional grinding against its benefits. This is a complex calculation, as the grinding would also potentially affect other aspects of the circuit. This is reinforced by potential settling costs associated with a finer grind.

Overall, gravity selectivity for Fe was weak, indicating poor liberation and/or very similar mineral density profiles. However, it was known in advance that the particle size distribution was quite fine and would potentially be suboptimal for Wet Shaking Tables. The results did provide some improvement in the Fe grade and a more material impact was made in redirecting Ni and Co units to middlings and tailings. This is an effect warranting limited further investigation. A further application on the middlings is now planned for the upcoming period. This will see the material processed over two stages of wet shaking tables in a mids-retreat configuration. The results have left open whether alternative fine mineral gravity separation technologies may be more suitable for this application (e.g. centrifugal concentrator, Kelsey Jig). During the period, interactions with producers of such systems was undertaken, including systems for the extraction of finer particles by gravity methods, including the multi-gravity separator equipment that has been implemented recently on King Island.

6 PROPOSED EXPLORATION

Work planned for the coming year will include:

- A program of geochemical analysis and associated systematic testwork will be undertaken over the next 12 months to allow the estimation of a JORC-compliant iron Mineral Resource Estimate. A proposal has been delivered by Snowden Mining Industry Consultants for this additional work. That will include magnetic susceptibility measurements across the retained samples and pulps to allow a resource estimate around the recoverable magnetite.

- Follow-up metallurgical tests are planned. This includes implementation of a two-stage shaking table flowsheet, to retreat WHIMS shaking table middlings for recovery of contained Fe to an iron ore concentrate. The production and sale of an Iron Ore concentrate presents important benefits to the project, including boosting leach-feed nickel grades, reducing the volume of waste to be returned to tailings and generating additional revenues.

This work will allow an updated scoping study for the project to be released, one that integrates the production of an iron ore (magnetite) concentrate.

7 ENVIRONMENTAL MANAGEMENT

The site was visited several times during the period in preparation for environmental studies and to assess the status of previously implemented rehabilitation (following the 2019 sampling program). No extractive groundwork was undertaken in this reporting period. No new environmental or rehabilitation concerns were reported.

8 EXPENDITURE

Expenditure from 15th August 2022 to 14th August 2023 is summarised below for the Scotts Hill and Mt Vulcan EL2/2017 licence.

1. Geoscience	$14,701.88
2. Drilling and Gridding	$0
3. Land Access	$0
4. Rehabilitation	$0
5. Feasibility Studies	$99,121.88
6. Other	$3,565.06
7. Administration	$5,000.00
TOTAL - ELIGIBLE	**$122,388.83**

TABLE 10 EXPENDITURE 15 AUGUST 2022 TO 14 AUGUST 2023

9 KEY REFERENCES

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