RIMFIRE PACIFIC MINING LTD

ASX: RIM

"Critical Minerals Explorer"

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First pass leach test work demonstrates Sc, Co, and Ni recoveries at atmospheric pressure

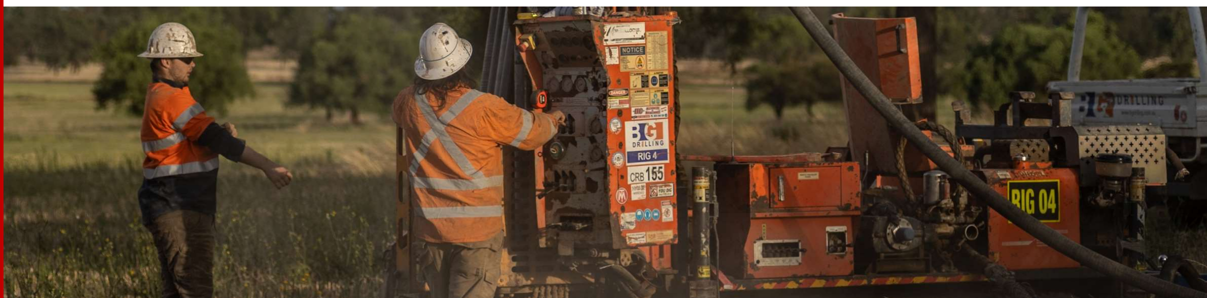
Highlights

- **First pass sighter leach test work focused on producing a combined product from Melrose laterite-hosted mineralisation returns recoveries up to 40% scandium, 90% cobalt, and 58% nickel at atmospheric pressures**
- **Potential to increase metal recoveries highlighted with further leaching tests to commence immediately using available bulk sample material**
- **Upcoming metallurgical testing will focus on maximising scandium recovery and optimising energy requirements and reagent consumption**
- **X-ray diffraction (XRD) analysis of Melrose mineralisation to be undertaken to confirm mineral associations**
- **2,000m RC / Diamond drill program to underpin estimate of a maiden JORC Mineral Resource Estimate (MRE) for Melrose to commence in next 2 weeks.**
- **All activities fully funded by Rimfire's exploration partner - GPR**

Commenting on the announcement, Rimfire's Managing Director Mr David Hutton said: *"The results of the first pass sighter leach test work are highly encouraging and pave the way for ongoing metallurgical and geological studies at Melrose.*

Because of the potential for substantially enhanced project economics in a future development scenario, we deliberately selected an atmospheric pressure leaching process route for our first pass metallurgical studies of Melrose laterite mineralisation, and with the information gained, we believe that further test work recommended by our metallurgical consultants will meaningfully increase metal recoveries, especially for scandium.

With further test work and JORC Resource drilling due to start in the next 2 weeks, Melrose is quickly shaping up nicely as a significant critical minerals opportunity for Rimfire and its shareholders".



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Rimfire Pacific Mining (ASX: RIM, "Rimfire" or "the Company") is pleased to provide an update from first pass sighter leach test work undertaken on mineralised laterite material from the Company's Melrose Scandium Cobalt Nickel Prospect which is located 75 kilometres northwest of Parkes in central NSW (*Figures 1 and 2*).

Background - Metallurgical Test work

Scandium cobalt nickel mineralisation at Melrose is present within a near surface flat – lying manganese and iron rich laterite horizon that overlies an east-dipping sequence of ultramafic and mafic intrusive rocks.

Previous drilling by Rimfire has returned multiple strongly anomalous drill intercepts from the laterite horizon, e.g. (*Rimfire ASX Announcement 20 October 2022 and Table 1*);

- 21m @ 0.11% Ni, 0.07% Co, and 529ppm Sc, from 3 metres in FI2397 *including 9m @ 0.17% Ni, 0.15% Co and 688ppm Sc from 14 metres*,
- 2.3m @ 0.15% Ni, 0.08% Co and 461ppm Sc from 3 metres and 5.0m @ 0.68% Ni, 0.07% Co and 302ppm Sc from 16 metres in FI2398,
- 4.9m @ 0.36% Ni, 0.11% Co and 349ppm Sc from 5 metres, and 4.3m @ 0.42% Ni, 0.09% Co and 296ppm Sc from 10.1 metres in FI2399, and
- 10.0m @ 0.14% Ni, 0.10% Co and 456ppm Sc from 1 metre in FI2400 *including 5m @ 0.17% Ni, 0.17% Co and 568ppm Sc from 5 metres*

Melrose was identified by Rimfire in mid-2022 and was quickly highlighted as a potential critical minerals' development opportunity because of its grade.

Given that there have been **no previous metallurgical studies of Melrose**, Perth specialist metallurgical services group - Independent Metallurgical Operations Pty Ltd (IMO) was engaged by Rimfire to conduct **first pass sighter leach test work** with the aim of optimising recoveries of a combined scandium – cobalt – nickel product from high-grade mineralised material from Melrose.

Prior to commencing test work, IMO completed a literature review which emphasized that the High-Pressure Acid Leach (HPAL) technique is the dominant commercial method used to process laterite – hosted mineralisation such as that found at Melrose. The literature review found that instances of Atmospheric Leaching (AL) and Heap Leaching (HL) of lateritic material are extremely rare.

However, while AL and HL are rarely employed commercially, it is typical to perform AL and/or HL test work prior to undertaking HPAL test work, given that AL and HL techniques are more economically favorable (e.g. lower capex requirements) if metal recoveries are close to the higher recoveries that may be achieved by the HPAL technique.

Consequently, the IMO test work was undertaken at atmospheric leach conditions with the aim of obtaining the best metal recoveries and to provide a strong foundation for further studies into commercialising the extraction of mineralised material from Melrose and surrounding Rimfire critical mineral prospects.

Head Assay and size by assay analysis

To underpin the studies, 260 kg of mineralised PQ three quarter diamond drill core from holes FI2397 – 2400 previously drilled by Rimfire at Melrose was supplied to IMO in Perth (*Table 1*).

Sample intervals supplied were; FI2397 (14 to 26.2 metres), FI2398 (4 to 23 metres), FI2399 (6 to 26 metres), and FI2400 (5 to 12 metres).

All interval samples were combined to generate one Master Composite. The Master Composite was crushed to to P_{100} 50 mm, homogenized and then representatively split into ten (10) sub-samples in preparation for metallurgical test work.

Assaying of a representative sub-sample of the Master Composite returned the following head assay grades; 0.33% nickel, 0.12% cobalt, and 380ppm scandium).

Size by assay analysis showed that except for nickel, which is slightly concentrated in the finer fractions below 500 µm. the remaining metals are largely distributed evenly throughout the size fractions (*Table 2*).

Table 1 – Diamond Drillhole Specifications (MGA Zone 55).

Hole ID	Easting	Northing	EOH (m)	Azi°	Dip°	From	Width	%Ni	%Co	Sc_ppm	Pt+Pd_g/t
FI2397	548,690	6,371,575	107.0	270	-55	3.0	21.00	0.11	0.07	529	0.13
Including						*14.0*	*9.00*	*0.17*	*0.15*	*688*	*0.10*
FI2398	548,850	6,371,575	177.4	90	-60	6.4	2.30	0.15	0.08	461	0.25
"	"	"	"	"	"	16.0	5.00	0.68	0.07	302	0.38
FI2399	548,850	6,371,575	204.6	270	-55	5.0	4.90	0.36	0.11	349	0.21
"	"	"	"	"	"	10.1	4.30	0.42	0.09	296	0.48
FI2400	548,645	6,371,605	150.6	270	-55	1.0	10.00	0.14	0.10	456	0.11
Including						*5.0*	*5.00*	*0.17*	*0.17*	*568*	*0.09*

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Table 2: Head Size by Assay Analysis Summary

Size Fraction (mm)	Mass		Assays											
	(g)	(%)	Al_2O_3 (%)	CaO (%)	Co (%)	Cu (%)	Fe_2O_3 (%)	LOI (%)	MgO (%)	MnO (%)	Ni (%)	Sc (%)	SiO_2 (%)	TiO_2 (%)
-50 +25	1,890	13.3	11.4	2.38	0.10	0.019	51.5	8.60	2.60	1.23	0.218	0.047	20.0	0.98
+12.5	1,210	8.5	9.83	1.78	0.09	0.016	52.1	7.78	2.03	1.28	0.232	0.038	22.1	0.84
+6.3	740	5.2	9.54	1.25	0.11	0.014	54.2	7.19	1.28	1.47	0.254	0.038	22.5	0.79
+3.35	610	4.3	9.92	1.42	0.15	0.020	52.1	7.34	1.40	1.80	0.287	0.037	23.8	0.78
+2.00	430	3.0	9.93	1.55	0.15	0.018	51.8	7.42	1.57	1.87	0.287	0.037	23.5	0.74
+1.18	720	5.1	10.6	1.29	0.15	0.019	54.3	7.57	1.64	1.84	0.287	0.039	20.7	0.79
+0.850	460	3.2	10.1	1.27	0.14	0.018	54.7	7.23	1.87	1.75	0.282	0.038	20.2	0.78
+0.500	650	4.6	9.05	1.23	0.13	0.018	55.9	6.93	2.13	1.64	0.286	0.036	20.1	0.73
+0.212	1,700	11.9	6.95	0.98	0.12	0.018	57.2	6.16	2.74	1.51	0.336	0.030	20.6	0.65
+0.150	890	6.3	5.92	0.87	0.12	0.015	62.7	5.58	2.33	1.66	0.380	0.030	17.4	0.68
+0.106	690	4.8	5.94	0.83	0.12	0.015	64.4	5.63	2.11	1.74	0.401	0.031	16.0	0.72
+0.075	350	2.5	5.47	0.81	0.11	0.015	67.7	5.16	1.85	1.66	0.382	0.029	14.2	0.69
+0.053	390	2.7	6.09	0.79	0.12	0.015	64.4	5.86	2.04	1.80	0.437	0.032	15.8	0.76
+0.038	160	1.1	6.05	0.75	0.11	0.015	65.2	5.77	1.96	1.75	0.420	0.031	15.5	0.77
-0.038	3,350	23.5	10.4	0.57	0.08	0.016	54.3	7.52	1.79	1.45	0.367	0.042	21.0	0.96
Total	**14,240**	**100.0**	**9.14**	**1.20**	**0.11**	**0.017**	**55.7**	**7.13**	**2.05**	**1.53**	**0.315**	**0.038**	**20.3**	**0.82**
		Head Assay:	**8.98**	**1.05**	**0.12**	**0.019**	**57.3**	**7.06**	**1.96**	**1.61**	**0.333**	**0.038**	**19.7**	**0.85**

A high-level correlation on the head sample size by assay results was performed to provide insight into mineralogical associations with the following observations made;

- The nickel grade shows a high positive correlation with Fe_2O_3 grade, suggesting that nickel may be highly associated with iron hosted minerals like iron oxides and clays;
- The cobalt grade shows a high positive correlation with manganese, and
- The scandium grade shows positive correlations to Al_2O_3, which may indicate scandium substitution for aluminum in kaolinite $Al_2Si_2O_5(OH)_4$ or possibly boehmite AlO(OH).

Scrubbing

Scrubbing is a mineral beneficiation technique that typically follows crushing. It generally produces a product stream and a waste stream. It is used on an industrial scale to break up clay-like material or soft agglomerate-like material from the surface of more competent material.

Scrubbing tests were conducted on three 50kg sub samples of the Master Composite. Size fraction assay on the scrubbed product showed that the nickel, cobalt and scandium were relatively uniformly distributed amongst the different size fractions and not concentrated into the fine fractions.

Atmospheric Leach Testing

Scrubbing did not upgrade the valuable metals and for this reason all atmospheric leach tests were performed as whole-of-ore leaches. Eight (8) whole-of-ore leach tests (LT01 to LT08) were performed over four rounds following an iterative process whereby the results of earlier tests informed the parameters for following tests.

A tabulated overview of the eight leach tests is provided in *Table 3*.

Table 3: List of Leach Tests with Conditions and Performance

<table>
<tr><th rowspan="2">Test</th><th rowspan="2">Leach System</th><th>Grind P100</th><th>Eh(Ag/AgCl)</th><th rowspan="2">pH</th><th>Temp.</th><th>Duration</th><th colspan="6">Final % Extraction</th></tr>
<tr><th>(µm)</th><th>(mV)</th><th>(°C)</th><th>(Hrs.)</th><th>Al</th><th>Co</th><th>Mg</th><th>Mn</th><th>Ni</th><th>Sc</th></tr>
<tr><td>LT01*</td><td>$H_2SO_4 – SO_2$</td><td rowspan="5">212</td><td rowspan="2">719-821</td><td rowspan="7">1.3 – 1.5</td><td rowspan="3">95</td><td rowspan="7">48</td><td>5.8%</td><td>21.9%</td><td>49.3%</td><td>19.5%</td><td>26.9%</td><td>15.2%</td></tr>
<tr><td>LT02*</td><td>$H_2SO_4 – SO_2 – CuSO_4$</td><td>7.1%</td><td>37.7%</td><td>52.8%</td><td>33.8%</td><td>36.9%</td><td>17.7%</td></tr>
<tr><td>LT03</td><td>$H_2SO_4 – FeSO_4$</td><td rowspan="5">355-490</td><td>9.0%</td><td>79.7%</td><td>51.4%</td><td>75.5%</td><td>48.2%</td><td>19.7%</td></tr>
<tr><td>LT04</td><td>$H_2SO_4 – SO_2 – CuSO_4$</td><td rowspan="3">60</td><td>6.6%</td><td>82.2%</td><td>45.3%</td><td>77.6%</td><td>46.3%</td><td>16.3%</td></tr>
<tr><td>LT05</td><td>$H_2SO_4 – FeSO_4$</td><td>6.1%</td><td>81.9%</td><td>43.3%</td><td>76.1%</td><td>44.0%</td><td>14.3%</td></tr>
<tr><td>LT06</td><td>$H_2SO_4 – SO_2 – CuSO_4$</td><td rowspan="3">75</td><td>7.5%</td><td>79.9%</td><td>59.9%</td><td>77.0%</td><td>47.1%</td><td>20.2%</td></tr>
<tr><td>LT07</td><td>$H_2SO_4 – FeSO_4$</td><td>95</td><td>8.0%</td><td>86.4%</td><td>48.3%</td><td>80.2%</td><td>46.2%</td><td>17.9%</td></tr>
<tr><td>LT08</td><td>$H_2SO_4 – FeSO_4$</td><td>505-511</td><td><0.5</td><td>82</td><td>24</td><td>15.1%</td><td>89.3%</td><td>66.3%</td><td>87.5%</td><td>58.1%</td><td>39.9%</td></tr>
</table>

All the leach tests conditions were formulated as reductive acid leaches.

Reductive acid leaching involves the addition of a reducing agent (reductant) to the acid. The reducing environment promotes the extraction of cobalt and manganese. The reducing agent donates electrons and reduces the oxidation state of cobalt and manganese and in doing so transitions these metals from being insoluble to being soluble.

The acid component consisted of sulphuric acid of 98% H_2SO_4 being diluted in distilled water. The two main reductants employed in this test work program were;

- Dissolved $SO_2(g)$ in solution, which is supplied via the addition of Sodium Metabisulphite (SMBS) solid; and
- $Fe^{2+}(aq)$ cations, which are supplied via the hydrous salt ferrous (II) sulphate heptahydrate ($FeSO_4.7H_2O$).

Due to the distillation of the dissolved SO_2 at 95°C from the LT01 and LT02 leaches, these two tests are considered acid leaches only with Eh readings that are considered too high (719 to 821 mV) to be classified as reductive conditions.

Only LT03 to LT08 are deemed reductive acid leaches due to exhibiting lower Eh potentials (355-511 mV).

The effectiveness of the reducing conditions is evidenced by the significant gains in cobalt and manganese extraction observed in LT03 to LT08 compared to LT01 and LT02, which exhibited significantly higher Eh potentials of (719 to 821 mV).

The metal extraction results presented in *Table 4* reveal that after 24 hours LT08 achieved the highest metal extractions of all the leach tests, with extractions of 89.3% for cobalt, 87.5% for manganese, 58.1% for nickel and 39.9% for scandium.

The improvement in LT08 performance can be attributed to a fine grind of P_{100} 75µm and leaching in 2.7 M H_2SO_4 at 82°C. These conditions were selected as it is reported that goethite dissolves at 2.5 M H_2SO_4 and 80°C.

Table 4: LT08 Metal Extraction

Time	Extraction					
	Al	Co	Mg	Mn	Ni	Sc
(hours)	(%)	(%)	(%)	(%)	(%)	(%)
0	9.7%	100%	1.0%	93.5%	54.4%	24.4%
2	12.9%	100%	71.3%	100%	61.7%	33.9%
6	16.2%	100%	80.8%	100%	70.3%	43.4%
24	15.1%	89.3%	66.3%	87.5%	58.1%	39.9%

Conclusions

When scrubbed, the Master Composite did not concentrate valuable metal (Co, Mn, Ni and Sc) into the fine fractions. Size by assay analysis on the scrubbing test products revealed the valuable metal distribution as being essentially homogeneous. For this reason, all atmospheric leach tests were performed as whole-of-ore leaches.

The LT08 reductive acid leach achieved the highest valuable metal extractions of 89.3% for cobalt, 87.5% for manganese, 58.1% for nickel and 39.9% for scandium with an increase in acid strength considered to be the factor that resulted in the higher extractions of Ni and Sc, with Sc particularly responding to this with a doubling of the extraction.

Two grind sizes were tested; P_{100} 212 µm and P_{100} 75 µm. The finer P_{100} 75 µm grind was applied to LT06 to LT08 to promote gains in metal extraction. Overall, reducing the grind size from P_{100} 212 µm to P_{100} 75 µm showed an overall improvement in cobalt and manganese extraction, however the role of grind size should be further investigated in a future test work program to ascertain convincing evidence.

The results of the leaching tests are highly encouraging and provide a **strong foundation for further studies into maximising recovery grades and commercialising the extraction of mineralised material** from Melrose and other surrounding Rimfire critical mineral prospects.

Next Steps and timeframes

Following the successful completion of the first pass sighter leach test work, Rimfire has accepted IMO's recommendation to undertake **further reductive acid leach tests with a particular emphasis on maximising scandium recovery**, optimising energy requirements and reagent consumption.

IMO still holds sufficient amounts of the original Master Composite so the work can proceed immediately without the need to obtain further samples through diamond drilling.

Concurrent with the next round of metallurgical test work, Rimfire will undertake a program of qualitative X-ray Diffraction (XRD) analysis on existing Melrose drill samples. XRD is a technique used to study the structure, composition, and physical properties of materials and will be used to accurately define what specific minerals (e.g. kaolinite, goethite, manganese, limonite etc.) host each of the scandium, cobalt, and nickel at Melrose.

Given the encouragement of the leaching results, **Rimfire will undertake a combined program of Reverse Circulation and Diamond drilling (approximately 2,000 metres) at Melrose to underpin the estimate of a maiden Mineral Resource Estimate (MRE)** in accordance with the 2012 JORC Code.

Rimfire has now received regulatory approval and permission from affected landowners to undertake the drilling with work commencing within the next 2 weeks. H&S Consultants have been engaged to undertake the resource estimate once all drilling data has been received.

Rimfire will provide the market with further updates as further information comes to hand.

Scandium Market Significance

The recent purchase of the Owendale Scandium Project (which lies 10 kilometres north of Murga and Melrose) by a wholly owned subsidiary of Rio Tinto Ltd for up to $US14M highlights growing market interest in Australian scandium projects (*see Platina Resources' ASX Announcement dated 28 April 2023*).

Renamed the "Burra Project" the acquisition aligns with Rio Tinto's strategic goal to grow in materials essential for the low-carbon transition and as the demand for cleaner, lighter, and more durable materials continues to rise, Rio expect the use of scandium to continue to grow along with this demand (https://www.riotinto.com/en/news/releases/2023/rio-tinto-acquires-high-grade-scandium-project-in-australia).

The Owendale acquisition also follows the establishment of a dedicated Rio Tinto scandium business unit called Element 21 North (https://www.elementnorth21.com). The location of Rio Tinto's Burra Project in relation to Rimfire's Fifield and Avondale Projects is shown in *Figure 2*.

The global demand for Scandium is increasing with its usage as one of the primary materials in Hydrogen electrolysis solid oxide fuel cell technology as well as being used in the manufacture of high-strength aluminium alloys.

Scandium is included in both Australia's 2023 Critical Minerals List and the United States Geological Survey's (USGS) 2022 List of 50 mineral commodities critical to the economy and national security of both countries. (*https://www.industry.gov.au/publications/australias-critical-minerals-list* *and* *https://www.usgs.gov/news/national-news-release/us-geological-survey-releases-2022-list-critical-minerals*).

Incorporation of scandium in materials has environmental benefits across multiple industrial sectors, particularly in decarbonisation of energy. One pathway to mitigate greenhouse gas emissions is to generate electricity using hydrogen or synthetic liquid fuels, which are more efficient than combustion engines. This application currently represents the single largest use for scandium (*https://straitsresearch.com/report/scandium-market*).

A competing demand for scandium (that is increasing) is its usage in the manufacture of high-strength aluminium alloys. When applied as an addition to aluminium alloys, scandium can produce stronger, more corrosion resistant, and more heat tolerant, weldable and 3D printable aluminium products.

Aluminium alloys are used extensively in the global transportation industry. Aircraft manufacturers are particularly interested, with the two leading global aircraft manufacturers increasingly working to incorporate scandium aluminium alloys into their future designs and manufacturing processes. Aircraft designers believe use of these alloys can reduce aircraft weights by 15 to 20%. Additionally, the ability to employ weldable structures promises similar cost reduction potential.

It's also important to note that the United States is totally dependent on imports of scandium primarily from Europe, China, Japan, and Russia to meet its domestic needs (*USGS Scandium Fact Sheet 2022*) and as such **rising demand for scandium is supply constrained**.

Rimfire believes that advanced manufacturers are looking to secure long-term supplies of scandium within favourable jurisdictions like Australia before committing to the greater use scandium-alloyed aluminium materials in their products.

Rimfire's Fifield and Avondale Projects are ideally positioned to take advantage of the growing demand for scandium and offer significant opportunities both in terms of deposit size and grade.

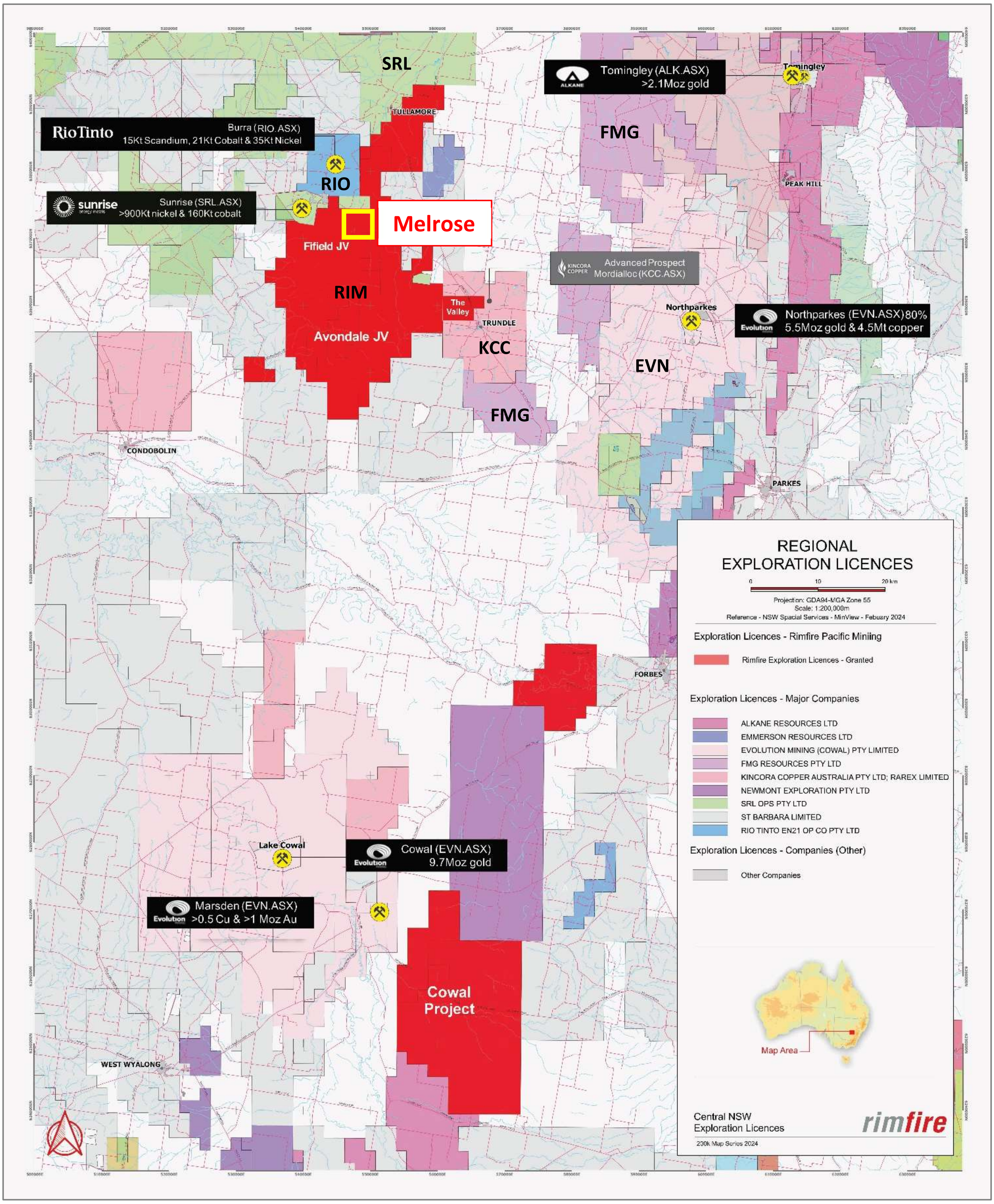

Figure 1: Rimfire Project Locations and key prospects.

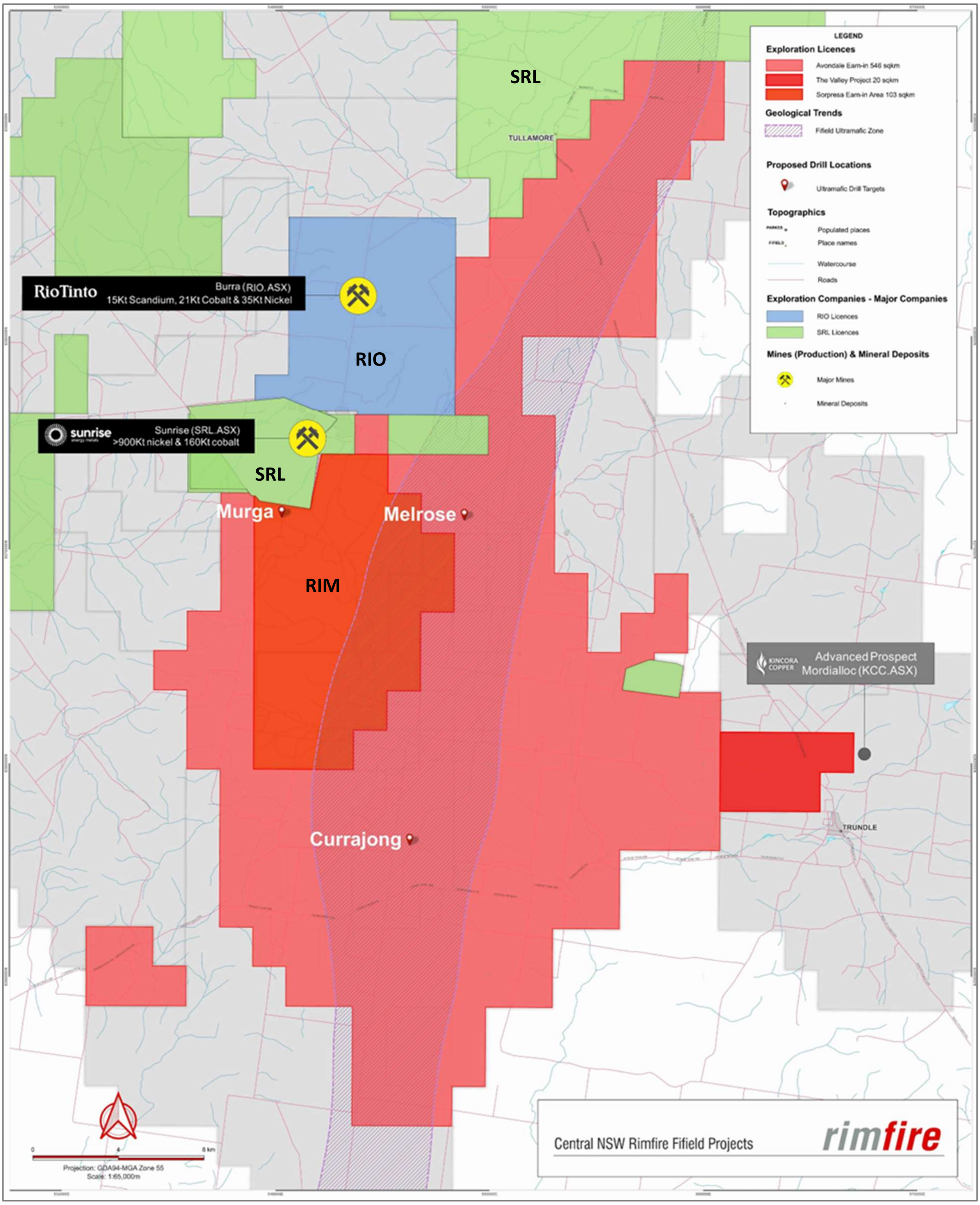

Figure 2: Rimfire Fifield and Avondale Project Locations and competitors (Rio Tinto – blue and Sunrise Energy Metals – green).

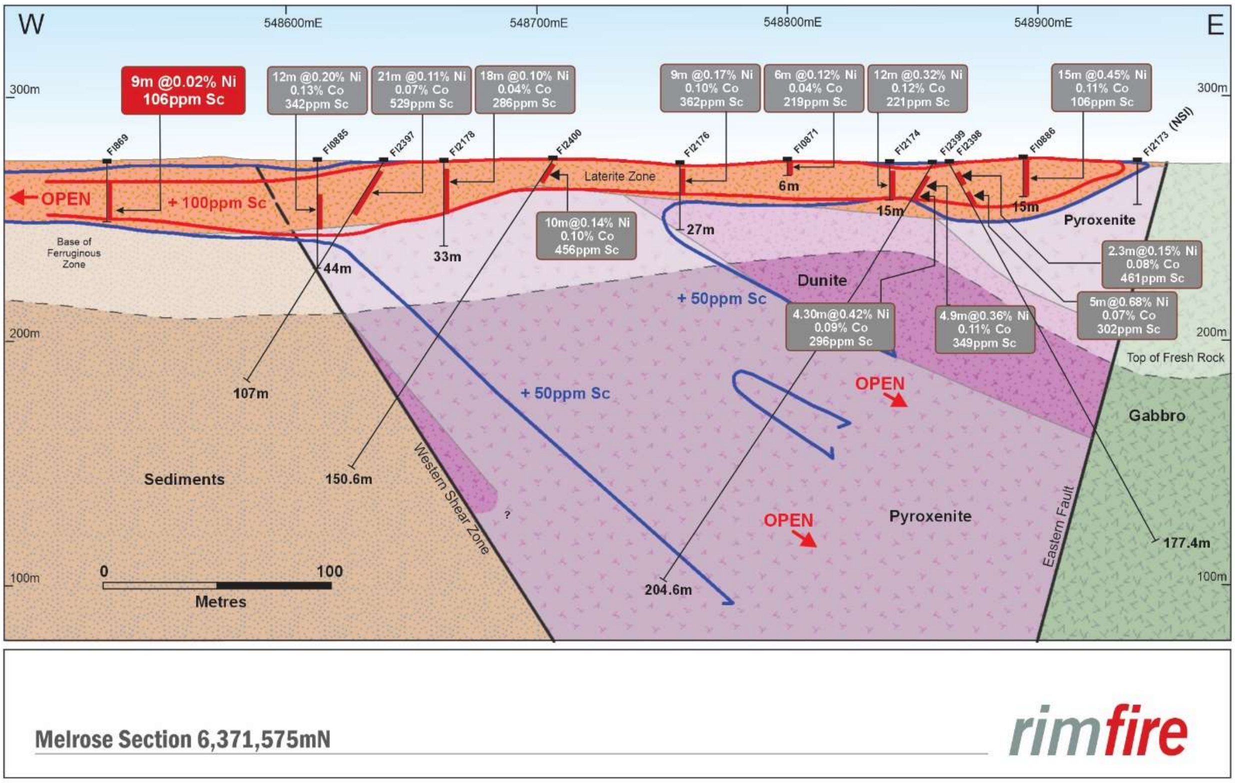

Figure 3: Melrose prospect geological cross section.

This announcement is authorised for release to the market by the Board of Directors of Rimfire Pacific Mining Limited.

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JORC Reporting

Table 2: JORC Code Reporting Criteria

Section 1 Sampling Techniques and Data – Diamond Drilling and Metallurgical Test Work

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g., 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.	This ASX Announcement details metallurgical test work undertaken by Rimfire Pacific Mining Limited on a bulk sample of mineralised laterite material from the Melrose nickel cobalt scandium prospect. The results and details of the diamond drill holes that formed the metallurgical bulk sample were previously released to the ASX in an Announcement dated # 20 October 2023. At the time of drilling, each diamond drillhole was geologically logged and photographed. Each diamond hole was cut, and half core samples were collected and submitted to ALS Orange for analysis for precious metals (Au, Pt, Pd) using ALS method PGM MS23L and base metals (Ni, Co, Sc) using ALS methods ME-XRF12n and ME-ICP61. The nickel, cobalt and scandium intercepts quoted in this Report have been calculated using data obtained from the ME-XRF12n method. To facilitate metallurgical test work, the following 3/4 drill core intervals were collected and submitted to Independent Metallurgical Operations Ltd (IMO); • FI2397; 14 to 26.2 metres • FI2398; 4 to 23 metres • FI2399; 6 to 26 metres • FI2400; 5 to 12 metres All interval samples were combined to generate one (1) Master Composite. The Master Composite was representatively split into sub-samples in preparation for metallurgical test work. Analysis of metallurgical samples and leachates was conducted at Intertek Pty Ltd on behalf of IMO using the following methods; • Al, Co, Cr, Fe-sol, Mg, Mn, Ni, Sc, and Si by ICP/OES (mg/l) – solutions only • Al_2O_3, CaO, Cr_2O_3, Cu, Fe_2O_3, K_2O, LOI, MgO, MnO, MgO, Na_2O, Ni,

Criteria	JORC Code explanation	Commentary
		P2O5, SO3, Sc, SiO2, TiO2, and Zn (%) by lithium borate fusion and XRF (method – FB1/XRF)
	Include reference to measures taken to ensure sample representativity and the appropriate calibration of any measurement tools or systems used.	To ensure sample representivity, the entire drillhole has been cut and sampled for analysis. Blank samples and reference standards were inserted into the sample sequence for QA/QC. The sample intervals collected for metallurgical test work were deemed (on the basis of original drill hole assay data) to be representative of high-grade nickel - cobalt - scandium mineralisation based on drillhole assays.
	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 (e.g., '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 (e.g., submarine nodules) may warrant disclosure of detailed information.	To ensure sample representivity, and because the geology of each drilling location is largely unknown (due to no previous drilling beneath the base of weathering), the entire length of each diamond drillhole was cut and sampled for analysis. Industry standard preparation and assay was conducted by the following parties: • ALS Pty Ltd in Orange, NSW, including sample crushing and pulverising prior to subsampling for an assay sample of diamond drill core. • Independent Metallurgical Operations Ltd (IMO) in their Perth laboratories. Crushing and splitting of metallurgical bulk sample with assaying of solids and solutions undertaken by Intertek Pty Ltd on behalf of IMO.
Drilling techniques	Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g., 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).	All drillholes referred to in this ASX Announcement are diamond drill holes, the specifications of which are included in *Table 1*.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	For the diamond drilling referred to in this ASX Announcement, rock quality and core recovery details were included in the geological logging procedure. All diamond drill core was photographed as well.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	To ensure sample representivity, and because the geology of each drilling location is largely unknown (due to no previous drilling beneath the base of weathering), the entire drillhole has been cut and sampled for analysis. To ensure sample representivity for metallurgical test work, drillhole assay and geological data was used to select high-grade mineralisation from

Criteria	JORC Code explanation	Commentary
		Melrose. Also, the bulk sample that was used for metallurgical test work was a composite from four drill holes not a single hole.
	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.	It is not known whether a 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.	Core samples were geologically and geochemically logged to a level of detail sufficient to support appropriate Mineral Resource estimation, although that was not the objective of the diamond drilling referred to in this ASX Announcement. All diamond drill core was photographed.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	Geological logging of diamond drill core is largely qualitative by nature.
	The total length and percentage of the relevant intersections logged.	Relevant intersections were geologically logged in full.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	Each diamond drillhole was geologically logged and photographed. Each diamond hole was cut, and half core samples were collected and submitted to ALS Orange for analysis. The bulk combined sample submitted to IMO comprised 3/4 core material from the diamond drillholes.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	Not Applicable as only core samples were obtained from the diamond drilling.
	For all sample types, the nature, quality, and appropriateness of the sample preparation technique.	For the diamond drilling, half core samples were collected and submitted to ALS for sample preparation and analysis using industry standard and appropriate techniques. For the metallurgical test work, the samples were combined to generate one (1) Master Composite. The Master Composite was crushed to to P100 50 mm, homogenized and then representatively split into sub-samples in preparation for metallurgical test work. This technique is considered appropriate.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	To maximise representativity of samples, individual half core samples were collected every metre throughout the entire length of the drillhole. For the metallurgical test work, the sample preparation was conducted under the direction of IMO staff 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	To ensure that diamond drill core sampling was representative of the in-situ material, individual half core samples were collected every metre

Criteria	JORC Code explanation	Commentary
	duplicate/second-half sampling.	throughout the entire length of the drillhole. Additionally retained half core can be subsequently resampled (3/4 core) to verify initial results if needed.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample sizes (typically ~ 2kg) of half core are considered appropriate to the grainsize of material being sampled. The sample sizes (typically ~ 30kg) of crushed homogenised and split bulk sample for metallurgical test work is considered appropriate to the grainsize of material being sampled.
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 methods used by ALS to analyse the half core samples for precious and base metals are industry standard. The ME-ICP61 method is a partial technique while the XRF12n method (used for the diamond drill results in this Report is considered to be total technique. The methods used by IMO and Intertek to analyse samples and leachates are industry standard and are considered to be total technique
	For geophysical tools, spectrometers, handheld XRF instruments (pXRF), etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	Not applicable as no geophysical tools were used or results of using geophysical tools were included in this Report.
	Nature of quality control procedures adopted (e.g., standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e., lack of bias) and precision have been established.	Certified standards were submitted along half core samples to the laboratory. In addition, the nickel cobalt scandium diamond drilling results included in this Report were reported on the basis of the ME-XRF12n analytical method and confirmed by results obtained using the ME-ICP61 method. Certified standards were used by Intertek whilst carrying out assaying of solids and solutions provided by IMO.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	The significant drilling intersections included in this Report have been verified by both Rimfire's Exploration Manager and Managing Director. The metallurgical results included in this Report have been verified by Dr Andrew Dowling, who is employed by IMO as a Senior Metallurgist and who has the Competent Person for metallurgical results in this Report.
	The use of twinned holes.	Not applicable as no twinned holes drilled.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Diamond drilling data was recorded on field sheets at the sample site. Field data was entered into an excel spreadsheet and saved on Cloud

Criteria	JORC Code explanation	Commentary
		server. Geological logging was recorded directly in LogChief program during drilling and backed up on Cloud server. Assay results are typically reported in a digital format suitable for direct loading into a Datashed database with a 3rd party expert consulting group. Metallurgical data was recorded onto worksheets and propriety databases at IMO. All relevant data was provided in hardcopy form to Rimfire along with a covering report.
	Discuss any adjustment to assay data.	There has been no adjustment 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.	Sample locations are recorded using handheld Garmin GPS with a nominal accuracy +/- 3m.
	Specification of the grid system used.	GDA94 Zone 55.
	Quality and adequacy of topographic control.	Handheld GPS, which is suitable for the early stage and broad spacing of this exploration.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	The location and spacing of diamond drillholes discussed in this Report are given in *Table 1* and various figures of this Report
	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.	The data spacing and distribution of diamond drilling referred to in this Report is not sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s).
	Whether sample compositing has been applied.	As outlined in this Report, for the purposes of conducting metallurgical leaching test work, a Master Composite sample was prepared by IMO from half core samples provided by Rimfire from diamond drillholes FI2397 – FI2400.
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.	Mineralisation at Melrose occurs within a flat lying laterite horizon. Diamond holes were drilled at a high angle to the laterite. The preparation of a Master Composite sample for metallurgical work from 4 diamond drillholes effectively achieves unbiased sampling.
	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 relationship between the drilling orientation and the orientation of key mineralised structures is considered not to have introduced a sampling bias.
Sample security	The measures taken to ensure sample security.	Half core drill samples double bagged and delivered directly to the IMO laboratory via a commercial freight company.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	The sampling techniques and data was reviewed by senior company personnel including the Exploration Manager, Managing Director and IMO personnel with no issues identified.

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.	Reported results all from Exploration Licence EL8543 at Fifield NSW which is wholly - owned by Rimfire Pacific Mining Limited. The tenement forms part of the Company's Avondale Project which is subject to an Earn In and Joint Venture Agreement with Golden Plains Resources Pty Ltd (GPR) whereby GPR can earn up to a 75% interest by completing expenditure of $7.5M over 4 years. All samples were taken on Private Freehold Land. No Native Title exists. The land is used primarily for grazing and cropping.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a license to operate in the area.	The tenement is in good standing, and all work is conducted under specific approvals from NSW Department of Planning and Energy, Resources and Geoscience.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The Melrose Prospect where the diamond drilling was conducted has not been previously explored by third parties. Rimfire undertook air core drilling at Melrose during the first half of 2022.
Geology	Deposit type, geological setting and style of mineralisation.	The target area lacks geological exposure, available information indicates the bedrock geology across the project is a dominated by a central body of ultramafic intrusive and stepping out to more felsic units on the margins. The deposit type/style of mineralisation is a flat lying ferruginous and laterised zone developed on top of ultramafic hosting anomalous Ni-Co-Sc. Historic drilling has shown that the host ultramafic is platiniferous.
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: • easting and northing of the drill hole collar • elevation or RL of the drill hole collar • dip and azimuth of the hole • down hole length and interception depth.	All drillhole specifications are included within *Table 1* of this ASX Announcement. All collar locations are shown on the figures included with this ASX Announcement. Details of the metallurgical test work undertaken by IMO are detailed in this Report.
	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 explain why this is the case.	Not applicable as no drill hole information has been excluded.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.	The following low cut off grades have been used in determining the reported drill hole intercepts. No top cuts have been used. • Nickel (1,000 ppm – 0.1%) • Cobalt (500 ppm – 0.05%) • Scandium (150 ppm – 0.015%)

Criteria	JORC Code explanation	Commentary
	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.	Length weighting has been applied when calculating intercepts for drill hole intervals that are not made up of equal sample lengths. The length weighting formula is as follows: Length weighted grade equals the sum of all the individual assay values multiplied by their respective sample lengths, divided by the sum of the sample lengths.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalents have been reported. Where an intercept quotes a platinum + palladium value (Pt + Pd), the value is simply the sum of the individual platinum value and the individual palladium value for respective samples.
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 (e.g., 'down hole length, true width not known').	The drill results included in this Report occur within a flat (horizontal) lying zone and given all the diamond drill holes are angled, the significant intercepts are considered to represent downhole 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.	Included within this Report
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 avoiding misleading reporting of Exploration Results.	All results are included in this Report.
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.	There is currently no other substantive exploration data that is meaningful and material to report.
Further work	The nature and scale of planned further work (e.g., tests for lateral extensions or depth extensions or large-scale step-out drilling).	Planned further work is discussed in this Report but will comprise further metallurgical test work and JORC Resource drilling at Melrose.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Not applicable at this stage

About Rimfire

Rimfire Pacific Mining (**ASX: RIM**, "Rimfire" or the "Company") is an ASX-listed Critical Minerals exploration company which is advancing a portfolio of projects within the highly prospective Lachlan Orogen and Broken Hill districts of New South Wales, comprising;

The 100% - owned Broken Hill Cobalt Project located immediately west of Broken Hill, NSW and includes;

- Bald Hill, where Rimfire's recent drilling successfully intersected high-grade cobalt (Co) in sulphide mineralisation - *see Rimfire ASX Announcement dated 18 September 2023 Broad zones of high-grade cobalt at Bald Hill*, and
- Railway Extension, which is the interpreted along strike extension to Cobalt Blue Holdings' Railway Cobalt Deposit (COB: ASX).

The 100% - owned Valley and Cowal Projects located west of Parkes and Orange in central NSW:

- The Valley Project - located 35km west of the Northparkes Copper Gold Mine where Evolution Mining (EVN: ASX) has just acquired an 80% interest in the mining operation for up to US$475M – *see Evolution Mining ASX Announcement dated 5 December 2023 Acquisition of an 80% interest in Northparkes Copper Gold Mine*, and
- The Cowal Project - located to the east of Evolution's Lake Cowal Copper / Gold mine (EVN: ASX), which includes the newly acquired Porters Mount Project - *see Rimfire ASX Announcement dated 11 September 2023 Acquisition of Porters Mount Project*

Rimfire has two additional projects in the Lachlan Orogen which are being funded by Rimfire's exploration partner - Golden Plains Resources (GPR):

- Avondale Project (GPR earning up to 75%) & Fifield Project (GPR earning up to 50.1%)
- ✓ Both projects are prospective for high-value critical minerals – scandium, cobalt, nickel, gold, and PGEs - which are essential for renewable energy, electrification, and green technologies.
- ✓ Adjacent to both projects is the;
  - development ready Sunrise Energy Metals Nickel Cobalt Scandium Project (ASX:SRL), and
  - Platina Scandium Project (Owendale Scandium Deposit), which was acquired by Rio Tinto (ASX:RIO) – *see RIO News Release dated 28 April 2023 Rio Tinto acquires high-grade scandium project in Australia*
- ✓ The Fifield Project hosts the historic Platina Lead mine, the largest historic producer of Platinum in Australia.

For more information on the Avondale and Fifield Earn In and Joint Venture Agreements see:

ASX Announcement: 4 May 2020 - Rimfire enters $4.5m Earn-in Agreement
ASX Announcement: 25 June 2021 - RIM Secures $7.5m Avondale Farm Out

Competent Persons Declaration

The information in this announcement that relates to **metallurgy and metallurgical test work** has been reviewed by Dr Andrew Dowling. Dr Dowling is not an employee of the Company but is employed by Independent Metallurgical Operations (IMO) who are providing services as a consultant.

Dr Dowling is a fellow of the AusIMM (FAusIMM) and has sufficient experience with the style of processing response and type of deposit under consideration, and to the activities undertaken, to qualify as a competent person as defined in the 2012 edition of the "Australian Code for the Reporting of Exploration 21 Results, Mineral Resources and Ore Reserves" (The JORC Code).

Dr Dowling consents to the inclusion in this report of the contained technical information in the form and context as it appears.

The information in the report to which this statement is attached that relates to **Exploration and Resource Results** is based on information reviewed and/or compiled by David Hutton who is deemed to be a Competent Person and is a Fellow of The Australasian Institute of Mining and Metallurgy.

Mr Hutton has over 30 years' experience in the minerals industry and is the Managing Director and CEO of Rimfire Pacific Mining. Mr Hutton has sufficient experience that is relevant to the style of mineralisation and type of deposits under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'.

Mr Hutton consents to the inclusion of the matters based on the information in the form and context in which it appears.

Forward looking statements Disclaimer

This document contains "forward looking statements" as defined or implied in common law and within the meaning of the Corporations Law. Such forward looking statements may include, without limitation, (1) estimates of future capital expenditure; (2) estimates of future cash costs; (3) statements regarding future exploration results and goals.

Where the Company or any of its officers or Directors or representatives expresses an expectation or belief as to future events or results, such expectation or belief is expressed in good faith and the Company or its officers or Directors or representatives, believe to have a reasonable basis for implying such an expectation or belief.

However, forward looking statements are subject to risks, uncertainties, and other factors, which could cause actual results to differ materially from future results expressed, projected, or implied by such forward looking statements. Such risks include, but are not limited to, commodity price fluctuation, currency fluctuation, political and operational risks, governmental regulations and judicial outcomes, financial markets, and availability of key personnel. The Company does not undertake any obligation to publicly release revisions to any "forward looking statement".