

Company Announcement Office Australian Securities Exchange rimfire pacific mining nl a.c.n. 006 911 744

Exchange Tower Suite 411 530 Little Collins Street Melbourne Victoria Australia. 3000

Telephone61 3 9620 5866Facsimile61 3 9620 5822e-mail:rimfire@rimfire.com.auwebsite:www.rimfire.com.au

## **QUARTERLY EXPLORATION REPORT**

(For the period October  $1^{st}$  to December  $31^{st}$  2009)



The exploration during the period continued to be focused on the bulk sampling program designed to examine the mineralising system for coarse grained Platinum (Pt) and Gold (Au) within the Pit One area on the Company freehold at Fifield, NSW.

Within Pit One detailed bedrock examination was commenced during this period, yielding confirmed Pt and Au from specific bedrock geology in Tile One, Tile Two and Block E.

The key overall objective of the Company continues to be "the establishment of a potential open cut minable resource within the  $6km^2$  zone of currently identified Pt mineralisation noted within the Platina-Gillenbine and Ebenezer project areas", which includes both alluvial targets and the greater bedrock system.<sup>1</sup>

The Company continues to investigate the commercial potential on its freehold of the alluvial system, comprising the multilevel gravel system, un-mined portions of the historic Platina Deep Lead and the likelihood of Pt bearing tributaries feeding into the Platina Valley.

## To date approx. 1,000g of Pt/Au mixed $HVC^2$ has been recovered from approx. 2,800 tonne of gravel processed.

After the commencement of an initial auger drill grid investigating an area of 2km strike by 0.5km width incorporating the near surface gravel and the Platina Valley system (Appendix 1), a proposed bulk sampling program of the Platina Lead has now been developed.

Soil geochemistry grids were conducted over the 'Sorpresa" and

"Fifield Hard Rock" Au prospect areas. Assays are expected to tune suitable targets for drilling at a later date.

The Fifield area received an excellent rain event in the quarter, which refilled all the company dams, which should ensure operations continue through the summer period.

#### HIGHLIGHTS FOR THE DECEMBER QUARTER - FIFIELD NSW

- Excavation and sampling has occurred within the underlying bedrock system, in locations Tile 1, Tile 2 and Block E AT Pit One on the Company Freehold (Appendices 2 and 3)
  - Key structural geology is being sampled and continues to yield Pt and Au grains. The sampling program is ongoing and assessments are done internally through the Company facilities
- ✤ In total 5 Blocks have been mined to bedrock (blocks A, B, C, D and E) within Pit One area, where the Pt bearing gravel layer has been substantially removed, and processed through the gravity plant. The upper weathered bedrock floor is now exposed. (Appendix 5).

1



<sup>&</sup>lt;sup>1</sup> Appendices 4, 5 and 6 for details of locations and mineralised context at regional and local scales

<sup>&</sup>lt;sup>2</sup> HVC = High Value Concentrate, fully cleaned, but not refined to pure metal, self assessed by the Company

- In addition to the approx. 2,800 tonnes of gravel already processed from blocks A to D (over an area of approx. 2,600 sqm), another 250 tonnes of gravel is stockpiled for processing from Block E
- Approx 1,000g (32 oz) of Pt/Au clean HVC has been recovered in Pit One gravels to date. (A conceptual target has been generated in the following Table on page 3)
  - This excludes concentrate yet to be processed.

✤ The Sorpresa Gold and Base Metal Prospect Target underwent a significant soil geochemistry grid

- 371 soil samples, on 100m line spacings, covering an area approx. 1km x 0.75km were taken. Samples will undergo multi-element assay at an external laboratory.
- A detailed geochemistry soil grid of the Fifield "Hard Rock Gold" area was also completed
  - 84 soil samples covering an area of approx. 500m x 350m were taken on 100m line spacings. Samples will undergo multi-element assay at an external laboratory.
- Mineralogy and petrological assessment was further undertaken on a range of materials including rock, mineral and metal grain samples, including important composite materials.
  - Confirmation of the primary nature of Au and Pt grains recovered from Pit One was again confirmed from the gravel system, indicating proximal sources.

#### (A summary of the work performed on each prospect in the period is shown in Appendix 4)

The Company provides the following links for video of the "tile one" work site within "pit one" located on its freehold. (click the title whilst viewing on your computer screen and connected to the internet)

Video: Bedrock Platinum Exploration Tile One - Rimfire Pacific Mining NL, Fifield NSW (click title)

#### SUMMARY EXPLORATION PLANNED AT FIFIELD NSW FOR THE 2010 PERIOD FOR PT AND AU

In addition to the work performed in the quarter, the Company outlines the major exploration activities at Fifield during 2010 that it intends to undertake as follows:

- Complete the bulk sampling and trial mining within the Pit One Area of both gravel and bedrock systems
  - $\circ$  Continue estimation of Pt grade of the alluvial gravel system
  - Assess Pt and Au grade within certain parts of the bedrock
- ✤ Complete the delineation of the Pt bearing gravel (approx. 2km x 0.5km) and tributary areas prospective for mining on the Company freehold and bulk sample this system.
  - Based on work completed to date at Pit One, a conceptual target has been estimated for Pt and Au within this surface gravel on the freehold (see table following).
- Further define and bulk sample previously unmined sections of the extension of the Platina Lead.<sup>3</sup>
  - Assuming the historic grade average of "15g/t Pt/Au recovered at a depth of 15m" in the mined section of the Platina Lead continued into the "Northern Extension which is unmined and discovered with hole 601 in the previous period", at a width of 20 ~30m, strike length of 750m a conceptual target has been generated and noted in the table that follows.

<sup>&</sup>lt;sup>3</sup> Appendix 1 – Platina Lead Sample Sites Proposed

- In addition the historically mined portion of the Platina Lead will be bulk tested, as it is believed the residual grade may be of the order of 5g/t, based on knowledge of historic mining practices.
- Apply for additional Bulk sampling locations not on the Company Freehold (4 sites) for determination of Pt grades in bedrock.
  - These areas are at **Platina-Gillenbine and Ebenezer**, and would be undertaken with the knowledge gained from Pit One.
  - The new sites in most instances have considerable Pt grade determination in previous trenching and auger drilling in the near surface positions a conceptual target is shown in the table following
- Apply the results from extensive geochemistry grids over the "Sorpresa" and "Fifield Hard Rock" Au areas, to proceed with an RC drill program on the best available targets for Au mineralisation.

 Table of "Conceptual Targets" Developed as At December 2009 Fifield NSW

Conceptual Target Area	Grade Range Assumption (HVC Mixed Pt/Au unless stated otherwise)		Range of Mineralised Tonnage (t) or Area (sqm)		Total Target Ounces Potential Range		Assumed Depth	Basis for Overall Assumption
	High	Low	High	Low	High	Low		
Modern Near Surface Gravel on Freehold	0.4g/sqm	0.3g/sqm	1.1 million sqm	0.9 million sqm	13,600	11,100	1~2m below surface	Bulk Sampling at Pit One and Gravel Auger program.
Platina Lead Extension (750m) "on freehold only"	15g/t "recovered' historic reported average grade early 1900's		22,000 tonne	15,000 tonne	10,900	7,300	0.5m to 1.0m mineralised zone in a width of 20~30m at a depth of 10~15m	Historic records, modern work programs, trenching, auger
Platina- Gillenbine Bedrock	0.5g/t Pt	0.3g/t Pt	30 Million tonne	20 Million tonne	450,000	200,000	From surface to 40m or 60m, along strike of 1.3km, width of 200m	Historic surface mining and Company work programs to 2m depth

(\*)**Qualification** - "The potential quantities and grades in the referred table are conceptual in nature, that there has been insufficient exploration to define a Mineral Resource, and that it is uncertain if further exploration will result in the determination of a Mineral Resource."

sqm = square metre ; m = metre ; g = gram ; t = tonne

The current sampling program being undertaken by the Company is designed to examine the mineralising system for coarse grained Platinum (Pt) and Gold (Au) within the Pit One area on the Company freehold at Fifield, NSW.

Five mined blocks have been exposed to bedrock (blocks A, B, C, D and E) within the Pit One area, where the Pt bearing gravel layer has been removed, and processed through the gravity plant. The upper weathered bedrock floor is now being tested for its geology, structure and Pt occurrence at a depth of 1.3m, within the bedrock.

Multiple sampling points of interest have been selected within an area  $(10m \times 10m)$  of this bedrock floor, which is now known as "**Tile One**"<sup>4</sup>. Several sample areas have been gravity processed *with Pt and Au grains that now have been confirmed as being recovered from the bedrock*. This processing and observation was done in the Company's own facility.

Whilst this is an early stage of the bedrock assessment, the Company is extremely encouraged by both the interesting and complex geology revealed in the bedrock floor at "Tile One" and the Pt, Au and Chromite shown to be present to date.



#### Highlights of the Bedrock Examination Program in Pit One at Fifield NSW

✤ Pt and Au grains were recovered in situ from a cleaned bedrock floor section ("Tile One")

- o Coarse and fine grains of Pt and Au have been recovered from multiple sample sites
- Pt crystals were also obtained with Chromite
- All minerals appear to be locally derived with no travel history
- This is the first time that a substantial "plan view area has been exposed on bedrock" at Fifield

#### ✤ The revealed bedrock contains extremely complex geology that looks distinctly altered and mineralised

- o Highly dynamic structures including complex fault lines containing gossan
- o Brecciated gossan veinlets and a multiplicity of shear zones
- Complex rock alteration areas which include fine oxidised sulphide-carbonate veinlets and also small patches of near massive oxidised sulphide. This rock is sheared and brecciated with important faulting throughout.
- $\circ$   $\;$  Distinct areas of open stockwork of gossan veinlets in massive country rock

#### Details on the bedrock sampling program within "Tile One" at Pit One

To adequately test for coarse grain Pt in the bedrock, large horizontal exposures are required. Due to the large earth works disturbance involved, the Company selected its own freehold area to commence sampling to minimize the impact on third parties and reduce costs in permitting.

<sup>&</sup>lt;sup>4</sup> See Appendix 2 with mapped floor of "Tile One"

The Pt anomaly chosen for the bedrock test on the Company freehold was found during routine exploration and lies beneath an alluvial gravel system. It needs to be recognized that potentially better bedrock Pt anomalies were also found on adjacent non Company owned property. The Company started "Pit One" area program on its freehold as a compromise between costs, logistics and quality of Pt anomaly.

The dual objective of testing the gravel system and then the bedrock system below this was therefore established at Pit One. The Company concludes these gravels were draining Pt bearing soils to the east, with the drainage travelling in a westerly direction. In addition, important information on mineralogy and morphology for both the Pt and Au grains was recovered. The gravel system has therefore provided useful facts on source locality for the Pt and Au grains.

The gravel once removed, left approximately  $2,500m^2$  of exposed bedrock. The testing of this bedrock began with a selection of a 10m x 10m "tile", now known as "Tile One". The "Tile One" area was mined one metre below the gravel layer, into the bedrock, in an extremely careful manner. "Tile Two" has followed subsequently.





"Section P" 2.5m x 2.5m within "Tile One"

"Tile One" excavated, cleaned to 1m in bedrock within "Pit One" and ready for sampling

#### "Tile One" Preparation – Meticulous preparation and sampling

The Company had recently completed the excavation of Blocks A, B, C and D in Pit One and removed the entire gravel system to expose the underlying bedrock floor. This bedrock floor was further excavated (10cm) and

processed to remove any remaining alluvial Pt and Au from the underlying traps and crevices occurring on the gravel/bedrock contact.

Meticulous care was taken to ensure no contamination of the sampling area could occur at any stage of the excavation or during sample selection.

- The floor was photographed, geologically mapped and sampled prior to any potential contamination from outside the tile area.
- Samples in the size range 200~400kgs have been selected for testing. These samples then undergo jaw crushing, hammer milling, pass through a vibrating sluice as a concentrator, are panned by hand then are examined under binocular microscope for Pt, Au and Chromite by the Company.



200~400kgs sample sizes taken out of the bedrock base of "Tile One"

#### Observations of the exposed bedrock within "Tile One"

"Tile One" was geologically mapped, and is the first ever observation of the Fifield Pt mineralisation in "plan view". The structural complexity revealed in the mapping was beyond expectations and contrasts starkly with the un-mineralised regional geology which is simplistic and has very little structural deformation.

# The shear zones revealed in "Tile One" are very dynamic in both structure and rock alteration. Complex fault patterns traverse areas of brecciation, curved shear zones, sulphide stockworks and variously coloured altered rocks.

Low levels (100's of fine grains and some coarse grains) of Pt and Au have been recovered from the bedrock, and the grains appear to be totally locally derived based on grain morphology. Untraveled crystals of Pt and Chromite were also recovered from within the geology.

#### "Tile Two" -extension of strike within bedrock geology from "Tile One"

The main shear zone found within Pit One, to date, has the most Pt grains. This shear zone has been tracked over 30m and found to connect with the Pt bearing shear zone previously located in Trenches 24 and 24a.

This shear zone is being exposed in a series of "tiles" especially designed to test grades over a total distance of 80m all within the Pit One area. "Tile Two" has been totally cleaned off, in a similar fashion to "Tile One", revealing the complex shear zone over a distance of 10m, and showing a width between 3m to 7m.



Sampling is underway on "Tile Two".

The exploration concept is to locate Pt bearing shear zones and follow these along strike and try to locate sufficient Pt ore grade in these shears, via bulk sampling.

#### The immediate path forward and additional work planned on Bedrock Pt

The Company will continue to track the geology as it is uncovered in the current program, testing for Pt, Au and Chromite. This will involve further tiles and deeper excavations within tiles.

Geochemistry, geophysics and mineralogy will also be applied to the exposed bedrock geology to provide any additional characterization of the Pt bearing geology in the bedrock that may assist developing an accelerated approach to locating the best Pt grades.

To this extent, Block E has commenced excavation, tracking specific geology and magnetic features. This will be sampled and mapped in the next quarter.

The Company has previously identified and reported approximately  $6km^2$  of prospective area for Pt within "Platina-Gillenbine" and "Ebenezer", and already identified important next stage targets for testing in due course.

#### **EXPLORATION SUMMARY FOR OTHER AREAS IN THE QUARTER**

#### Fifield - Gold Dominant Areas

The "Sorpresa" Au and Base Metal prospect had undertaken an extensive geochemistry grid in the quarter, based on the observation that the target mineralized system could be significantly larger than originally conceived. Similarly, the adjacent bedrock location to the Fifield Lead, has been extensively sampled for geochemistry, and this prospect is known as the "Fifield Hard Rock Gold".

#### Bingara Diamonds

Selected samples from the garnet anomalism previously identified in late 2008 at the Trevallyn diamond prospect at Bingara NSW have been reviewed and polished thin sections of garnets have undergone micro probing to determine their chemistry. The results showed the garnets recovered in the latest program were predominantly crustal, which would make these garnets incompatible with the mantle garnets previously derived from this area in historic stream sediment sampling done by the Company.

The Company is unable to make a conclusion with this conflicting information, and is still considering the next step. Based on key previous eclogite one garnet chemistry and a diamond recovered in stream sediments, plus the nearby unusual MARID mantle rock at Trevallyn, the Company believes the north-south structural trend which also hosts Horton Valley No.2 Pipe, should yield a similar structure at Trevallyn, but this is yet to be confirmed. The Company will re-assess the situation at Trevalyn accordingly.

#### Details on Sorpresa Area and Fifield "Hard Rock Au" - Gold and Base Metal Target update

The Sorpresa prospect consists of gold and base metals in soil anomaly located near an historic shaft. The prospect was drilled by Rimfire in 2008 and a body of mineralization inferred from the analyses of the drill hole samples. The host to mineralization is a breccia with an uncertain size and orientation.

Recognition of the Sorpresa mineralization and old workings adjacent to and over a porphyritic intrusive within an extensive weak metamorphic aureole suggests further potential over a much larger area than previously sampled. Mineralisation is now identified over approximately 800 metres.

The intrusion is visible on the aeromagnetic data held by Rimfire and this will assist in defining further exploration areas.

#### Extensive Soil Sampling Grid - Sorpresa Prospect

371 soil samples were taken on the Sorpresa Prospect to cover an area 1000 metres east-west and 600-900 metres north-south. Samples were taken on 100 metre spaced lines to test a weak magnetic anomaly which overlies partly exposed quartz-feldspar porphyry intrusive rocks as well as fine to coarse grained mafic intrusive rocks. Parts of the intrusive complex are concealed by roof pendants of Silurian fine grained sediments.

A series of old workings are present widely distributed over the area of the magnetic anomaly, mostly within the wall rocks but also within the quartz-feldspar porphyry in one instance. The porphyry had boxworks after pyrite present, suggesting the potential for a significantly larger target than previously envisaged may be present.

Samples have been dispatched to external laboratory in early January, for Au and multi-element analysis.

#### Soil Sampling on the Fifield Hard Rock Gold Prospect

84 soil samples were taken on the Fifield Hard Rock Gold Prospect to cover an area 500 metres by approximately 200-500 metres north-south. Samples were taken on 100 metre spaced lines to test an area of shallow workings up slope from the Fifield Lead which contains both gold and platinum. These workings appear to have been contributing to the Fifield lead in this area, which has been very intensively worked at this location.

The Fifield Hard Rock Gold prospect lies over the eastern end of a strong magnetic anomaly thought to be due to a mafic intrusion. At the Fifield Hard Rock Gold Prospect and Fifield Lead, this intrusion is concealed by fine grained sediments. The intrusion is interpreted to be present at relatively shallow depth and be responsible for the mineralisation present.

Following further soil sampling designed to complete coverage over the prospective area, a trial IP survey may be undertaken prior to a planned program of RC drilling.

## Sorpresa and Fifield "Hard Rock Au" prospects

(Geochemistry Grids Undertaken based on prior mapping, drilling, previous geochemistry and geophysics)



#### **Project and Mineralisation Background – Fifield NSW**

The systematic exploration by Rimfire within the immediate Fifield region has continued to develop a wide variety of mineralised prospects. Each prospect has a strong surface expression, a highly relevant geological context and favourable development criteria.

There is a significant variation in mineralisation styles at Fifield, which includes Au, Pt and Cu/Base Metal prospects, with these occurring across a zone of less than 10km width. This observation also provides further support to the interpretation of the region as being a complex volcanic rift setting, with evidence for multiple,

polymetallic mineralisation events associated with sub-volcanic intrusives, shearing and brecciation at various scales.

Accordingly, the exploration shows that metal zoning remains an important feature of the regional geology at Fifield. The under explored Fifield area represents an excellent exploration setting for commercial mineralisation discovery in the Company's view (Appendix 4).

The major mineralisation target for exploration by the Company at Fifield remains focused on coarse grained Platinum. The Platina-Gillenbine area is of particular importance in understanding and delineating the bedrock mineralisation.

A key feature of the exploration landscape at Fifield NSW is the minimal outcrop available for examination. However, in many instances the depth to bedrock is less than two metres, so a combination of soil geochemistry, auger drilling and trenching to bedrock with complementary bulk sampling is rapid and effective way to explore for significant mineralisation. These activities are also relatively low cost to undertake.

Historic Pt mining at Fifield yielded in excess of a reported 20,000 oz of Pt from the deep leads and surface soil mining (circa. 1900~1930). The major deep lead was the Platina Lead, worked at a depth from 12m to 25m over a length of 2.5km with a reported grade of approx. 15g/t recovered Pt.

The northern extent of the Platina Lead was not able to be defined historically. This northern section represents an important component of the Pt bearing alluvial system, both with respect to its commercial potential and the exploration knowledge base the lead provides, with respect to the source area(s) for Pt entering the alluvial system along the full extent of the Platina Lead. Rimfire has established Auger hole 601 into this Lead extension, approximately 750m north of the last known historic workings.

#### **COMMODITY PRICING FOR THE DECEMBER 2009 QUARTER**

The price of Platinum has maintained its recovery in the period, and was trading in a much higher range generally as of early 2010 to the level of USD1,620 per ounce (<u>www.Kitco.com</u>).



Industry observers believe that Platinum metal has the makings of being a significant and positive precious metal story for 2010. Over the last three months Platinum prices have already risen 15.8%. The supply of platinum is now considered tight again and production will not be easily increased. Approximately 6 million ounces were produced in 2009, but now demand is increasing quickly, driven by the automotive sector and other industrial uses as recovery takes hold. Jewellery usage, particularly the strong growth in China, and the emerging market for ETF (Exchange Traded Funds) which enables direct investment in Platinum metal now, are recent demand trends of importance. It is expected that this new category of Platinum investment through ETFs could be 17% of the demand in 2010. So a global deficit in Platinum is potentially looming.

#### CORPORATE ACTIVITIES

#### **Tenement Position**

For its diamond projects at Bingara NSW, the Company awaits renewal of tenements EL6106, EL5880, EL6893 and EL6894. At Fifield NSW, the Company awaits renewal for tenements EL6144 and EL7058.

#### **Cash, Facilities and Investments**

As at 31st December 2009 the Company had approximately \$842,000 in cash.

#### **Issued Capital**

The issued capital at the close of business at 31st December 2009 was unchanged:

311,976,107 ordinary shares; 7,500,000 unlisted call options ex @ \$0.12 expiring 30<sup>th</sup> September 2010

JOHN KAMINSKY Executive Chairman

The information in the report to which this statement is attached that relates to Exploration Results is compiled by Mr Peter Temby who is a Member of The Australian Institute of Geoscientists, in collaboration with Mr Colin Plumridge, who is a Member of The Australian Institute of Mining and Metallurgy, each with over 30 years experience in the mineral exploration and mining industry. Mr Temby is employed by Anpet Exploration Pty Ltd, whilst Mr Plumridge is employed by Plumridge & Associates Pty. Ltd. Both Mr Temby and Mr Plumridge have sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activity, which is being undertaken to qualify as Competent Persons as defined in the 2004 edition of the "Australian Code for Reporting of Mineral Resources and Ore reserves". Mr Temby and Mr Plumridge consent to the inclusion in the report of the matters based on their information in the form and context in which it appears.

## Appendix 1

Sampling Program for definition of Platina Valley, Tributaries and Gravel System



The auger drill hole locations shown above represent holes that have been completed or are due to be completed. A few specific hole reference numbers are given as a guide. Approx. 58 holes into gravel were completed as at November 2009. Bulk sample sites have been determined for the Platina Lead in a previously unmined section, and also on an historically mined section of the Lead.

## Appendix 2

### Mapped Bedrock Floor of "Tile One" within "Pit One"



## <u>Appendix 3</u>

## Mapped Bedrock Floor of "Tile One" AND "Tile Two" within "Pit One"



#### **APPENDIX 4**



#### **Project Areas Fifield NSW and Metal Zoning Interpretations**

#### APPENDIX 5

#### Pit One and MC305 &306 Bulk Sampling Area



Video: <u>Bedrock Platinum Exploration Tile One - Rimfire Pacific Mining NL, Fifield NSW</u>

#### APPENDIX 6

#### Platinum Exploration Program – Background to Bulk Sampling of Bedrock on Company Freehold





Base of Trench 24a Showing Pt bearing veins

The "*Eastern Shear Zone*" Pt surface anomaly was established <sup>5</sup> as a continuous feature over a strike length of 1,000m. It extends into the Company owned freehold land area. The Pt contours within the residual soil are parallel in orientation with the subsoil Pt anomaly at Platina-Gillenbine, now named the "Central Shear Zone" (which was defined in 2006 <sup>6</sup>).

The *"Pit One"* sampling area appears geologically influenced by the Eastern Shear Zone. Accordingly, the Pit One area is being extensively evaluated with auger drilling and trenching for the significance and orientation of the Pt position in the bedrock at this location.

#### Background on Geological context and importance of Pit One Area and Bulk Testing <u>Phase</u>

Within early October 2008, the Company had made a significant discovery concerning the geological control of the Pt mineralizing system at Fifield, on its freehold.

The intersection of complex, clearly identifiable vein structures, containing Pt, Au and a key pathfinder element Chromite (Cr) occurred in Trenches 20, 24, 24a, Tr26 and Tr26a.



Part of wall section Tr26 with vein exposed

The Company believes that this could be representative of the entire mineralised Pt system observed at Fifield within the Platina-Gillenbine and Ebenezer project areas<sup>7</sup> and is an important milestone with respect to Pt exploration at Fifield. "Pit One" is considered an important area, linking the shear zone system, at Platina-Gillenbine to the gradation of the near surface bedrock position to the alluvium covered valley containing the Platina Deep Lead system, historically mined 100 years ago.

<sup>&</sup>lt;sup>5</sup> ASX Announcement 16-10-2008 link

<sup>&</sup>lt;sup>6</sup> ASX Announcement 13-12-2006 link

<sup>&</sup>lt;sup>7</sup> This combined area is approximately 6km<sup>2</sup> including Ebenezer and Platina-Gillenbine