

### ASX ANNOUNCEMENT

Date: 24 April 2019

No. 624/240419

### MARCH 2019 QUARTERLY REPORT

#### 1. BROKEN HILL PROJECT (IPT 100%)

- New geodynamic framework for exploration at Broken Hill recognised in light of previous discovery of very high grade palladium and platinum and record prices for palladium.
- First recognition of widespread alkaline magmatic rocks throughout the Broken Hill area, including the first documented occurrence of carbonatite in the region.
- The alkaline rocks are prospective for a wide variety of high grade Ni-Cu-Platinum Group Metals, Iron Oxide Copper Gold and Cu-Au-Co-Rare Earth Element mineralisation.
- The alkaline magmatic rocks are related to an upwelling mantle plume that helped cause the breakup of the Rodinia supercontinent 800 million years ago at which time Broken Hill was close to the major Jinchuan and Lengquisheng Ni-Cu-PGE deposits now part of China.
- New targets being generated for reinvigorated exploration programme at the project.

#### 2. CLERMONT PROJECT (IPT 100%)

- First diamond drill hole at the project delivered stand out drill intercept of 0.7 metres at 10.9 g/t gold, 146 g/t silver, 8.3% zinc and 5.1% lead in 2.5 metre thick zone of epithermal vein.
- Drill hole lies at southern edge of a two kilometre long target for further high grade mineralisation identified from zoned metal assemblages in drill assay data.
- Metal assemblage and vein textures are characteristic of epithermal veins related to magmatic fluids sourced from a porphyry intrusion of intermediate composition.
- Target zone lies between a core/proximal zone of Cu-Mo-Bi-Te-W close to the parent intrusion and a distal epithermal zone of As-Ag-Sb+/-Au.
- Major programme of close spaced drilling to identify high grade shoots required.

#### 3. BLACKRIDGE GOLD PROJECT (IPT 100%, option to buy 95%)

- Further progression of mining lease applications.

#### 4. CORPORATE

- Cash at March 31 was \$1.3 million.
- Impact received an R&D refund of \$712,000 on April 11th.

#### Market Cap

A\$9.3 m (0.007 p/s)

#### Issued Capital

1,321,679,789

#### Listed Options

499,910,556

IPTOA

#### Directors

**Peter Unsworth**  
Chairman

**Dr Michael Jones**  
Managing Director

**Paul Ingram**  
Non-Executive Director

**Markus Elsasser**  
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## 1. BROKEN HILL PROJECT (IPT 100%)

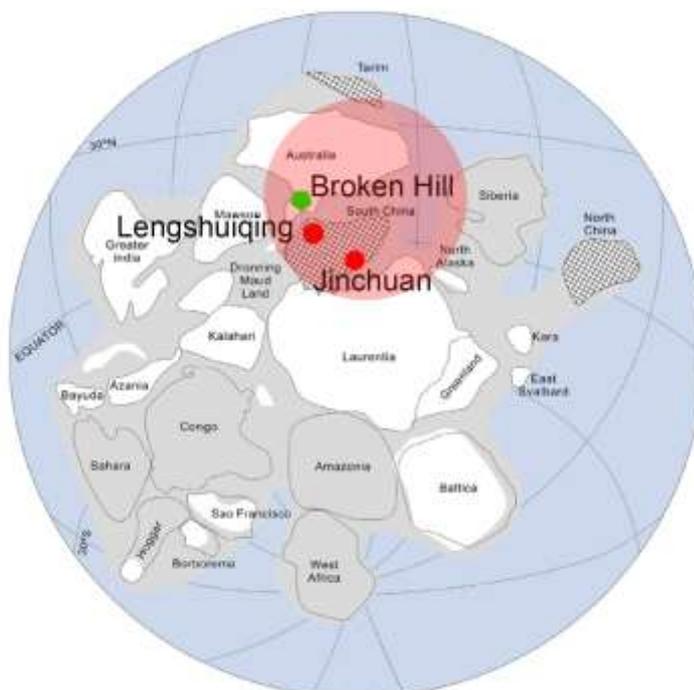
A new geodynamic framework for exploration at Impact Minerals Limited's (ASX:IPT) 100% owned Broken Hill Project in New South Wales has been identified following the widespread recognition of alkaline magmatic rocks throughout the Company's ground holdings and the wider Broken Hill area.

Impact has previously shown that the very high grade palladium and platinum mineralisation at the Red Hill, Platinum Springs and Moorkaie Prospects and the Iron Oxide Copper Gold (IOCG) mineralisation at the Copper Blow Prospect (ASX:SCI) are hosted by and related to alkaline magmatic rocks (ASX 13<sup>th</sup> December 2018).

New work by Impact, done in conjunction with Independent Expert Emeritus Professor Ken Collerson of the University of Queensland, has now demonstrated that the alkaline rocks are related to a deep seated mantle plume that was related to the breakup of the Rodinia supercontinent about 800 million years ago (ASX 6<sup>th</sup> March 2019).

At this time, Broken Hill and the surrounding Curnamona Province were positioned close to the world class nickel-copper-PGE deposit of Jinchuan (>500 Mt at 1.2% nickel, 0.7% copper and 0.4 g/t total PGE) and the significant Lengquisheng deposit (>30 Mt at 0.8% nickel and 0.3% copper (unknown PGE), which after breakup drifted to become part of China (Figure 1).

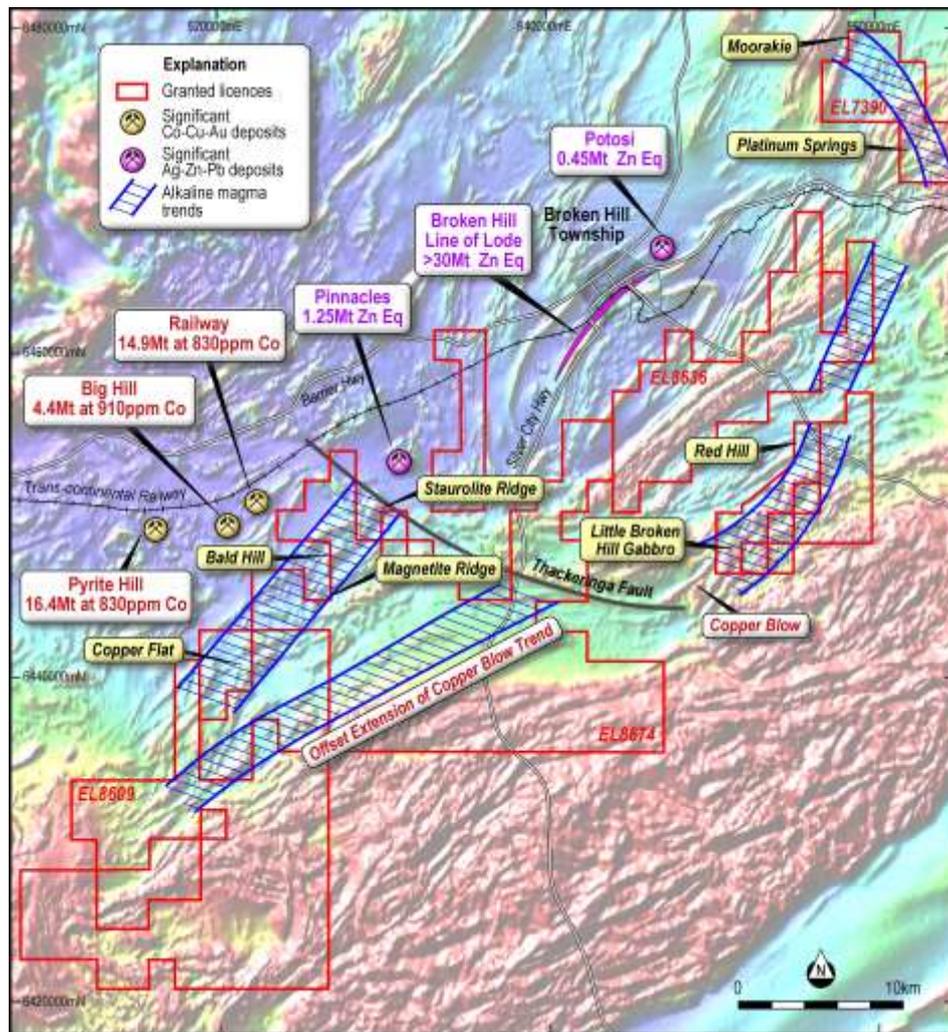
In addition Impact has identified the first recorded example in the Broken Hill region of rocks of **carbonatite** composition formed by the fractionation of the alkaline magmas. This is significant given that such rocks are host to major copper-gold-cobalt PGE-Rare Earth Element (REE) deposits around the world.



**Figure 1.** Position of the proposed mantle plume head (red circle) responsible for the breakup of Rodinia showing the location of Broken Hill in relation to the Jinchuan and Lengshuiqing Ni-Cu-Co-PGE deposits at about 800 million years ago (after Huang et al., 2015).

These major deposits formed as an integral part of processes associated with the mantle plume and accordingly confirm that the Broken Hill area and Impact's ground in particular have the correct geodynamic setting to host a range of deposit styles related to this geodynamic setting including major nickel-copper-PGE, IOCG and carbonatite-related deposits

This section summarises the evidence for the geodynamic setting which provides an entirely new framework for exploration in the Broken Hill region. Further work is in progress identifying and classifying specific targets related to this work and will be reported separately. Follow up work on these targets will form part of Impact's reinvigorated exploration at Broken Hill in 2019.



**Figure 2.** Location of alkaline magma trends in the Broken Hill area. The Little Broken Hill to Moorakie Trend contains rocks of potassic ultramafic to alkaline gabbro composition. The Copper Flat to Staurolite Ridge Trend contains rocks of alkaline gabbro to carbonatite composition. An offset of the Copper Blow Trend is interpreted to the south of the Thackeringa Fault Zone.

## New Alkaline Magma Trends and Carbonatite at Broken Hill

Work by Impact has previously established for the first time that the nickel-copper-PGE-rich ultramafic to mafic rocks in the Little Broken Hill Gabbro-Red Hill-Platinum Springs Trend located south and east of Broken Hill are alkaline and potassic in composition (ASX 13<sup>th</sup> December 2018).

In researching these rocks Impact found two obscure but important scientific papers by the Geological Survey of New South Wales from 1966 and 1995 in which alkaline rocks were identified west of Broken Hill in the Copper Flat-Magnetite Ridge-Bald Hill-Stauroelite Ridge Trend (Figure 2).

The rocks comprise feldspathoid (silica undersaturated) bearing gabbros, diorites, monzonites and syenites which have unusual geological names such as melteigites, ijolites, urtites and nepheline syenites (Figure 3). In addition, it was postulated by the Geological Survey that these rocks should have fractionated to form carbonatites although none were recognised at the time.

Impact recognised these alkaline rocks were likely to be part of the same series of rocks as the nickel-copper-PGE bearing alkaline ultramafic and gabbroic rocks and accordingly a few years ago, staked further ground in the region (Figure 2).

Field checking, petrographic studies and recently received extensive whole rock geochemistry data has confirmed the alkaline nature of the rocks along the Copper Flat-Stauroelite Ridge Trend. In addition, at Stauroelite Ridge itself, these alkaline rocks are intimately associated with extensive areas and patches of copper-bearing carbonatite. To Impact's knowledge this is the first documented occurrence of carbonatites in the Broken Hill region (Figure 3).

In addition Impact considers it highly likely that a central trend of alkaline rocks contains the fault offset position of the unit hosting the alkaline-related IOCG mineralisation at Silver City Minerals' Copper Blow Prospect (Figure 2). A review of previous exploration data in this area is underway.

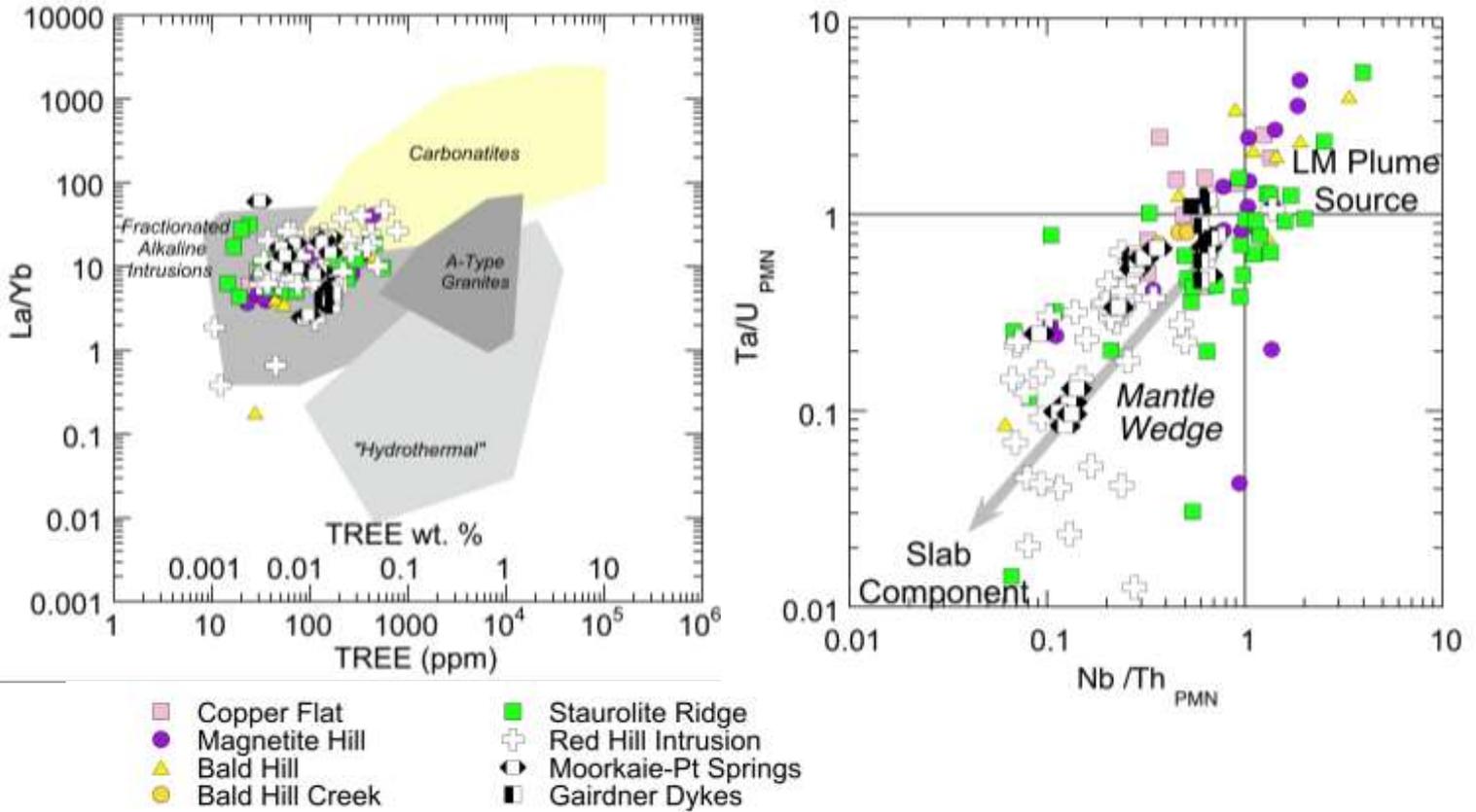


**Figure 3.** Coarse grained pyroxene-nepheline (dark green-cream) melteigite (left) and melteigite-carbonatite (grey) from the Stauroelite Ridge area.

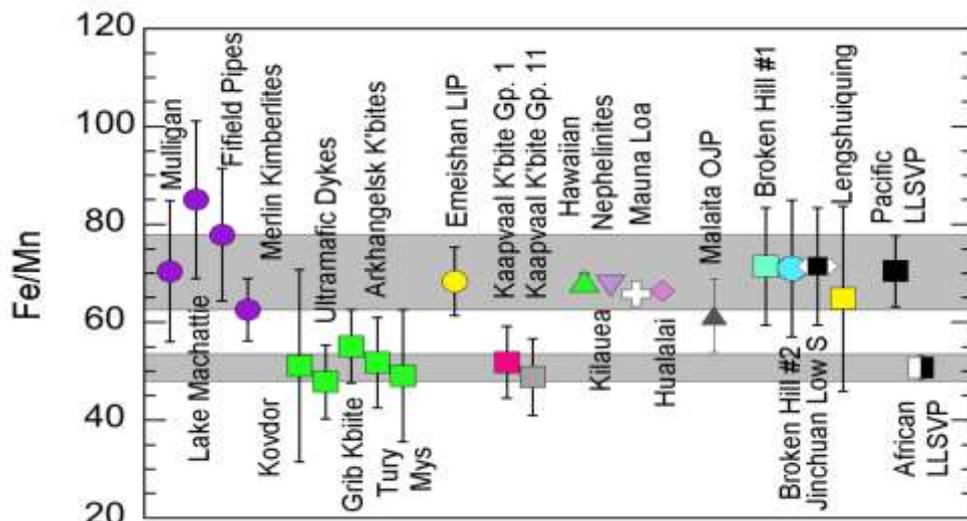
### **Geochemical Evidence for the Alkaline Magmas and Mantle Plume Origin**

New whole rock trace element geochemistry data and U-Pb dating by Impact confirms that:

1. the alkaline rocks including carbonatites from the Copper Flat-Staurolite Ridge Trend are all part of the same alkaline magmatic system that hosts the high grade nickel-copper-PGE mineralisation at Red Hill and Platinum Springs-Moorakaie (Figure 4 and ASX 13<sup>th</sup> December 2018);
2. the source region of the magmas is the Lower Mantle i.e. close to the core-mantle boundary and is therefore related to a mantle plume (Figure 4);
3. the iron/manganese ratios of the rocks all fall within the field of Pacific superplume magmatism as do the ratios for the Jinchuan and Lenshuiqing deposits, suggesting that Rodinia was above the Pacific superplume at the time of its break up (Figure 5). The higher Fe/Mn ratio probably reflects the upwelling of a greater amount of iron-rich lower mantle material with associated increased propensity to carry nickel-PGE-copper sulphides as suggested by Zhang et al (2016). This indicates significant fertility of the associated intrusions to host major deposits of nickel-copper-PGEs and gold and may also help explain the unusually high grades of the rare PGE metals osmium, rhodium, ruthenium and iridium encountered at Impact's Red Hill and Platinum Springs prospects;
4. U-Pb dating of titanites from the alkaline rocks at several localities from Broken Hill also confirm they are all of a similar age of about 800 million years old and are synchronous with the breakup of Rodinia (Impact Minerals unpublished data); and
5. in addition, this is the same age as the Gairdner Dyke Swarm which traverses the Curnamona Province and beyond and is one of the largest dyke swarms in Australia. The swarm is also related to the mantle plume activity and the breakup of Rodinia (Figure 4) and is also potentially prospective for major nickel-copper-PGE deposits.



**Figure 4.** Whole rock geochemistry results demonstrating the nature and origin of the alkaline rocks at Broken Hill on widely used igneous rock classification plots. Left hand side: Rare Earth Element systematics demonstrating a well correlated cluster extending from fractionated alkaline intrusions to carbonatites. Right hand side: Primitive mantle normalised Ta/U versus Nb/Th ratios confirming a Lower Mantle source for the alkaline magmas.



**Figure 5.** Fe/Mn diagram showing the discrimination of alkaline rocks associated with the Pacific Superplume (LLSVP – upper shaded region) and the African Superplume (LLSVP – lower shaded region). The Broken Hill alkaline suite (Broken Hill#1 and #2) as well as Jinchuan and Lengshuiqing have Fe/Mn systematics typical of the Pacific Superplume (Pacific LLSVP).

## Implications for Exploration

Impact's work has shown that the high grade nickel-copper-PGE mineralisation at Broken Hill was formed in a similar place to, at the same time as, and by the same processes that led to the formation of the Jinchuan deposit in China, one of the world's largest magmatic sulphide deposits.

The confirmation of widespread alkaline intrusions across the Broken Hill region confirms there are at least several very deep seated structures in the area that have tapped the core-mantle boundary at about 800 million years ago and released mineralised magmas and fluids.

The structures facilitated an upwelling mantle plume related to the breakup of the supercontinent Rodinia between 830 - 720 Ma when Rodinia was over the Pacific Superplume.

This new geodynamic framework has allowed the Broken Hill area to be viewed with "fresh eyes" in terms of its prospectivity for a wide range of mineral deposits formed later in the geological history than the major silver-lead-zinc deposit Broken Hill itself. A major target generation exercise based on this work is in progress.

These results add to previous work by Impact which has identified numerous areas for follow up work for high grade deposits of nickel-copper-platinum group metals (PGM)-cobalt both along the Rockwell to Little Broken Hill Trend and along the entire length of a mafic-ultramafic complex interpreted from regional magnetic and gravity data to extend over about 40 km of strike north east to the Moorkai Trend (Figure 2 and ASX 3<sup>rd</sup> May 2017 and 13<sup>th</sup> December 2018).

Very high grade primary nickel-copper-PGM-gold mineralisation has been discovered along this complex by Impact at both the Red Hill Prospect and also the Platinum Springs Prospect (Figure 2).

At Red Hill exceptional grades have been returned from drilling including a stand out intercept in vein hosted sulphide of:

**1.2 metres at 10.4 g/t platinum, 10.9 g/t gold, 254 g/t (9.5 ounces) palladium, 7.4% nickel, 1.8% copper, 19 g/t silver and 0.5% cobalt** (ASX Announcement 26<sup>th</sup> October 2015).

At Platinum Springs drilling returned a very high grade intercept in magmatic massive sulphide of **0.6 metres at 11.5 g/t platinum, 25.6 g/t palladium, 1.4 g/t gold, 7.6% copper, 7.4% nickel and 44.3 g/t silver (cobalt not analysed)** (ASX 3<sup>rd</sup> February 2016 and 31<sup>st</sup> March 2016).

Both the Rockwell-Little Broken Hill Trend and the Moorkai Trend have been very poorly explored and many targets remain to be followed up.

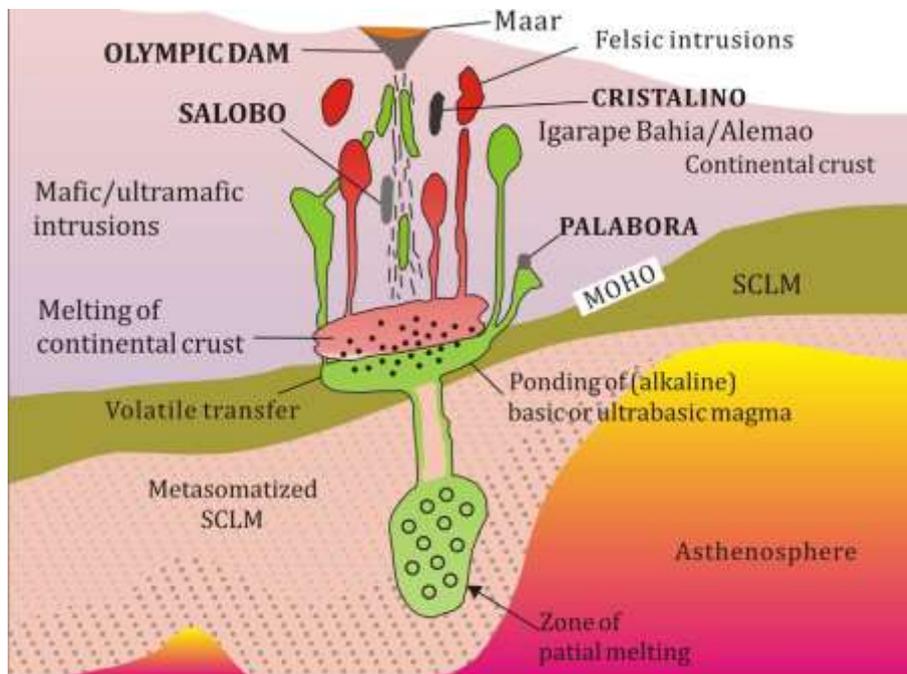
For example, at Rockwell a coherent near-surface geochemical anomaly one kilometre long and 150 metres wide has been defined in shallow 2 metre deep auger drill holes along the north western margin of the complex with results of up to 0.1% nickel, 0.1% copper and 0.5 g/t PGM over a one metre thick intercept. There has been no drilling at depth.

Along the Moorkai Trend only Platinum Springs has been explored in detail. Exceptional high grade rock chip samples have been returned from numerous prospects between the Platinum Springs and Moorkai Prospects, a distance of about 9 km along the Moorkai Trend (ASX 13<sup>th</sup> December 2018).

It is evident that considerable scope exists to discover a significant nickel-copper-PGM-cobalt deposit within Impact's Broken Hill project area.

In addition, it has been shown that alkaline magmas are the deep seated parental magmas to many world-class Iron Oxide Copper Gold Deposits (Figure 6). Impact interprets all of its data, in particular the association of high grade gold-copper with the high grade PGE mineralisation, to indicate the unusual mafic-ultramafic rocks at Broken Hill to be parental magmas for IOCG style mineralisation throughout the region.

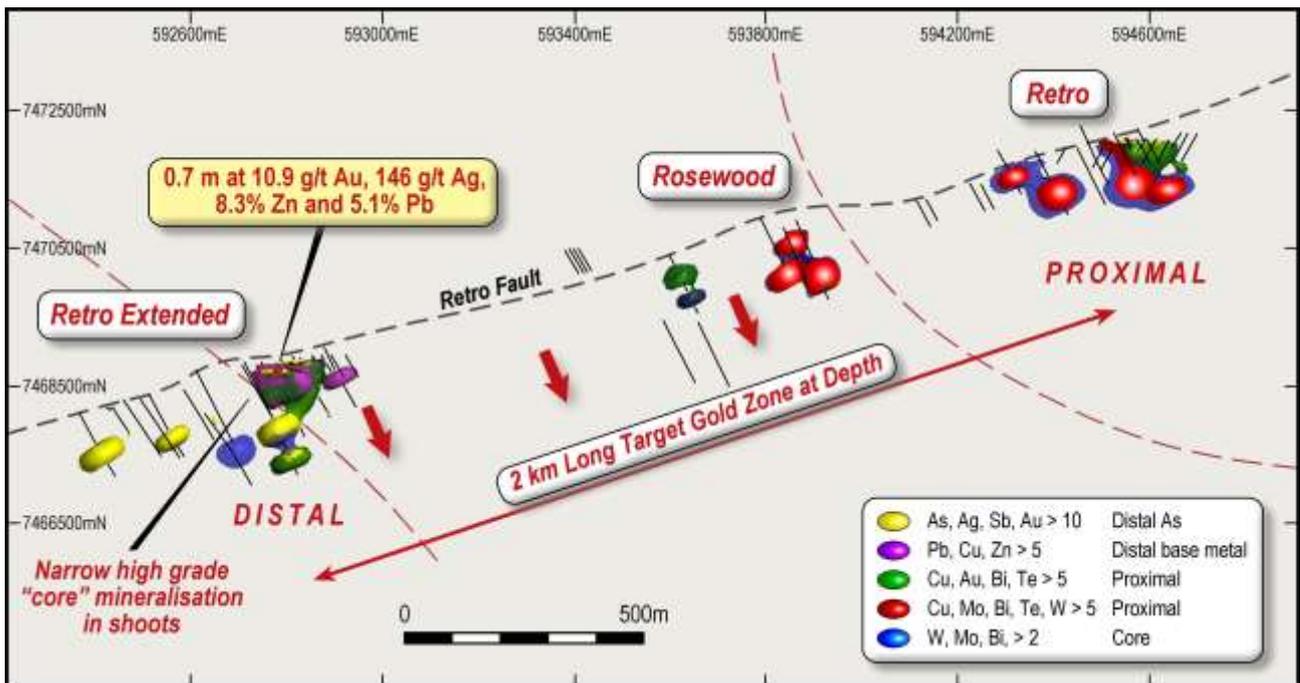
This is an important exploration breakthrough for the company and comes at a time of record prices for palladium (currently ~US\$1490/oz which is higher than gold). Exploration at Broken Hill will be reinvigorated as part of the 2019 field season.



**Figure 6.** Model for IOCG Deposits from Groves and Santosh 2015.

## 2. CLERMONT PROJECT (IPT 100%)

A two kilometre long target zone for high grade shoots of epithermal gold-silver-base metal mineralisation has been identified at the 100% owned Clermont gold project located in a prolific epithermal-intrusion related gold-silver belt in central Queensland, host to world class gold deposits such as Pajingo (Vera-Nancy) (>5 Moz of gold produced), Mt Leyshon (>3 Moz) and Mt Wright (>1 Moz) (Figures 7 and 8).



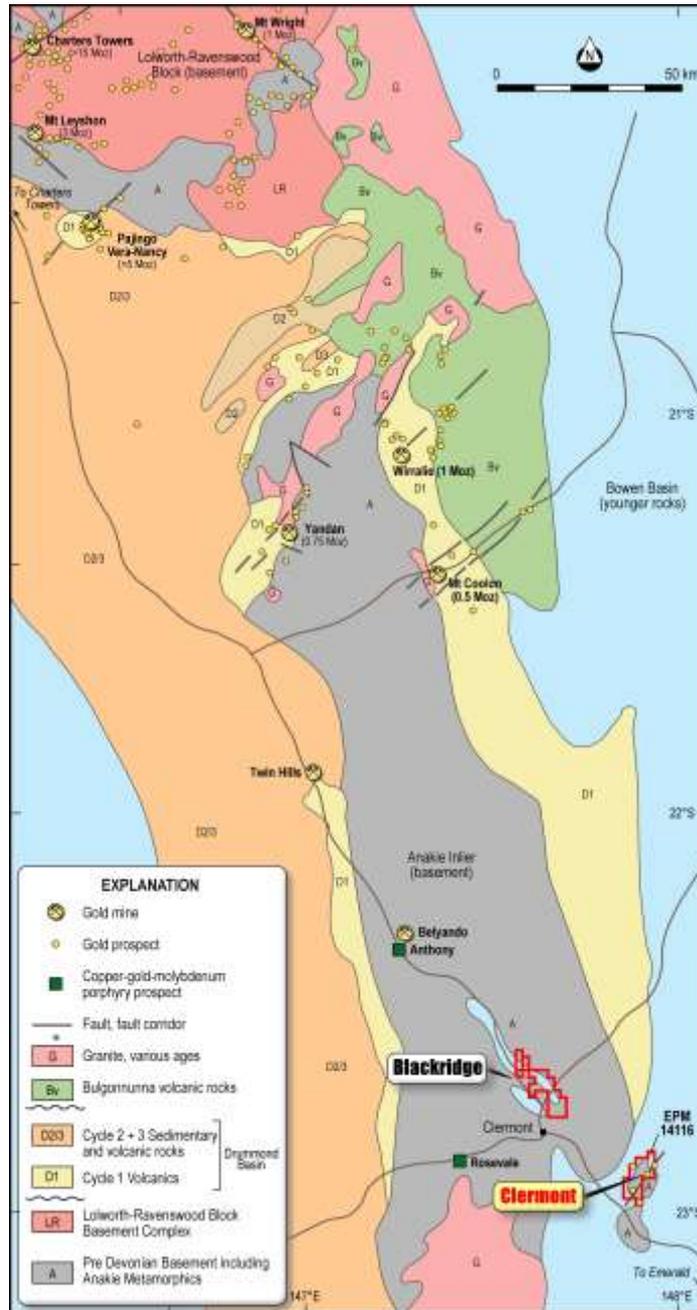
**Figure 7.** 3-D View looking towards the north west along the Retro Fault Zone showing high grade drill intercept at the end of a 2 km long target zone for high grade gold. The figure shows drill traces and 3D shells of the Z-scores for various metal assemblages and highlighting a proximal to distal transition from Retro, with an interpreted parent intrusion at depth, to Retro Extended.

The target was identified from a pattern of strong metal zonation in drill hole assay data over at least 4 kilometres of strike of the Retro Fault Zone and a stand out drill intercept of high grade gold-silver-base metals at the southern edge of the target (Figures 7 and 8).

The metal zonation is characteristic of epithermal mineralisation directly related to magmatic fluids released from a porphyry intrusion of intermediate composition and similar to the zonation associated with the world class Pachuca polymetallic mining district in Mexico.

In addition the vein system has a strong structural control and the focus of future drilling will be to identify thicker high grade shoots along the Retro Fault Zone.

This new interpretation is mostly based on new assay data from a drill programme completed in late 2018 which included the first diamond drill hole and the first full suite multi-element assays at the project.



**Figure 8.** Location of the Clermont Project in the Drummond Basin, central Queensland.

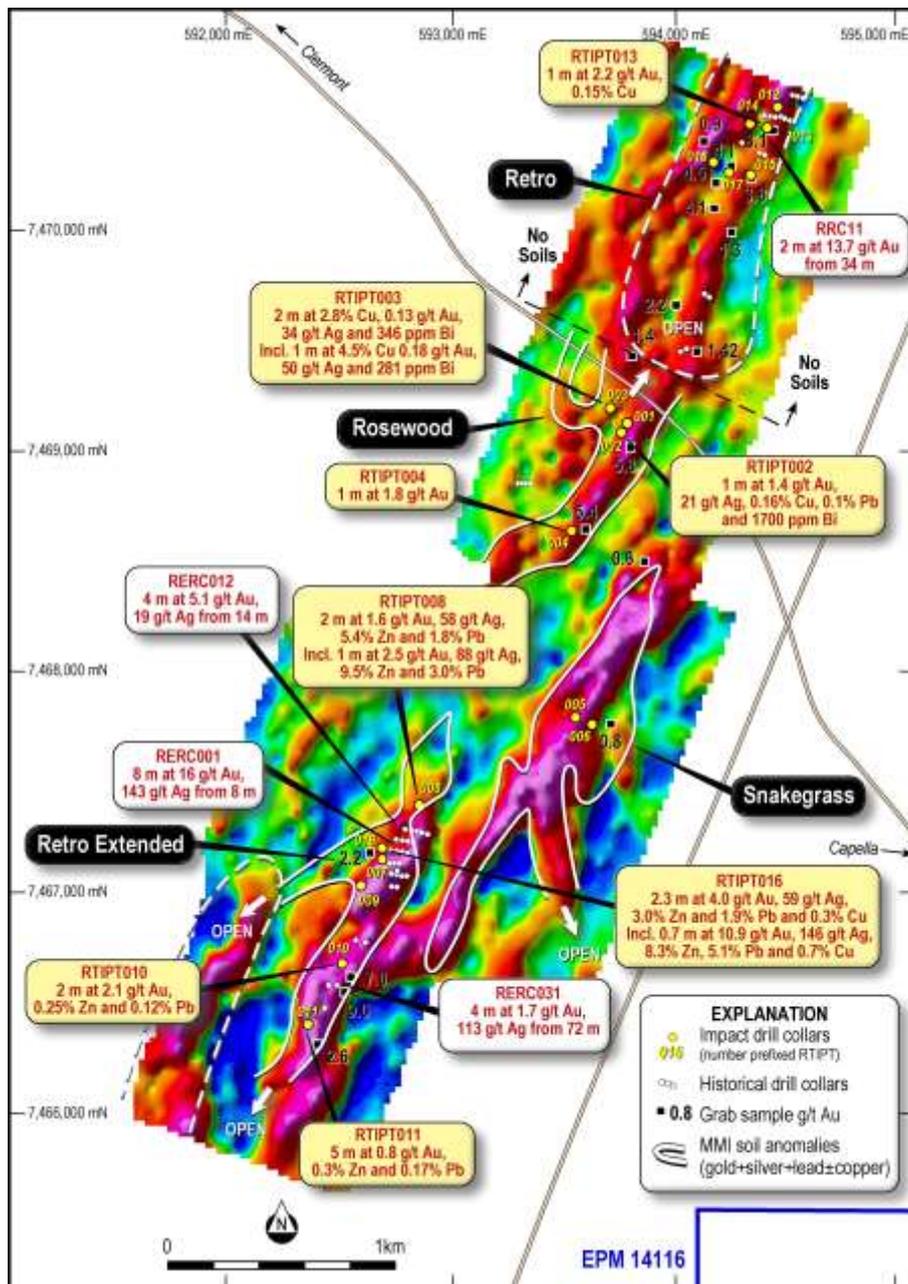
Until this programme little was known in detail about both the nature of the gold-silver-base metal mineralisation and also the structural controls on the quartz veins.

## 2.1 DRILL PROGRAMME DELIVERS TWO BREAKTHROUGH OUTCOMES

Four targets were tested in the drill programme: Retro Extended; Rosewood; Retro and Snakegrass. Drill hole locations and key intercepts are shown in Figure 9 (ASX 1<sup>st</sup> April 2019, 15<sup>th</sup> May 2018, 18<sup>th</sup> July 2018 and Invictus Gold Limited 21<sup>st</sup> January 2013). No significant results were returned from Snakegrass which is outside the main Retro Fault Zone (RFZ) and the soil geochemistry anomaly tested is unexplained (Figure 9).

The drill programme delivered two breakthrough outcomes for the project:

1. A very encouraging high grade gold-silver-base metal intercept at Retro Extended in the diamond drill hole with confirmation of epithermal textures and the nature of the sulphide mineralisation.
2. Recognition that the high grade intercept lies at the southern end of a two kilometre long target zone for further high grade mineralisation identified in a distinctive pattern of metal zonation along the RFZ.



**Figure 9.** Image of Gradient Array IP resistivity data along the Retro Fault Zone showing soil anomalies, drill targets and key drill results.

Warmer colours are high resistivity zones and are likely to represent zones of quartz veins. Also shown are the four drill targets and previous relevant drill results (ASX 15<sup>th</sup> May 2018).

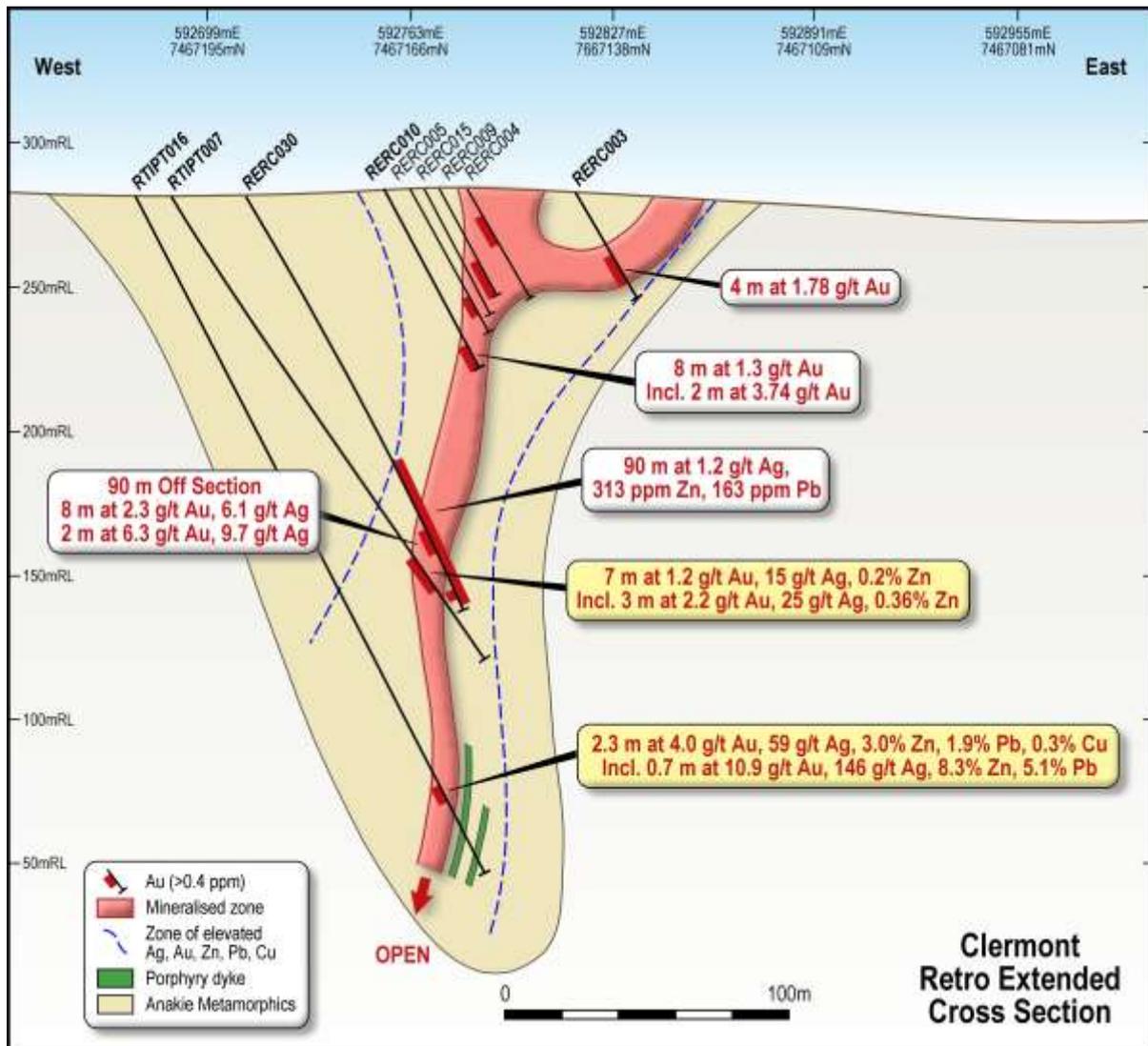
## 1. High grade drill intercept of epithermal mineralisation at Retro Extended

Diamond drill hole RTIPT016, designed to test the down dip extension of previous modest drill intercepts at Retro Extended, intersected a 2.5 metre thick zone of quartz veins containing high grade gold silver and base metals (Figure 10). This zone returned a stand out drill intercept from 229.1 metres down hole of:

**2.3 metres at 4 g/t gold, 59 g/t silver, 3% zinc, 1.9% lead, 0.3% copper and 100 ppm bismuth including**

**0.7 metres at 10.9 g/t gold 146 g/t silver 8.3% zinc, 5.1% lead, 0.7% copper and 310 ppm bismuth from 229.5 metres down hole.**

This zone is interpreted to be the down dip extension of the thicker lower grade mineralisation intersected in previous drill holes and it appears to be in a position where the structure has a steeper dip. This indicates a strong, as yet unknown, structural control to areas of higher grade mineralisation.



**Figure 10.** Section 7,467,200 mN. Geology and assays for holes RTIPT016 and RTIPT007 with previous drill results

The quartz veins show well developed mineral zonation with copper sulphide dominant at the edge of the vein through to dark brown to honey coloured zinc sulphides, and finally in the centre, colloform to crustiform quartz-chalcedony characteristic of epithermal veins (Figure 11). The copper and zinc sulphides are both intergrown with lead sulphide.

These textures indicate that the mineralisation is part of one evolving mineral system with progressive cooling of the parent fluid.



**Figure 11.** Diamond drill core from 230 metres downhole in RTIPT016. Copper sulphides (chalcopyrite) is yellow coloured at base of core; brown to honey coloured zinc sulphide (sphalerite) in the centre; and colloform to crustiform quartz-chalcedony in upper right.

In addition two hornblende porphyry dykes are present just below the quartz veins and within the Retro Fault Zone and these are interpreted to be likely sourced from a crystallising intrusion driving the entire system (Figure 10).

In addition two further holes at Retro Extended returned encouraging results: RTIPT007 and 008.

Hole **RTIPT007** was drilled above Hole 016 (Figure 10) and returned an intercept of:

**7 metres at 1.2 g/t gold, 15 g/t silver and 0.2% zinc from 156 metres down hole including 3 metres at 2.2 g/t gold, 25 g/t silver, 0.36% zinc and 0.15% copper.**

Hole **RTIPT008**, drilled 200 metres north of RTIPT016, is the most northerly drill hole at Retro Extended (Figure 9) and returned:

**2 metres at 1.6 g/t gold, 58 g/t silver, 5.4% zinc, 1.8% lead and 103 ppm bismuth from 72 metres down hole including 1 metre at 2.5 g/t gold, 88 g/t silver, 9.5% zinc, 3.0% lead and 170 ppm bismuth.**

**Together, these new results from Retro Extended suggest that the grade of gold, base metal and bismuth mineralisation is increasing with depth and along trend to the north.**

## **2. Metal Zonation along the Retro Fault Zone**

Simple additive z-score indices for the various metal assemblages at each of the different prospects clearly show for the first time at Clermont that the mineral system is strongly zoned from Retro in the north to Retro Extended in the south (Figure 7).

At **Retro** all drill holes returned low to modest levels of gold, weak copper mineralisation and extensive low levels of molybdenum, tellurium and tungsten with no significant lead and zinc, for example Hole RTIPT013 returned:

**1 metre at 2.2 g/t gold, 0.15% copper, 137 ppm bismuth, 27 ppm molybdenum, 0.8 ppm tellurium and 15 ppm tungsten from 108 metres down hole.**

Additive z-score indices show the enrichment in Cu-Mo-Bi-Te-W at Retro (Figure 7).

At **Rosewood** an increasing silver and lead content is seen together with a strong gold-copper-bismuth+/-molybdenum-tellurium-tungsten association, including a high grade copper intercept in Hole RTIPT003 which returned:

**1 metre at 0.18 g/t gold, 49 g/t silver, 4.5% copper, 281 ppm bismuth, 53 ppm molybdenum, 1.2 ppm tellurium and 10 ppm tungsten from 139 metres down hole.**

In addition Hole RTIPT002 returned an exceptional bismuth intercept of:

**1 metre at 1.4 g/t gold, 21 g/t silver, 0.1% lead, 0.16% copper, 1,700 ppm bismuth, 28 ppm molybdenum, 5.4 ppm tellurium and 9 ppm tungsten from 25 metres down hole.**

At **Retro Extended** the additive Z scores indices for holes described above and others show an enrichment in As-Ag-Sb+/-Au at the southern end of the prospect with more Zn-Pb-Cu enrichment and Cu-Au-Bi-Te in the centre of the prospect (Figure 7).

These metal assemblages and relative zonation together with the other new insights from the diamond drill core has allowed Impact to develop a powerful exploration model to target high grade ore shoots for the next phase of exploration.

## 2.2 EXPLORATION MODEL AND NEW TARGET AREA

A comparison of the precious, base and pathfinder metals in the drill assay data with their average crustal abundances indicates that overall the mineral system along the Retro Fault Zone is very enriched in bismuth and tellurium (>1000 times average crustal abundance) and also arsenic-antimony-gold-silver (>100 times average crustal abundance). In addition the bismuth and tellurium show a strong mathematical correlation to molybdenum, tungsten and copper.

Under the exploration model being used by Impact and developed by Dr Morrison, this poly-metallic assemblage is characteristic of a direct genetic link to fluids related to the emplacement of intrusions of intermediate composition emplaced at a shallow crustal level (epizonal).

The intermediate dykes present in the diamond drill hole and similar ones mapped at surface at Retro are interpreted to be related to the parent intrusive suite.

The system is zoned from areas interpreted to be **proximal** to the core of the as yet unidentified main intrusive centre at Retro to the north, progressing southwards to Rosewood and then to more **distal** areas at Retro Extended two kilometres to the south (Figures 7 and 9).

The most prospective parts for high grade gold-silver-base metals in such a polymetallic system lie in the “transition zone” **between** the proximal and distal environments. This is in contrast for example to porphyry copper-gold systems where the gold is in the core of the system (Table 1 below for details on the exploration model).

At Clermont, this key target area lies in the very poorly drilled area between Retro and Retro Extended and including Rosewood with a total strike length of 2 kilometres (Figure 7).

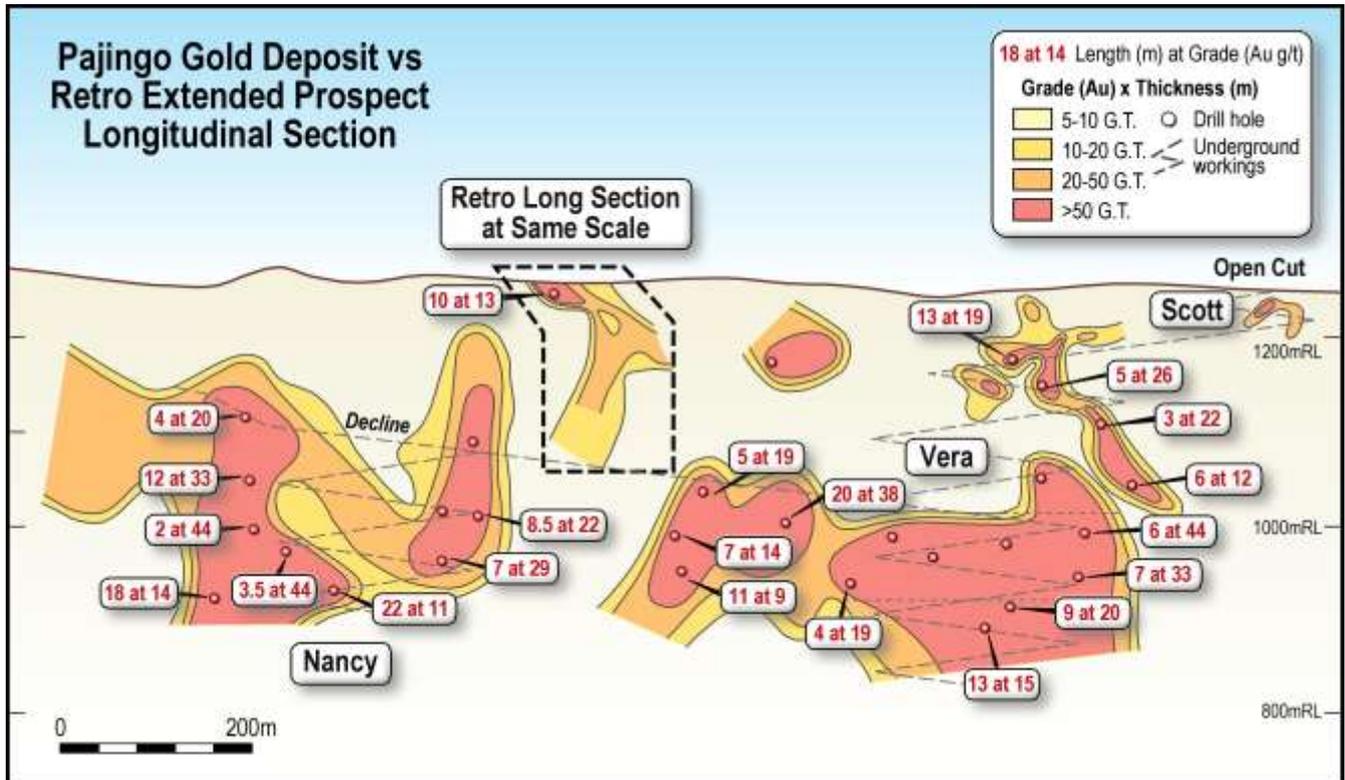
The exploration challenge is to find thicker shoots of coherent high grade mineralisation within this target area. It is well known in epithermal veins systems that even subtle changes in dip and strike of the host fault of as little as 5 degrees are enough to cause significant increases in thickness and grade of the ore shoots. For example Figure 12 shows a long section of the 5 Moz Pajingo mine (Figure 8) with Retro Extended shown at the same scale. The key structural positions controlling the high grade shoots at Pajingo were not revealed until extensive drilling 150 metres below surface had been completed.

**All of these results indicate there is significant exploration potential along the Retro Fault System for the discovery of a major deposit and that further exploration is warranted as a priority.**

## 2.3 NEXT STEPS

A detailed structural interpretation of the IP resistivity and conductivity data is now in progress to identify specific targets for follow up drilling. This work will focus on identifying changes in dip and strike of the host structure which may be a focus for high grade ore shoots.

A follow up drill programme will be designed based on this work. It is likely that close spaced drilling at a maximum of 50 metres between sections will be required along the target area.



**Figure 12.** Comparison of Pajingo and Retro Extended at the same scale.

### Details of the 2018 Drill Programme

The primary aim of the the drill programme was to identify the nature of the gold-silver-base metal system and to confirm the potential for a large deposit.

Four target areas with combined Induced Polarisation and soil geochemistry anomalies together with along trend and down dip extensions of previous encouraging drill intercepts were tested with 17 reverse circulation (RC) drill holes (2,574 metres) and one diamond drill hole (254 metres): Retro, Rosewood, Snakegrass and Retro Extended (Figures 2 and 3 and ASX 15<sup>th</sup> May 2018 and 18<sup>th</sup> July 2018).

The diamond drill hole, RTIPT016, is the first ever diamond drill hole at Clermont and has added significantly to the geological knowledge of the project area .

For the RC drilling the majority of the samples were composited over 4 metres and assayed for gold only with every 10<sup>th</sup> metre submitted for multielement assays. Individual one metre samples from composite samples with gold results greater than 4 metres at 0.5 g/t gold were resubmitted and assayed for gold and multi-elements.

### Method of Interpretation

Interpretation of the data was completed in conjunction with respected epithermal and porphyry mineralisation consultant Dr Gregg Morrison. Over many years of research and consulting Dr Morrison has developed a comprehensive model of metal zonation around intrusions of different compositions. Impact has a strong view that these are very powerful practical exploration models.

CLASSIFICATION	Cu (Au, Pt)	Cu-Au	Cu-Mo	Mo-W-Bi	Sn-W	Sn-B
EXAMPLE	Fifield Allard Stock (Col)	Goonumbla British Columbia	Mt Leyshon Arizona	Kidston Climax	Herberton Erzgebirge	Cooktown Tasmania
MARGINAL	Ca, F	Ca	Ca	F, U	F, Ba, Se, Hg, U	F
DISTAL (As)	As Te Au	Au As Sb	(As, Sb, Au)	As Ag Sb Au	Retro Extended	As
DISTAL (BM)	(Cu Zn Pb)	Pb Zn Ag Au (Cu Mo Te)	Bi Ag Au	Pb Cu Zn	Pb Ag Zn TARGET ZONE	Zn Pb Ag
PROXIMAL (BM)	Cu Ag (Bi, Au)	Cu (Zn)	Cu Zn Pb	Cu Au Bi Te	Cu Mo Bi	Cu Bi Mo (W)
CORE	Cu (Ag, Au, Bi, Te, Pt)	Cu Au (Te)	Cu Mo	W Mo Bi	Retro	Sn B (W)
IGNEOUS CHARACTERISTICS	M, U-F, O	M, U-F, SO-O	I, U-F, O	I, F, O-R	I, F, R	S, F, R

**Table 1.** Zonation of Metal Assemblages around different intrusive related gold deposits.

First, pathfinder element data was compared to average crustal abundances to distinguish the relative enrichment of the metal suite. This is a good first pass indication of the dominant metal assemblages and likely composition of the parent intrusion.

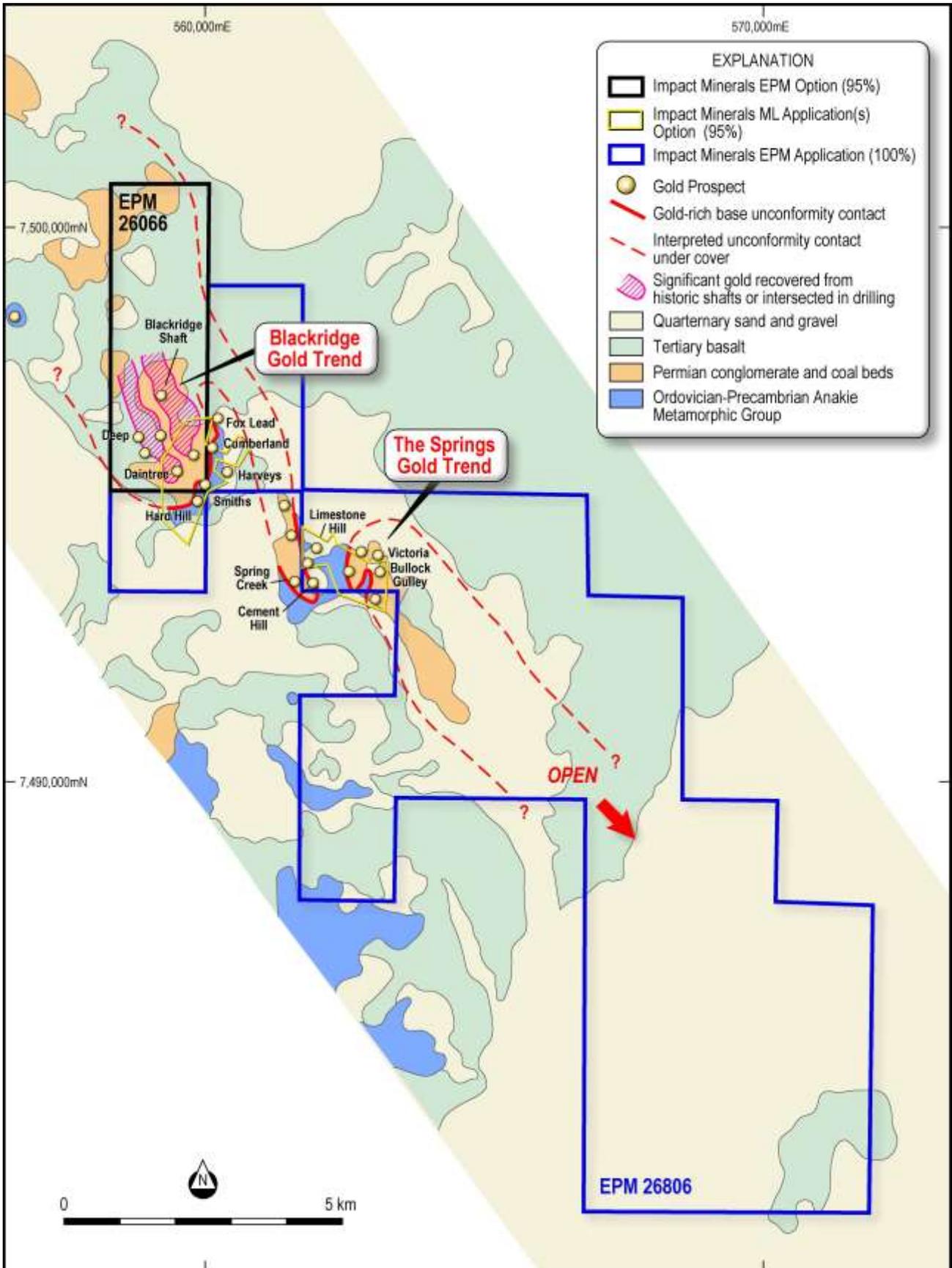
Secondly a Z-score has been calculated for all elements and simple additive indices of the scores are used to identify the zonation pattern. Z scores are a standard statistical calculation of the number of standard deviations a raw data (assay) value is from the mean of the data, for example a Z score of 2 indicates a value 2 standard deviations above the mean. It is a method of normalising data so that statistically meaningful associations between datasets can be made.

### 3. BLACKRIDGE GOLD PROJECT (IPT100% and option for 95%)

The Blackridge Project is an advanced conglomerate-hosted gold project that covers the historic Blackridge and Springs mining centres located about 10 km north of Clermont in central Queensland (Figure 2). The gold fields produced about 185,000 ounces of gold from 1879 to the early 1900's from surface down to depths of about 70 metres in small shafts and related underground workings.

Further discoveries were made in the Clermont region in the 1930's and total production from conglomerates in the region is estimated by the Geological Survey of Queensland to be more than 300,000 ounces of gold (ASX May 29<sup>th</sup> 2018).

Impact's tenements in the area cover 91 square kilometres and comprise one 100% owned Exploration Permit (E28806) and a 100% owned granted mining lease (ML2386) and an option to acquire 95% of a further Exploration Permit (E26066) and four mining lease applications (ML 100158, 59,60 and 61) (Figure 13).



**Figure 13.** Location and geology of the Blackridge Project.

During the Quarter further progress was made on the advancement of the four mining lease applications towards grant and the associated compensation agreements with the land owner for both the applications and the granted Mining Lease M2836. Two of the mining leases that are subject to Native Title left the notification period on April 17<sup>th</sup>. It is anticipated that the licences will all be granted in Quarter 3 2019.

At present there are statutory limitations on the sample size that can be taken on all licences except for M2386. Once all the mining leases are granted, several kilometres of strike of the target unit will be able to be bulk sampled. Accordingly a comprehensive bulk sampling programme comprising multiple samples each weighing 25 tonnes is planned along the main conglomerate unit that hosts the gold at Blackridge.

Previous bulk samples of about 1 tonne demonstrated that gold was widely distributed along the exposed conglomerate unit and related colluvium. Of 12 samples taken of the main unit 11 returned values of between 0.04 g/m<sup>3</sup> to 2.2 g/m<sup>3</sup> with one high grade result of 56 g/t from a 70 kg sample (ASX 23<sup>rd</sup> October 2018). These results are encouraging for the potential for bulk mining.

#### 4. CORPORATE

Cash at March 31 was \$1.3 million.

In addition Impact received a Research and Development tax rebate of \$712,000 on April 11<sup>th</sup>.



Dr Michael G Jones  
Managing Director

#### *Competent Persons Statement*

##### **Exploration Results**

*The review of exploration activities and results contained in this report is based on information compiled by Dr Mike Jones, a Member of the Australian Institute of Geoscientists. He is a director of the company and works for Impact Minerals Limited. He has sufficient experience which is relevant to the style of mineralisation and types of deposits under consideration and to the activity which he is undertaking 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 (the JORC Code). Dr Jones has consented to the inclusion in the report of the matters based on his information in the form and context in which it appears.*

##### **Mineral Resources**

*The information in this report which relates to Mineral Resources is based upon information compiled by Mr Ian Glacken, who is a Fellow of the Australasian Institute of Mining and Metallurgy. Mr Glacken is an employee of Optiro Pty Ltd and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" (the JORC Code). Mr Glacken consents to disclosure of the information in this report in the form and context in which it appears.*

*Impact Minerals confirms that it is not aware of any new information or data that materially affects the information included in the previous market announcements referred to and in the case of mineral resource estimates, that all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed.*

## ***Forward Looking Statements***

*This document may contain certain forward-looking statements. Forward-looking statements include, but are not limited to statements concerning Impact Minerals Limited's (Impact's) current expectations, estimates and projections about the industry in which Impact operates, and beliefs and assumptions regarding Impact's future performance. When used in this document, words such as "anticipates", "could", "plans", "estimates", "seeks", "intends", "may", "potential", "should" and similar expressions are forward-looking statements. Although Impact believes that its expectations reflected in these forward-looking statements are reasonable, such statements are subject to known and unknown risks, uncertainties and other factors, some of which are beyond the control of Impact and no assurance can be given that actual results will be consistent with these forward-looking statements.*

*Actual values, results or events may be materially different to those expressed or implied in this document. Given these uncertainties, recipients are cautioned not to place reliance on forward-looking statements. Any forward-looking statements in this document speak only at the date of issue of this document. Subject to any continuing obligations under applicable law and the ASX Listing Rules, Impact does not undertake any obligation to update or revise any information or any of the forward-looking statements in this document or any changes in events, conditions or circumstances on which any such forward-looking statement is based.*

## Tenement Information in accordance with Listing Rule 5.3.3

Project / Tenement ID	Status	IPT Interest at start of quarter	IPT Interest at end of quarter
<b>Commonwealth, NSW</b>			
EL5874	Granted	100%	100%
EL8212	Granted	100%	100%
EL8252	Granted	100%	100%
EL8504	Granted	100%	100%
EL8505	Granted	100%	100%
EL8632	Granted	100%	100%
<b>Broken Hill, NSW</b>			
EL7390	Granted	100%	100%
EL8234	Granted	100%	100%
EL8636	Granted	100%	100%
EL8674	Granted	100%	100%
EL8609	Granted	100%	100%
<b>Mulga Tank, WA</b>			
E39/988	Granted	100%	100%
E39/1072	Granted	100%	100%
E39/1439	Granted	100%	100%
E39/1440	Surrendered	100%	0%
E39/1441	Granted	100%	100%
E39/1442	Surrendered	100%	0%
E39/1513	Granted	100%	100%
E39/1761	Granted	100%	100%
E39/1766	Granted	100%	100%
E39/1767	Granted	100%	100%
E39/1768	Surrendered	100%	0%
E39/1997	Granted	100%	100%
E39/2018	Granted	100%	100%
E39/2019	Granted	100%	100%
E39/2022	Surrendered	100%	0%
E39/2065	Granted	100%	100%
<b>Clermont, Qld</b>			
EPM14116	Granted	100%	100%
<b>Blackridge, Qld</b>			
EPM26806	Granted	-	100%
ML2386	Granted	100%	100%

## Appendix 5B

# Mining exploration entity and oil and gas exploration entity quarterly report

Introduced 01/07/96 Origin Appendix 8 Amended 01/07/97, 01/07/98, 30/09/01, 01/06/10, 17/12/10, 01/05/13, 01/09/16

### Name of entity

**IMPACT MINERALS LIMITED**

### ABN

52 119 062 261

### Quarter ended ("current quarter")

31 MARCH 2019

Consolidated statement of cash flows	Current quarter \$A'000	Year to date (9 months) \$A'000
<b>1. Cash flows from operating activities</b>		
1.1 Receipts from customers		
1.2 Payments for		
(a) exploration & evaluation	(377)	(2,312)
(b) development	-	-
(c) production	-	-
(d) staff costs	(95)	(251)
(e) administration and corporate costs	(138)	(586)
1.3 Dividends received (see note 3)	-	-
1.4 Interest received	8	40
1.5 Interest and other costs of finance paid	-	-
1.6 Income taxes paid	-	-
1.7 Research and development refunds	-	645
1.8 Other (provide details if material)	-	-
<b>1.9 Net cash from / (used in) operating activities</b>	<b>(602)</b>	<b>(2,464)</b>

<b>2. Cash flows from investing activities</b>		
2.1 Payments to acquire:		
(a) property, plant and equipment	-	(82)
(b) tenements (see item 10)	-	-
(c) investments	-	-
(d) other non-current assets	-	-

<b>Consolidated statement of cash flows</b>	<b>Current quarter \$A'000</b>	<b>Year to date (9 months) \$A'000</b>
2.2 Proceeds from the disposal of:		
(a) property, plant and equipment	-	-
(b) tenements (see item 10)	-	341
(c) investments	-	-
(d) other non-current assets	-	-
2.3 Cash flows from loans to other entities	-	-
2.4 Dividends received (see note 3)	-	-
2.5 Other (provide details if material)	-	25
<b>2.6 Net cash from / (used in) investing activities</b>	<b>-</b>	<b>284</b>

<b>3. Cash flows from financing activities</b>		
3.1 Proceeds from issues of shares	-	-
3.2 Proceeds from issue of convertible notes	-	-
3.3 Proceeds from exercise of share options	-	-
3.4 Transaction costs related to issues of shares, convertible notes or options	-	-
3.5 Proceeds from borrowings	-	-
3.6 Repayment of borrowings	-	-
3.7 Transaction costs related to loans and borrowings	-	-
3.8 Dividends paid	-	-
3.9 Other (provide details if material)	-	-
<b>3.10 Net cash from / (used in) financing activities</b>	<b>-</b>	<b>-</b>

<b>4. Net increase / (decrease) in cash and cash equivalents for the period</b>		
4.1 Cash and cash equivalents at beginning of period	1,936	3,514
4.2 Net cash from / (used in) operating activities (item 1.9 above)	(602)	(2,464)
4.3 Net cash from / (used in) investing activities (item 2.6 above)	-	284
4.4 Net cash from / (used in) financing activities (item 3.10 above)	-	-
4.5 Effect of movement in exchange rates on cash held	-	-
<b>4.6 Cash and cash equivalents at end of period</b>	<b>1,334</b>	<b>1,334</b>

<b>5. Reconciliation of cash and cash equivalents</b> at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts	<b>Current quarter \$A'000</b>	<b>Previous quarter \$A'000</b>
5.1 Bank balances	334	636
5.2 Call deposits	1,000	1,300
5.3 Bank overdrafts	-	-
5.4 Other (provide details)	-	-
<b>5.5 Cash and cash equivalents at end of quarter (should equal item 4.6 above)</b>	<b>1,334</b>	<b>1,936</b>

**6. Payments to directors of the entity and their associates**

- 6.1 Aggregate amount of payments to these parties included in item 1.2
- 6.2 Aggregate amount of cash flow from loans to these parties included in item 2.3
- 6.3 Include below any explanation necessary to understand the transactions included in items 6.1 and 6.2

**Current quarter  
\$A'000**

99

-

Directors' fees, salary payments and superannuation.

**7. Payments to related entities of the entity and their associates**

- 7.1 Aggregate amount of payments to these parties included in item 1.2
- 7.2 Aggregate amount of cash flow from loans to these parties included in item 2.3
- 7.3 Include below any explanation necessary to understand the transactions included in items 7.1 and 7.2

**Current quarter  
\$A'000**

-

-

## Mining exploration entity and oil and gas exploration entity quarterly report

<b>8. Financing facilities available</b> <i>Add notes as necessary for an understanding of the position</i>	<b>Total facility amount at quarter end \$A'000</b>	<b>Amount drawn at quarter end \$A'000</b>
8.1 Loan facilities	-	-
8.2 Credit standby arrangements	-	-
8.3 Other (please specify)	-	-
8.4 Include below a description of each facility above, including the lender, interest rate and whether it is secured or unsecured. If any additional facilities have been entered into or are proposed to be entered into after quarter end, include details of those facilities as well.		

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<b>9. Estimated cash outflows for next quarter</b>	<b>\$A'000</b>
9.1 Exploration and evaluation	350
9.2 Development	-
9.3 Production	-
9.4 Staff costs	80
9.5 Administration and corporate costs	120
9.6 Other (provide details if material)	
<b>9.7 Total estimated cash outflows</b>	<b>550</b>

<b>10. Changes in tenements (items 2.1(b) and 2.2(b) above)</b>	<b>Tenement reference and location</b>	<b>Nature of interest</b>	<b>Interest at beginning of quarter</b>	<b>Interest at end of quarter</b>
10.1 Interests in mining tenements and petroleum tenements lapsed, relinquished or reduced	E39/1440 (WA)	Surrendered	100%	0%
	E39/1442 (WA)	Surrendered	100%	0%
	E39/1768 (WA)	Surrendered	100%	0%
	E39/2022 (WA)	Surrendered	100%	0%
10.2 Interests in mining tenements and petroleum tenements acquired or increased	EPM26806 (QLD)	Granted	-	100%

**Compliance statement**

- 1 This statement has been prepared in accordance with accounting standards and policies which comply with Listing Rule 19.11A.
- 2 This statement gives a true and fair view of the matters disclosed.



Sign here: .....  
(Director/Company Secretary)

Date: 24 April 2019

Print name: Bernard Crawford

**Notes**

1. The quarterly report provides a basis for informing the market how the entity's activities have been financed for the past quarter and the effect on its cash position. An entity that wishes to disclose additional information is encouraged to do so, in a note or notes included in or attached to this report.
2. If this quarterly report has been prepared in accordance with Australian Accounting Standards, the definitions in, and provisions of, AASB 6: Exploration for and Evaluation of Mineral Resources and AASB 107: Statement of Cash Flows apply to this report. If this quarterly report has been prepared in accordance with other accounting standards agreed by ASX pursuant to Listing Rule 19.11A, the corresponding equivalent standards apply to this report.
3. Dividends received may be classified either as cash flows from operating activities or cash flows from investing activities, depending on the accounting policy of the entity.