

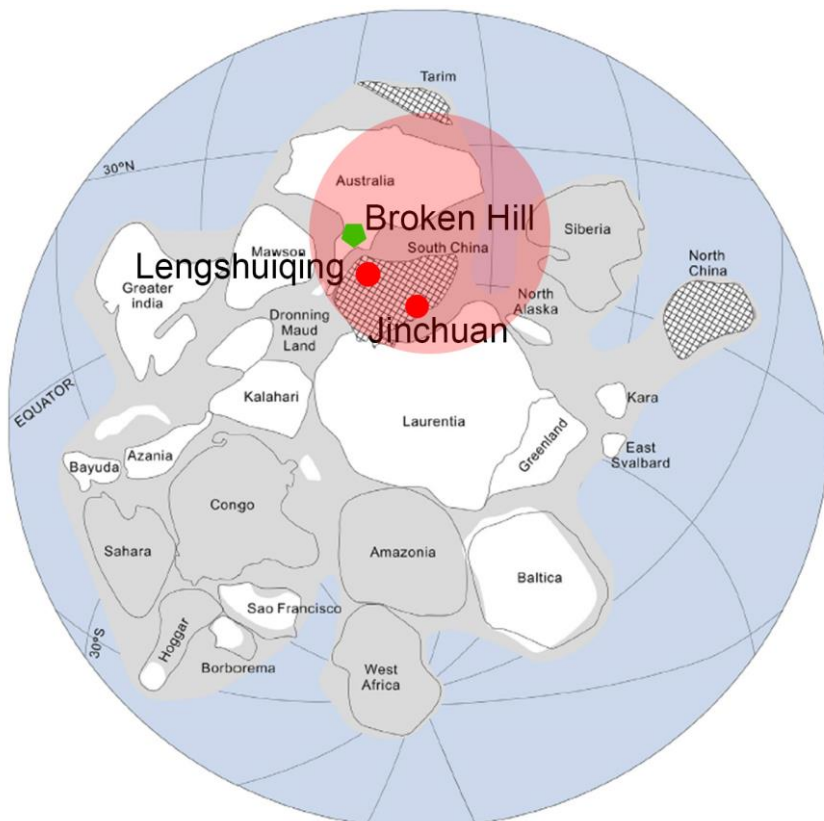
## ASX ANNOUNCEMENT

Date: 6 March 2019

Number: 620/060319

### NEW GEODYNAMIC FRAMEWORK FOR Ni-Cu-PGE and Cu-Au-Co-REE EXPLORATION AT THE BROKEN HILL PROJECT, NSW

- 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 Lengshuiqing Ni-Cu-PGE deposits now part of China.
- New targets being generated for reinvigorated exploration programme at the project.



**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).

A new geodynamic framework for exploration at Impact Minerals Limited (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 Announcement 13<sup>th</sup> December 2018).

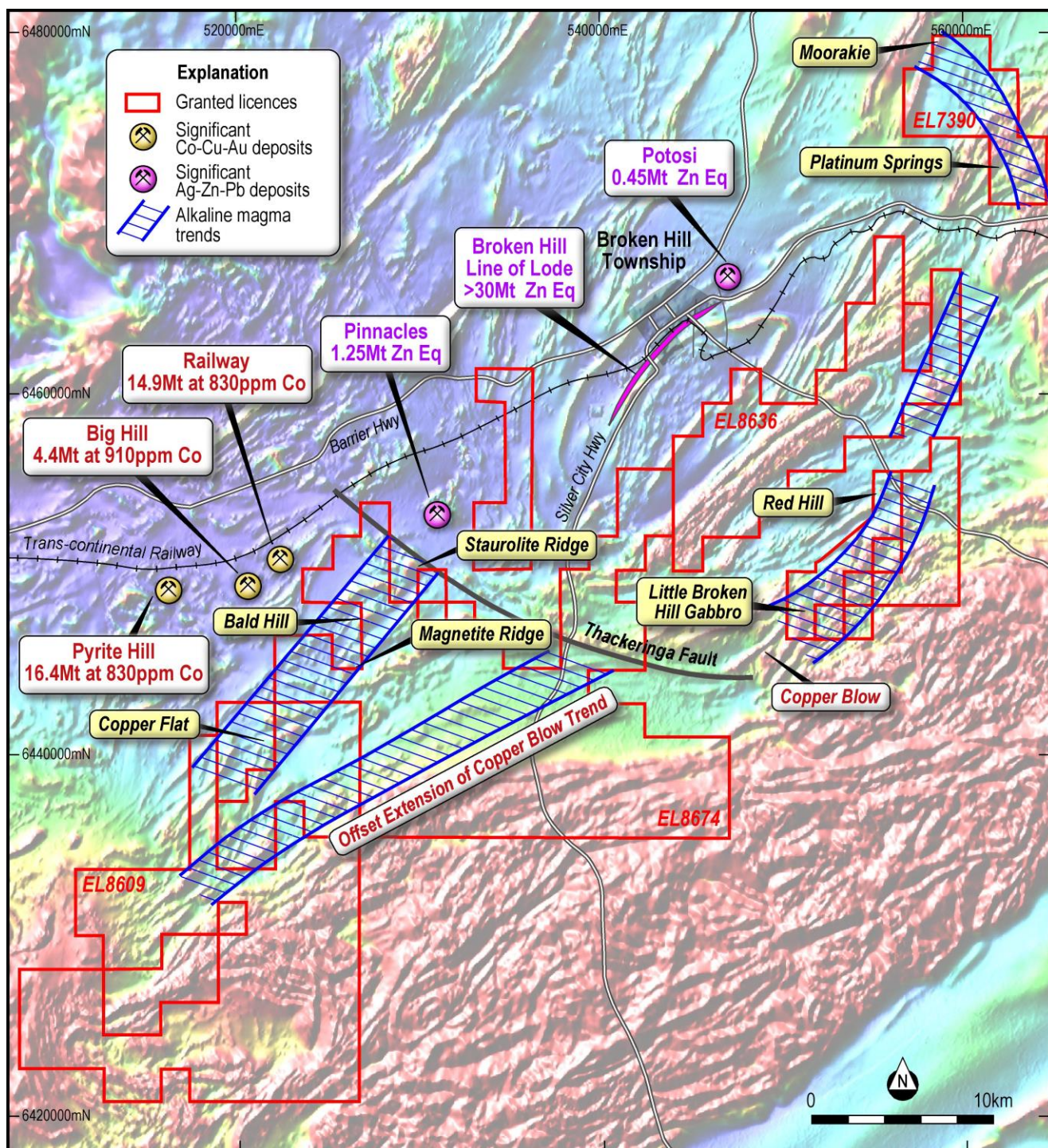
New work by Impact, done in conjunction with Independent Expert Emeritus Professor Ken Collerson of the University of Queensland, has now demonstrated that the alkaline rocks are related to a deep seated mantle plume that was related to the breakup of the Rodinia supercontinent about 800 million years ago.

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.

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 announcement 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 Moorkaie 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 Announcement 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-Staurolite 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-Staurolite Ridge Trend. In addition, at Staurolite 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.

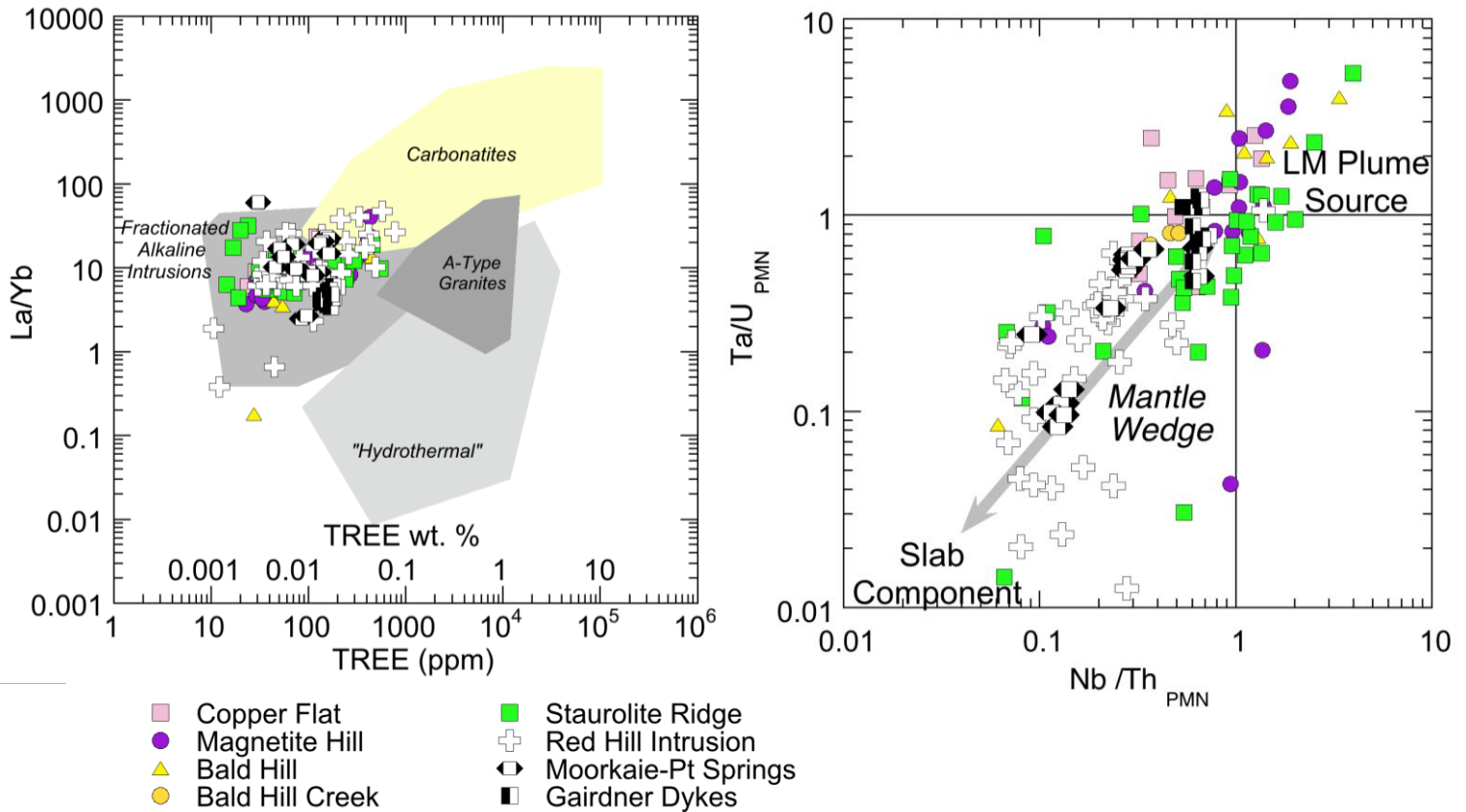


**Figure 3.** Coarse grained pyroxene-nepheline (dark green-cream) melteigite (left) and melteigite-carbonatite (grey) from the Staurolite Ridge area.

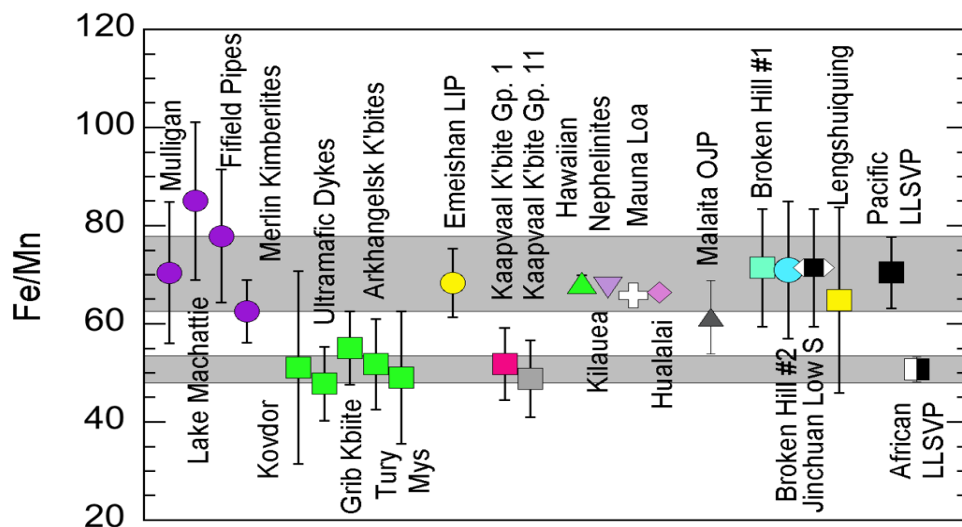
### **Geochemical Evidence for the Alkaline Magmas and Mantle Plume Origin.**

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-Stauroelite 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-Moorkaie (Figure 4 and ASX Announcement 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 Announcements 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 Announcements 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.

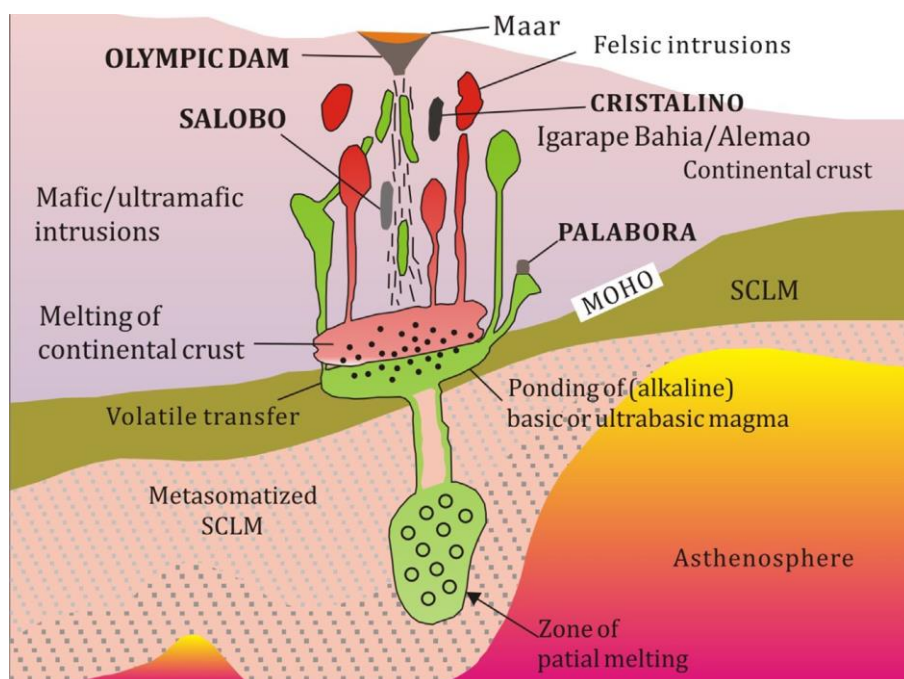
For example, at Rockwell a coherent near-surface geochemical anomaly one kilometre long and 150 metres wide has been defined in shallow 2 metre deep auger drill holes along the north western margin of the complex with results of up to 0.1% nickel, 0.1% copper and 0.5 g/t PGM over a one metre thick intercept. 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 Announcement 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.

## COMPLIANCE STATEMENT

This report contains new rock geochemistry data for Ta U Fe Mn La Y Nb and Th. The absolute amounts of these metals are not of economic significance and the plots shown in Figures 4 and 5 show the patterns described in the announcement. Accordingly a listing of individual results is not material to exploration. The assay technique used was the four acid digest method as described in the JORC Table. The sample locations and descriptions are given in the table below.

*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). Mike 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.*

## SAMPLE LOCATIONS AND DESCRIPTIONS

Sample ID	Location	Easting	Northing	Description
CF-01	Copper Flat	522265	6440953	Pyroxenite
CF-02	Copper Flat	522343	6440919	Pyroxenite
CF-03	Copper Flat	522336	6440910	Silicified serpentinised UM/layered
CF-04	Copper Flat	522344	6440925	Micro-gabbro
CF-05	Copper Flat	522215	6440916	Coarse grained ultramafic
CF-06a	Copper Flat	522215	6440916	Brecciated mafic
CF-06b	Copper Flat	522215	6440916	Brecciated mafic
CF-06c1	Copper Flat	522215	6440916	Brecciated mafic cut by lamprophyre dyke
CF-06c2	Copper Flat	522215	6440916	Brecciated mafic cut by lamprophyre dyke
MH-01	Magnetite Hill	525916	6444720	Ijolite medium to coarse grained
MH-02	Magnetite Hill	525951	6440718	Pyroxenite with carbonate ocelli
MH-03	Magnetite Hill	525957	6440718	Pyroxenite
MH-05A	Magnetite Hill	525958	6444446	Malachite stained pyroxenite
MH-05B	Magnetite Hill	525958	6444446	Malachite stained pyroxenite
MH-05C	Magnetite Hill	525958	6444446	Malachite stained pyroxenite
MH-06	Magnetite Hill	525958	6444446	Pyroxenite with carbonatite ocelli
MH-07	Magnetite Hill	525958	6444446	Pyroxenite
MH-08	Magnetite Hill	525958	6444446	Alkali Gabbro
MH-09	Magnetite Hill	525958	6444446	Alkali Gabbro with pegmatites
MH-10	Magnetite Hill	525958	6444446	Xenoliths
MH-11	Magnetite Hill	525958	6444446	Xenoliths
MH-12	Magnetite Hill	525958	6444446	Xenoliths
MH-013	Magnetite Hill	525958	6444446	Hornblende phenocrystic dolerite?
MH-014	Magnetite Hill	525958	6444446	Biotite altered gabbro
MH-015	Magnetite Hill	525958	6444446	Dolerite?
BH-01	Bald Hill Creek	525821	6445541	Pyroxenite - ijolite
BH-02	Bald Hill Creek	525830	6445486	Coarse grained orthopyroxenite
BH-03	Bald Hill Creek	525828	6445547	Opxite with magnetite alteration
BH-04A	Bald Hill	526497	6447059	Ijolite magnetic
BH-04B	Bald Hill	526497	6447059	Feldspathoid bearing ijolite
BH-04C	Bald Hill	526497	6447059	Ijolite magnetic
BH-05	Bald Hill	526325	6447047	Pyroxenite or ijolite
BH-06	Bald Hill	526229	6447023	Gossanous brecciated ijolite
BH-07	Bald Hill (Float)	526497	6447059	Ijolite, coarse grained ijolite bluish stain

Sample ID	Location	Easting	Northing	Description
BH-08A	Bald Hill	526645	6447068	Jacupirangite or ijolite isoclinal folds
BH-08B	Bald Hill	526645	6447068	Jacupirangite or ijolite
BH-09	Bald Hill	526645	6447068	ijolite
SR-01A	Staurolite Ridge	528724	6448748	Ijolite
SR-01B	Staurolite Ridge	528724	6448748	Ijolite - pyroxenite
SR-01C	Staurolite Ridge	528724	6448748	Ijolite
SR-02A	Staurolite Ridge	528762	6448756	Amphibolite - melteigite with fold
SR-02B	Staurolite Ridge	528762	6448756	Epidote alteration
SR-02C	Staurolite Ridge	528762	6448756	Alkali amphibole bearing rock
SR-03A/1	Staurolite Ridge	528796	6448802	Gossan
SR-03A/2	Staurolite Ridge	528796	6448802	Gossan
SR-03B	Staurolite Ridge	528796	6448802	Gossan breccia with epidote
SR-03C	Staurolite Ridge	528796	6448802	Coarse ijolite
SR-04A	Staurolite Ridge	528775	6468632	Malachite bearing ijolite
SR-04B	Staurolite Ridge	528775	6468632	Sovite veined ijolite
SR-04C	Staurolite Ridge	528775	6468632	Orthopyroxenite
SR-04D	Staurolite Ridge	528775	6468632	Malachite bearing ijolite
SR-05A	Staurolite Ridge	528787	6468897	Coarse ijolite
SR-05B	Staurolite Ridge	528787	6468897	Melteigite
SR-05C	Staurolite Ridge	528787	6468897	Melteigite
SR-06A	Staurolite Ridge	528862	6448991	Ijolite cut by carbonatite vein
SR-06B	Staurolite Ridge	528862	6448991	Ijolite cut by carbonatite vein
SR-07A	Staurolite Ridge	528867	6448996	Deformed carbonatite
SR-07B	Staurolite Ridge	528867	6448996	Deformed carbonatite
SR-07C	Staurolite Ridge	528867	6448996	Bornite-bearing deformed carbonatite
SR-07D	Staurolite Ridge	528867	6448996	Bornite-bearing deformed carbonatite
SR-07E	Staurolite Ridge	528867	6448996	Bornite-bearing deformed carbonatite
SR-08A	Staurolite Ridge	528917	6448958	Magnetite-bearing deformed carbonatite
SR-08B	Staurolite Ridge	528917	6448958	Malachite-bearing deformed carbonatite
SR-09	Staurolite Ridge	528917	6448958	Calc silicate - deformed carbonatite
SR-10	Staurolite Ridge	528917	6448958	Melteigite pegmatite
ES-1	Edgeback	Float		Feldspar silica pegmatite

## APPENDIX 1 - SECTION 1 SAMPLING TECHNIQUES AND DATA

Criteria	JORC Code explanation	Commentary
Sampling techniques	<p><i>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.</i></p> <hr/> <p><i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used</i></p> <hr/> <p><i>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</i></p>	<p><b>Rock Chip Samples</b> Random rock samples were taken at surface which represented favourable geology and alteration to known mineralisation in the region. Samples are variably weathered.</p> <p><b>Soil Samples</b> Soil samples were taken at 50 m intervals from a hole 15-20 deep and sieved to -2mm to collect about 250 g of material.</p> <p><b>Diamond Drilling</b> Diamond drilling was used to produce drill core either with a diameter of 63.5 mm (HQ) or 47.6 mm (NQ). A handheld XRF instrument was used to analyse the drill core at 50 cm intervals.</p> <hr/> <p><b>Rock Chip Samples</b> Representative rock chip samples at each sample site weigh between 0.8 and 1.2 kg. Soil samples are taken at a consistent depth below surface and sieved.</p> <p><b>Soil Samples and Drill Samples</b> Sample representivity was ensured by a combination of Company Procedures regarding quality control (QC) and quality assurance / testing (QA). Examples of QC include (but are not limited to), daily workplace and equipment inspections, as well as drilling and sampling procedures. Examples of QA include (but are not limited to) collection of "field duplicates", the use of certified standards and blank samples approximately every 50 samples.</p> <hr/> <p><b>Rock Chip and Diamond Drill Samples</b> Rock samples and split diamond core were sent to Intertek Adelaide and Perth where they were crushed, dried and pulverised (total prep) to produce a 25-30 g sub-sample for analysis by four acid digest with an ICP/AES finish for ore grade base metal samples and either lead collection or nickel sulphide fire assay with AAS or MS finish for gold and the PGMs. Weathered samples contained gossanous sulphide material. Soil samples were sent to SGS Perth for analysis by the MMI digest. The XRF data is qualitative only. A comparison between the XRF results and wet chemical assay data will be completed on receipt of final results.</p>
Drilling techniques	<p><i>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).</i></p>	<p>Diamond Drilling comprises NQ (47.6 mm diameter) and HQ (63.5 mm diameter) sized core. Impact diamond core is triple tube and is oriented. Historical diamond core was not oriented.</p>
Drill sample recovery	<p><i>Method of recording and assessing core and chip sample recoveries and results assessed</i></p>	<p>Diamond core recoveries for all holes are logged and recorded. Recoveries are estimated to be approximately &gt;97% for the Red Hill Prospect. No significant core loss or sample recovery problems are observed in the drill core.</p>

Criteria	JORC Code explanation	Commentary
	<i>Measures taken to maximise sample recovery and ensure representative nature of the samples</i>	Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against the depth given on the core blocks and rod counts are routinely carried out by the driller.
	<i>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.</i>	No sample bias has been established.
<b>Logging</b>	<i>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.</i>	Geological logging of samples followed company and industry common practice. Qualitative logging of samples included (but not limited to); lithology, mineralogy, alteration, veining and weathering. Diamond core logging included additional fields such as structure and geotechnical parameters.  Magnetic Susceptibility measurements were taken for each 0.5 m diamond core interval.  For diamond core, information on structure type, dip, dip direction, texture, shape and fill material has been recorded in the logs. RQD data has been recorded on selected diamond holes. Handheld XRF analysis was completed at 50 cm intervals on diamond core.
	<i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</i>	All logging is quantitative, based on visual field estimates. Systematic photography of the diamond core in the wet and dry form was completed.
	<i>The total length and percentage of the relevant intersections logged</i>	All diamond drill holes were logged in full.
		Detailed diamond core logging, with digital capture was conducted for 100% of the core by Impact's on-site geologist.
<b>Sub-sampling techniques and sample preparation</b>	<i>If core, whether cut or sawn and whether quarter, half or all core taken.</i>	All core samples were sampled by half core. Selected intervals of quarter core will be selected for check assays if required.
	<i>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i>	No RC drilling results are reported.
	<i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i>	Company procedures were followed to ensure sub-sampling adequacy and consistency. These included (but were not limited to) daily work place inspections of sampling equipment and practices, as well as sub-sample duplicates ("field duplicates").
	<i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i>	Laboratory QC procedures for rock sample and diamond drill core assays involve the use of internal certified reference material as assay standards, along with blanks, duplicates and replicates.
	<i>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</i>	<b>Rock and Soil Samples</b> Field duplicates were taken at selected sample sites.

Criteria	JORC Code explanation	Commentary
	<i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i>	<b>Diamond Core Samples</b> Quarter core duplicate samples are taken randomly every 50 samples. Sample sizes at Red Hill are considered adequate due to mineralisation style.
<b>Quality of assay data and laboratory tests</b>	<i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i>	An industry standard fire assay technique for samples using lead collection with an Atomic Absorption Spectrometry (AAS) finish was used for gold and aqua regia digest for base metals and silver.
	<i>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</i>	No geophysical tools were used to determine material element concentrations. A handheld XRF was used for qualitative analysis only.
	<i>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.</i>	<b>Rock Chip Samples</b> For the rock chips, quality control procedures for assays were followed via internal laboratory protocols. Accuracy and precision are within acceptable limits. <b>Diamond Drill Samples</b> Reference standards and blanks are routinely inserted into every batch of samples at a rate of 1 in every 50 samples.
<b>Verification of sampling and assaying</b>	<i>The verification of significant intersections by either independent or alternative company personnel.</i>	The results have not been verified by independent or alternative companies. This is not required at this stage of exploration.
	<i>The use of twinned holes.</i>	No drilling results are reported.
	<i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i>	Primary assay data for rock chips has been entered into standard Excel templates for plotting in Mapinfo. All historical drill data has been entered digitally by previous explorers and verified internally by Impact.
	<i>Discuss any adjustment to assay data.</i>	There are no adjustments to the assay data.
<b>Location of data points</b>	<i>Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</i>	Sample locations and drill holes were located by hand held GPS.
	<i>Specification of the grid system used.</i>	The grid system for Broken Hill is MGA_GDA94, Zone 54.
	<i>Quality and adequacy of topographic control.</i>	Standard government topographic maps have been used for topographic validation. For the diamond holes, down-hole single shot surveys were conducted by the drilling contractor. Surveys were conducted at 15 m, 30 m and then approximately every 30 m down-hole.
<b>Data spacing and distribution</b>	<i>Data spacing for reporting of Exploration Results.</i>	Sample spacing for the soil survey was on a 50 m by 50 m grid. Reconnaissance drill spacing is approximately 200 m.

Criteria	JORC Code explanation	Commentary
Orientation of data in relation to geological structure	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.	Estimations of grade and tonnes have not yet been made.
	Whether sample compositing has been applied.	Sample compositing has not been applied.
	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	Not relevant to soil and rock chip results. The orientation of mineralisation in RHD001 yet to be determined.
	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.	Not relevant to soil and rock chip results or early stage exploration drill results.
Sample security	The measures taken to ensure sample security.	Chain of custody is managed by Impact Minerals Ltd. Samples for Broken Hill are delivered by Impact Minerals Ltd by courier who transports them to the laboratory for prep and assay. Whilst in storage, they are kept in a locked yard. Tracking sheets have been set up to track the progress of batches of samples.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	At this stage of exploration a review of the sampling techniques and data by an external party is not warranted.

## SECTION 2 REPORTING OF EXPLORATION RESULTS

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Broken Hill Project currently comprises 5 exploration licences covering 700 km <sup>2</sup> . The tenements are held 100% by Impact Minerals Limited, with Silver City Minerals holding a 20% interest in the silver-lead-zinc rights of E7390 free carried to a Decision to Mine. No aboriginal sites or places have been declared or recorded over the licence area. There are no national parks over the licence area.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenement is in good standing with no known impediments.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	There has been no significant previous work at this prospect.
Geology	Deposit type, geological setting and style of mineralisation.	Nickel-copper-PGE sulphide mineralisation associated with an ultramafic intrusion.

Criteria	JORC Code explanation	Commentary
<b>Drill hole Information</b>	<p>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:</p> <ul style="list-style-type: none"> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul>	See Table in text.
<b>Data aggregation methods</b>	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.	All reported assays have been length weighted. No top cuts have been applied. A cut-off of approximately 0.1% Cu, 0.4% Cu and 1.0% Cu has been applied for reporting of exploration results.
	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.	High grade massive sulphide intervals internal to broader zones of disseminated sulphide mineralisation are reported as included intervals.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalents have been reported.
<b>Relationship between mineralisation widths and intercept lengths</b>	<p>These relationships are particularly important in the reporting of Exploration Results.</p> <p>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</p> <p>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').</p>	The orientation of mineralisation in RHD001 is yet to be determined.
<b>Diagrams</b>	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Refer to Figures in body of text.
<b>Balanced reporting</b>	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	All results reported are representative

Criteria	JORC Code explanation	Commentary
<b>Other substantive exploration data</b>	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.	Assessment of other substantive exploration data is not yet complete however considered immaterial at this stage.
<b>Further work</b>	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive	Follow up work programmes will be subject to interpretation of results which is ongoing.