

**ASX Code: IPT** 

**AUGUST 9, 2023** 

# LARGE NICKEL-COPPER-PGM SOIL GEOCHEMISTRY ANOMALIES IDENTIFIED AT THE ARKUN BATTERY METALS PROJECT, WESTERN AUSTRALIA

- Five large nickel-copper-platinum group-metal (Ni-Cu-PGM) soil geochemistry anomalies, each covering several square kilometres, have been identified within the northern portion of the Arkun project.
- The soil anomalies coincide with magnetic and/or gravity geophysical anomalies that may represent mafic and ultramafic intrusions.
- Field checking confirms intrusive mafic and ultramafic rocks occur within some anomalies and are priority targets for magmatic Ni-Cu-PGM mineralisation.
- A further 1,000 soil samples have been recently collected and submitted to the laboratory, with results due in Q4 2023.

Five high-priority targets for nickel-copper-platinum group metals (including gold) (PGM) mineralisation have been identified in new soil geochemistry results from Impact Minerals Limited's (ASX:IPT) 100% owned Arkun project within the emerging mineral province of southwest Western Australia (Figure 1). These anomalies are in addition to the significant Rare Earth Element (REE) soil geochemistry anomalies recently identified at the project (ASX Release June 1<sup>st</sup> 2023).

The nickel-copper-PGM anomalies are up to 4 kilometres long and 2 kilometres wide and are coincident with either gravity highs or magnetic lows, which together may represent mafic and ultramafic intrusions that are potential hosts for nickel-copper-PGM sulphide mineralisation.

Notably, the anomalies include strong responses for nickel, copper, palladium, platinum and gold, suggesting that they may be associated with sulphide mineralisation rather than simply arising from elevated backgrounds of nickel and copper in mafic and ultramafic rocks.

These new results, which cover only a small part of the Arkun project, clearly demonstrate the significant prospectivity of the Arkun project area for a wide range of battery metals.

If you require any further information on this announcement or have any questions you would like to ask Impact Minerals please go to https://investors.impactminerals.com.au/auth/signup or scan this QR Code:



Impact Minerals' Managing Director, Dr Mike Jones, said, "Our Arkun project continues to be significantly bolstered by our ongoing soil geochemistry work. In addition to the recent discovery of the large Horseshoe REE prospect, we have now generated five significant areas to follow up for nickel-copper-PGM mineralisation. All of these targets were generated from our initial roadside geochemical traverses, and we are having a high success rate in generating significant-sized areas for follow-up work and with a further 1,000 soil samples in the laboratory, I am confident we will have more anomalies to come. The Arkun area is poorly explored, a fact recently emphasised by the \$20 million dollar joint venture between Chalice Mining Limited and private company Northam Resources Limited on the ground immediately next door to Arkun. This region of Western Australia is continuing to emerge as a significant new mineral province."

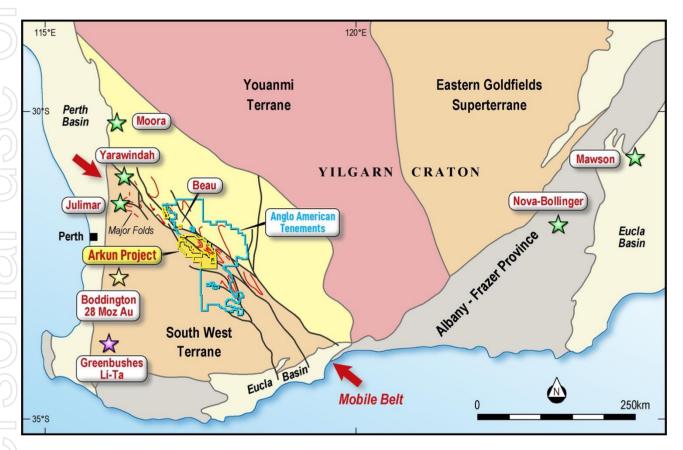


Figure 1. Location and Regional Geology of the Arkun Project with three world-class deposits: Julimar (nickel-copper-PGE), Boddington (gold) and Greenbushes (Li-Ta). Note the extensive tenement holdings of Anglo American Corporation, which surrounds Arkun on three sides, and who applied for the ground on the same day of Impact's first announcement about Arkun.

The results of the soil geochemistry survey are presented as additive response ratios on images of the regional magnetic and gravity data, respectively, in Figure 2 and Figure 3. Responses for individual metals nickel-copper-palladium-gold are shown in more detail for four of the priority areas in Figure 4. Gold is commonly associated as a minor element in magmatic nickel-copper sulphide systems and is used here as a proxy for platinum. The four priority areas are shown in more detail in Figure 5.

Further details on the soil geochemistry survey and the calculation of response ratios are given at the end of this report. Background values and maximum and minimum assay values for the elements of interest are provided for reference in Table 1.

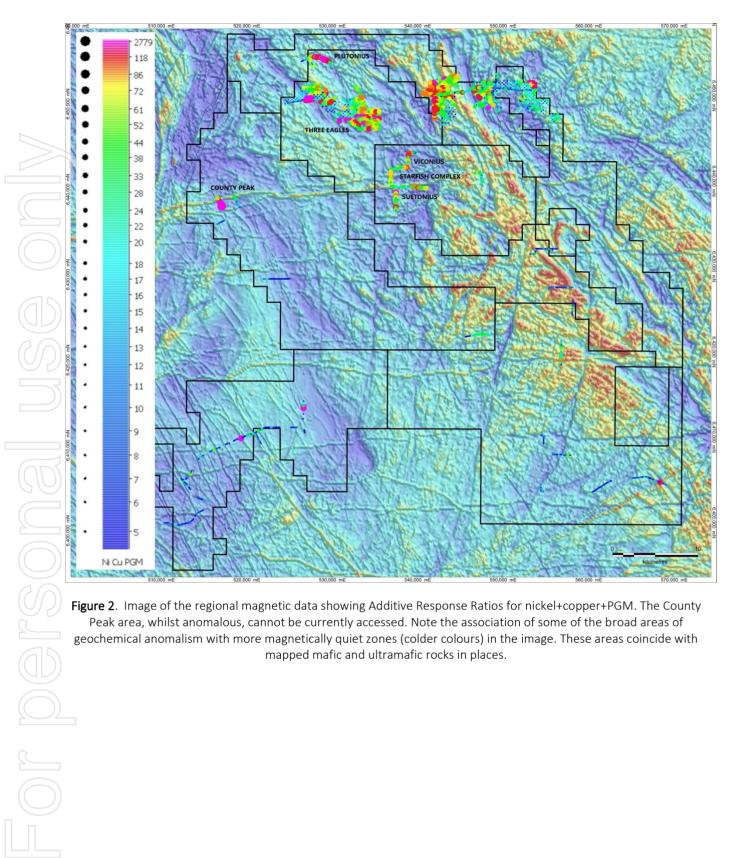
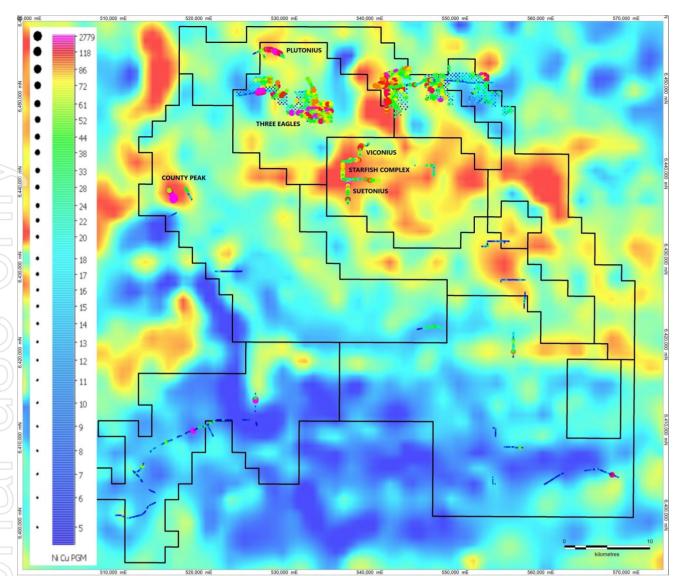
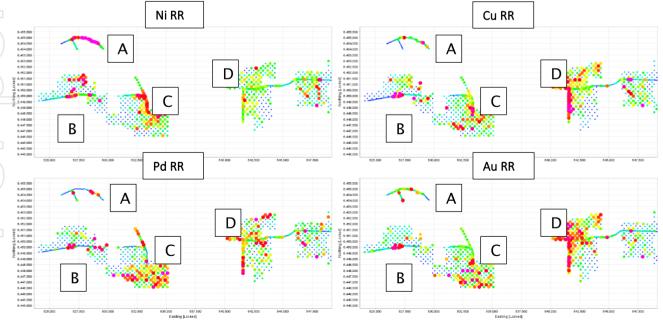


Figure 2. Image of the regional magnetic data showing Additive Response Ratios for nickel+copper+PGM. The County Peak area, whilst anomalous, cannot be currently accessed. Note the association of some of the broad areas of geochemical anomalism with more magnetically quiet zones (colder colours) in the image. These areas coincide with mapped mafic and ultramafic rocks in places.



**Figure 3.** Image of the regional gravity data showing Additive Response Ratios for nickel+copper+PGM. Most of the areas of anomalism occur on or on the flanks of significant gravity highs (warmer colours), indicating dense rocks at depth. The dense rocks are interpreted to be primarily mafic intrusions.



**Figure 4.** Detail of the northern Arkun project area showing Response Ratios for individual metals across four of the priority areas. Strong responses are evident in nickel, copper, palladium and gold, likely indicating a sulphidic source (see Figure 4 for colour range).

#### **RESULTS**

A close-up view of four of the five main anomalies superimposed on the magnetic and gravity data is shown in Figure 5 (individual metals are shown in Figure 4).

Response ratios vary up to 217 times background for nickel, 102 times background for copper, 2745 times background for palladium and exceptionally strong responses for gold of up to 2,536 times background for gold (some of the stronger gold responses may be prospective for gold alone and further work is warranted on these areas, Figure 4).

Area A, called the Plutonius prospect, is a 2-kilometre-long Ni-Cu-PGM soil anomaly, open to the north and south, which coincides with the flank of a moderate gravity feature interpreted as a mafic intrusion. Recent follow-up field checking has also identified outcrops of ultramafic rocks in the area.

Area B consists of a strong Ni-Cu-PGM anomaly, open to the southwest, within a magnetic low, and open to the southeast. The magnetic low could represent a mafic intrusion or a zone of intense magnetite destruction caused by hydrothermal fluids. The area is yet to be field checked.

Area C called the Three Eagles prospect, consists of multiple moderate to strong Ni-Cu-PGM anomalies situated on a moderate gravity feature and has yet to be field checked.

Area D consists of a large 4-kilometre by 2-kilometre wide Ni-Cu-PGM anomaly that occurs on the flank of a gravity high and is associated with linear magnetic units interpreted as deformed greenstone belt rocks. The anomaly is open to the west across the gravity anomaly. Most of the area is covered by laterite. This is a significant area for follow-up field checking and infill soil geochemistry. 

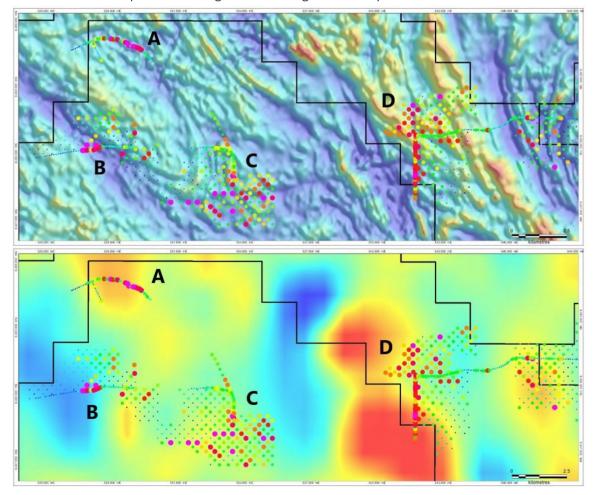


Figure 5. Additive Response Ratios for Ni-Cu-PGM for the northern Arkun project area over magnetic (top image) and gravity data (bottom photo) over four of the five anomalous areas. See Figures 2 and 3 for response ratio legend.

The fifth Ni-Cu-PGM soil anomaly, called Starfish, has moderate to strong responses in an area with outcrops of ultramafic rocks in a highly deformed and metamorphosed gneiss complex (Figures 2 and 3). The complex, which also includes two other new prospects, Suetonius and Viconius, coincides with a prominent, east-west trending gravity high extending across much of the Arkun project (Figure 3). Field checking has identified ultramafic rocks at all three prospects, which is encouraging (Figure 6).







Figure 6. Rock chip samples of ultramafic intrusive rocks at the Arkun project, WA. These rocks and prospects can potentially host nickel copper PGM deposits, and follow-up fieldwork is a priority.

Left: Plutonius prospect: phlogopite wehrlite coincides with a 2km long Ni-Cu-PGM anomaly (Figure 5).

Middle: Suetonius prospect: fine-grained pyroxenite that may explain the strong gravity high (Figure 3).

Right: Viconius prospect: coarse-grained pyroxenite (Figure 3).

#### **NEXT STEPS**

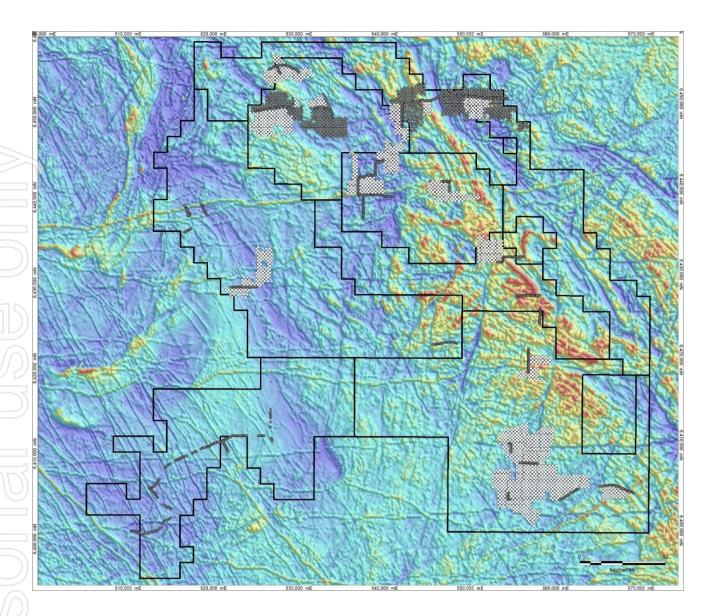
The five nickel-copper-PGM soil geochemistry anomalies are new and exciting target areas for follow-up work which will include field checking and further soil sampling. Additional soil geochemistry surveys have been completed over more of the initial targets, as shown in Figure 7. About 1,000 samples have already been submitted to the laboratory, with further work dependent on land access during the cropping season.

In addition, the re-processing of the 2022 HeliTEM survey over priority target areas for nickel-copper-PGM mineralisation in the Arkun-Beau area is also close to completion.

Impact has also engaged with SensOre (ASX: S3N) to help reprocess the HELITEM data and complete prospectivity mapping for nickel and lithium. SensOre apply integrated AI/machine learning algorithms to large datasets to fingerprint and "predict" locations for mineral deposits. The results of this work are also being assessed.

An interpretation of the lithium-cesium-tantalum (LCT) soil geochemistry results from the surveys reported here are still in progress. Interpretation of data from a DGPR survey at Beau to identify possible lithium-bearing pegmatites is also in progress.

All of this data will be synthesised to identify drill targets for a range of battery metals with the aim of completing a maiden drill program in late 2023 or early 2024, depending on land access during the harvest season.



**Figure 7.** Image of the regional magnetic data showing assayed soil samples in dark grey and soil geochemical surveys completed with assays pending or planned in white. Only a tiny proportion of the Arkun project has been sampled.

#### **ABOUT THE SOIL GEOCHEMISTRY SURVEY**

Previous work by Impact across the Arkun and Beau project areas using a proprietary geophysical-geochemical technology owned by Southern Sky Energy Pty Ltd identified 17 broad areas of interest for follow-up work, principally for nickel-copper-platinum group metals (PGM) (ASX Release 10<sup>th</sup> June 2021).

Reconnaissance roadside soil geochemistry traverses over 15 of these areas and identified 22 more specific targets for not only nickel-copper-PGM but also, for the first time, lithium (LCT) pegmatites and Rare Earth Elements (REE) and rubidium (ASX Releases 21<sup>st</sup> September 2021 and 27<sup>th</sup> October 2021 respectively). A similar workflow at the adjacent Jumbo joint venture project also identified numerous targets for the same suites of metals (ASX Releases 8<sup>th</sup> December 2021 and 8<sup>th</sup> March 2022).

Following significant time spent completing land access negotiations, which are still ongoing, first-pass soil geochemistry surveys have now been conducted over many of the initial targets. These are the first-ever detailed soil geochemistry programs within the poorly explored Arkun project area.

The samples were taken at a spacing of 200 metres by either 200 metres or 400 metres and submitted for the ionic leach method at ALS Laboratories in Perth. This so-called "partial digest" technique uses very dilute chemical solutions that only extract weakly bound ions from the sample for analysis.

Many case studies have shown that partial digests tend to give better discrimination of soil geochemical anomalies over background values. However, the chemical solutions' weak nature means that the absolute values of metals returned in the analysis are much lower than those returned from more aggressive digestion techniques such as aqua regia and four acid digests. It is the background-to-anomaly ratio that is the critical factor to consider.

A response ratio is a simple measure of how anomalous a soil geochemical value for a particular element is above that element's local background value, which is conventionally calculated as the mean of the lowest quartile of data. The magnitude of each analytical result is then expressed as a response ratio, a "times background" value, calculated by dividing each result by the background value. Thus, a response ratio of 3 is three times the background.

This procedure normalises the data and allows the response ratios for individual metals within assemblages specific to nickel-copper-PGM-gold or lithium-caesium-tantalum mineralisation to be added to amplify the metal associations. Background values and maximum and minimum assay values for the elements of interest are provided for reference in Table 1.

#### **COMPLIANCE STATEMENT**

This report contains new Exploration Results for soil samples across the Arkun Project.

Dr Michael G Jones

Managing Director

#### **Competent Person Statement**

The review of exploration activities and results 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.

Response Ratio	Ni Cu PGM
Minimum	5
Maximum	2779
Background	34

Table 1: Minimum, maximum and background values for combined response ratios mentioned in this report.

	Ni_ppb	Cu_ppb	Au_ppb	Pt_ppb	Pd_ppb
Minimum	6	14	0.01	0.05	0.025
Maximum	10350	11650	39.9	0.6	6.88
Background	47.7	114.2	0.016	0.054	0.028

**Table 2:** Minimum, maximum and background assay values for metals mentioned in this report.

## JORC Code, 2012 Edition - Table 1

### **Section 1 Sampling Techniques and Data**

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul> <li>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.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>Description of 'industry standard' work</li> </ul>	<ul> <li>Soil samples of a weight of about 250 grams were taken from a depth of about 15-20 cm below surface. They were sieved on site to -2 mm and placed in plastic snap seal bags for transport to the laboratory.</li> <li>The soil samples were taken at between 400 m and 200 m spacings within paddocks. There are sufficient samples to calculate estimates of the background values for the metals of interest.</li> </ul>
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	N/A
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>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.</li> </ul>	<ul> <li>N/A</li> <li>The survey was completed on a grid to ensure representative sampling.</li> <li>No sample bias is likely.</li> </ul>
Logging	<ul> <li>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.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	• N/A
Sub-sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>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.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul> <li>N/A</li> <li>N/A</li> <li>The size and distribution of the soil samples is appropriate for first pass exploration.</li> <li>Laboratory QC procedures for soil samples involve the use of internal certified reference material as assay standards, along with blanks, duplicates and replicates.</li> <li>No field duplicates were taken as this is not warranted at this early stage of exploration.</li> <li>Sample sizes are appropriate.</li> </ul>

Criteria	JORC Code explanation	Commentary
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>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.</li> <li>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.</li> </ul>	Samples were submitted to ALS Laboratories in Perth for analysis by the ionic leach method ME-MS23 with ICP-MS finish for 61 elements including: Ag, Au, Bi, Cd, Co, Cr, Cs, Cu, Li, Mo, Ni, Pb, Pd, Pt, Sn, Ta, W, Zn. Sample preparation involved weighing out of 50 g of the soil sample and adding a fixed aliquot of the digest.  Internal laboratory checks were within acceptable variability  This level of QAQC is commensurate with the earlystage nature of investigations
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul> <li>The results have not been verified by independent or alternative companies. This is not required at this stage of exploration.</li> <li>Primary Assay data was entered into Excel templates for plotting in QGIS and IOGAS.</li> <li>There are no adjustments to the assay data.</li> </ul>
Location of data points	<ul> <li>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	Commercial handheld GPS      Datum is MGA 2020 Zone 51     South      Topographic control on RL is adequate for exploration results
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>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.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>Spacing is a nominal offset 200m x 200m to 400m grid</li> <li>N/A</li> <li>N/A</li> <li>There was no sample compositing.</li> </ul>
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>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.</li> </ul>	An offset grid of sample locations was used to help reduce bias.      N/A
Sample security	The measures taken to ensure sample security.	Samples were delivered to the laboratory by company personnel
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 listed in the preceding section also apply to this section.

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul> <li>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.</li> <li>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.</li> </ul>	The Arkun-Beau-Jumbo Project currently comprises 9 exploration licences covering about 2,100 km2. The tenements are held 100% by Aurigen Pty Ltd a 100% owned subsidiary of Impact Minerals Limited. Impact has signed Land Access agreements in place with the various Native Title claimants that cover the area and with selected landowners. No known impediment to exploration is known
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	• Nil
Geology	Deposit type, geological setting and style of mineralisation.	Magmatic nickel sulphide
Drill hole Information	<ul> <li>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:</li> <li>easting and northing of the drill hole collar</li> </ul>	• N/A
	<ul> <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> </ul>	
	<ul> <li>down hole length and interception depth</li> <li>hole length.</li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul>	
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	• N/A
	<ul> <li>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.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	
Relationship between mineralisation	These relationships are particularly important in the reporting of Exploration Results.  If the geometry of the mineralisation with respect to the drill	• N/A
widths and intercept lengths	<ul> <li>hole angle is known, its nature should be reported.</li> <li>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').</li> </ul>	
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	A map showing tenement locations has been included      Maps showing exploration results are provided
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	Summary assay data is reported in the tables.

Criteria	JORC Code explanation	Commentary
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	• N/A
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	Follow up soil geochemistry surveys.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	