



ASX Announcement | 19 August 2021  
Hexagon Energy Materials Limited (ASX: HXG)

## Results Confirm Ni- Cu- PGM Prospectivity at McIntosh Project, WA

*Rock chips sample results including, 4.58% Cu, 25.11 g/t Pt-Pd-Au, 0.32% Ni, 6.12 g/t Ag from first batch of reconnaissance sampling*

### Key Highlights

- Outstanding initial assays returned from reconnaissance rock chips samples taking during regional structural & geological mapping program; best rock chips include:
  - MCI094: 4.58% Cu, 25.11g/t Pt-Pd-Au, 0.32% Ni, 6.12g/t Ag
  - MCI108: 6.24% Cu, 0.21g/t Pt-Pd-Au, 0.41% Ni, 1.26g/t Ag
  - MCI091: 1.08% Cu, 0.65g/t Pt-Pd-Au, 4.10g/t Ag
- Major soil sampling program underway in conjunction with CSIRO Ultrafine+™ Geochemistry Project, at Melon Patch, Melon Patch North & Mabel Hill prospects.
- 3D Inverse Polarisation (IP) survey currently being undertaken at Melon Patch.

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As part of its commitment to identify value in all assets while drawing towards key project focus, Hexagon Energy Materials Ltd (**Hexagon** or the **Company**) is pleased to advise it has received the initial batch of results from surface sampling which was completed during a regional structural and geological mapping program. The program focused on several high priority Ni-Cu targets at its **McIntosh Project**, including the Melon Patch, Melon Patch North, Mabel Hill, Jackal and Hyena Prospects across the McIntosh Project (Figure 1), located in the Kimberley region of WA.

These initial results confirm conclusions drawn from historic exploration results and the findings of the geochemical review being that the McIntosh project has the potential to host Ni-Cu-PGM mineralisation. For further details on the historical review refer to HXG's ASX Announcement dated 28 June 2021.

Hexagon has now commenced a major soil sampling program in conjunction with CSIRO Ultrafine+™ at the Melon Patch, Melon Patch North & Mabel Hill prospects with the aim of testing the ultramafic (Panton Sill type) intrusion at each of the prospects which has not yet been fully defined or tested.

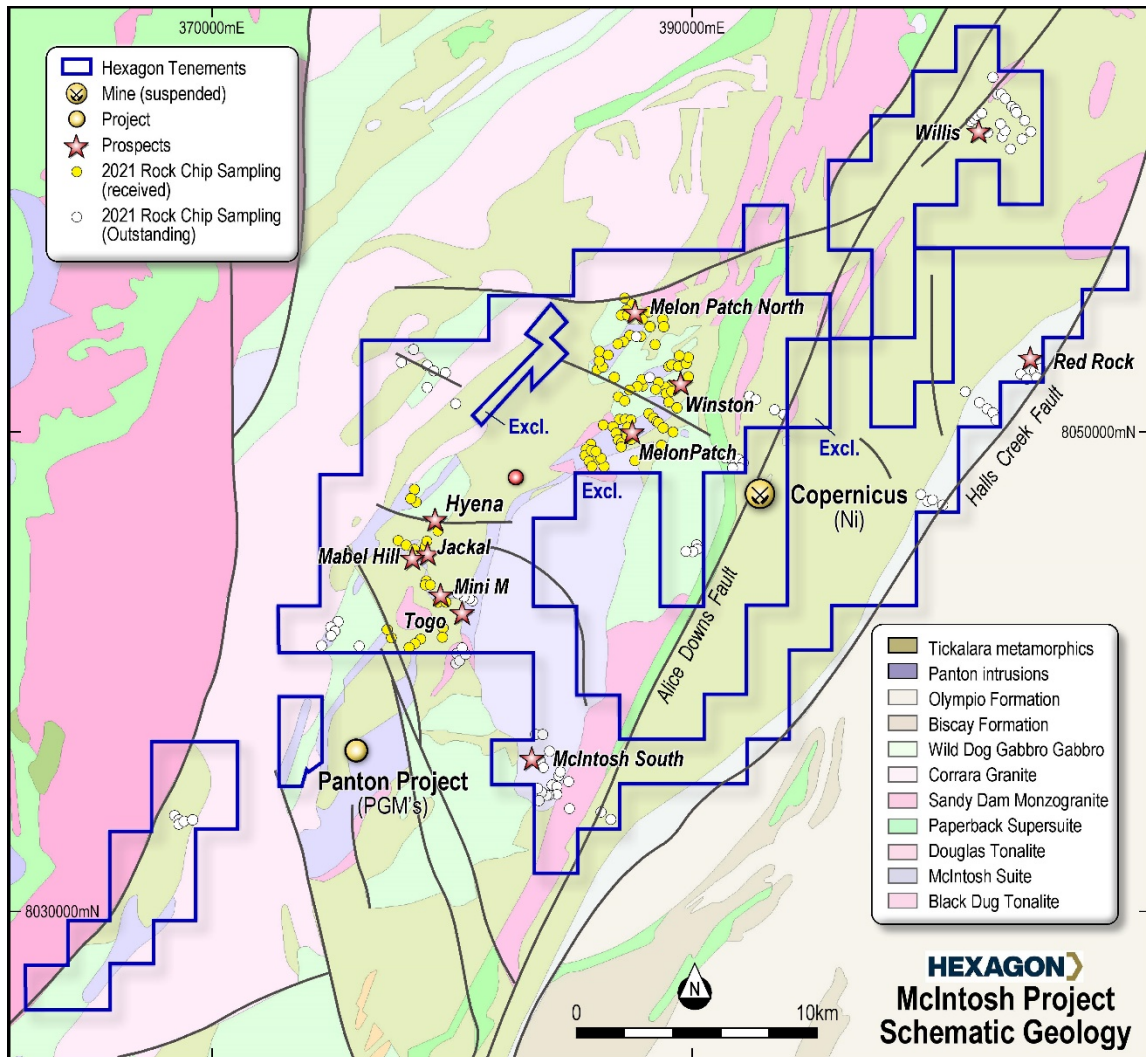
A 27-line kilometre 3D Inverse Polarisation (3D IP) geophysical survey is currently being undertaken over a strike of five kilometres along the north-eastern section of the Melon Patch Prospect, with the aim of detecting the presence of disseminated sulphide mineralisation.

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**Figure 1:** McIntosh Project showing location of reconnaissance rock chip samples across the McIntosh Project area.

**Chairman Charles Whitfield commented:** “The strategy of “shaking the tree” while remaining focused on the core project progression is paying dividends in these initial excellent results which really highlight the potential of the McIntosh Project. I am looking forward to sharing the results from the soil sampling program currently underway in the coming months, along with the findings from the 3D IP Survey, in parallel with updates on Pedirka.

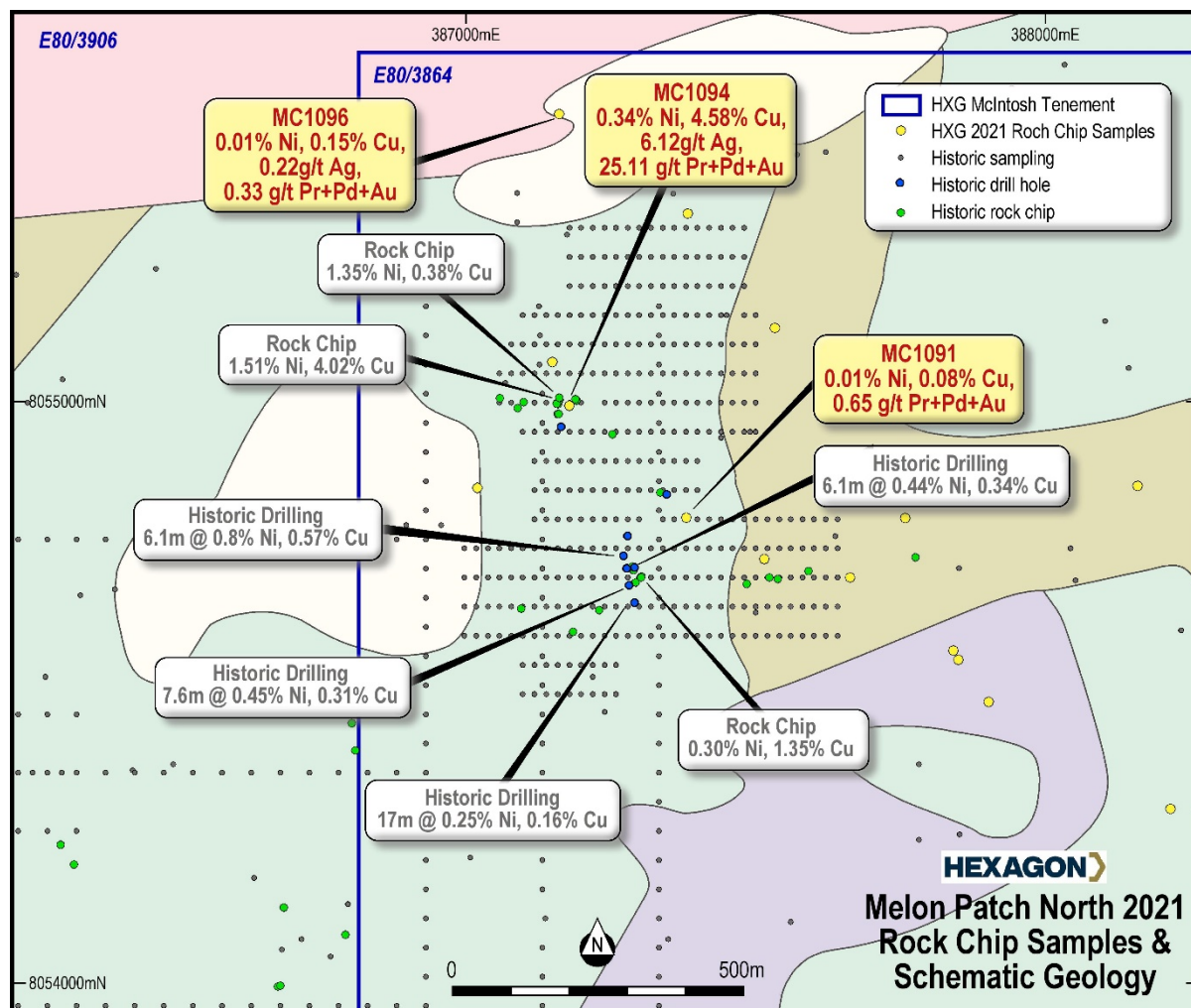
While joint venture and strategic initiatives are being forwarded on the Company’s other assets, the exploration program at McIntosh will run concurrently with work being undertaken at Halls Creek and the continuing progress of the Prefeasibility Study of the Pedirka Blue Hydrogen Project in the Northern Territory, where we continue to make very positive progress.”

### Geological Mapping

Hexagon engaged highly experienced structural geologist Dr Mark Rieuwers (SRK Consulting) to complete detailed structural and geological mapping over the McIntosh project area. The focus of this latest round of work is on ground truthing targets and areas of interest highlighted in the historic and geochemical review, including Melon Patch, Melon Patch North and Mabel Hill Prospects.

These 159 initial assays results are from a total of 290 rock chip samples taken during the mapping program, these samples were collected to both characterise the underlying geology and confirm

historic results (Figure 1), with a number of samples identified with remnant sulphides present including; **MC1094: 4.58% Cu, 25.11g/t Pt-Pd-Au, 0.32% Ni, 6.12g/t Ag** and **MC108: 6.24% Cu, 0.21g/t Pt-Pd-Au, 0.41% Ni, 1.26g/t Ag** (Table 1). These were sampled from a known Cupriferous gossan at the Melon Patch North prospect (Figure 2).



**Figure 2:** Melon Patch North prospect with recently returned rock chips results with previously reported historic results (See HXG ASX Announcement: 28 June 2021).

## Soil Sampling Program

Hexagon has commenced a soil sampling program, designed as a 100m x 100m offset grid for approximately 3800 samples over the Melon Patch, Melon Patch North and Mabel Hill prospects. At each of the prospects the sampling has been designed to test areas of Panton Sill Intrusive and/or the Wild Dog Creek Gabbro/Panton Sill equivalents and their related contacts with the Tickalara Metamorphics. The program is currently 50% complete, with first samples received in the Perth laboratory. Results are anticipated from Q4 2021.

For the current program Hexagon has signed a research agreement with Australian national science agency CSIRO to participate in its UltraFine soil's geochemistry program. The program uses machine learning combined with the UltraFine+™ workflow which has been developed to separate the <math>< 2 \mu\text{m}</math> "ultrafine" soil fractions for multi-element analysis along with other, commonly not used, physico-chemical parameters including spectral mineralogy, pH, EC and particle size distribution. This new

method shows more reproducible, reliable results, with 100-250% increased concentrations of Au, Cu and Zn than from standard <250 µm fractions, and removal of the nugget effect. Hexagon believes this new approach to assaying combined with machine learning will add value to the work current being undertaken at the McIntosh Project.

## Geophysics

A 27-line kilometre 3D Inverse Polarisation (3D IP) geophysical survey is currently being undertaken at the Melon Path Prospect. The 3D IP survey is over a strike of five kilometres across the north-eastern portion of the mapped Pantom Sill intrusion and its contact with the Tickalara Metamorphic. The aim of the survey is to detect the presence of disseminated sulphide mineralisation, that can be drill tested.

## Next Step

The completion of the soil sampling program and 3D IP will bring an end to the 2021 field season at McIntosh Project, with results anticipated in Q4 2021. These will feed into the drill program planning for the 2022 field season and expand on the body of work undertaken this year.



**Table 1:** Selected significant reconnaissance rock chip results based on lower selection criteria of > 0.1% Ni or >0.1 % Cu

Sample ID	Easting MGA94_Z52	Northing MGA94_Z52	Tenement	Prospect	Sulphide Visually Identified	Ni pct	Cu pct	Co pct	Pd g/t	Pt g/t	Au g/t	Ag g/t
MCI002	388559	8051838	E 80/3864	Melon Patch	Y	0.11	0.08	0.01	0.01	0.02	0.05	0.85
MCI020	387291	8050437	E 80/3864	Melon Patch	-	0.10	0.00	0.01	0.01	0.00	0.00	0.03
<b>MCI028</b>	<b>386994</b>	<b>8049396</b>	<b>E 80/3864</b>	<b>Melon Patch</b>	-	<b>0.15</b>	<b>0.01</b>	<b>0.03</b>	<b>1.28</b>	<b>0.87</b>	<b>0.01</b>	<b>0.03</b>
MCI059	388212	8052133	E 80/3864	Melon Patch	-	0.12	0.00	0.01	0.01	0.00	0.00	0.03
MCI060	388131	8052147	E 80/3864	Melon Patch	-	0.12	0.00	0.01	0.01	0.00	0.00	0.03
MCI062	388044	8052091	E 80/3864	Melon Patch	-	0.19	0.00	0.01	0.00	0.00	0.00	0.03
MCI065	387584	8051760	E 80/3864	Melon Patch	-	0.10	0.00	0.01	0.00	0.00	0.00	0.03
<b>MCI091</b>	<b>387380</b>	<b>8054798</b>	<b>E 80/3864</b>	<b>Melon Patch North</b>	<b>Y</b>	<b>0.01</b>	<b>1.08</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>0.63</b>	<b>4.10</b>
<b>MCI094</b>	<b>387179</b>	<b>8054996</b>	<b>E 80/3864</b>	<b>Melon Patch North</b>	<b>Y</b>	<b>0.32</b>	<b>4.58</b>	<b>0.01</b>	<b>0.22</b>	<b>24.69</b>	<b>0.20</b>	<b>6.12</b>
MCI096	387160	8055500	E 80/3864	Melon Patch North	Y	0.01	0.15	0.00	0.01	0.32	0.00	0.22
MCI101	388168	8054854	E 80/3864	Melon Patch North	-	0.12	0.04	0.01	0.01	0.02	0.00	0.03
MCI108	378543	8044843	E 80/4733	Jackal	-	0.41	6.24	0.03	0.11	0.03	0.08	1.26
MCI110	378373	8045028	E 80/4733	Mabel Hill	Y	0.06	0.19	0.01	0.01	0.00	0.00	0.08
MCI140	378938	8043535	E 80/3907	Mini M	-	0.11	0.03	0.01	0.04	0.06	0.00	0.03
MCI141	378974	8043543	E 80/3907	Mini M	-	0.12	0.16	0.01	0.03	0.09	0.14	0.03

*This announcement has been authorised by Board of Directors of Hexagon Energy Materials Limited.*

## **Competent persons' attributions**

The information within this announcement that relates to Exploration Results and Geological data at the McIntosh Projects is based on information compiled by Mr Michael Atkinson. Mr Atkinson is a consultant to Company and a member of The Australian Institute of Geoscientists. He has sufficient experience relevant to the styles of mineralisation and types of deposits under consideration and to the activities currently being undertaken to qualify as a Competent Person(s) as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results Mineral Resources and Ore Reserves and he consents to the inclusion of the above information in the form and context in which it appears in this report.

## **About Hexagon Energy Materials Limited**

Hexagon Energy Materials Limited (ASX: HXG) is an Australian company focused on resources, energy materials, and clean energy. Hexagon is focused on developing its Pedirka blue hydrogen project in Australia's Northern Territory. At Pedirka, Hexagon aims to produce the blue hydrogen required to support the conversion to clean energy economies over the coming decades.

In Australia, Hexagon also owns the McIntosh graphite, nickel and PGE's project and the Halls Creek gold and base materials project. In the US, Hexagon has an 80 per cent controlling interest in a graphite exploration project in Alabama.

Hexagon actively seeks ways to progress value-added enterprises consistent with its strategy, skill set, and focus on clean energy.

To learn more, please visit [www.hxgenergymaterials.com.au](http://www.hxgenergymaterials.com.au)

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## Appendix 1: JORC Table 1 McIntosh Project

### Section 1 Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
<b>Sampling techniques</b>	<ul style="list-style-type: none"> <li>Nature and quality 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> </ul>	<ul style="list-style-type: none"> <li>259 rock chip samples were collected from reconnaissance mapping. Rock chip samples are considered to be representative for the general outcrop in the area. Rock samples typically represented multiple chips from the broader outcrop using a hammer to collect the chips.</li> <li>Company rock chip samples typically ranged from 0.5kg to 2kg in size</li> <li>Rock chip samples from previous explorers are referenced from previous HXG ASX announcement dated 28 June 2021</li> </ul>
<b>Drilling Techniques</b>	<ul style="list-style-type: none"> <li>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).</li> </ul>	<ul style="list-style-type: none"> <li>Non-Applicable</li> </ul>
<b>Drill sample recovery</b>	<ul style="list-style-type: none"> <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 style="list-style-type: none"> <li>Non-Applicable</li> </ul>
<b>Logging</b>	<ul style="list-style-type: none"> <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>	<ul style="list-style-type: none"> <li>The rock chips were geological logged in the field and photographed, this logging is qualitative in nature. The Prospects are at an early stage of exploration and no Mineral Resource estimation is applicable.</li> </ul>
<b>Sub-sample techniques and sample preparation</b>	<ul style="list-style-type: none"> <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 style="list-style-type: none"> <li>Rock chip samples were collected in the field as combination of large chips from outcrop and combined within the sample bag with a unique sample ID.</li> <li>Samples were submitted to Intertek Laboratories in Perth WA Entire samples were crushed and pulverised to 85% passing &gt;75µm.</li> <li>No sub sampling undertaken.</li> <li>Rock samples are representative of the immediate area observed. Several chips were usually taken from the outcrop.</li> <li>Sample sizes are appropriate and typically range from 0.6kg to 2kg.</li> </ul>
<b>Quality of assay data and laboratory tests</b>	<ul style="list-style-type: none"> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>Nature of quality control procedures</li> </ul>	<ul style="list-style-type: none"> <li>Samples were submitted to Intertek Laboratories in Perth WA Entire samples were crushed and pulverised to 85% passing &gt;75µm. Rocks were analysed or a 48 element suite of elements including Ag, As, Ba, Bi, Cr, Cu, Co, In, Mo, Ni, Pb, Sb, Sn, Te, W, Zn with four acid digest 4A/MS48 and with Au,</li> </ul>

Criteria	JORC Code Explanation	Commentary
	<i>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>	<p>Pt, Pd analysed by FA25/MS fire assay 25g charge and MS finish. Results are considered to be near total.</p> <ul style="list-style-type: none"> <li>No external standard was submitted with the 259 rock chips. No external laboratory checks were complete.</li> <li>5 Internal laboratory duplicates from the current batch of samples reported were taken from the crushed rocks. Acceptable levels of accuracy from these rock chips have been established.</li> </ul>
Verification of sampling and assaying	<ul style="list-style-type: none"> <li><i>The verification of significant intersections by either independent or alternative company personnel.</i></li> <li><i>The use of twinned holes.</i></li> <li><i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i></li> <li><i>Discuss any adjustment to assay data.</i></li> </ul>	<ul style="list-style-type: none"> <li>Rock chip samples were collected and submitted by consultant working for HXG.</li> <li>Data was recorded in filed book. Rock chip locations and sample description were entered into an excel spread sheet prior to uploading to HXG externally managed database.</li> <li>Ni, Cu, Co have been converted from ppm to pct. Pd, Pt, Au converted from ppb to g/t. Ag converted from ppm to g/t</li> </ul>
Location of Data points	<ul style="list-style-type: none"> <li><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></li> <li><i>Specification of the grid system used.</i></li> <li><i>Quality and adequacy of topographic control.</i></li> </ul>	<ul style="list-style-type: none"> <li>Rock chip location were recorded using handheld GPS utilising GDA 94 Zone 50. Positions are accurate to +/- 3m horizontal and +/- 10m vertical.</li> <li>Coordinates are referenced to the Map Grid of Australia (MGA) zone 52 on the Geographic Datum of Australia (GDA94)</li> </ul>
Data spacing and distribution	<ul style="list-style-type: none"> <li><i>Data spacing for reporting of Exploration Results.</i></li> <li><i>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.</i></li> <li><i>Whether sample compositing has been applied.</i></li> </ul>	<ul style="list-style-type: none"> <li>No Mineral Resource is being considered in this report.</li> <li>Data spacing for rock chip sampling is dependent on outcrop and no grid system was used.</li> <li>Pt-Pd-Au combined grade calculated by totalling individual grades</li> </ul>
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> <li><i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i></li> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>Sampling are rock chips and dependent on outcrop</li> </ul>
Sample Security	<ul style="list-style-type: none"> <li><i>The measures taken to ensure sample security.</i></li> </ul>	<ul style="list-style-type: none"> <li>Chain of custody for recent rock chip samples were managed by the HXG personnel and delivered to a courier company for delivery to Intertek Laboratories in Perth</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li><i>The results of any audits or reviews of sampling techniques and data.</i></li> </ul>	<ul style="list-style-type: none"> <li>No audits have been undertaken.</li> </ul>



## Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
<b>Mineral tenement and land tenure status</b>	<ul style="list-style-type: none"> <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>	<ul style="list-style-type: none"> <li>The McIntosh Creek Project (C121/2010) is in the East Kimberley region of Western Australia and comprises 17 granted tenements covering an area of 416 km<sup>2</sup>. These tenements are 100% owned by Hexagon Energy Materials Ltd and a subsidiary McIntosh Resources Pty Ltd</li> </ul>
<b>Exploration done by other parties</b>	<ul style="list-style-type: none"> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul style="list-style-type: none"> <li>The East Kimberley has been largely explored for base metals and diamonds with no active previous exploration for graphite. Graphite had been noted by Gemutz during regional mapping in the Mabel Downs area for the BMR in 1967, by Rugless mapping and RAB drilling in the vicinity of Melon Patch bore, to the east of the Great Northern Highway in 1993 and has been located during nickel exploration by Australian Anglo American Ltd, Panoramic Resources Ltd and Thundelarra Resources Ltd over the last 20 years.</li> </ul>
<b>Geology</b>	<ul style="list-style-type: none"> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<ul style="list-style-type: none"> <li>The McIntosh project lies within the central Halls Creek Orogenic zone, Lamboo Complex, which includes the prospective large McIntosh mafic-ultramafic intrusive complex located immediately west of the Alice Downs fault and further west of the cratonic scale Halls Creek fault. The McIntosh intrusion may also be the source of the Panton mafic-ultramafic intrusive stratigraphy mapped throughout the McIntosh project. The Panton suite is known to host Ni-PGE occurrences and deposits including the + 2 Moz Panton PGM Project and Copernicus Ni-Cu Deposit and regionally includes Panoramic Resources' Savannah &amp; Savannah North Ni-Cu operations.</li> </ul>
<b>Drill hole Information</b>	<ul style="list-style-type: none"> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drillholes: <ul style="list-style-type: none"> <li>easting and northing of the drillhole collar</li> <li>elevation or RL (elevation above sea level in metres) of the drillhole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>None-Applicable</li> </ul>
<b>Data aggregation methods</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>No weighting has been applied.</li> </ul>
<b>Relationship between mineralisation widths and intercept lengths</b>	<ul style="list-style-type: none"> <li>If the geometry of the mineralisation with respect to the drillhole 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.</li> </ul>	<ul style="list-style-type: none"> <li>Company rock chip samples represent the out crop from where they are taken and should be treated as points. Rock chip assay results are not meant to imply mineralisation widths in context to grade.</li> </ul>
<b>Diagrams</b>	<ul style="list-style-type: none"> <li>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 drillhole</li> </ul>	<ul style="list-style-type: none"> <li>Location plans are contained within the body of this announcement.</li> </ul>

Criteria	JORC Code explanation	Commentary
	<i>collar locations and appropriate sectional views.</i>	
<b>Balanced reporting</b>	<ul style="list-style-type: none"> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>A selected set of significant drill intersections and rock chip results have been reported using a lower cut off of &gt;0.1 % Ni. or &gt;0.1 Cu. Given the number of rock chip samples within the current batch, it is impracticable to include all results.</li> </ul>
<b>Other substantive exploration data</b>	<ul style="list-style-type: none"> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>The information presented in this report combines in display, using figures, previous explorers' geological observations, rock chip samples (points).</li> </ul>
<b>Further work</b>	<ul style="list-style-type: none"> <li><i>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></li> </ul>	<ul style="list-style-type: none"> <li>Documented in body of announcement</li> </ul>