

EM SURVEYS TO ASSESS NICKEL SULPHIDE TARGETS

Hayes Hill Lithium – Nickel Project

Investment Highlights

- Ground based electromagnetic (EM) geophysical surveys have commenced targeting nickel sulphides at the Hayes Hill Project.
- The EM survey aim is to define drill targets (bedrock conductors likely to be caused by sub-surface nickel sulphide bodies) below the well-defined surface geochemical targets (Figure 3).
- The EM surveys will target the Green Bananas, Plat-X and other Hayes Hill nickel prospects (Figure 4).

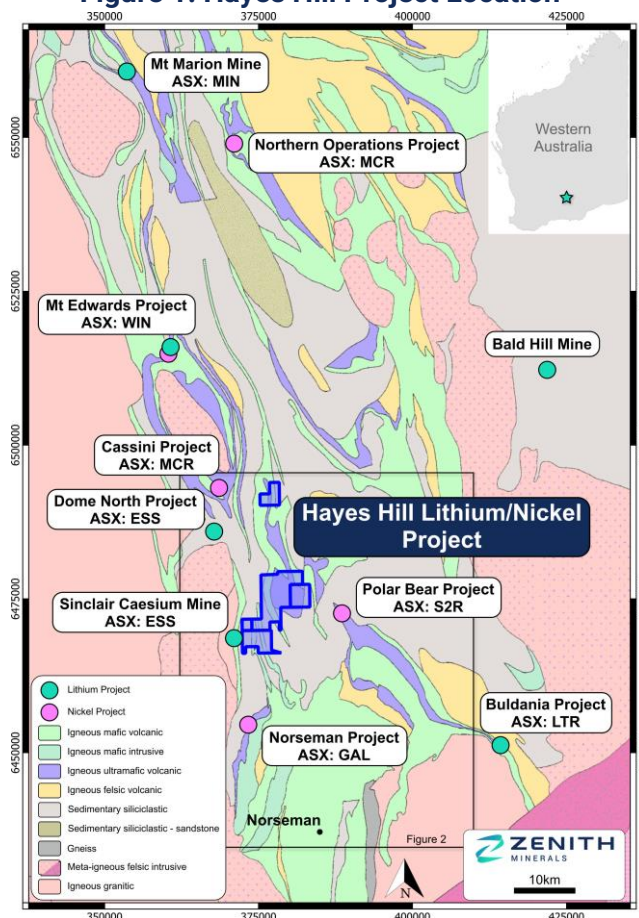
Zenith Minerals (ASX:ZNC) (“**Zenith**”, or the “**Company**”) is pleased to provide an update on nickel exploration activities at the Hayes Hill Lithium – Nickel Project, located in the Norseman – Widgiemooltha area of Western Australia (Figure 1). Zenith holds an option to acquire 100% of the Hayes Hill project (ASX Release 19-Jan-23).

Nickel prospective ultramafic rocks extend 18km north along strike from Galileo’s (ASX:GAL) Calisto nickel-PGE discovery and 11km northwest from S2 Resources’ (ASX:S2R) Polar Bear nickel sulphide prospects (Gwardar, Taipan & Halls Knoll) – Refer to Figure 2.

EM surveys will commence at the Green Bananas prospect where recent geochemical sampling (ASX Release 4-July-23) has defined a nickel-sulphide target with peak assay results of 0.43% Ni, 0.44%Cu, 0.53% Co and 203ppm Pt. The Green Bananas geochemical anomaly is consistent with nickel-sulphide geochemical fertility ratios (Ni/Cr ratio, Kambalda ratio and Ni-MgO residuals) developed by researchers based on published studies of Western Australian nickel sulphide deposits.

Managing Director Michael Clifford said: “We are pleased to advise that EM geophysical surveys

Figure 1: Hayes Hill Project Location



have commenced - targeting nickel sulphides at the Hayes Hill project. The EM program is well focused to test for discrete EM conductors that are likely to be representative of sub-surface accumulations of nickel sulphides. The EM survey is planned to be completed this month, providing the basis for drill targets shortly thereafter."

Figure 2: Hayes Hill Project Relative to Nearby Nickel and Lithium Projects

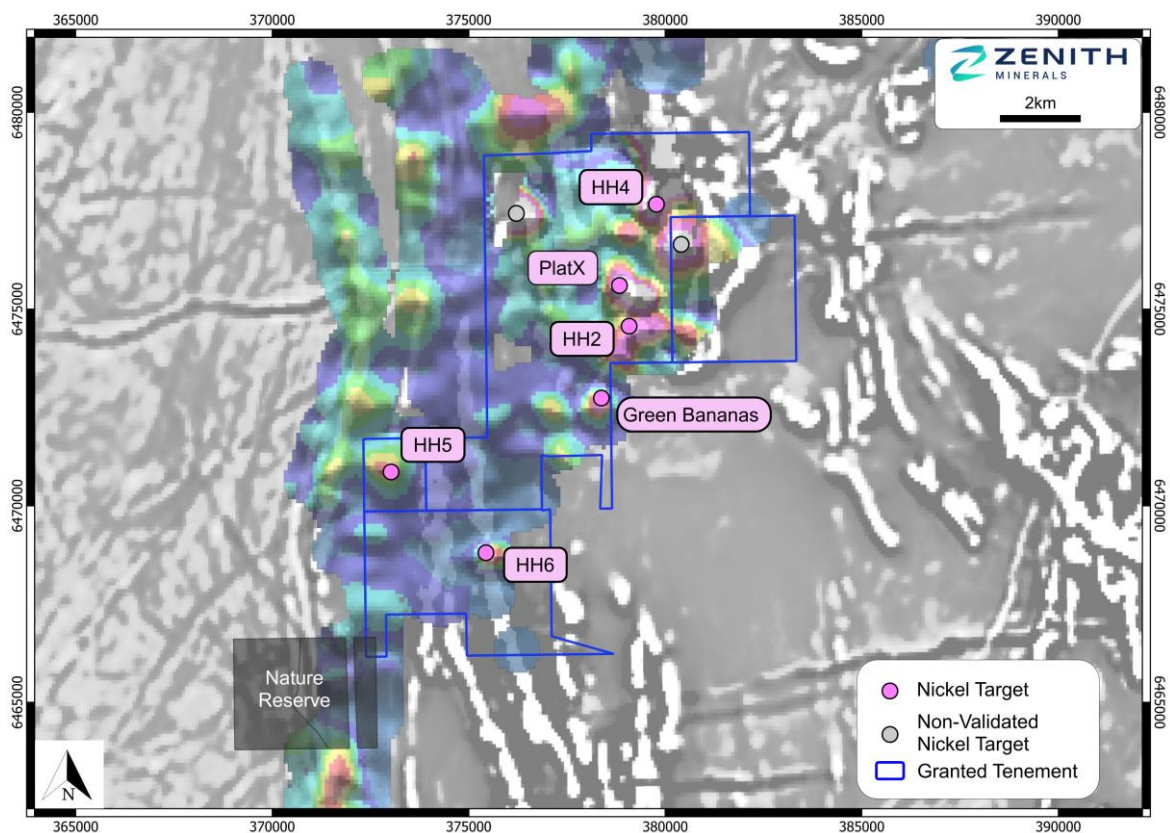
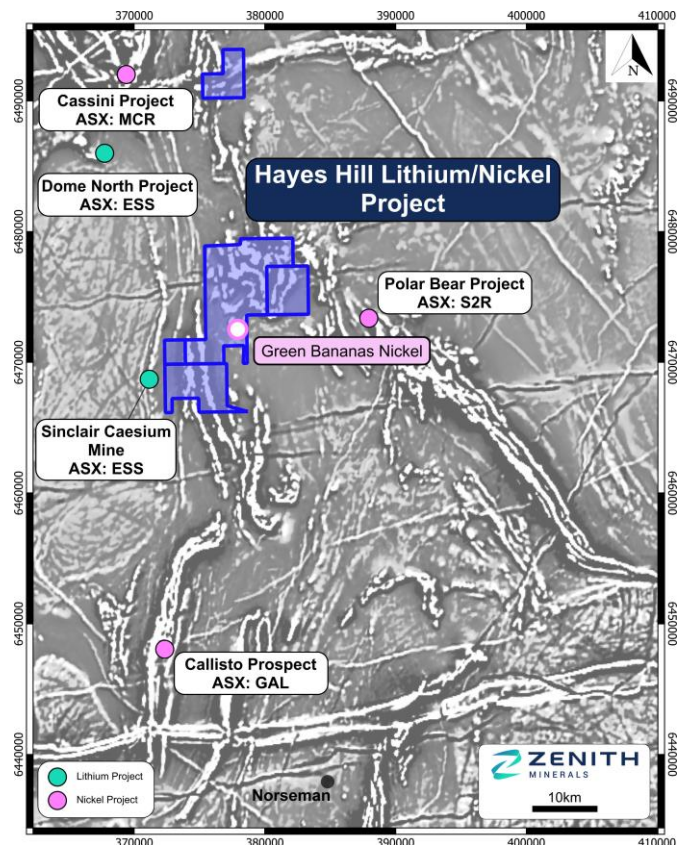


Figure 3: Hayes Hill Nickel Targets

Coloured Image of Ni/Cr Ratios¹ overlying B&W Image of Aeromagnetics

(Grey dots = anomalies yet to be infill sampled and validated. They are not currently considered significant as they are derived from one or two isolated samples and lie at the edge of the current sample grid)

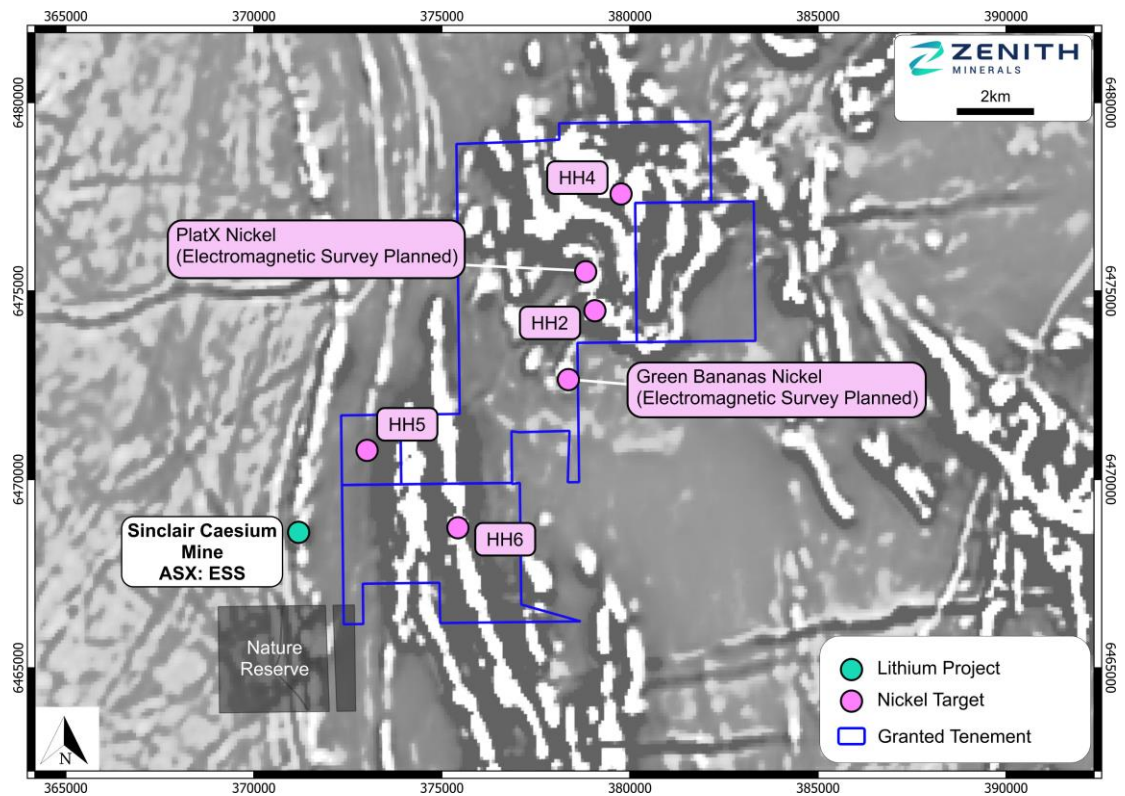


Figure 4: Hayes Hill Nickel Targets and Planned EM Surveys

Next Steps

- Complete EM geophysical surveys on nickel targets.
- Complete project wide surface soil sampling and mechanised auger sampling to assess both nickel and lithium potential (Figure 5).

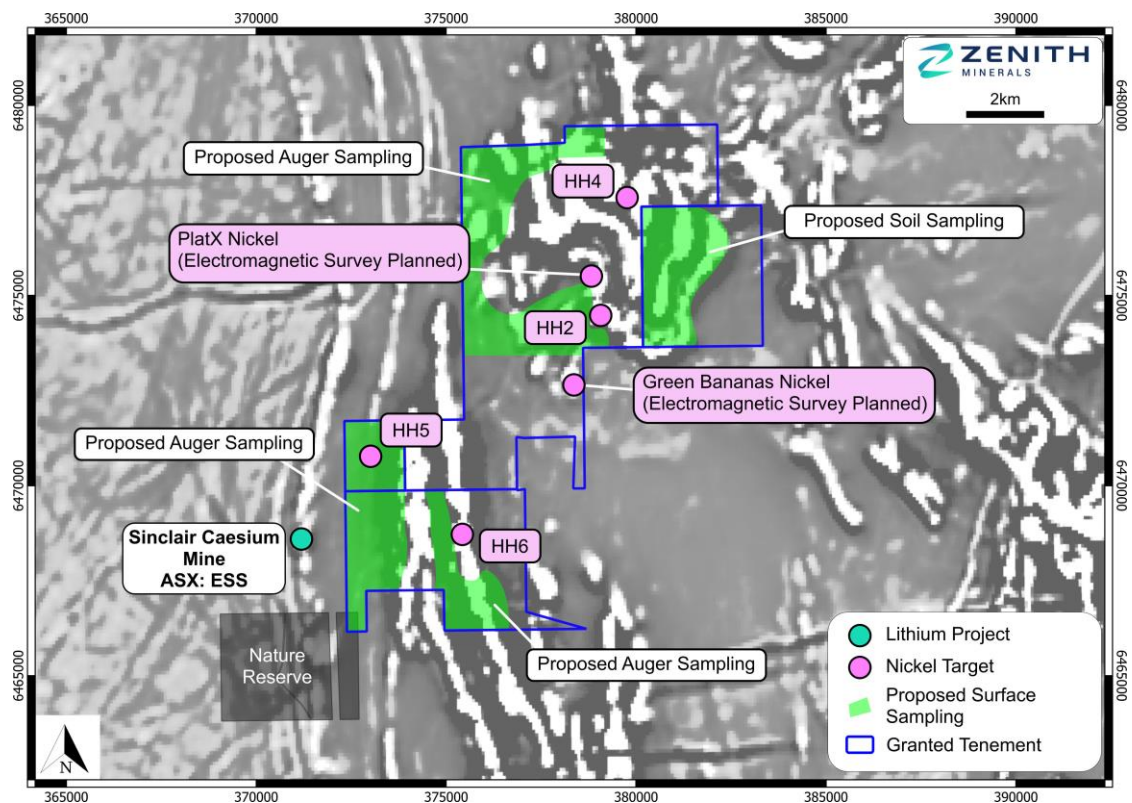


Figure 5: Hayes Hill Project – Nickel Targets and Proposed Work

Background on Hayes Hill Project

The Hayes Hill project consists of 4 granted exploration licences in a highly mineral prospective corridor with significant untested **lithium and nickel potential**. The project is situated 10 – 14km to the east and southeast of the Dome North lithium pegmatite deposit and immediately east of the Sinclair caesium pegmatite mine both owned by Essential Metals Limited (ASX:ESS). Liontown's (ASX:LTR) Buldania lithium deposits are located a further 43km to the southeast of the Hayes Hill project area (Figure 2).

Nickel prospective ultramafic rocks extend 18km north along strike from Galileo's (ASX:GAL) Calisto nickel-PGE discovery and 11km northwest along strike from S2 Resources' (ASX:S2R) Polar Bear nickel prospects (Gwardar, Taipan & Halls Knoll) – Refer to Figures 1 & 2.

References:

¹Ni/Cr ratio - Brand, N (1999) Element ratios in nickel sulphide exploration: Vectoring towards ore environments. Journal of Geochemical Exploration. Vol 67, Issues 1-3, December 1999, pages 145-165.

²Kambalda ratio - Brand, N (1999) Element ratios in nickel sulphide exploration: Vectoring towards ore environments. Journal of Geochemical Exploration. Vol 67, Issues 1-3, December 1999, pages 145-165.

³Ni/MgO residual exploration index - Brand, N (2004) Geochemical Expressions of Nickel Sulphide Deposits; AIG Seminar; "Advances and Innovations in the Exploration for Nickel Sulphide Deposits"; Perth, WA; 12th Nov 2004.

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About Zenith Minerals

Zenith Minerals Limited (ASX:ZNC) is an Australian-based minerals exploration company leveraged to the increasing global demand for metals critical to the production processes of new energy industrial sectors.

The Company currently has three lithium projects all located in Western Australia. Two projects, Split Rocks and Waratah Well, are being explored under the terms of a joint venture between Zenith and EV Metals Group (EVM). Split Rocks covers landholdings of approximately 660 km² in the Forrestania greenstone belt immediately north of the established Mt Holland lithium deposit. Waratah Well, located approximately 20km northwest of the regional town of Yalgoo in the Murchison Region holds a lithium pegmatite with ongoing exploration required.

In January 2022, Zenith entered into a joint venture with EV Metals Group (EVM), a global battery material and technology company with plans to develop an integrated Battery Chemicals Complex at Yanbu Industrial City on the western coast of Saudi Arabia. EVM can earn a 60% interest in the lithium rights on two lithium projects, Split Rocks and Waratah Well, with Zenith retaining a 40%

project share. Under the terms of the agreement Zenith is fully funded by EVM through to a bankable feasibility on any project development, such a study must be completed by January 2024.

Zenith has an additional two lithium projects. In January 2023, Zenith secured an option to acquire 100% of the Hayes Hill lithium – nickel project, located in the Norseman – Widgiemooltha area of Western Australia. A further project Yilmia, covers an 8 km long lithium prospective area in the Coolgardie district, some 13 km southeast of the recent Kangaroo Hills lithium discovery by ASX:FBM. Zenith may earn up to a 100% interest in the lithium rights at the Yilmia project.

In addition to its battery metal assets Zenith owns a portfolio of gold and base metal projects. It retains a 25% free carried interest (to end bankable feasibility study) on the Earahedy Zinc discovery, in Western Australia, with Rumble Resources Limited (ASX:RTR) and two main gold projects – Red Mountain in Queensland and Split Rocks in Western Australia.

To learn more, please visit www.zenithminerals.com.au

This ASX announcement has been authorised by the Board of Zenith Minerals Limited.

Competent Persons Statement

The information in this report that relates to Exploration Results and Mineral Resources is based on information compiled by Mr Michael Clifford, who is a Member of the Australian Institute of Geoscientists and an employee of Zenith Minerals Limited. Mr Clifford 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'. Mr Clifford consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

⁴Nickel exploration targets (Green Bananas, Plat-X, HH2, HH4, HH5 & HH6) have been reviewed and endorsed by Tanh Doan a geologist with over 33 years exploration including 17 years with WMC and BHP Billiton working on regional and near mine exploration in Kambalda, Leinster and Mt Keith. Tanh was also Principal Exploration Geologist with Mincor Resources for 10 years. He is credited with involvement in many nickel discoveries in Western Australia including Mariners Deposit (1989), Miitel Deposit (1991), Harmony Deposit (1998) and Cassini Deposit (2015).

Material ASX Releases Previously Released

The Company has released all material information that relates to Exploration Results, Mineral Resources and Reserves, Economic Studies and Production for the Company's Projects on a continuous basis to the ASX and in compliance with JORC 2012. The Company confirms that it is not aware of any new information that materially affects the content of this ASX release and that the material assumptions and technical parameters remain unchanged.

Appendix 1: Hayes Hill Project - JORC Table 1

Criteria	JORC Code explanation	Commentary
Sampling techniques	<p><i>Nature and quality of sampling (eg 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> <p><i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. Aspects of the determination of mineralisation that are Material to the Public Report.</i></p> <p><i>In cases where 'industry standard' work has been done this would be relatively simple (eg '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 (eg submarine nodules) may warrant disclosure of detailed information.</i></p>	<p>All reported historic surface sampling is assumed to have been completed to industry standard. New Zenith soil, hand auger and mechanised auger sampling is being used to validate previous sampling.</p> <p>Plat-X soil samples were collected on a 200 x 400m spaced grid. The soil samples were sieved to -2mm. Multi element analyses of samples were undertaken by Quantum Laboratories by Aqua Regia ICP MS and OES method (A85513/14; A89065).</p> <p>Gascoyne auger drilling samples were drilled on 200m spaced lines with holes at 100m spacings along the lines. Samples were collected around 0.5m – 1m below the surface. Multi element analyses of the samples were undertaken by MinAnalytical Laboratory by Aqua Regia ICP-MS and OES method with pulps re-assayed for additional elements of interest by Jinning Laboratory (Fire Assay and ICP-MS/OES after peroxide fusion) and SGS (ICP-MS/OES after peroxide fusion) (A99274)</p> <p>Hand auger samples were completed by Zenith at Green Bananas, infilling the Gascoyne Ni Anomaly; samples were collected from a depth between 0.2-0.75m below surface. Samples were analysed for Au, Pt, Pd, As, Co, Cr, Cu, Mg, Ni, Ti, Zn by Jinning laboratory by Aqua Regia ICP-MS method.</p> <p>In April 2023, Zenith geologists collected 33 rock chip samples across the Hayes Hill tenure, with 6 occurring within the Green Bananas project area. Samples were analysed by Jinning Laboratory for a 48-element suite (4AD/ICP-MS) in addition to Au, Pt, Pd by Fire-Assay</p>

Criteria	JORC Code explanation	Commentary
		(FA50I)
Drilling techniques	<i>Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg 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>	No drilling results reported in this announcement.
Drill sample recovery	<i>Method of recording and assessing core and chip sample recoveries and results assessed. Measures taken to maximise sample recovery and ensure representative nature of the samples. 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 drilling reported in this announcement.
Logging	<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. Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. The total length and percentage of the relevant intersections logged.</i>	<p>All Zenith soil samples and hand auger samples were geologically described.</p> <p>Samples collected by Gascoyne Resources were re-assayed for additional elements of interest by Jinning Laboratory (Fire Assay and ICP-MS/OES after peroxide fusion) and SGS (ICP-MS/OES after peroxide fusion).</p> <p>Zenith Minerals samples were assayed with a full-suite multi-element analysis (48 elements by 4AD/ICP-MS). The results were used to geochemically litho-type samples using the ioGAS software package, and were then compared to the visual logging for appropriate correlations and/or significant divergences in results. Where possible, associated recent rock chip samples were further used to correlate litho-geochemistry (quantitative) data with visual logging (qualitative data).</p>
Sub-sampling techniques and sample preparation	<i>If core, whether cut or sawn and whether quarter, half or all core taken. If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i>	<p>No drilling results reported in this announcement.</p> <p>Plat X samples were analysed by Quantum Laboratories Perth by Aqua</p>

Criteria	JORC Code explanation	Commentary
	<p><i>For all sample types, the nature, quality and appropriateness of the sample preparation technique. Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. 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. Whether sample sizes are appropriate to the grain size of the material being sampled.</i></p>	<p>Regia ICP MS and OES method.</p> <p>Gascoyne Resources mechanised auger and Green Bananas hand auger samples were analysed by MinAnalytical Laboratory Perth by Aqua Regia and ICP MS and OES method, then re-assayed for additional elements of interest by Jinning Laboratory (Fire Assay and ICP-MS/OES after peroxide fusion) and SGS (ICP-MS/OES after peroxide fusion).</p> <p>Zenith samples were analysed by Jinning Laboratory in Perth for a 48-element suite by 4 -acid digest ICP-MS (4AD/ICP-MS), and by Fire Assay for Au, Pt and Pd (FA50I)</p>
Quality of assay data and laboratory tests	<p><i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. 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. Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</i></p>	<p>The assay techniques are industry standard and considered near total digestions for the elements reported. No geophysical tools used.</p> <p>QAQC for Zenith sample collection is industry standard with the use of matrix-matched CRM and blank material to ensure accuracy and precision from laboratory results.</p>
Verification of sampling and assaying	<p><i>The verification of significant intersections by either independent or alternative company personnel. The use of twinned holes. Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. Discuss any adjustment to assay data.</i></p>	<p>An independent 3rd party consultant with significant experience in nickel-sulphide deposits of the Widgiemooltha area was engaged to assess the data and the interpretation of Zenith geologists.</p>
Location of data points	<p><i>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in</i></p>	<p>No drilling results reported in this announcement.</p> <p>Grid system used to compile data was MGA94 Zone 51</p>

Criteria	JORC Code explanation	Commentary
	<i>Mineral Resource estimation. Specification of the grid system used. Quality and adequacy of topographic control.</i>	Open-source data was converted from AMG84 to MGA94 Zone 51 where the original grid was specified and where no prior conversion had taken place. Soil and Auger samples were taken on a 200m x 100m grid. Rock chip samples were selective sampling of available outcrop.
Orientation of data in relation to geological structure	<i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. 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>	No drilling undertaken
Sample security	<i>The measures taken to ensure sample security.</i>	Not known for historic sampling. Industry standard chain of custody was employed for all Zenith Minerals sample collection and dispatch.
Audits or reviews	<i>The results of any audits or reviews of sampling techniques and data.</i>	Sampling techniques consistent with industry standards.

Part 2: Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul style="list-style-type: none"> 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 security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area. 	<p>The Hayes Hill Project tenements (E15/1588, E63/1773, ELA15/1668, ELA15/1957, ELA15/1919 and ELA63/2103) are 100% owned by Loded Dog Pty Ltd.</p> <p>The tenements are located on Crown Land.</p> <p>Zenith has an option to acquire 100% equity in the project via terms set out in ASX Release dated 19-Jan-23.</p>

Criteria	JORC Code explanation	Commentary
		<p>Currently all the tenements are in good standing. There are no known impediments to obtaining licences to operate in the area.</p> <p>The project is located within the Ngadju determined native title area.</p>
Exploration done by other parties	<ul style="list-style-type: none"> Acknowledgment and appraisal of exploration by other parties. 	<p>Exploration and mining by other parties has been reviewed from open file reports available on WAMEX and has been used as a guide to Zenith's exploration activities. Previous exploration includes:</p> <ul style="list-style-type: none"> WMC (1994-2000) - A42071 / 46153 / 61650 Resolute (1998) -A56776 Pioneer Nickel (2004) -A69786 Gold Field's Australia (2004) - A68106 Pindon Explor (2008) -A69786 Plat X Limited (2008) - A85513/14; A89065 Avoca Resources (2011) - A106817 Alacer Gold (2012) -A99048 Gascoyne Resources (2012) - A99274 Metals-X (2016) -A109579 Argonaut (2016) -A114771 Essential Metals (2021) - A127374 Karora Resources (2021) - A127374 <p>The reports and associated data packages were reviewed by Zenith geologists using both QGIS and ioGAS software packages.</p>
Geology	<ul style="list-style-type: none"> Deposit type, geological setting and style of mineralisation. 	<p>The targeted mineralisation is "Kambalda Style" and/or "layered intrusion style" nickel sulphide mineralisation, and LCT type lithium pegmatites, with the target being the lithium mineral spodumene.</p>
Drill hole Information	<ul style="list-style-type: none"> 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>No drilling reported in this announcement.</p>

Criteria	JORC Code explanation	Commentary
	<ul style="list-style-type: none"> ○ easting and northing of the drill hole collar ○ elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar ○ dip and azimuth of the hole ○ down hole length and interception depth ○ hole length. ● 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. 	
Data aggregation methods	<ul style="list-style-type: none"> ● In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. ● 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. ● The assumptions used for any reporting of metal equivalent values should be clearly stated. 	No drilling reported in this announcement.
Relationship between mineralisation widths and intercept lengths	<ul style="list-style-type: none"> ● These relationships are particularly important in the reporting of Exploration Results. ● If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. ● If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known'). 	No drilling reported in this announcement
Diagrams	<ul style="list-style-type: none"> ● Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but 	Refer to Figures in the body of this announcement.

Criteria	JORC Code explanation	Commentary
	<i>not be limited to a plan view of drill hole collar locations and appropriate sectional views.</i>	
Balanced reporting	<ul style="list-style-type: none"> 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. 	No drilling reported in this announcement.
Other substantive exploration data	<ul style="list-style-type: none"> 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. 	No other meaningful or material information to be reported.
Further work	<ul style="list-style-type: none"> 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. 	<p>Refer to body of this announcement.</p> <p>Heritage survey (completed).</p> <p>Review and re-processing of existing open file geophysics data (completed).</p> <p>External nickel consultant is being used to validate Zenith work and advise on additional exploration techniques and target generation.</p> <p>Auger drilling (planned).</p> <p>MLTEM on high priority areas, incl. Green Bananas (planned).</p> <p>External nickel consultant to conduct site visit of key nickel sulphide target areas with Zenith geologists (planned).</p>