



Zenith
MINERALS
LIMITED

11th December 2019

Historic Drill Sample Gold Re- Assaying in Progress at Split Rocks - WA

- RC drilling samples from 17 historic RC drill holes specifically drilled targeting iron ore at the Wrathchild prospect (now part of Zenith's Split Rocks project) have been accessed by Zenith and submitted for gold analysis;
- These drill hole samples were not previously assayed for gold even though other historic drill holes immediately south, which targeted gold in banded iron formation (BIF) at the Pointer 7 prospect recorded near surface gold results, including:
 - 90PRRC091: 8m @ 1.42 g/t Au from 2m depth;
 - 90PRRC104: 10m @ 0.78 g/t Au from 4m depth.
- Wrathchild iron ore prospect is located on Zenith's tenure (1 km north of Pointer 7) and, ~15 km south of the Parker Range iron project which was recently purchased by Mineral Resources Ltd (ASX-MIN) for \$20 million cash plus royalty¹.
- Gold assay results are anticipated to be received in early to mid – January 2020.

Zenith Minerals Limited ("Zenith" or "the Company") is pleased to announce that it has commenced a gold assay campaign of historic drill samples at its 100% owned Split Rocks project in WA (Figure 1).

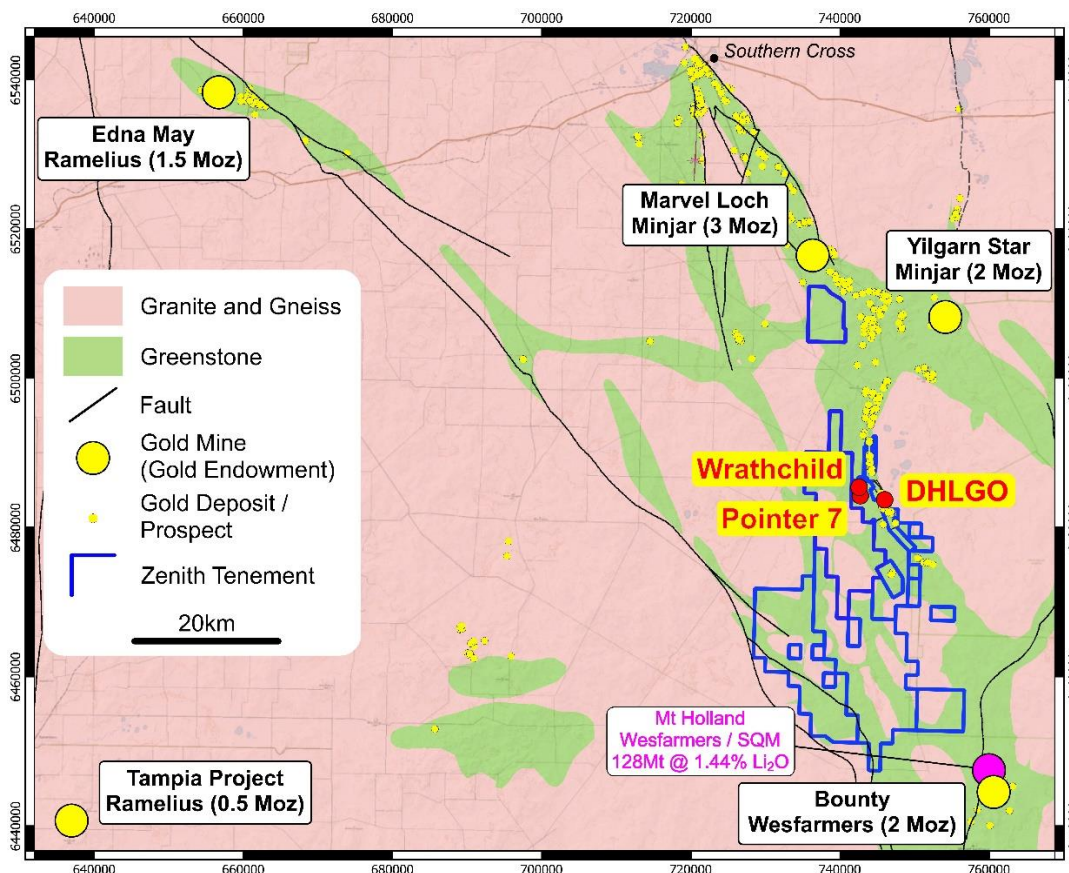


Figure 1- Pointer 7 & Wrathchild Prospects at the Split Rocks Project Showing Regional Gold Endowment

Corporate Details

ASX: ZNC

Issued Shares (ZNC)	243.4M
Unlisted options	5.6M
Mkt. Cap. (\$0.05)	A\$13M
Cash (30 th Sept 19)	A\$0.6M*
Debt	Nil
*pre rights issue Nov 19	

Directors

Michael Clifford:
Managing Director

Mike Joyce:
Non-Exec Chairman

Stan Macdonald:
Non-Exec Director

Julian Goldsworthy:
Non-Exec Director

Graham Riley:
Non-Exec Director

Major Shareholders

HSBC Custody, Nom.	12%
J P Morgan	6.1%
Nada Granich	5.5%
Miquilini	4.4%
Abingdon	4.2%

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Stored chip samples from 17 historic drill holes completed in 2009-11, specifically drilled targeting iron ore at the Wrathchild prospect, now part of Zenith's Split Rocks project, have been accessed by Zenith and submitted for gold analysis (Figure 1). The drill holes were not previously assayed for gold, even though Zenith's ongoing compilation of past exploration data has highlighted that these holes were drilled along strike of other historic drill holes (1990) targeting gold in banded iron formation (BIF) at the nearby Pointer 7 prospect that returned near surface results, including: 90PRRC091: 8m @ 1.42 g/t Au from 2m depth and 90PRRC104: 10m @ 0.78 g/t Au from 4m depth. In addition, historic surface sampling over this BIF trend outlined several coherent gold anomalies (>30ppb Au, peaking at 180ppb Au) (Figure 2). **Gold assay results from the resampling are anticipated to be received in early to mid – January 2020.**

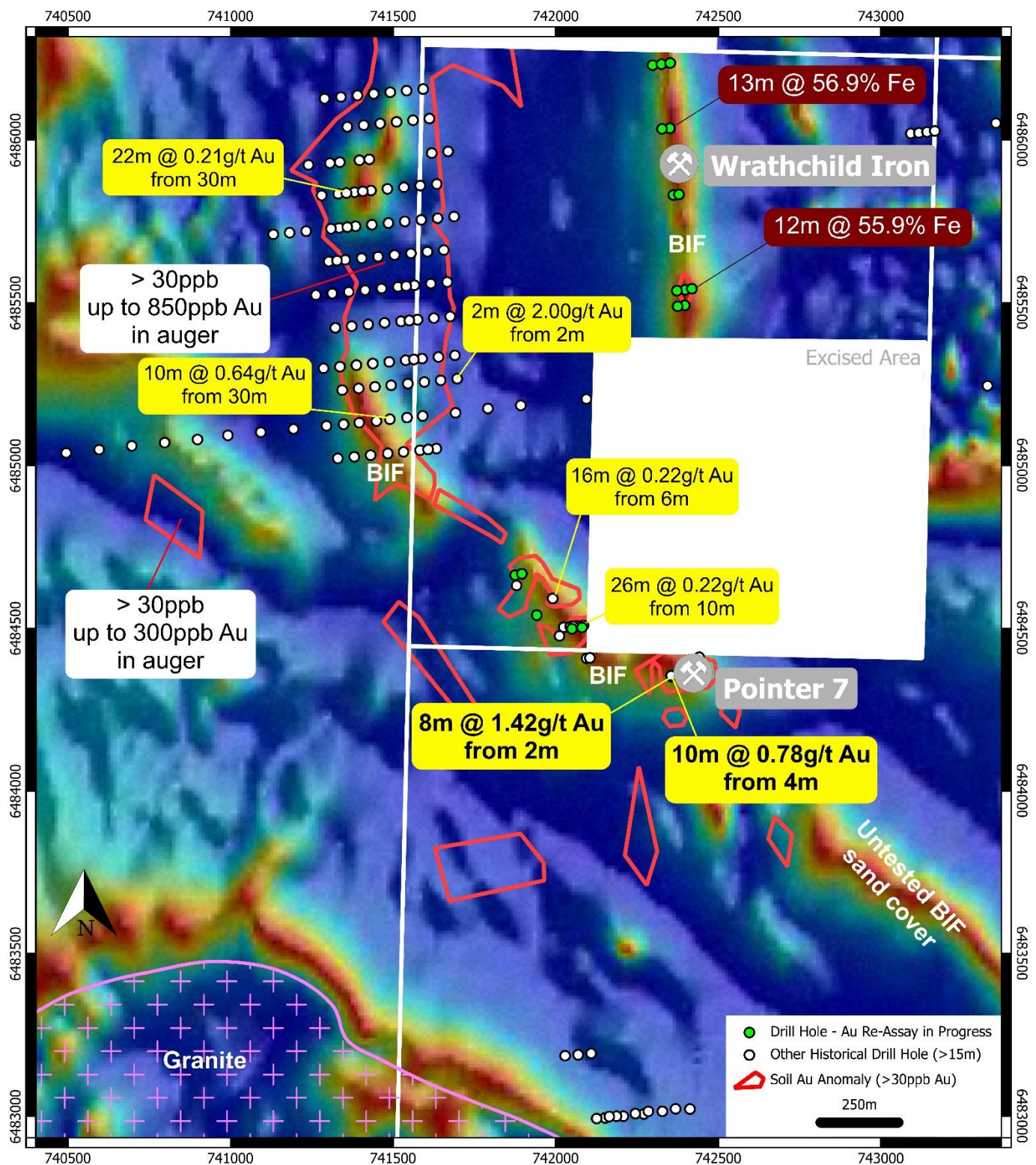


Figure 2- Pointer 7 Gold Prospect & Wrathchild Iron Ore Prospect Target Summary Map



Iron Ore Potential

As previously advised (ASX release 14 October 2019), review of past exploration data has also highlighted potential for iron ore in near surface hematite enrichment of BIF horizons at the Wrathchild prospect which is around 15km south of the Parker Range iron deposit which was purchased recently by Mineral Resources Ltd (ASX-MIN) in a \$20m cash transaction.

The Wrathchild iron prospect located on Zenith's wholly owned tenements consists of approximately 1km strike of outcropping hematite enriched BIF, which has been tested by only 12 RC drill holes to date. Downhole intersections of over 50 metres grading +50% iron (Fe) were recorded, with better results including: **13m @ 56.9% Fe incl. 9m @ 58% Fe, and 27m @ 54.2% Fe incl. 12m @ 55.9% Fe** (WAMEX Open file reports a088038 & a099406). Potential for further iron ore exists along the strike of the BIF unit to the southeast of Wrathchild in Zenith's tenure, where aeromagnetic data indicates the BIF is hidden beneath sand cover.

DHLGO Gold Prospect

The gold re-assaying work at the Pointer 7 & Wrathchild prospects is in addition to Zenith's gold exploration activities at the Dulcie Heap Leach Gold Operation (DHLGO) – Figure 1. Zenith announced on the 21st March 2019 an option agreement with the owners of the DHLGO whereby the Company has an exclusive right to explore for bedrock gold mineralisation beneath the large laterite rich gold cap currently being mined and treated on leases located contiguous with Zenith's Split Rocks project licences, located in the Forrestania greenstone belt, Western Australia (Figure 1).

Gold mineralisation (>0.5 g/t Au) was successfully intersected in 12 of Zenith's initial 16 wide spaced drill holes, with final 1m resample results just received confirming and upgrading the initial preliminary 4-metre composite sampling results that were reported to the ASX on the 21st October 2019. Better results from the 1m re-samples include: **10m @ 2.20 g/t Au from 60m including 6m @ 3.32 g/t Au in ZDRC022 (abandoned before ultimate target depth due to water), 5m @ 3.23 g/t Au from 8m plus 4m @ 1.48 g/t Au from 44m and 1m @ 3.79 g/t Au from 124m in ZDRC020, 5m @ 2.04 g/t Au from 34m including 2m @ 3.94 g/t Au plus 2m @ 0.89 g/t Au from 75m in ZDRC021, and 2m @ 2.56 g/t Au from 32m and 3m @ 0.57 g/t Au from 38m (hole abandoned in old underground workings) in ZDRC017.**

The intersection in hole ZDRC022 is particularly noteworthy as this hole was a redrill of hole ZDRC017, which was abandoned at 32m depth in mineralisation having hit a cavity that is likely old underground workings. Additionally, drill holes ZDRC022 & ZDRC018 did not reach their respective ultimate target depths to test the BIF – shear intersection due to high water ingress.

Historical exploration reports on the area of the DHLGO leases highlight that high-grade gold mineralisation is predominantly hosted by moderately west dipping BIF units. High-grade historic drill results include: **6.0m @ 16.91 g/t Au, 2.0m @ 32.73 g/t Au, 2.0m @ 16.5 g/t Au, 2.0m @ 15.40 g/t Au, 5.0m @ 4.73 g/t Au, 4.0m @ 4.90 g/t Au and 9.0m @ 2.20g/t Au**, presenting several high-priority target zones for follow-up by Zenith. Historic holes were drilled either vertical or at -60° east. Assuming moderate west dipping gold mineralisation then the intersection widths will be close to true widths, however there is insufficient drill density to be confident that all gold zones are dipping west and therefore caution must be applied regarding the widths of reported gold zones. Most historic drill holes have only focused on the near surface laterite rich gold zone with the average drill hole depth for the project area only 19.7m (1,777 historic shallow holes).

Follow-up drilling is planned to recommence early in the first calendar quarter 2020, unless a RC rig becomes available sooner.

References:

¹CAZ ASX Release 30 August 2019 - Parker Range sale total cash consideration of \$20M (ex GST) plus royalty \$0.50/tonne of iron ore after first 10 million tonnes of production.



Competent Persons Statement

The information in this report that relates to Exploration Results 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.

11th December 2019

Authorised for release by the Zenith Minerals Limited Board of Directors

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JORC Tables

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	<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>	Cazaly Resources Limited WAMEX Open file reports a088038 & a099406 detail iron ore drilling at Wrathchild for the period 2010 and 2013. Drilling by CRA in 1990 at the Pointer 7 prospect returned near surface gold results, including: 90PRRC091: 8m @ 1.42 g/t Au from 2m depth and 90PRRC104: 10m @ 0.78 g/t Au from 4m depth detailed in WAMEX Open file report a31967.
	<i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i>	Samples are considered to be representative of the intervals sampled.
	<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>	RC were used to obtain 1m samples for iron ore and gold which were analysed for gold and iron ore (see below).
Drilling techniques	<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>	RC drilling.
Drill sample recovery	<i>Method of recording and assessing core and chip sample recoveries and results assessed.</i>	Drill chip recoveries not documented in historical report. Appropriate controls will be put in place in future infill drilling programmes.



	<i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i>	As above.
	<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>	As above.
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.</i>	Drill samples were logged by qualified geologists.
	<i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</i>	Qualitative logging.
	<i>The total length and percentage of the relevant intersections logged.</i>	All intersections were logged.
Sub-sampling techniques and sample preparation	<i>If core, whether cut or sawn and whether quarter, half or all core taken.</i>	No core
	<i>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</i>	1m samples from cyclones were riffle split and composited to final sample. Samples were generally dry.
	<i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i>	Iron samples were analysed at Kalassay Laboratories in Perth and analysed via XRF for Fe, SiO ₂ , Al ₂ O ₃ , TiO ₂ , Mn, MnO, CaO, P, S, MgO, K ₂ O and Loss on Ignition (LOI). Gold assaying by Fire Assay with an AAS finish at Analabs Perth WA.
	<i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i>	Standard industry laboratory procedures are assumed to have been in place following pulverising of the sample material (80% passing 75um).
Sub-sampling techniques and sample preparation - continued	<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>	Generally, not reported.
	<i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i>	Sample sizes are assumed to be following industry standards and appropriate.
Quality of assay data and laboratory tests	<i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i>	Techniques are industry standard and considered as near to total.



	<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 used.
	<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>	Not reported in historic reports.
Verification of sampling and assaying	<i>The verification of significant intersections by either independent or alternative company personnel.</i>	All information on historic drilling is by independent 3 rd party companies.
	<i>The use of twinned holes.</i>	No specific twin hole drilled drilling campaigns identified to date.
	<i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i>	Field data were recorded on paper logs for gold drilling and digital database for iron ore drilling.
	<i>Discuss any adjustment to assay data.</i>	No adjustments were made.
Location of data points	<i>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.</i>	Iron ore drill holes located using GPS with +/- 3m accuracy. Original gold drill collar locations based on compass and tape surveys or GPS. Selected drill hole collar locations have been verified in the field using GPS with +/- 3m accuracy.
	<i>Specification of the grid system used.</i>	The grid system used to compile data was MGA94 Zone 50
Location of data points – continued	<i>Quality and adequacy of topographic control.</i>	Topography control is +/- 5m.
Data spacing and distribution	<i>Data spacing for reporting of Exploration Results.</i>	Iron ore RC drill holes on 200 to 300m spaced drill lines, with drill holes spaced approximately 20m down dip on each drill section. Gold RC holes are a scissor test with near surface gold intersected in both holes.
	<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>	Further drilling would be required to estimate a Mineral Resource (JORC 2012).
	<i>Whether sample compositing has been applied.</i>	Simple length weighted arithmetic average for all sample composites.



Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	Iron ore RC drill holes are generally inclined 60° to the north-northeast (original local grid east) which is adequate to test interpreted steep dipping BIF units, further drilling near surface to test for hematite enrichment. Gold drilling testing for flat lying supergene gold zones.
	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.	No bias based on current interpretation of ore zones.
Sample security	The measures taken to ensure sample security.	Industry standards are inferred to have been used.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No audits or reviews documented.

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	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.	Historic 3 rd party exploration results are reported on the Company's exploration licences P77/4507, E77/2515 & E77/2388.
	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.	Tenements are applications and are subject to grant with normal industry procedures with no known impediment to future granting of a mining lease.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Cazaly Resources Limited WAMEX Open file reports a088038 & a099406 detail iron ore drilling at Wrathchild for the period 2010 and 2013. Pointer 7 gold drilling by CRA in 1990 reported in WAMEX Open file report a31967. Refer to figure 2
Geology	Deposit type, geological setting and style of mineralisation.	The Wrathchild iron prospect located on Zenith's new applications consists of approximately 1km strike of outcropping hematite enriched BIF Gold mineralisation is oxide mineralisation in near surface banded iron formation (BIF) within amphibolite.



Drill hole Information	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:	Summary information is provided in text of this release and on associated figures, references to the original exploration reports are provided in this JORC table and are available from the Western Australian Department of Industry, Mines and Resources online WAMEX system. Reference numbers (WAMEX report "A" numbers) are provided in the appropriate sections in this JORC table
	o easting and northing of the drill hole collar	
	o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar	
	o dip and azimuth of the hole	
	o down hole length and interception depth	
	o 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	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.	A lower cut-off of 0.5g/t Au for gold results reported, whilst a lower cut-off of 52% Fe was used for iron ore 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.	A maximum on 1m dilution was included in the iron intercepts. No dilution in gold intersections reported.
Data aggregation methods - continued	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalents used.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	Drill holes targeting iron ore were generally inclined 60° to the east-northeast assumed to represent adequately the relatively steeply dipping banded iron formations. Gold RC holes are a scissor test with near flat lying surface gold intersected in both holes.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	As above
	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').	Lengths reported are down-hole lengths but are believed to be close to true thickness of iron and gold mineralisation.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should	Summary results of historic exploration activities are being referenced in this ASX release, references to the original exploration reports are provided in this JORC table and are available from the Western Australian



	<i>include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</i>	Department of Industry, Mines and Resources online WAMEX system. Reference numbers (WAMEX report "A" numbers) are provided in the appropriate sections in this JORC table.
<i>Balanced reporting</i>	<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>	Summary results of historic exploration activities are being referenced in this ASX release, references to the original exploration reports are provided in this JORC table and are available from the Western Australian Department of Industry, Mines and Resources online WAMEX system. Reference numbers (WAMEX report "A" numbers) are provided in the appropriate sections in this JORC table.
<i>Other substantive exploration data</i>	<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>	No other data to report at this stage of exploration. Data compilation and assessment continuing.
<i>Further work</i>	<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>	Further work required includes completion of a detailed review of historic exploration activities, field follow-up including mapping and surface sampling and infill/extension drilling with a focus on appropriate QAQC and metallurgical testwork.
	<i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i>	See figures in body of text.