



25th October 2019

Exploration Update

In addition to recent Company announcements regarding: preliminary 4m composite gold assay results from drilling at the Split Rocks project in WA (8m @ 2.72g/t Au), an expansion of the Split Rocks landholdings and securing the new Laramie Rare Earths Project in Wyoming USA, the Company provides an update on the Red Mountain Gold Project and several of its partnered projects.

Red Mountain Gold Project - QLD

- Geophysical survey results provide strong support for gold target at the Red Mountain project in QLD;
- IP chargeability anomaly (likely to be associated with disseminated sulphides and/or clay alteration) occurs adjacent to zones of high-grade gold in previously announced surface results, including:
 - High-grade gold in soils up to 2210 ppb Au (2.2g/t Au), with supporting results of 1600ppb Au, 550ppb Au and 320ppb Au;
 - Gold and silver in rock sample results up to 2.01 g/t Au and 114 g/t Ag;
- Based on mapping, sampling and geophysical surveying it appears that gold mineralisation is focused on the margins of a previously unrecognized felsic volcanic breccia system; and
- Infill soil sampling has now been completed over the high-grade western anomaly; results expected in November.

Earaheedy Zinc, Vivash Iron, Tate River & Talga Fault Projects

- Update on partner funded drill programs at Earahedy Zinc and Vivash Iron and Tate River and Talga Fault projects terminated.

Zenith Minerals Limited ("Zenith" or "the Company") is pleased to announce that it has received results from a recent geophysical survey conducted at the Company's 100% owned Red Mountain gold-silver project located in central Queensland (Figure 1). The Red Mountain project is located within ~100km of operating gold mines at Cracow and Mount Rawdon (Figure 2). In addition, the Company provides an update on several of its partnered projects.

A zone of gold and silver mineralisation was discovered by Zenith in mid-2017 (ZNC ASX Release 25th July 2017). The maiden exploration program in 2017 at Red Mountain returned rock chip sample results up to 0.69 g/t gold and 114g/t silver. Further field work by Zenith to follow-up these results returned highly encouraging gold and silver rock chip sample results up to 2.01 g/t gold and 52.5 g/t silver about 800 metres north of the best results from 2017 sampling. In addition, systematic geochemical sampling outlined a large 2km by 1.5km zoned soil anomaly with peak soil gold result of 2.2 g/t Au, refer to ZNC ASX release 24th Sep 2019 and (Figure 1).

Results received from a recent geophysical survey completed by consulting group Planetary Geophysics at Red Mountain defined multiple medium strength chargeability (10mv/v) anomalies, likely to be caused by the presence of sub-surface

Corporate Details

ASX: ZNC

Issued Shares (ZNC)	212.8M
Unlisted options	4.15M
Mkt. Cap. (\$0.06)	A\$13M
Cash (30 th Jun 19)	A\$1.1 M
Debt	Nil

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.	13.4%
J P Morgan	6.8%
Nada Granich	5.4%
Miquilini	4.3%
Abingdon	4.1%

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disseminated sulphides or clay alteration zones, coincident with the margins of the recently mapped felsic volcanic breccia complex (Figures 1 & 2).

Samples from an infill geochemical program completed to define the limits of the high-grade western gold zone have been dispatched to the laboratory and results are expected to be received in November.

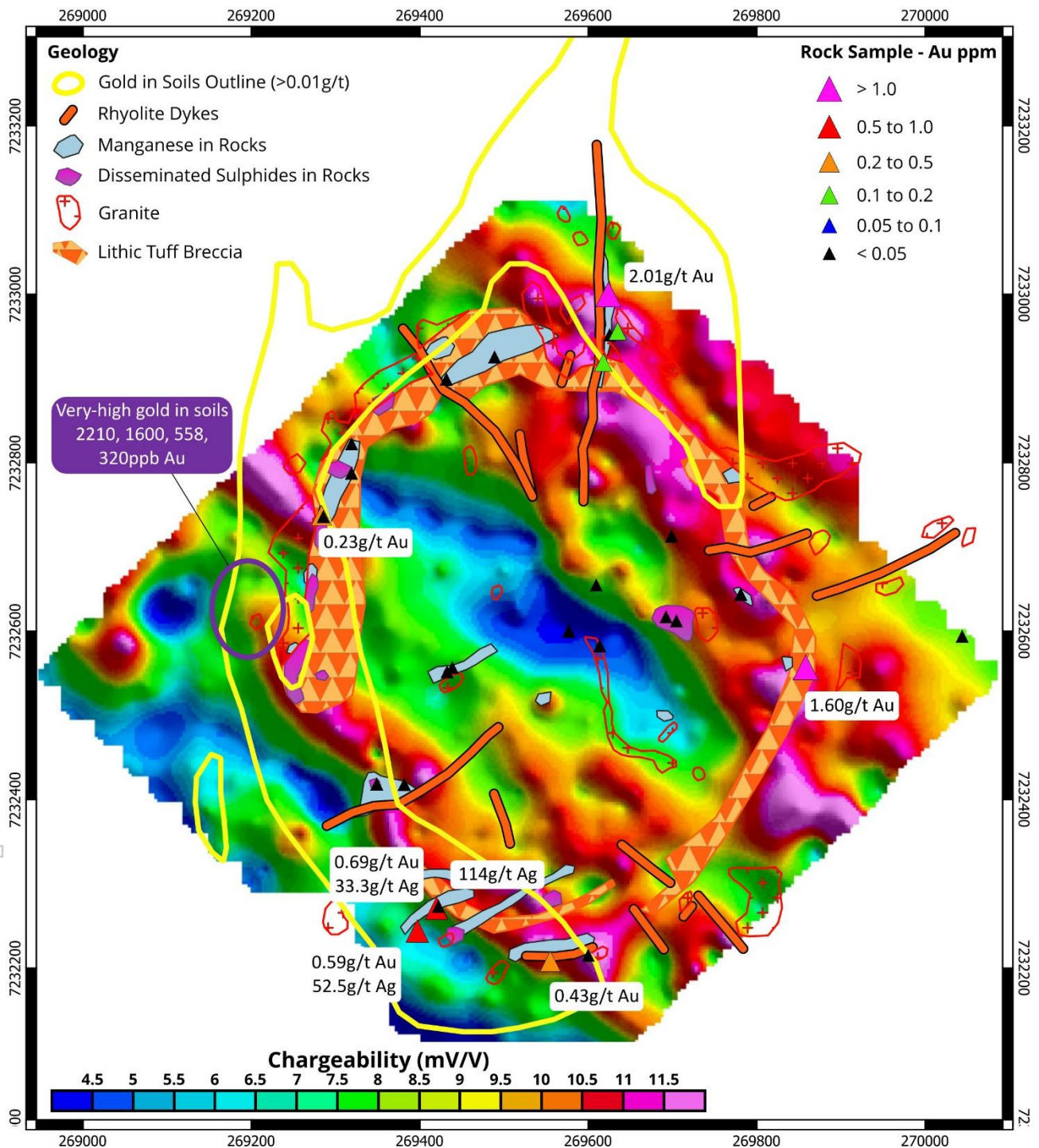


Figure 1- Red Mountain Soil and Rock Results with Geological Outlines
over IP Chargeability Image

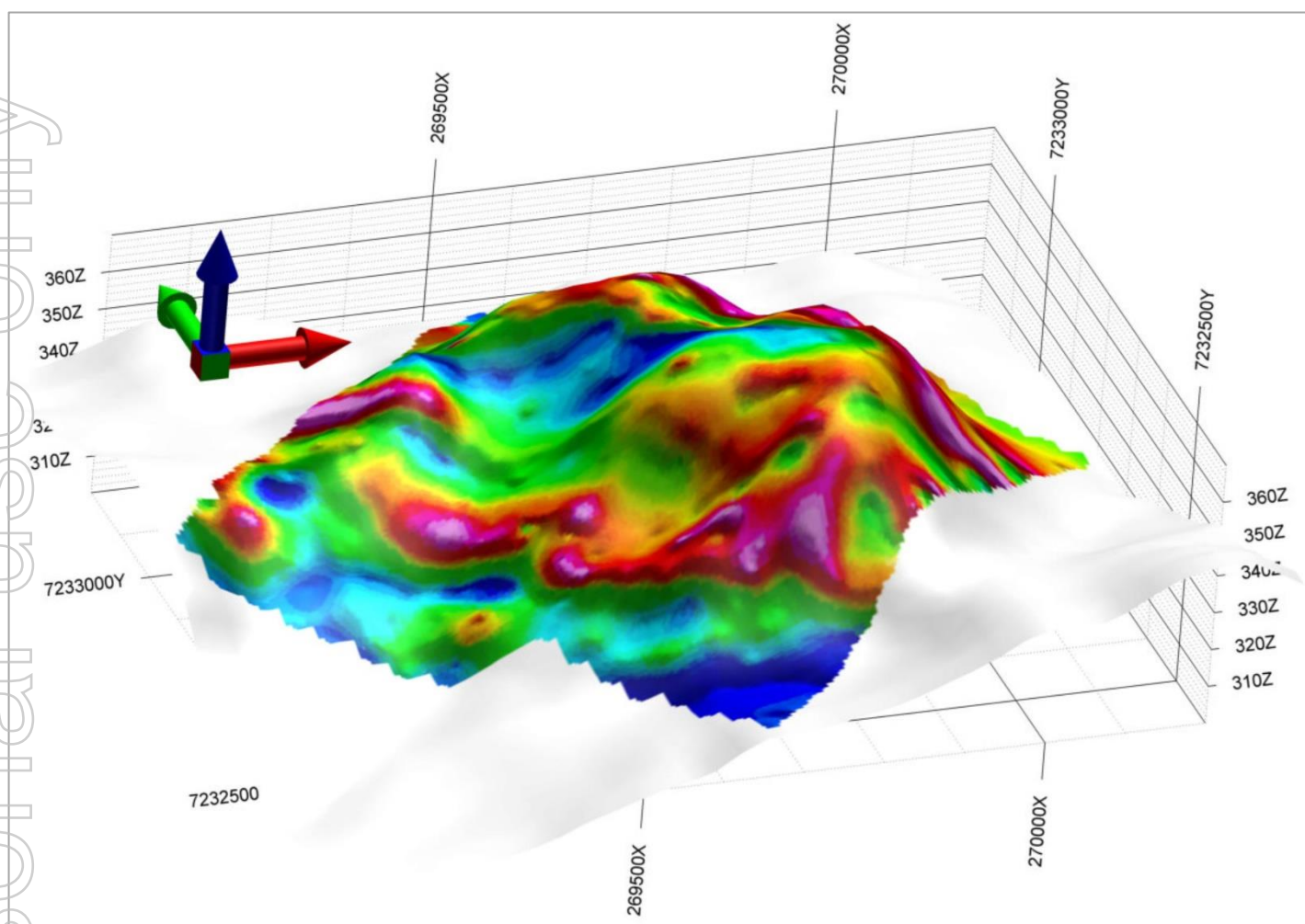


Figure 2: Red Mountain – 3D View of IP Geophysical Chargeability Anomaly Draped on Surface Terrain Model (5x vertical exaggeration) – refer to legend Figure 1.

Background on Red Mountain

The large soil geochemical anomaly at Red Mountain is distinctly zoned with a Cu-Mo-S-Ba-Mn core lying predominantly over the felsic rocks surrounded by an annular shaped gold-silver-Pb-Zn-As-Te-Bi-Sb-Se-Ni-Co +/- Hg-Mn-U anomaly that is generally close to the felsic rock – granite contact.

The Red Mountain project is located between two Evolution Mining gold mines Cracow and Mount Rawdon (Figure 2). Cracow is a low sulphidation epithermal gold deposit whilst Mount Rawdon is described in the literature as an epizonal intrusion-related gold deposit (Howard, 2015).

The Red Mountain host rocks, alteration and geochemical association are interpreted as having similarities to that at the nearby operating Mt Rawdon gold mine based on comparison to research published by Evolution Mining geologist Howard (2015). The similarity is encouraging and provides Zenith with a geological model to assist in targeting gold and silver mineralisation at Red Mountain.

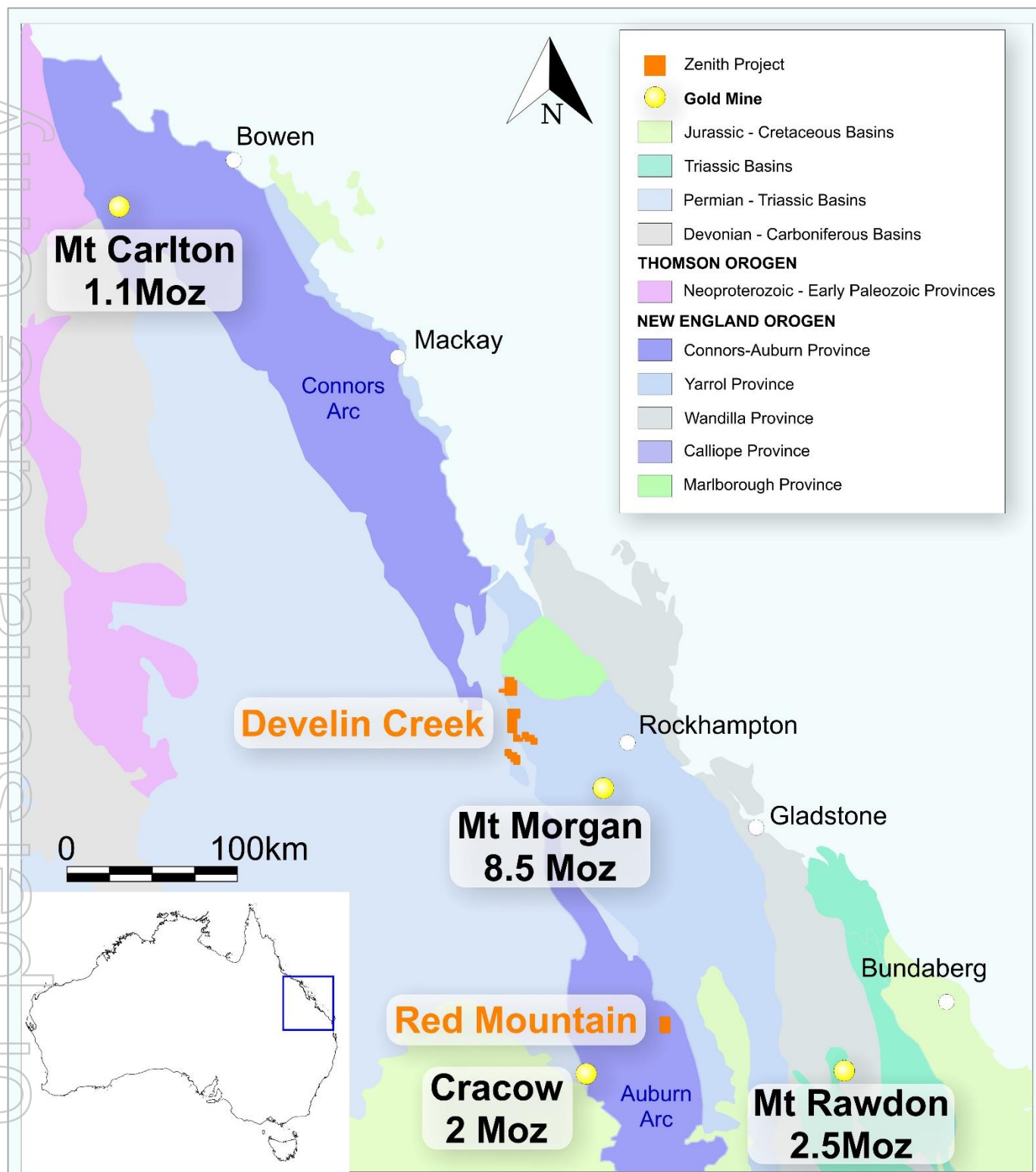


Figure 3: Red Mountain Project – Location Map



Earaheedy Zinc Project - WA

As announced to the ASX on the 21st October 2019, Rumble Resources Limited (ASX:RTR) has elected to exercise the Earraheedy Zinc project option. Zenith has now received an additional \$350,000 in RTR shares and RTR will free carry Zenith's 25% interest to the completion of a bankable feasibility study (BFS). Following the completion of a BFS and any decision to mine, Zenith can either elect to contribute to ongoing project development or dilute to a 1.5% net smelter royalty.

New Target – Sandstone Zn-Pb Hosted Deposits:

Recent diamond/RC drilling on E69/3464 by Rumble (and summarised in the RTR announcement to the ASX on the 21st October 2019), identified a previously unrecognised sandstone Zn-Pb unit which hosts the higher-grade Zn-Pb mineralisation throughout the entire project.

Rumble's new target has potential for large tonnage, flat-lying, near surface (open pit) sandstone hosted Zn-Pb deposits.

Two shallow sandstone sub basins containing Zn-Pb mineralisation have been identified.

- The main sandstone sub basin has an area extent of at least 8km by 2.5km and is open to the southeast. Only fifteen (15) drill holes have been completed within the Main Sandstone Sub Basin – all are mineralised with over half ending in mineralisation. Drilling intercepts include:
 - 7m @ 4.85% Zn + Pb from 103m EOH in sandstone
 - 6m @ 3.91% Zn, 0.39% Pb from 210.5m in sandstone
- The northwest sandstone sub basin has an area extent of 5km by 2km and is completely open. Only seven (7) drill holes have been completed within the Northwest Sandstone Sub Basin – all are mineralised with drilling intercepts including:
 - 11m @ 3.6% Zn + Pb from 222.5m in sandstone
 - 6m @ 2.52% Zn, 1.02% Pb from 126m EOH in sandstone
 - 7m @ 1.18% Zn, 2.37% Pb from 60m in sandstone

The two sub basins have over 13km of prospective strike that come to surface under shallow cover on the southwestern margin of project representing an exciting drill target area. The drill target areas have had no previous drilling

Next Steps:

Further geophysical surveying and drilling at Rumble's sole cost is planned to be completed this calendar year:

- A passive seismic orientation survey is planned in November 2019 to cover the main and northwest sandstone sub basins to potentially provide a tool that maps the Zn-Pb mineralized sandstone sub-basin as it comes to surface to aid in drill targeting; and
- A wide spaced shallow vertical RC drilling is planned in December 2019 targeting where the two Zn-Pb mineralised sandstone sub-basins come to the surface under cover – over 13kms of strike.

Vivash Iron Project – WA

Rio Tinto Exploration Pty Ltd (RTX) has advised Zenith that all land and site access arrangements were finalised to facilitate an initial planned RC drill programme to test a concealed Brockman iron ore target at the Vivash Iron Project in WA. This included clearance for 17 potential drill pads and related access tracks.

Site earthworks were completed, and the drill programme recently commenced. The programme is expected to consist of 12 priority holes of up to 100m depth, testing two separate target areas. Further holes may be drilled subject to ongoing results.



The drill programme is expected to be completed in early November, with assays likely available late 2019 or early 2020.

The Vivash Gorge Iron Project (exploration licence E47/3071 owned by Zenith) is situated approximately 80km west of Tom Price in the Pilbara region of Western Australia. The project covers approximately 8km of strike of prospective Brockman and Marra Mamba iron formations along trend of Rio Tinto Iron Ore's Brockman 4 operating iron ore mine. RTX has an option to purchase the Vivash project from Zenith (ASX Release 31st July 2019).

Tate River Gold Project - QLD

Following an internal review of the Tate River gold project exploration results conducted by Zenith's geological team, the Company has determined that the project no longer meets its investment criteria and it has provided notice to Jumani Pty Ltd, the owner of the Tate River gold project, that it does not wish to proceed with the Farm-In arrangement.

Talga Fault Cobalt Project - WA

Greenpower Energy Ltd (ASX:GPP) has provided notice to Zenith that it does not wish to proceed with the option over Zenith's Talga Fault cobalt project. Following a review by Zenith of the data compiled by Greenpower, the Company has determined that the project no longer meets its investment criteria and the exploration licences have been surrendered.

References:

Howard., N. 2015: Geochemistry and Hydrothermal Alteration at the Mount Rawdon Gold Deposit. In Mineral Exploration of the Tasmanides www.smedg.org.au

Recent Zenith ASX releases:

- 1st October 2019 – Investor Update Presentation
- 14th October 2019 – Split Rocks Project Expanded Further
- 17th October 2019 – New Rare Earths Project Secured in Wyoming USA
- 21st October 2019 – Split Rocks Gold Project – Preliminary 4m Composite Drill Results

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.

25th October 2019

For further information contact:

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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>	Gradient array induced polarisation (IP) electrical geophysical survey at Red Mountain. A local grid was used on the ground which was then modified to match map coordinates taken with a handheld GPS and using datum MGA94 zone 56. An array of 5 potential electrodes was used at 25m spaced dipoles covering 125m.
	<i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i>	18 lines at 50m spacing and approx. 950-1000m in length – orientated South-West to North-East were surveyed.
	<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>	Industry standard gradient array survey
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>	No Drilling
Drill sample recovery	<i>Method of recording and assessing core and chip sample recoveries and results assessed.</i>	No Drilling
	<i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i>	No Drilling
	<i>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</i>	No Drilling



Logging	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.	No new physical sampling reported
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	No logging
	The total length and percentage of the relevant intersections logged.	No Drilling
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	No Drilling
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	No Drilling
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	No new physical sampling reported
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	No new physical sampling reported
Sub-sampling techniques and sample preparation - continued	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.	No new physical sampling reported
	Whether sample sizes are appropriate to the grain size of the material being sampled.	No new physical sampling reported
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	No new physical sampling reported
	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.	Equipment used for the survey consisted of an Elrec Pro 10 channel IP/resistivity receiver Serial No 363 and a VIP 5000 transmitter Serial No 19-05-39 both manufactured by Iris Instruments of Orleans, France. All IP measurements were made in the time-domain using a two second half-duty cycle. An integration window of 0.5 to 1.1 seconds has been used for the final chargeability calculation.
	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.	No new physical sampling reported



Verification of sampling and assaying	<i>The verification of significant intersections by either independent or alternative company personnel.</i>	No drilling
	<i>The use of twinned holes.</i>	No drilling
	<i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i>	Field data recorded electronically and stored in digital format
	<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>	Sample location is based on GPS coordinates +/-5m accuracy
	<i>Specification of the grid system used.</i>	The grid system used to compile data was MGA94 zone 56
Location of data points - continued	<i>Quality and adequacy of topographic control.</i>	Topography control is +/- 10m.
Data spacing and distribution	<i>Data spacing for reporting of Exploration Results.</i>	18 lines at 50m spacing and approx. 950-1000m in length – orientated South-West to North-East were surveyed.
	<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>	The data alone will not be used to estimate mineral resource or ore reserve
	<i>Whether sample compositing has been applied.</i>	No compositing applied
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.</i>	Grid lines orientated generally orthogonal to breccia margins
	<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>	No drilling
Sample security	<i>The measures taken to ensure sample security.</i>	No new physical sampling reported
Audits or reviews	<i>The results of any audits or reviews of sampling techniques and data.</i>	Sampling techniques are consistent with industry standards



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.	The Red Mountain Project is located within the 100% Zenith owned exploration permit for minerals EPM 26384. The project is located within private grazing properties.
	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.	All tenements are 100% held by Zenith and are in good standing with no known impediment to future granting of a mining lease.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	South Pine Mines Pty Ltd undertook regional scale reconnaissance rock chip sampling and a systematic stream sediment sampling program focused around the Rossmore silver occurrence from 1981 to 1982. Several companies held the ground in the following decades focusing on the porphyry copper / epithermal potential of the area with Archer Resources Limited the only company to have reported on ground exploration activity on the area of interest being reported herewith by Zenith. Anomalous silver and gold in soils was reported by Archer Resources Limited which has subsequently been confirmed by Zenith.
Geology	Deposit type, geological setting and style of mineralisation.	Based on the initial site visit and preliminary evidence the geological setting and geochemical association at Red Mountain is indicative of a gold-silver "carbonate-base metal gold epithermal" system or epizonal intrusion-related gold deposit similar to the Mt Rawdon gold mine.
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:	No drilling
	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.	No high-grade cutting



	<i>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.</i>	No aggregation used
<i>Data aggregation methods - continued</i>	<i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i>	No metal equivalents used.
<i>Relationship between mineralisation widths and intercept lengths</i>	<i>These relationships are particularly important in the reporting of Exploration Results.</i>	No drilling
	<i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i>	No drilling
	<i>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').</i>	No drilling
<i>Diagrams</i>	<i>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.</i>	Refer to descriptions and diagrams in body of text
<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>	All results reported on Figure 1.
<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 meaningful or material exploration data to be reported at this stage
<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>	Infill soil sampling completed results awaited
	<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>	Refer to figures in body of report.