Kalia limited
ACN 118 758 946

ASX Announcement
12 December 2017

Kalia Limited
is an exploration company focused on base, precious and energy metals

Directors
Non-Executive Chairman
Mr David A.L. Johnston
Managing Director
Mr Terry Larkan
Executive Director
Mr Nick Burn

Operations
Chief Financial Officer
Ms Anna MacKintosh

Issued Capital
Ordinary Shares
1,950,847,391
Unlisted Options
48,000,000
Adviser Options
250,000,000

Share Price
11 December 2017
$0.015

ASX Code
KLH

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Mt Tore Geophysics

Kalia Limited (ASX:KLH) announces the finalised results of the geophysical analysis on Exploration Licences 03 and 04 in the Tore region of Bougainville Island in the Autonomous Region of Bougainville, Papua New Guinea.

- **Only 20% of total Exploration Licence area has geophysical data**
- **Exploration Licence 04 has no geophysical data**
- **Existing information advances project from base stage**
- **Desktop study defines targets**
- **Rogerson defines three separate mineralisation styles**
- **Fieldwork has commenced on EL03**

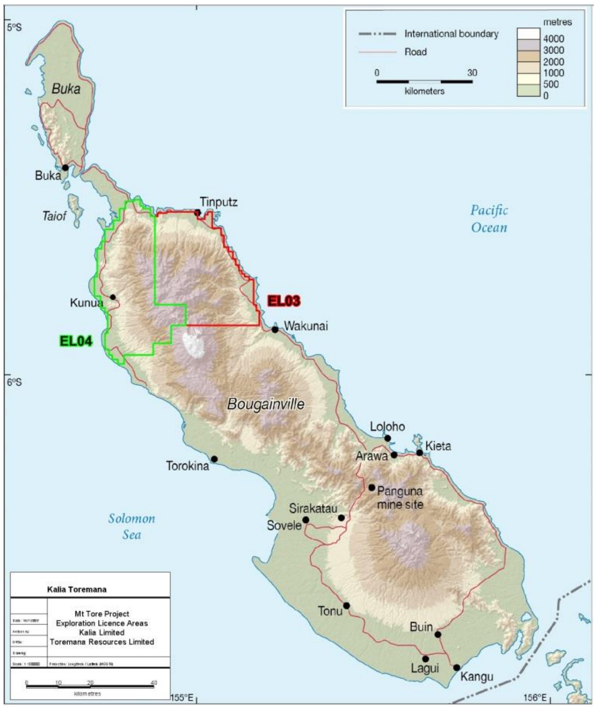

Fig 1. Exploration Licence

Kalia Limited engaged Fathom Geophysics to complete the re-processing of geophysical data collected in an airborne geophysical survey conducted on behalf of the Geological Survey of PNG (GSPNG) by The Federal Institute for Geosciences and Natural Resources, Federal Republic of Germany (FIGNR) in 1986. The survey recorded Magnetics, Electromagnetics (EM), Gravity and Radiometrics (K, TH, U).

Fathom Geophysics Australia Pty Ltd (Fathom) specializes in exploration under cover and is experienced in epithermal terranes. Fathom undertook reprocessing of the located airborne geophysical data collected by the FIGNR in 1986 and applied modern filtering routines to the gridded data; generating outputs far superior to what was previously available. The re-processing and filtering highlighted geophysical anomalism within the survey area that is comparable to responses over known porphyry related deposits (Bata Hijau, Grasberg, Alumbrera).

The located data needed considerable pre-processing prior to making final grids to be filtered. Profiles were manually analysed and quality control measures applied [de-spiking, removal of ‘turns’ and deviations from an acceptable altitude range, de-corrugation]. The EM data were poor but the radiometric and magnetic data were able to be brought up to an acceptable standard for filtering; notwithstanding limitations on positional accuracy and signal noise.

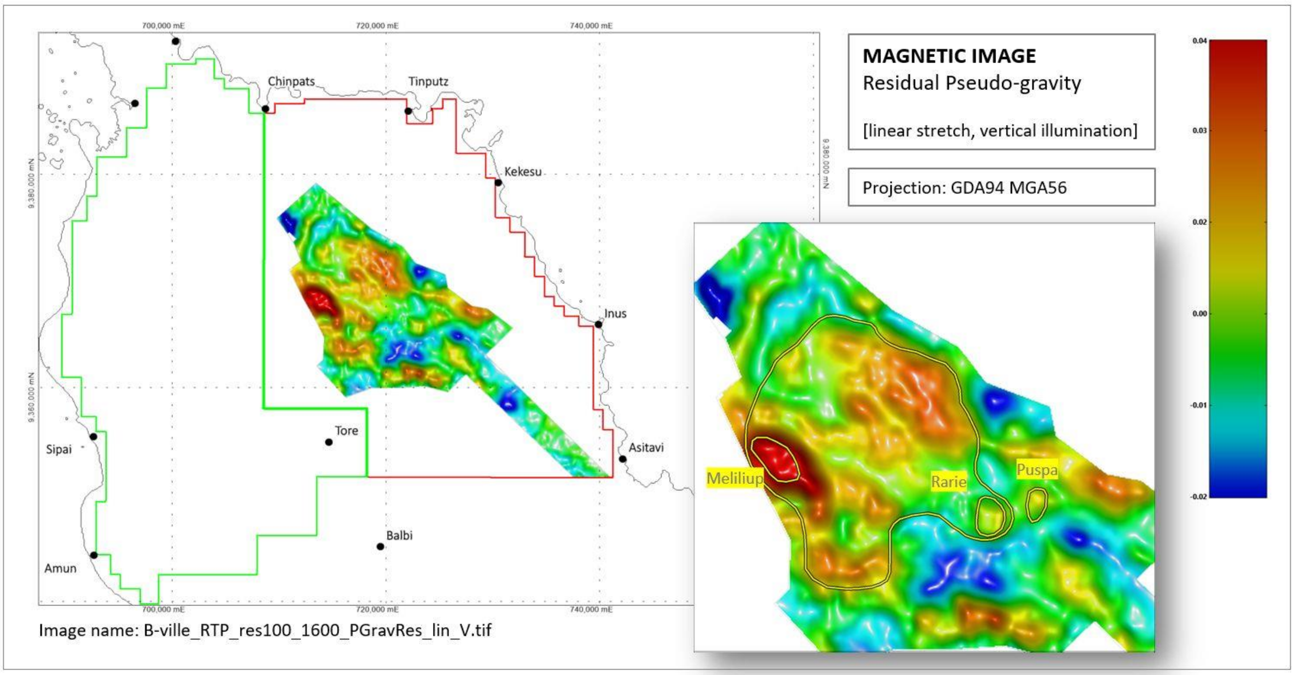

Figure 2: Pseudogravity magnetic image. Data within EL 03 and EL 04 displayed. The ‘close-up’ image on the right highlights the magnetic anomalies well. A red response indicates a stronger magnetic signal. The general outline of the large magnetic complex is indicated; and the elevated responses around the ‘rim’ of the complex is highlighted well. Prospects have been annotated.

A good image of the magnetic response within EL 03 and EL04 is presented in Figure 2. The pseudogravity filter involves both pole reduction and vertical integration; which can be thought of as effectively shifting anomalies over their sources and removing the dipolar response of the field [assuming induced magnetization]. The result is a smoothed and simplified version of the magnetic response over the area. The large circular magnetic complex is well highlighted, with the strongest response on the rim of the complex at Melilup.

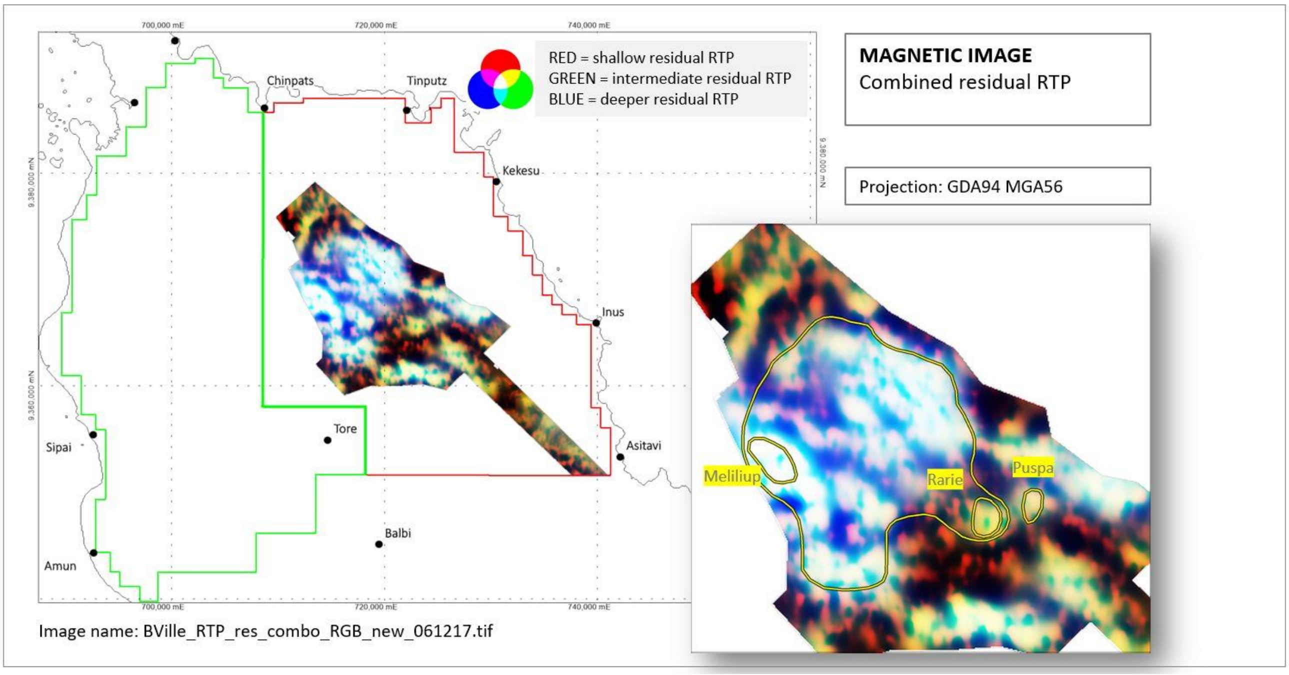

Figure 3: Combined residual magnetic image. Data within EL 03 and EL 04 displayed. The 'close-up' image on the right highlights the magnetic anomalies well. White in the image reflects a strong magnetic response in all residuals – shallow, intermediate and deep; indicating a higher likelihood at that location of depth extensive sources [ie, not just a shallow response]. The general outline of the large magnetic complex is indicated. Prospects have been annotated.

Two more useful magnetic images are presented in Figures 3 & 4; and the radiometric response in Figures 5 & 6.

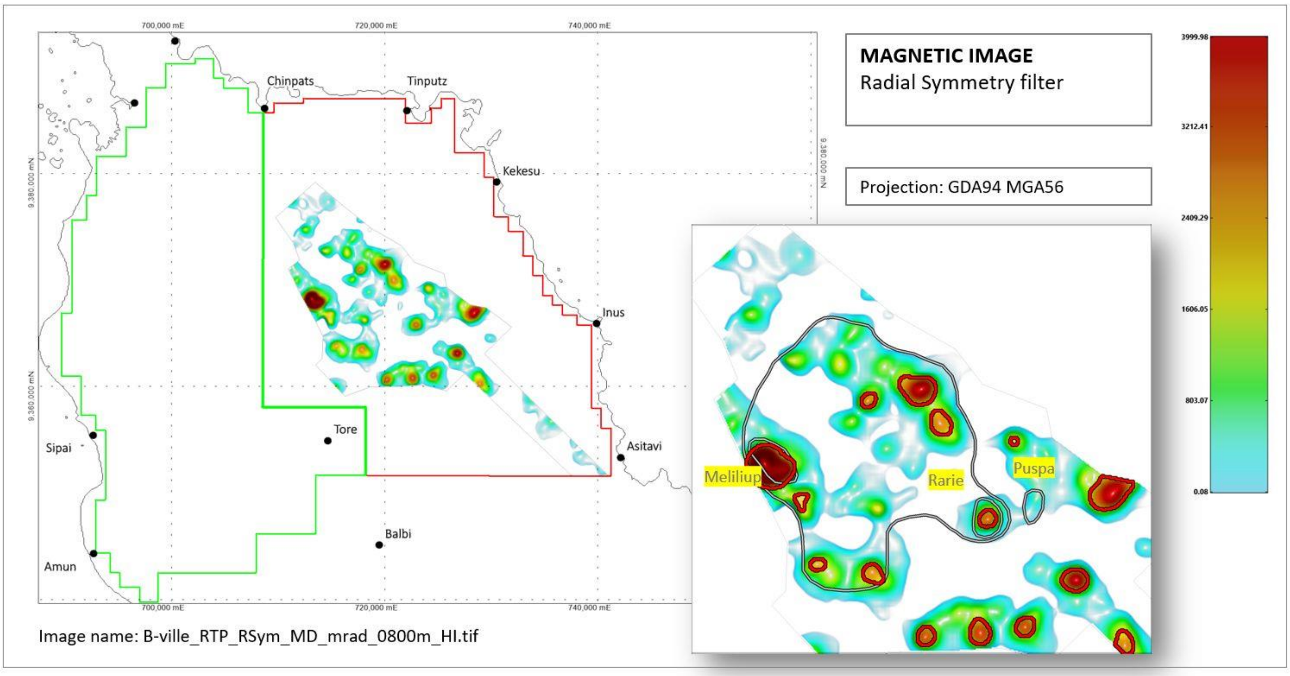

Figure 4: Radial symmetry [intrusion detection] magnetic image. Data within EL 03 and EL 04 displayed. This filter highlights positive magnetic anomalies that are both radially symmetric and exhibit a strong amplitude. The minimum radius = 800m, which corresponds to a diameter range of 1.6km to 3.2km. The elevated discrete responses around the rim of the main magnetic complex are well highlighted using this filter.

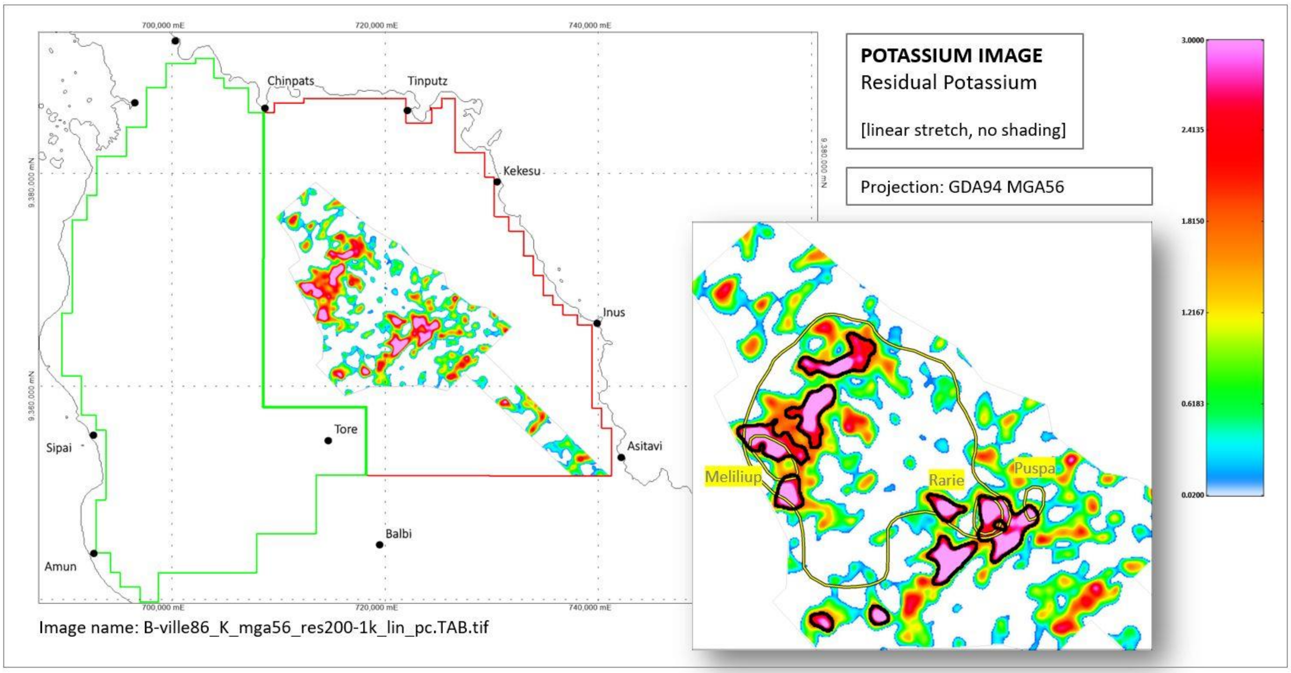

Figure 5: Residual Potassium image. Data within EL 03 and EL 04 displayed. The radiometric data was difficult to level, so a broad residual has been applied to the data grid improving the delineation of discrete anomalies. The 'close-up' image on the right highlights the zones of elevated Potassium well. The black polygons outline the most anomalous responses; mostly around the rim of the large magnetic complex [which could be multiple features with rims].

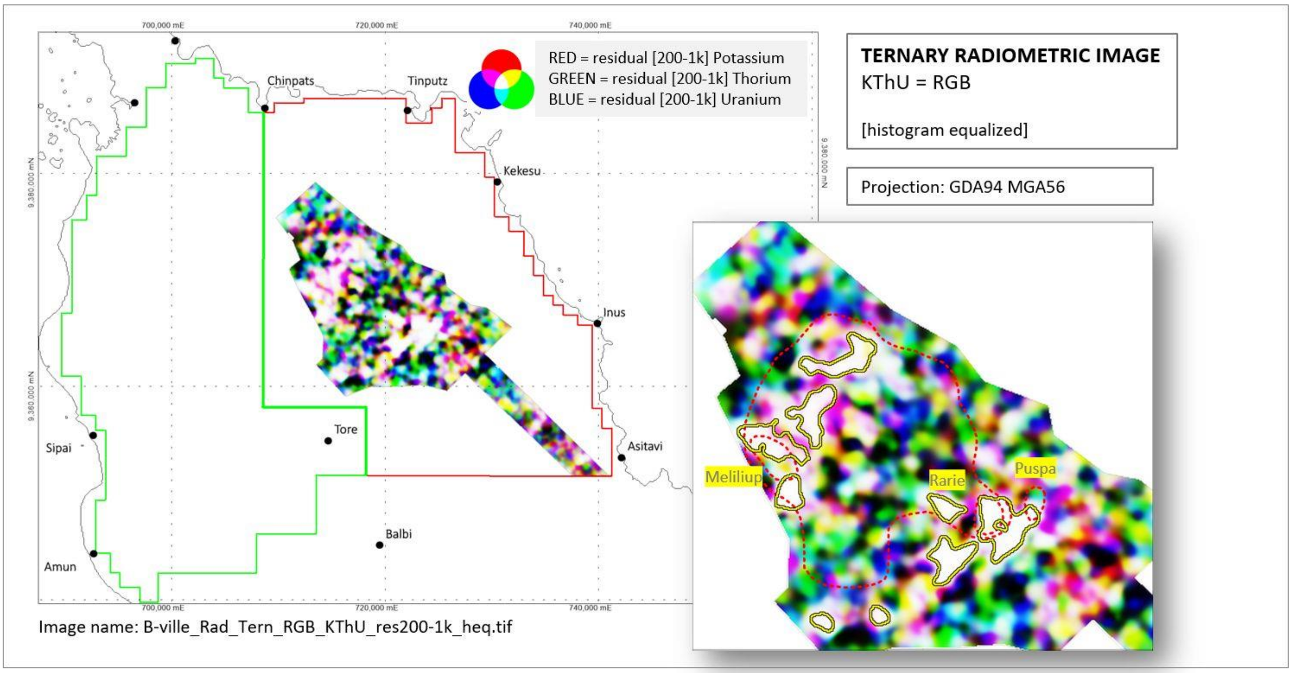

Figure 6: Ternary radiometric image, where Potassium = Red, Thorium = Green and Uranium = Blue [standard combination]. The residual element grids were used in the ternary display [residual 200-1km]. Unfortunately, the data is not of a quality high enough to manipulate the element ratios or generate useful radioelement ratio ternary images. This standard ternary image does however, highlight the anomalous radiometric zones well. It is the elevated Potassium polygons that have been overlain on the 'close-up' image on the right.

The Potassium and ternary radiometric images shown in Figures 5 and 6 respectively are useful for highlighting anomalism. There is a reasonable spatial correlation between discrete elevated magnetic and radiometric anomalies. This observation was combined with an analysis of the SRTM 30m topography data [subtle circular to elliptical depressions specifically] to carry out preliminary targeting runs to identify locations where favourable magnetic, radiometric and topographic responses coincide. Being highly aware of the variable magnetic response of porphyry systems and the limitations of the data by virtue of its vintage; a set of target areas were defined for ground follow-up. The results are presented in Figure 7.

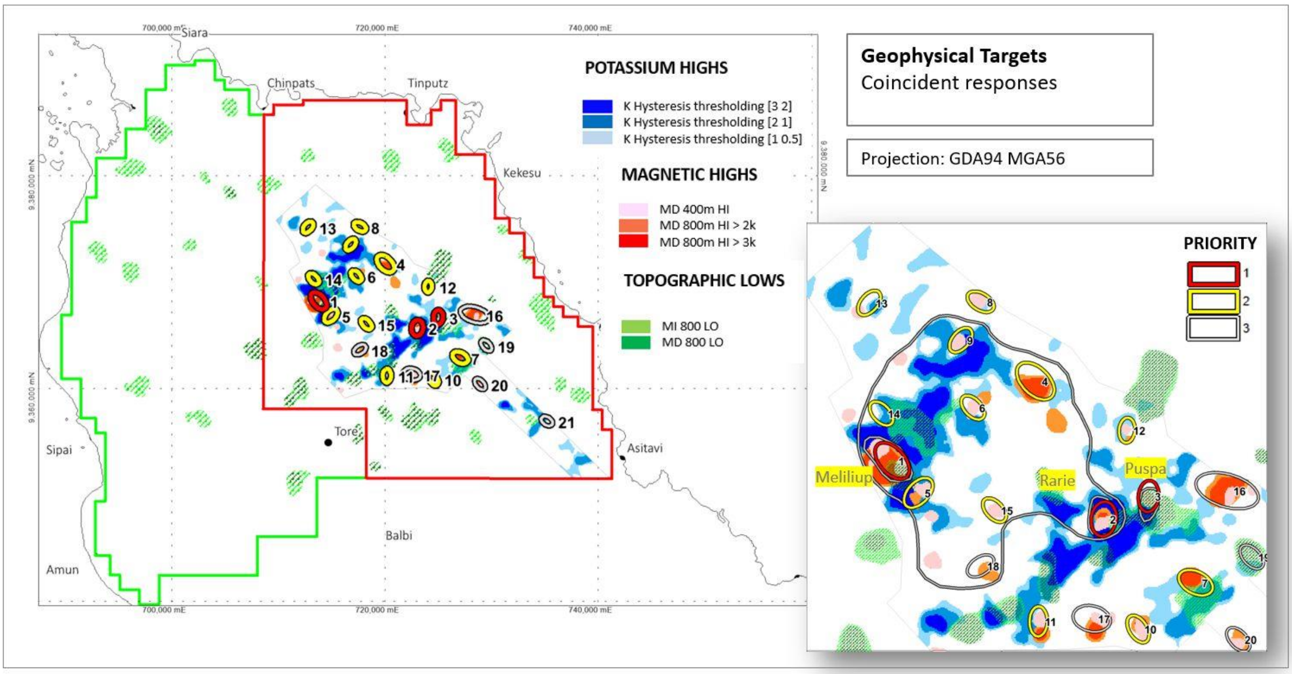

Figure 7: Geophysical target zones. The geophysical and remote sensing data were used to generate exploration target zones. The porphyry Cu-Au model of Koschke [2011] was used. Specifically, the following layers were combined: MAGNETIC radially symmetric highs, RADIOMETRIC potassium highs, TOPOGRAPHY radially symmetric lows. Targets were categorized into one of three priority classes, with priority-1 being the highest priority targets.

Kalia Limited acknowledges that the re-processing of the data collected in 1986 by Fathom Geophysics elevates the status of EL03 from a greenfields project. The target priority work when coupled with anomalism from geochemistry and geology has identified a number of priority locations that will be the focus of initial fieldwork, that has already commenced, with real opportunities for early success.

Competent Person Statement

The information in this announcement that relates to Exploration Results is based on information reviewed by Mr Peter Batten who is a member of the Australasian Institute of Mining and Metallurgy (AusIMM) and is a full time employee of Kalia. Mr Batten has sufficient experience which is relevant to the style of mineralisation and type of deposits under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Batten consents to the inclusion of the information in the form and context in which it appears.

Information in this announcement that relates to Geophysics and Geophysical data is based on information reviewed by Ms Amanda Buckingham who is a consultant geophysicist and principal of Fathom Geophysics. Ms Buckingham was contracted by Kalia Limited and gives consent to the inclusion of the information in the form and context in which it appears.

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ADDITIONAL INFORMTION

JORC CODE, 2012 EDITION – TABLE 1

The following sections are provided for compliance with requirements for the reporting of exploration results under the JORC Code, 2012 Edition.

Section 1 Sampling Techniques and Data

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *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.* • *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.* • *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.*	• NA
Drilling techniques	• *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).*	• NA
Drill sample recovery	• *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.*	• NA

Criteria	JORC Code explanation	Commentary
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.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• NA
Sub-sampling techniques and sample preparation	• *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.* • *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.*	• NA
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.* • *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.*	• NA
Verification of sampling and assaying	• *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.*	• NA
Location of data points	• *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.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• NA
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity*	• NA

Criteria	JORC Code explanation	Commentary
	appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. • *Whether sample compositing has been applied.*	
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.* • *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.*	• NA
Sample security	• *The measures taken to ensure sample security.*	• NA
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• NA

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 security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• The Mt Tore Project consists of two exploration licence applications ELA07 (365.3sqkm) and ELA08 (838.7sqkm). • The Mt Tore Project is a joint venture between Kalia Limited (75%) and Toremana Resources Limited, a registered landowner association (25%).
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• All data sourced by the company has been disclosed.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Tore region consists of volcanic rocks in an island arc tectonic setting. Intrusive bodies are recorded in numerous locations throughout the project area and is highly prospective for porphyry Cu-Au-Ag-Mo and Epithermal Au deposits.

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:*
	  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*
		• No drilling results reported

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Criteria	JORC Code explanation	Commentary
	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 (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.*	• NA
Relationship between mineralisation widths and intercept lengths	• *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').*	• N/A
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Maps and plans appear throughout this release.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• All sample assay data has been released.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	Note, there was no 'sampling' done; it was all re-processing No geophysical data was collected **Processing/Reprocessing of existing geophysical data [September 2016]:** Data processed/re-processed Airborne Magnetic, radiometric & electromagnetic data [collected 1986] SRTM topography & Landsat8 data [2016] Specific datasets: 30m SRTM topography [sourced from NASA]

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Criteria	JORC Code explanation	Commentary
		2014, 2015, 2016 Landsat8 single scenes 1986 Airborne magnetic data 1986 Airborne radiometric data [K, Th, U, TC] 1986 Airborne EM data [Apparent resistivity 900Hz & 3600Hz] What was done: 1986 data – Data were prepared for analysis [line path trimmed, data de-spiked & noise reduction applied, data levelled & de-corrugated, channels gridded] Data were filtered [enhancement filtering] Structure detection and intrusion detection filters [proprietary to Fathom geophysics] were applied SRTM data – individual tiles were downloaded & merged into a single grid, enhancement filtering & ridge/edge/valley detection applied, radial symmetry filter applied, catchment analysis carried out. Landsat 8 – data were downloaded & images made: colour composites, outcrop index etc
Further work	• *The nature and scale of planned further work (eg 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, provided this information is not commercially sensitive.*	• See future work/plans within the release.