Kalia limited

ACN 118 758 946

ASX Announcement
13 May 2019

Kalia Limited is exploring for copper, gold in the Mt Tore region on Bougainville Island.

Directors
Chairman
Hon. David Johnston
Managing Director
Mr Terry Larkan
Technical Director
Mr Peter Batten
Non-Executive Director
Mr Sean O'Brien

Operations
CFO & Company Secretary
Mr Phillip Hartog

Issued Capital
Ordinary Shares
2,514,347,391
Unlisted Options
144,500,000
Adviser Options
250,000,000

Share Price – 10 May 2019
$0.001

ASX Code
KLH

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Geochemical Interpretation Complete

Kalia Limited (ASX:KLH), ("Kalia" or "the Company") is pleased to announce the completion of the review and interpretation of the company geochemical and geological data collected over its Tore Joint Venture ("TJV") properties (Figure 1) on Bougainville Island by consultant Dr Steve Garwin.

Dr Garwin is one of the leading authorities on porphyry, epithermal and Carlin-style mineralization in the circum-Pacific region. He has been involved in several, major exploration and mining projects, including the Batu Hijau porphyry mine in Indonesia, the mines of the Carlin and Battle Mountain Trends in Nevada and the recently discovered world-class Alpala porphyry deposit in Ecuador.

Summary

- **Geochemical review highlights the fertile nature of the Mt Tore region igneous rocks and the potential for multiple Cu-Au porphyry centres and epithermal mineralisation – results show Mt Tore to be "prospective for large Cu-Au porphyry deposits" (Dr S Garwin, 2019)**
- **3 potential porphyry Cu-Au centres and one epithermal gold region stand out from the analysis: South of Melilup, Aita, Kunai Hills (porphyry targets) and Teoveane – Perovasu – Puspa – Teosiri region (epithermal)**
- **A new unexplored target, 12 kilometres by 5 kilometres in size, lies west of Aita and is characterized by anomalous Cu-Au in stream sediment samples**
- **Geological review validates work programme undertaken to date and focuses future exploration**
- **Results will assist Kalia to tighten sampling around key locations to enable best identification of first drill location**
- **Additional funding of $250,000 provided by Tygola under loan arrangements approved at EGM announced 06 May 2019 for ongoing exploration activities while Kalia arranges structure of longer-term funding**

Exploration Overview

At the request of the Company, Dr Garwin conducted a review of geological, geochemical and geophysical results for the Company's tenements located in northern Bougainville Island (Tore region). Dr Garwin undertook a desk-top study using MapInfo and FracSIS software to visualize digital data provided by Kalia and that sourced from the public domain, including reports and presentations provided by the Company.

The primary objectives of the data review and interpretation were to:

1. review the local geological setting, geochemical zoning and airborne magnetic signature of the tenement area;
2. create a series of illustrative maps to summarize the relationships between the known copper and gold prospects and historic stream-sediment and rock geochemical anomalies; and
3. integrate mapped and interpreted geology with geochemical results and the airborne magnetic imagery and target areas produced by Fathom Geophysics to delineate several high-priority targets for follow-up exploration by Kalia (see ASX release of 11 March 2019).

Dr Garwin's conclusions should be considered preliminary and limited to the data provided as set out in this announcement.

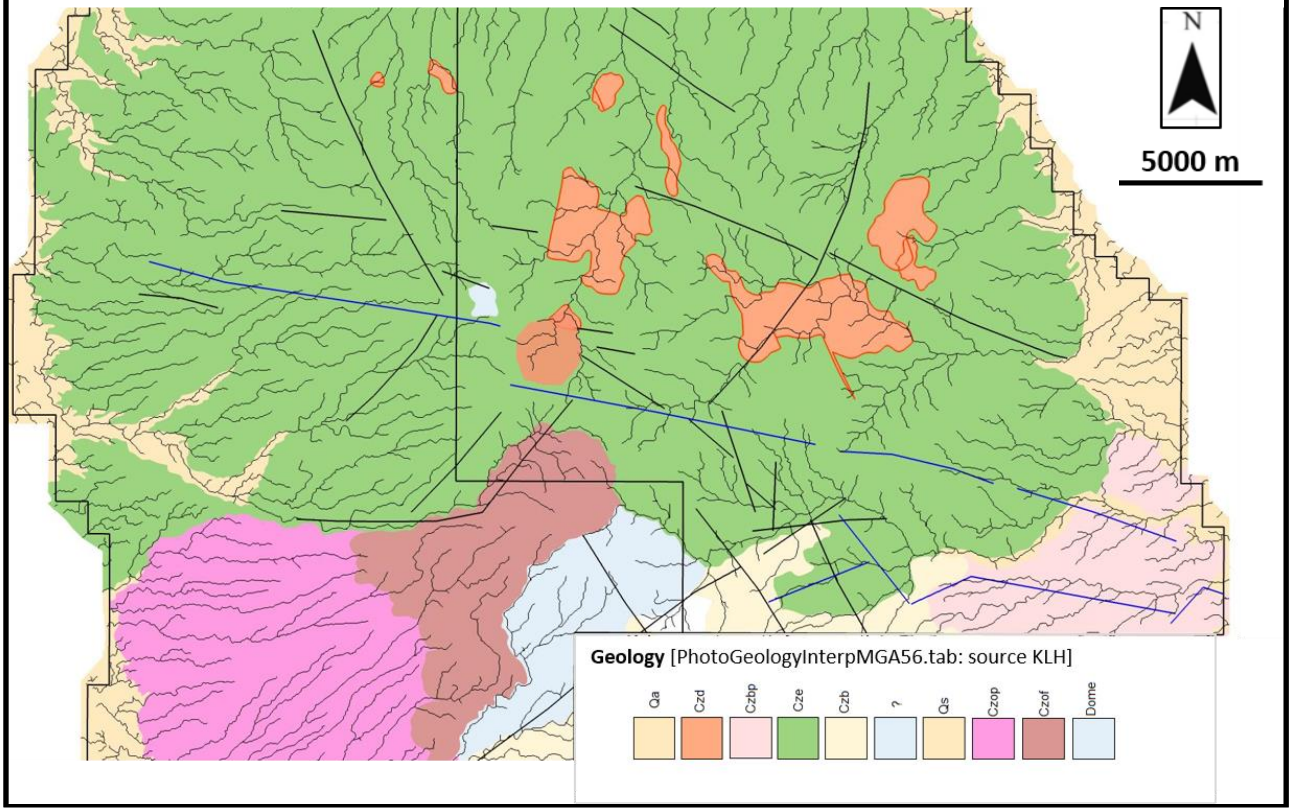
<u>GEOLOGY</u>

1. The geology of the majority of the Mt Tore claims area consists of Pliocene to Pleistocene, andesitic to basaltic volcanic rocks of the Emperor Range that host high K-alkaline, hornblende-bearing diorite to monzonite intrusions, as based on the photogeological interpretation supplied by Kalia (Figure 1). Lineaments and faults trend northwest to west-northwest and northeast, as compiled from the structural sketch map created by the Federal Institute for Geosciences and Natural Resources (BGR), Hanover Federal Republic of Germany and the Geological Survey of Papua New Guinea (GSPNG) (Bering et al., 1990).

   Several zones of hydrothermal alteration have been interpreted by the BGR / GSPNG using radar imagery and aerial photographs, in particular around Aita, Melilup and south of Melilup (see Figure 2). If the interpretation of these zones as hydrothermally altered is proved correct, these areas will be prospective for epithermal and porphyry systems that contain gold, silver and copper. The key to the legend for Figure 1 is presented as Table 2 at the end of this ASX release.

2. Many of the Kalia prospects occur along the margins of mapped / inferred intrusions and the flanks of the central topographic highs that comprise the Emperor Range. The central portion of this mountain range is inferred to be hydrothermally altered by the BGR / GSPNG and has yet to be accessed by Kalia (Figure 4). This area of interest represents a target for future exploration.

Figure 1: Simplified geology for the Kalia Limited tenement area in northern Bougainville Island. The majority of the claims consist of Pliocene to Pleistocene, andesitic to basaltic volcanic rocks of the Emperor Range (Cze - green) which host high K-alkaline, hornblende-bearing diorite to monzonite intrusions (Czd - orange), based on the photogeological interpretation supplied by Kalia. The lineaments (black lines), faults (blue lines) and queried intrusion (?) are summarized from the structural sketch map created from interpretations of radar imagery and aerial photography by the Federal Institute for Geosciences and Natural Resources (BGR) Hanover Federal Republic of Germany and the Geological Survey of Papua New Guinea (GSPNG) in 1990 (Bering et al., 1990). The main prospects of Kalia are indicated for reference.



Code definitions – see Table 2

3. Many of the prospects form a cluster that lies above a major reduced-to-the-pole magnetic high in the eastern part of the area, which is inferred to delineate the edge of a potential intrusive batholith as shown in the imagery of Fathom Geophysics (Figure 2). Several of the interpreted intrusions and zones of hydrothermal alteration lie near the margins or apices of magnetic highs. Aita, Teoveane, Puspa, Kaskuras, Tai Tai and South Melilup lie in prospective settings along the margin of this inferred batholith, near discrete, elliptical magnetic highs that have the potential to represent mineralized cupolas. Kunai Hills and Petspets North are also associated with discrete magnetic highs.

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Figure 2: Reduced-to-the-pole magnetics edge-enhancement image (400m – 10km residual) and medium- to high-level magnetic highs (grey and black polygons, respectively), shown with interpreted diorite to monzonite intrusions, lineaments, faults and hydrothermal alteration zones. The Aita – Baiano clay (argillic) and quartz-alunite (advanced argillic) alteration zones and the main prospects of Kalia are indicated for reference. The image enhances magnetic gradients and the edge of the inferred batholith complex (red dashed outline in overlay). Aita, Teoveane, Puspa, Kaskuras, Tai Tai and Melilup lie in prospective settings along the margin of the inferred batholith, near elliptical magnetic highs that have the potential to represent mineralized cupolas.

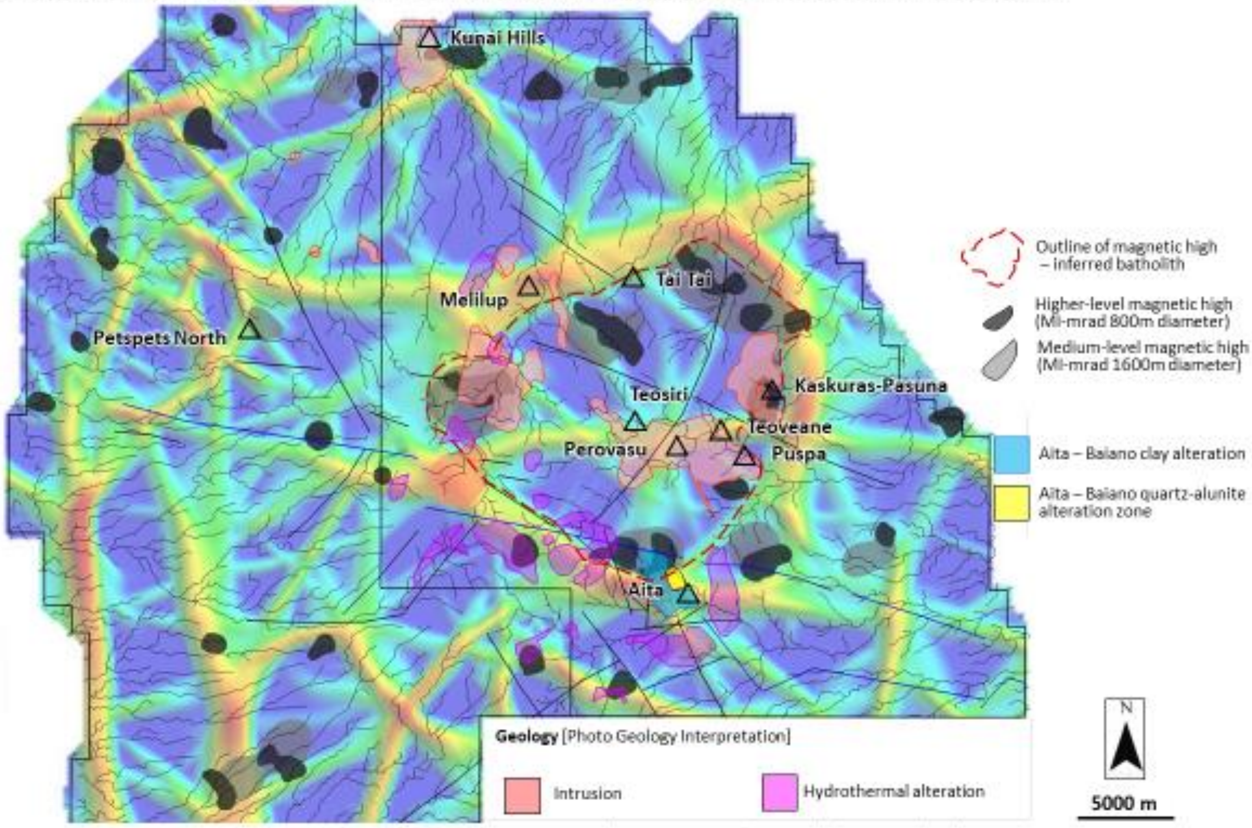
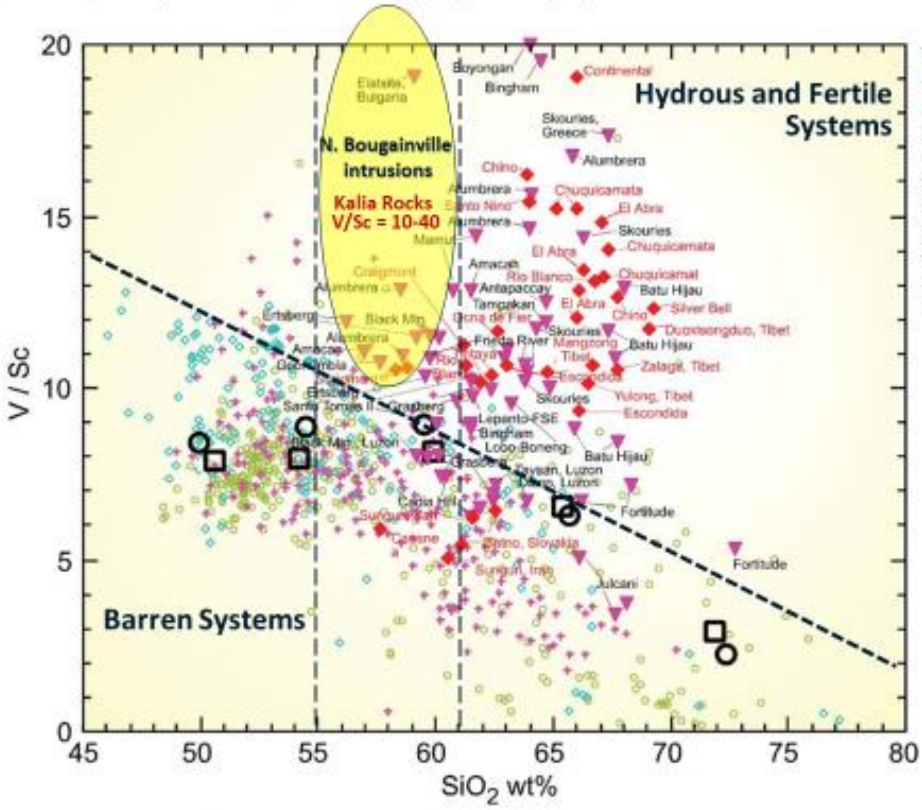


Image: KLH_2018_RTP05_mask_rg_res400-10k_agc_SD_0800_lin_NE (Fathom Geophysics, 2019)

4. The assays from Kalia's Mt Tore rock samples typically show V/Sc of 10 to 40 (Figure 3). A ratio of vanadium to scandium of more than 10 is considered to be an indication of hydrous magmas (Loucks, 2014). The whole-rock geochemical results for the Kalia claim area indicate a common range of 55 to 61% SiO_2 (Rogerson et al., 1989). These V/Sc and SiO_2 results are inferred to indicate that the parent magmas for the hornblende-bearing intrusions and volcanic rocks in the Kalia tenements are hydrous and **potentially fertile for the production of copper-gold-bearing deposits** (Fig 3. Loucks, 2014).

Figure 3: Diagram showing V / Sc vs SiO_2 in whole-rock analyses of least-altered Cu-Au mineralized *vs* barren magmatic systems (after Loucks, 2014). The whole-rock geochemical results for the Kalia claim area (Rogerson et al., 1989) indicate a common range of 55 to 61% SiO_2. The assays from Kalia rock-chips typically show V/Sc of 10 to 40. This indicates that the parent magmas for the hornblende-bearing intrusions and volcanic rocks in the Kalia tenements are hydrous and potentially fertile for the production of copper-gold-bearing deposits.



Trend to high V/Sc related to **elevated H_2O in the melt** and/or elevated pressure. This facilitates the advance of **hornblende** crystallization relative to titanomagnetite, which favours the incorporation of V in the residual melt (rather than in titanomagnetite) with Sc extracted from the melt into hornblende.

Loucks, 2014

SAMPLING

Stream-Sediment Samples: The gold in stream-sediment samples published by the GSPNG (Rogerson et al., 1989), indicate several catchments with more than 50 ppb gold. These gold anomalous catchments occur in the vicinity of the Aita, Kaskuras, Perovasu, Tai Tai, Melilup and Petspets North locations. Many of the streams that lie west of Aita and Perovasu are anomalous with respect to gold (with high copper and low zinc).

Copper greater than 125 ppm occurs in the vicinity of Aita, Perovasu, Teoveane and Teosiri. Many of the streams that lie west of Aita and Perovasu are anomalous with respect to copper.

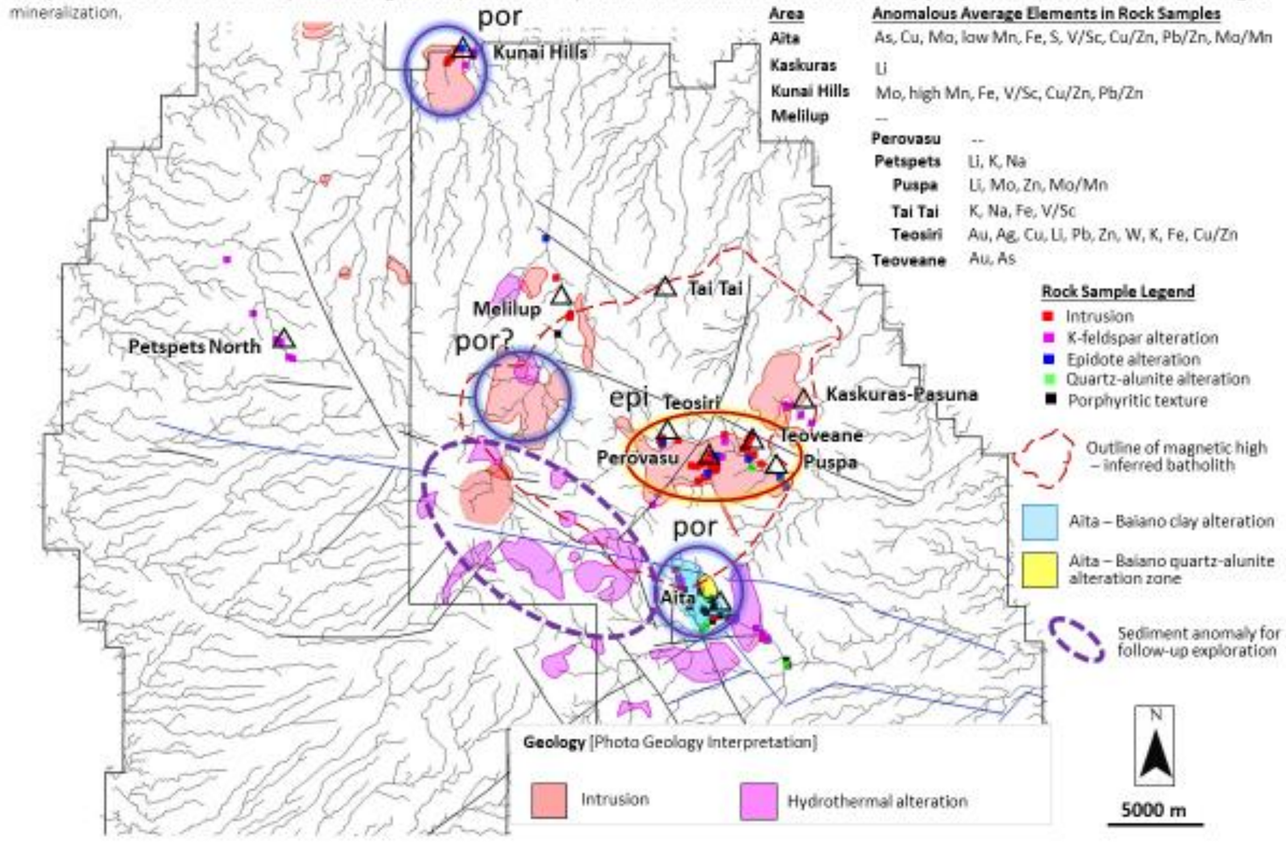
Low zinc, less than 150 ppm, occurs in the vicinity of the Aita, Perovasu, Teosiri and Petspets North. The streams that lie west of Aita and Perovasu are anomalously low with respect to zinc. The central portions of many global porphyry systems are characterized by high copper and low zinc, showing elevated Cu/Zn (Garwin, 2019). Copper-zinc ratios > 1 characterize streams in the vicinity of the Aita, Perovasu and Petspets North sites. The streams west of Aita and Perovasu and south of Melilup are anomalously high with respect to Cu/Zn. This same area is flanked by anomalous gold, which is **consistent with the geochemical expression of a porphyry Cu-Au system(s)**.

Rock Samples: Results of samples with V/Sc > 10 is characteristic of fertile and hydrous magmas related to global porphyry copper-(gold) systems. The rock geochemical results provided by Kalia indicate V/Sc > 10 for **all prospects sampled to date**. The highest V/Sc values are from Kunai Hills and Aita.

The highest geochemical gold in rock results to date are from the Teoveane, Puspa, Perovasu and Melilup areas, with maxima ranging from 1.6 to > 10 ppm Au. The highest copper results (> 0.1% Cu) are from the Aita, Perovasu, Teoveane and Teosiri areas. The highest molybdenum results (> 20 ppm Mo) are from the Teoveane and Aita with significant Mo present at Teosiri, Petspets North and Kunai Hills. The highest Cu/Zn results occur at Aita, Teoveane, Perovasu and Kunai Hills.

The **high Cu/Zn and Mo** for the Aita, south of Melilup and Kunai Hills areas are considered indicative of **potential for porphyry centres** (Figure 4 – areas encircled in blue).

Figure 4: Summary of outcrop and rock-float geochemical results averaged by area showing rock samples that describe intrusions (red squares), K-feldspar (potassic) alteration (magenta), epidote alteration (blue), quartz-alunite (advanced argillic) alteration (green) and porphyritic texture (black). The integration of the average geochemical results with field observations support the interpretation of potential porphyry centers at Kunai and Aita, and the potential for epithermal gold mineralization at Teoveane and Teosiri. The target south of Melilup is inferred from stream-sediment results and magnetics. The presence of K-feldspar alteration at Perovasu may indicate higher temperatures of hydrothermal alteration than for the nearby prospects and / or a transitional setting for mineralization.



The average geochemical rock results for the prospects indicate that Aita and Kunai Hills show the best potential for porphyry copper-(gold) systems and that the Teoveane – Perovasu – Puspa – Teosiri region is more prospective for epithermal gold mineralization (Figure 4 – area within red/yellow oval). These three areas are recommended for follow-up exploration by Kalia.

The presence of K-feldspar alteration and anomalous Cu/Zn + Mo at Perovasu may indicate higher temperatures of hydrothermal alteration than for the nearby prospects and a transitional setting from epithermal- to porphyry-style mineralization.

A 12 km by 5 km area of anomalous Cu-Au in stream sediment samples is located to the west of Perovasu and Aita (Figure 4, dashed purple oval) and should be investigated with the collection of additional samples.

Peter Batten, Technical Director of Kalia, said "Prior to Dr Garwin's report Kalia had 64 geophysical targets, of varying priorities, based on the geophysical survey and subsequent analysis as completed by Fathom Geophysics and previously reported (ASX release of 11 March 2019).

Dr Garwin has identified those areas that Kalia should turn its focus to as a priority, including an area not previously considered. Three areas have been classified with potential for porphyry copper-gold centres and another is a region of epithermal geochemical signatures.

Kalia plans to tighten the sampling around key locations with stream sediment sampling and soil sampling (grid or ridge and spur to be determined) to enable the best identification of first drilling locations. Planning will commence on helicopter support programmes for those areas identified from the survey and review that are not readily accessible by foot due to the limited road infrastructure."

Terry Larkan, Managing Director of Kalia, said "Dr Steve Garwin, a pre-eminent expert in the field of geochemical analysis as it pertains to copper/gold mineralisation, undertook a review of the Kalia geological, geochemical and geophysical data, to assess the prospectivity of the Bougainville project areas and to interpret the results for indications of location within an epithermal or porphyry model.

The report confirms the validity of the Company's existing exploration programmes and recommends further sampling regimes to enable the better definition of the potential centre of mineralisation in each of the identified locations.

A key takeaway from Dr Garwin's report is his statement that "**the style of hydrothermal alteration and mineralization reported to date compares favourably to other porphyry-epithermal systems in SE Asia and the SW Pacific, prior to the discovery of major deposits (e.g., Batu Hijau and Elang, Indonesia)**.

The Company has made significant progress in developing and refining the exploration potential on these Bougainville exploration licences. The ratification of our belief in the potential of these exploration areas through the expertise represented by Dr Buckingham and Dr Garwin is significant and a positive reinforcement that our team is going about things the right way.

While we are not in a position to deploy the exploration resources we would like to have in the field at this moment it is important to note that Tygola has agreed to fund the Company with a further $250,000 to continue our current level of exploration while we arrange longer-term funding to enable Kalia to implement a larger and more expeditious exploration programme."

About the Bougainville Exploration Licences

The Company manages two exploration licences on the island of Bougainville, Autonomous Region of Bougainville, Papua New Guinea, through Tore Joint Venture Limited.

Tore Joint Venture Limited is 75% owned by Kalia Limited, with the remaining 25% being held by Toremana Resources Limited, a registered landowner association.

The two exploration licences, EL03 and EL04 were issued in November 2017 and cover a combined area of 1,704 km^2.

The Company has previously disclosed details of the historical reports which note that potential exists for multiple deposits in the north and up to seven different styles of mineralisation were and these seven styles can be broadly grouped into three:

1. Porphyry Cu, Au;
2. Epithermal veining (including polymetallic veins and Au); and
3. Volcanogenic Massive Sulphides (VMS)

Competent Person Statements

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 and shareholder 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.

Dr. Steve Garwin

Steve has more than 31 years of experience as an exploration geologist with large and small mining companies. He has participated in the gold and copper projects of more than 27 clients in over 16 countries. He worked with Newmont Mining for ten years, including two years as Chief Geologist in Nevada. Steve is a fellow of the Society of Economic Geologists, fellow of the Australian Institute of Geoscientists and a fellow of the Australian Institute of Mining and Metallurgy.

Steve is one of the leading authorities on porphyry, epithermal and Carlin-style mineralization in the circum-Pacific region. He has been involved in several, major exploration and mining projects, including the Batu Hijau porphyry mine in Indonesia, the mines of the Carlin and Battle Mountain Trends in Nevada, and the recently discovered world-class Alpala porphyry deposit in Ecuador.

Steve is an independent consultant based in Perth, Australia. He obtained his B.Sc. in geology from Stanford, M.Sc. from the University of British Columbia and Ph.D. (distinction) from the University of Western Australia. He is an adjunct research fellow at the Centre for Exploration Targeting at UWA (geology) and has published more than 40 scientific papers and abstracts. Steve is chief technical advisor to SolGold Plc. (SOLG:L and SOLG:TSX-V) and technical advisor to Japan Gold Corp (JG:TSX-V).

References:

Bering, D., Bosum, W., Busch, F., Plattetschlager, F., Rammimair, D., Robling, R., Stroheker, B., and Sumaiang, R., 1990, Report No 3, Interpretation of aerogeophysical data and follow-up aerogeophysical anomalies on the island of Bougainville, Papua New Guinea, text volume and Appendix II, Federal Institute for Geosciences and Natural Resources, Federal Republic of Germany, 254 pages.

Garwin, S., 2019, Regional controls, geology, geochemical signature and geophysical expression of porphyry copper-(gold) systems, post-meeting short-course for PACRIM 2019, 6th April, Auckland, New Zealand, 330 slides.

Halley, S., Dilles, J.H, and Tosdal, R.M., 2015, Footprints: Hydrothermal alteration and geochemical dispersion around porphyry copper deposits, Society of Economic Geologists Newsletter v. 100, p 1, 12-17.

Loucks, R., 2014, Distinctive composition of copper-ore-forming arc magmas: Centre for Exploration Targeting, School of Earth and Environment, University of Western Australia, Crawley, WA 6009, Australia, p. 5-16.

Rogerson, R.J., Hilyard, D.B., Finlayson, E.J., Johnson, R.W., and McKee, C.O., 1989, The geology and mineral resources of Bougainville and Buka Islands, Papua New Guinea, Geological Survey of Papua New Guinea, Memoir 16, 228 pages.

ADDITIONAL INFORMATION

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

Reporting of Exploration Results
(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.*	• Sampling of stream sediment was wet sieved at size -80 mesh and relates to historic geochemical data from Rogerson et al. 1989 • Whole rock sampling from Rogerson et al. 1989 is denoted by O/C for in situ outcrop at FLT for float samples. • Mineral specimens/samples from Tsiperau, 2012 were noted in the field. Assay results and whole rock geochemistry data for these samples is unavailable. • Samples were collected by geologists in the field but specific collection techniques are unknown. • For stream sediment samples from Rogerson et al. 1989, Au and Pt were determined on each sample by either 20g or 50g fire assay (depending on sample size); Hg by cold vapour AAS; As and Te by hydride-generation AAS; Ag by AAS. Following KClO4,HCl digestion and subsequent 10% aliquot 336-MIBK/KI/ascorbic acid metal concentration; and Cu, Zn by AAS following two separate metal extractions, 1% HCl (partial) digestion and HCl/HNO3 (total) digestion. Detection limits for each element were nominally; Au (10ppb), Pt (100ppb), Hg (2ppb), As (2ppm), Te (100ppb), Ag (100ppb), Cu (1ppb) and Zn (1ppm). • Whole rock samples were analysed for; Ba, Sr, Pb, Zr, V, Cr, Ni by ICP at AMDEL, South Australia, Rb, Nb, Y by XRF at AMDEL, Sc, Cs, Sr, Hf, Th, La, Ce, Nd, Sm, Cu, Tb, Dy, Yb, Lu, V, Zn, Au by Instrumental Neutron Activation Analysis at CSIRO Lucas Heights NSW. • Kalia Limited is reporting modelling utilising the airborne magnetic and radiometric data, for the survey carried out over the Mt Tore project area [EL03 and EL04] between 30/08/2018 and 30/11/2018.
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).*	• No drilling results reported
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*	• No drilling results reported

Criteria	JORC Code explanation	Commentary
	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.*	
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.*	• Samples have been logged by a geologist in the field.
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.*	• No drilling results 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.* • *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.*	• For stream sediment samples from Rogerson et al. 1989, Au and Pt were determined on each sample by either 20g or 50g fire assay (depending on sample size); Hg by cold vapour AAS; As and Te by hydride-generation AAS; Ag by AAS. Following KClO4,HCl digestion and subsequent 10% aliquot 336-MIBK/KI/ascorbic acid metal concentration; and Cu, Zn by AAS following two separate metal extractions, 1% HCl (partial) digestion and HCl/HNO3 (total) digestion. Detection limits for each element were nominally; Au (10ppb), Pt (100ppb), Hg (2ppb), As (2ppm), Te (100ppb), Ag (100ppb), Cu (1ppb) and Zn (1ppm). • Whole rock samples were analysed for; Ba, Sr, Pb, Zr, V, Cr, Ni by ICP at AMDEL, South Australia, Rb, Nb, Y by XRF at AMDEL, Sc, Cs, Sr, Hf, Th, La, Ce, Nd, Sm, Cu, Tb, Dy, Yb, Lu, V, Zn, Au by Instrumental Neutron Activation Analysis at CSIRO Lucas Heights NSW. • Specific instrument information not available. • Lab-produced QAQC procedures and results are unknown.
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*	• Unknown if samples were submitted to an umpire laboratory for check analysis. • No umpire laboratory checks on recent surface sample results.

Criteria	JORC Code explanation	Commentary
	(physical and electronic) protocols. • *Discuss any adjustment to assay data.*	
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.*	• Samples reported from Tsiperau 2012, were recorded using a hand held GPS • Samples from Rogerson et al. 1989 are recorded in mE and mN to the nearest hundred metres using WGS1984 datum. The method for plotting locations is unknown. • Geophysics Datum: Geodetic Datum of Australia 94 (GDA94) • Projection: Map Grid of Australia (MGA) • Zone: Zone 56

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 appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.*
	• *Whether sample compositing has been applied.*
		• No drilling results reported.
		• The airborne survey data has the following specifications:
		  • Traverse line direction 45
		  • Traverse line spacing 200 m
		  • Tie line direction 135
		  • Tie line spacing 2000 m
		  • Block Traverse Kilometers 8,839
		  • Block Tie Kilometers 1,051
		  • Block Total Kilometers 9,890
		• Mean terrain clearance for airborne survey 80m

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.*	• Mineralisation reported at surface only. • Airborne magnetic and radiometric survey was flown perpendicular to the regional structure and stratigraphy with flight line direction: 045 degrees and tie line direction: 135 degrees.
Sample security	• *The measures taken to ensure sample security.*	• Sample security practices unknown. • All recent samples are within possession of company staff until deposited with an independent (international) courier and delivered to the laboratory (Intertek) in Lae.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No audits or reviews have taken place.

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 exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	• No drilling results reported
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.*	• No minimum or maximum cut-offs have been applied
Relationship between	• *These relationships are particularly important in the reporting of*	• N/A

Criteria	JORC Code explanation	Commentary
mineralisation widths and intercept lengths	*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').*	
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, previously. • Results of the geophysical survey, interpretation and modelling has been released, previously.
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.*	Filtering and modelling carried out can be summarized as follows: - The magnetic data: variable continuation, reduction to the pole, modelling of magnetic response of topographic surface, ridge removal and re-gridding, enhancement filtering, structure detection, intrusion [radial symmetry] detection, 3D unconstrained magnetic inversion [coarse] - The radiometric data: removal of topographic valley responses & re-gridding, ratio-ing, gaussian smoothing, colour composites, extraction of elevated responses in K, Th, U - The topography data: enhancement filtering - All data: generation of porphyry Cu-Au exploration targets & ranking thereof
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.

Table 2: Photointerpretation Key Definitions

Key	Definition
Czb	Balbi Volcanics
Czba	Balbi Volcanics – pyroclastics
Czbf	Balbi Volcanics – lava flows
Czbp	Balbi Volcanics – mudflow deposits
Czd	Intrusions – diorite to monzonite
Cze	Emperor Range Volcanics
Czof	Tore Volcanics – lava flows
Czop	Tore Volcanics
Kls	Keriaka Limestone
Qa	Alluvium
Qs	Sohano Limestone
Reef	Reef
Tbp	Buka Volcanics