Kalia limited

ACN 118 758 946

ASX Announcement
18 April 2019

Kalia Limited is exploring for copper, gold and energy metals in the Mt Tore region on Bougainville Island and Australia

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 – 17 April 2019
$0.003

ASX Code
KLH

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Quarterly Activities Report
Quarter Ended March 2019

Kalia Limited ("Kalia" or "the Company") reports that the following activities occurred during the quarter ended 31 March 2019.

Summary

- Independent analysis of geophysical survey identified 64 porphyry targets on the two Bougainville exploration licence areas; 12 targets being categorised as Priority One
- Notice of Meeting of shareholders issued for 6 May 2019 to authorise debt funding and related resolutions

CORPORATE

Notice of Meeting for 6th May 2019 issued to consider a further secured loan facility of $1 million ("New Facility") provided by Tygola without obtaining shareholder approval. Refer to the Company's announcement of 2 January 2019 for a summary of the conditions applying to the waiver.

The Australian Securities Exchange ("ASX") granted the Company a conditional waiver of ASX Listing Rule 10.1. permitting the Company and its subsidiaries to grant a first ranking security over its assets in favour of Tygola Pty Ltd ("Tygola" or "the Lender") ("Security") to secure the Company's obligations

A total of $1 million, which is repayable by 28 June 2019, is to be advanced under the New Facility to fund working capital for exploration work at the Company's Tore Project in Bougainville.

Tygola has the right, subject to shareholder and regulatory approvals, to convert the amount loaned into ordinary shares in the capital of the Company at $0.004 per share. Full conversion of the New Facility would result in the issue of 250,000,000 new Ordinary Shares representing 9.94% of the then enlarged issued share capital of the Company.

The repayment date for the existing loan from Tygola of $3 million was 31 December 2018.

The Company was not able to obtain an appropriate waiver from ASX Listing Rule 10.1 to increase the amount of the existing loan or extend the security for the loan as approved at the general meeting of Shareholders held on 11 May 2018 and therefore the parties are unable to extend the term of the existing loan in accordance with the loan agreement unless and until the Company seeks and obtains the approval of its shareholders under ASX Listing Rule 10.1 at a general meeting ("General Meeting"). The parties intend to extend the term of the existing loan until 28 June 2019 and will be seeking shareholder approval to facilitate this at the General Meeting on 6 May 2019.

Tygola has provided a letter of comfort to the Company that it will not take action to enforce the first ranking security until such time as the general meeting has been held.

BOUGAINVILLE ASSETS

Geophysical Survey

Filtering and modelling of the airborne magnetic and radiometric data acquired over EL03 and EL04 during the second half of 2018 is complete; with the final report received from Fathom Geophysics ("Fathom"), an independent organisation that has been providing geophysical and geoscience data processing and targeting services to the minerals and petroleum exploration industries, from the regional scale through to the near-mine deposit scale since 2008.

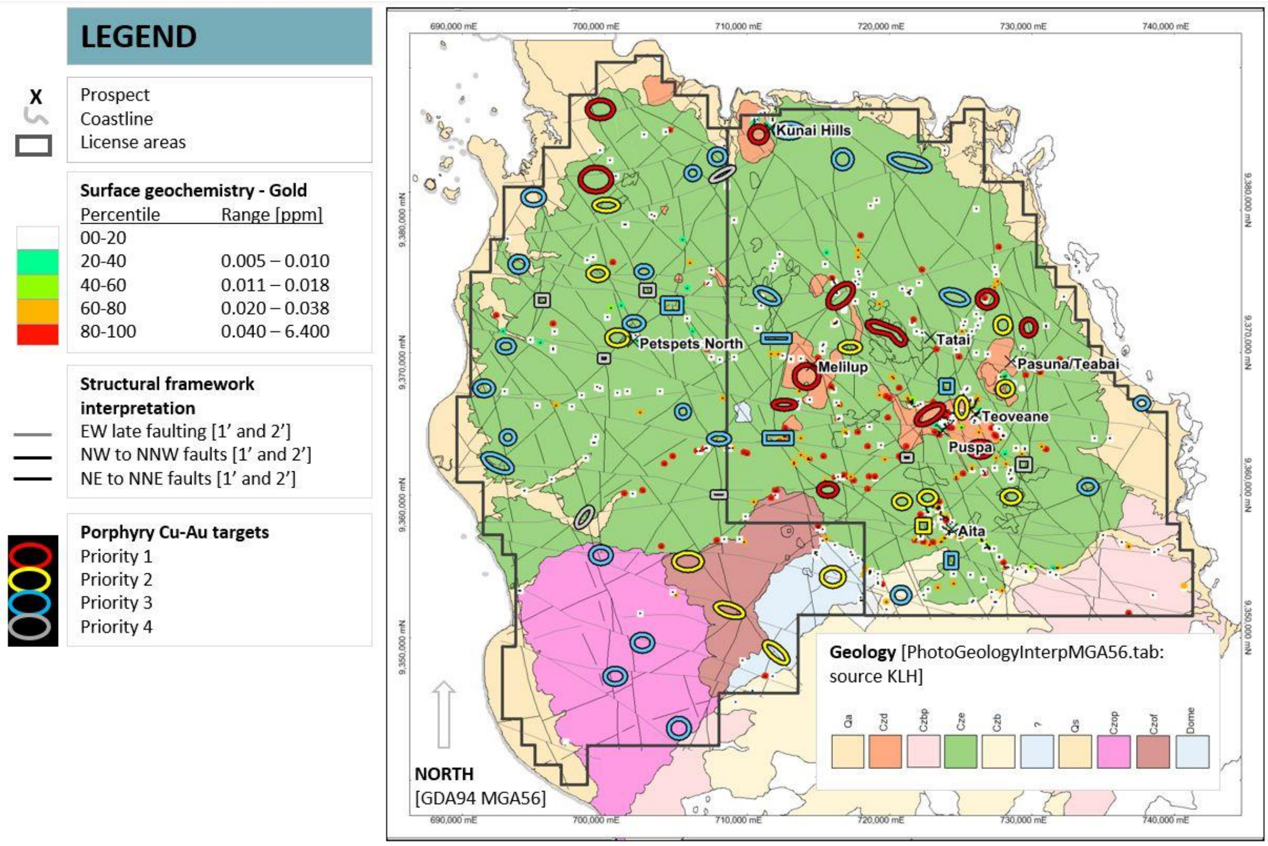

Figure 1: Porphyry Cu targets over photo-interpreted geology & elevated gold

In the final report, Fathom has provided a set of deliverables that are being used for geological interpretation and exploration, including drilling and further surface geochemistry surveys.

Fathom has run a suite of unconstrained 3D magnetic inversions, produced a structural framework interpretation and generated a set of 64 ranked geophysical targets, importantly 12 being categorised as Priority 1.

This greatly exceeds the number derived by previous work and confirms the existing identified targets.

Previously EL04 had no geophysical data coverage and now has 29 targets including two Priority 1 targets and seven Priority 2 targets.

In addition, the structural analysis has highlighted potential dilation zones at structural intersections. This information greatly advances the geological understanding of the region and adds to the number of potential mineralized locations within the tenement areas.

Having a modern, consistent and high-resolution magnetic and radiometric dataset across the entire project area is an important milestone underpinning all future work in TJV′s exploration programme.

The 1980′s data gave a useful insight into the geology but was of limited coverage (40% of EL03 only) and low quality from which robust conclusions could not be drawn.

At Melilup, for example, only half of the magnetic anomaly was covered by the 1980s survey data. There was no ability to see any response from the western side of the target area, limiting any real understanding of Melilup's size, geometry and character. The area needed to be completely re-flown to give Kalia the baseline dataset it needed to optimize exploration and discovery.

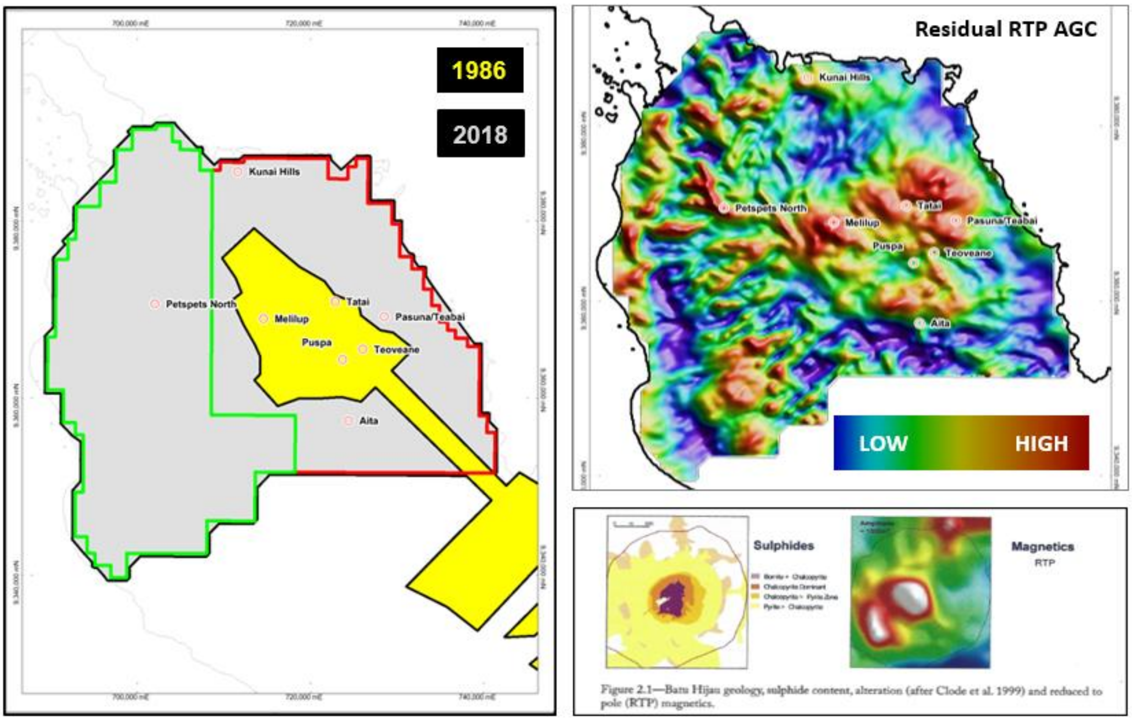

Figure 2: Survey coverage old and new [LEFT], one of the filtered magnetic images [top RIGHT]. The magnetic data has been filtered in the following way: 1) Ridge masked RTP 2) Residual 400-10k [shallow high frequency response removed] 3) Automatic gain control filter to normalize amplitudes [give subtle anomalies a chance]. The RTP magnetic response of Batu Hijau is shown [bottom RIGHT]; taken from Koschke 2011.

Porphyry deposits are highly sought after globally because they boast some of the largest reserves of copper and gold. Considerable exploration has been carried out around the world looking for economic porphyry systems; and the key datasets to use prior to drilling are airborne magnetic and surface geochemistry data, sometimes ground induced polarization surveying. Kalia has now successfully acquired both datasets and is on track to refining and executing a more detailed ground exploration programme.

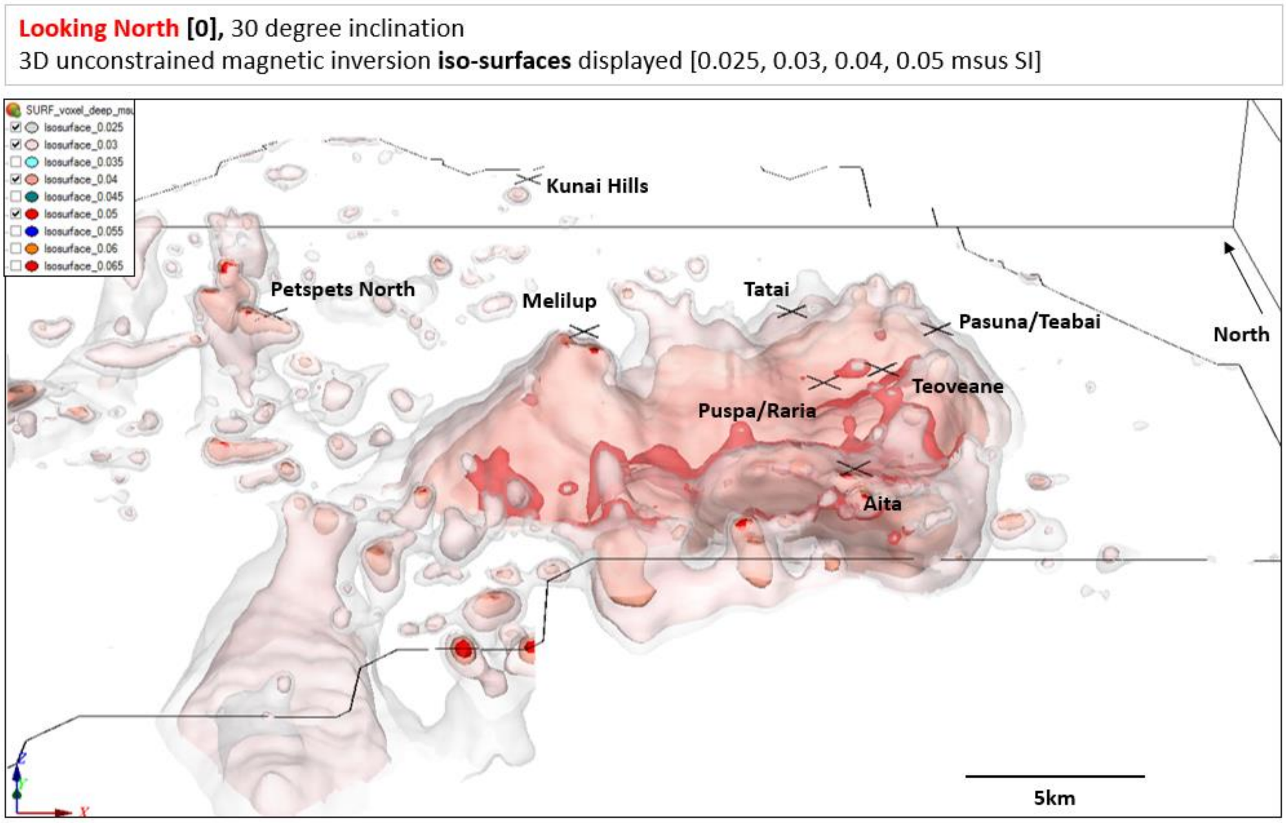

Figure 3 unconstrained magnetic inversion results. Iso-surfaces [as annotated]

Targeting

From the Society of Economic Geologists newsletter in 2018:
Bougainville Island has had a complex tectonic and magmatic history dominated by two phases of magmatism, separated by a hiatus caused by the collision of the Ontong Java oceanic plateau with the Melanesian arc and consequent reversal in subduction polarity. The world-class Panguna porphyry copper-gold deposit formed during the second phase of magmatism. With the application of modern exploration techniques, there is significant potential for the discovery of porphyry, epithermal, and skarn deposits on an island that has received very little exploration expenditure during the last 47 years.

The discrete analytical products developed from the survey data were combined to generate porphyry Cu-Au targets for exploration shown in Figures 1 & 4. These targets can be described as: "being on or proximal to a discrete magnetic high, not too distant from a major structure or structural intersection, ideally around the rim of a deeper intrusive complex; possibly with a supporting Potassium high".

Some targets do not exhibit the 'deep core' criteria but are defined as targets nonetheless, with an epithermal vein model being more appropriate, considering deeper intrusive complexes do not always exhibit a strong magnetic response.

The ranking categories, essentially an assessment of their exploration potential, were developed on the following criteria:

1. **Priority 1 (12 targets)** – all around the deeper intrusive complex (except 2) exhibiting all criteria
2. **Priority 2 (15 targets)** – less favourable structural setting or less pronounced shallow discrete magnetic response; unlikely to have Potassium anomaly
3. **Priority 3 (29 targets)** – good structural setting with supporting discrete magnetic response; unlikely to have Potassium response
4. **Priority 4 (8 targets)** – minor targets that exhibit one or two favourable features.

The geochemistry dataset (historic and recently reported) was not received by Fathom until after the processing and filtering of the data had been completed. The modelling was not influenced by this data but the close correlation between the geochemistry data and the geophysical modelling is confirmation of the robustness of the work completed by Fathom and the exploration programme underway by Kalia at TJV.

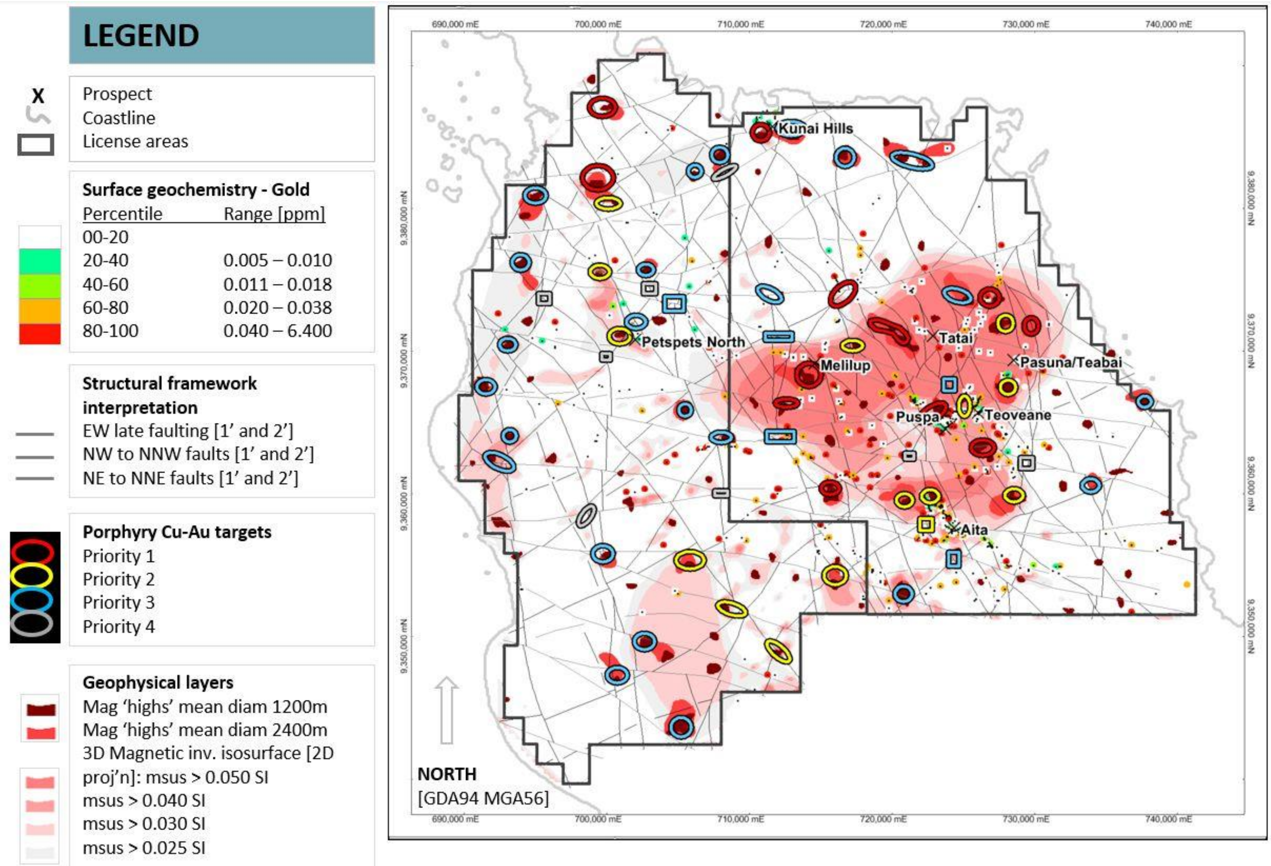

Figure 4: Porphyry Cu targets over magnetic derived layers & elevated gold

The TJV now has 64 targets for porphyry copper style mineralisation, importantly with 12 Priority 1 targets.

When the geochemistry (historic and recent, all previously reported) is overlaid on the structures and modelled cupolas there is good correlation between the geophysical features and anomalous geochemical results (Figure 4). The elevated zones are concentrated around recent sampling but the results highlight several areas that need immediate sampling such as the area north of Petspets in the West and west of Melilup.

The next stage of analysis is to scrutinize these geophysical targets with the geochemistry data to upgrade or downgrade the targets and define a key set of field sites to visit for focussed exploration (ground geological mapping, 'ridge & spur' soils etc; before drilling).

Exploration Field Trips

Eight field trips were undertaken during the quarter with six being completed.

The Tore Joint Venture (TJV) was incorporated between the Company and the Landowners to explore for economic minerals in the Tore region. The region sits on the Pacific Rim of Fire and is prospective for volcanic epithermal mineralisation. Particularly for gold and copper mineralisation in granitoid complexes associated with intrusion of deep-seated magma chambers into overlying volcanic geology. These intrusions, porphyry coppers, are located throughout PNG with Panguna as the regional example located to the south of Tore on the island of Bougainville. Most porphyry copper deposits tend to be large tonnage and low grade, with tonnages of hundreds of million tonnes to in excess of a billion tonnes but grades are generally around 0.20 gpt Au and 0.20% Cu and above.

The Panguna deposit is a complex of diorites and granodiorites intruded into the Panguna andesites and was mined by Bougainville Copper Limited from 1972 to 1989.

Every field trip requires permission from the clans responsible for the area of interest to travel to and take samples from their area. TJV is the only active exploration operation working in compliance with the relatively new legislation and its requirements for agreeing access for exploration. Sampling is only undertaken where permission is specifically granted. This can mean that not all areas enroute or in the vicinity of the target are sampled, sometimes being restricted to sampling only one side of a river or clan border. This may require multiple visits to complete the first stage exploration required.

Kalia established a desktop database from historic data before making applications for the exploration licences in the Autonomous Region of Bougainville.

Using the database, Kalia identified the area of Melilup, Rarie/Puspa and Aita (Figure 5), all within EL03 on the east side of the Tore region, as areas of interest. This was predominantly due to the sparsity of data relating to the west Tore region and EL04. The areas of interest are defined as potential intrusive geology sites using historic geophysics and data from the Geological Survey of PNG mapping and sampling results.

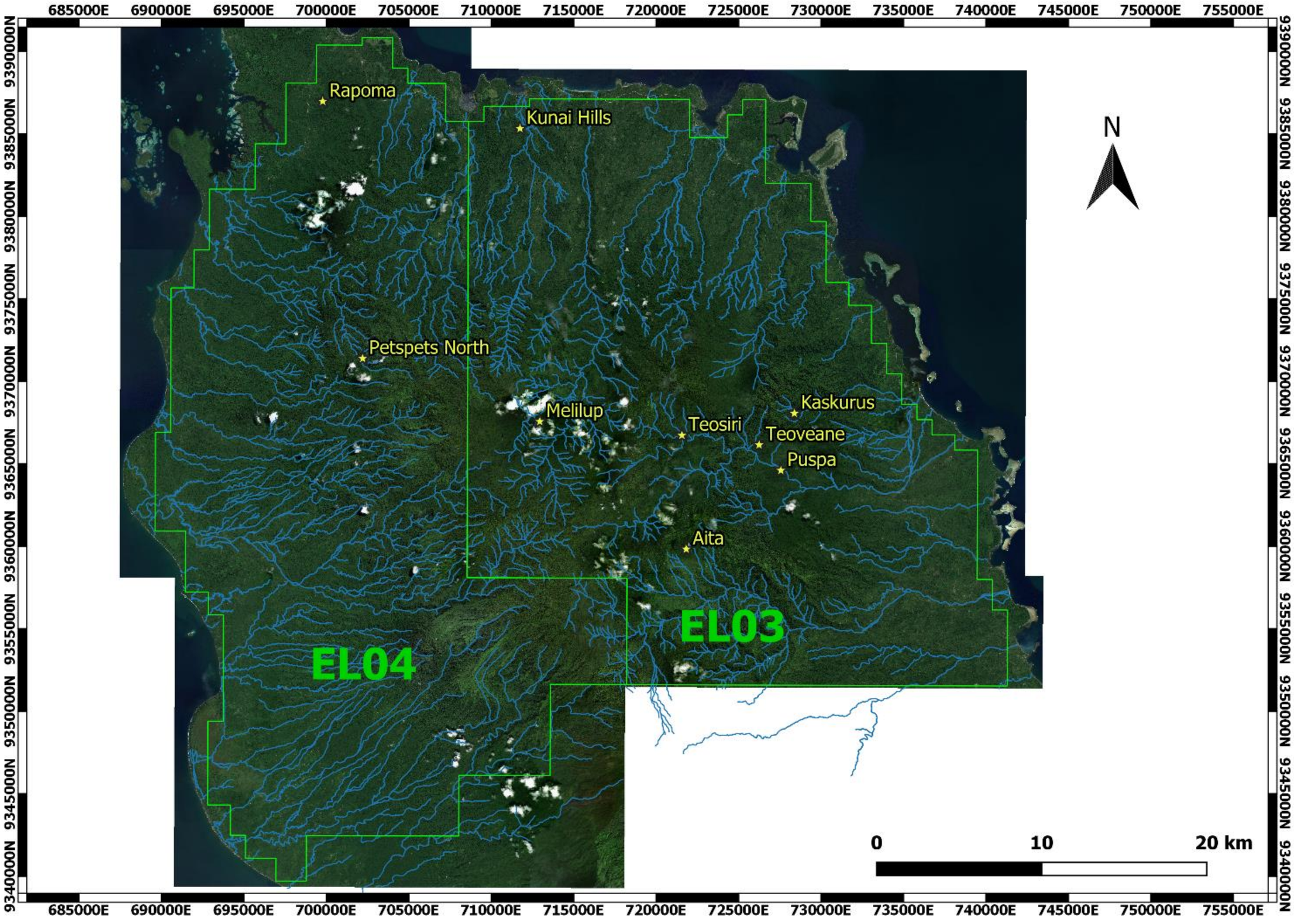

Figure 5. Site locations Tore region, Bougainville

Four fieldwork programmes have been undertaken to the Rarie/Puspa area to date. Not all of these visits completed their objectives due to insufficient access rights and seasonal river conditions.

Teosiri/Teo Veane

Teo Veane (Figure 5) was sampled on the first trip and returned gold grades from rockchip sampling of 0.19 gpt Au and 647 ppm Cu at an outcrop of granodiorite. Follow up visits have produced further positive results from the same outcrop at Teo Veane with a sample result peak of 6.37 gpt Au and 0.45% Cu from rockchip (in-situ) samples. This second visit sampled a similar granodiorite outcrop 1.1 kilometres NNE from the Teo Veane outcrop which returned a grade of 0.94 gpt Au (see Kalia announcement April 2018).

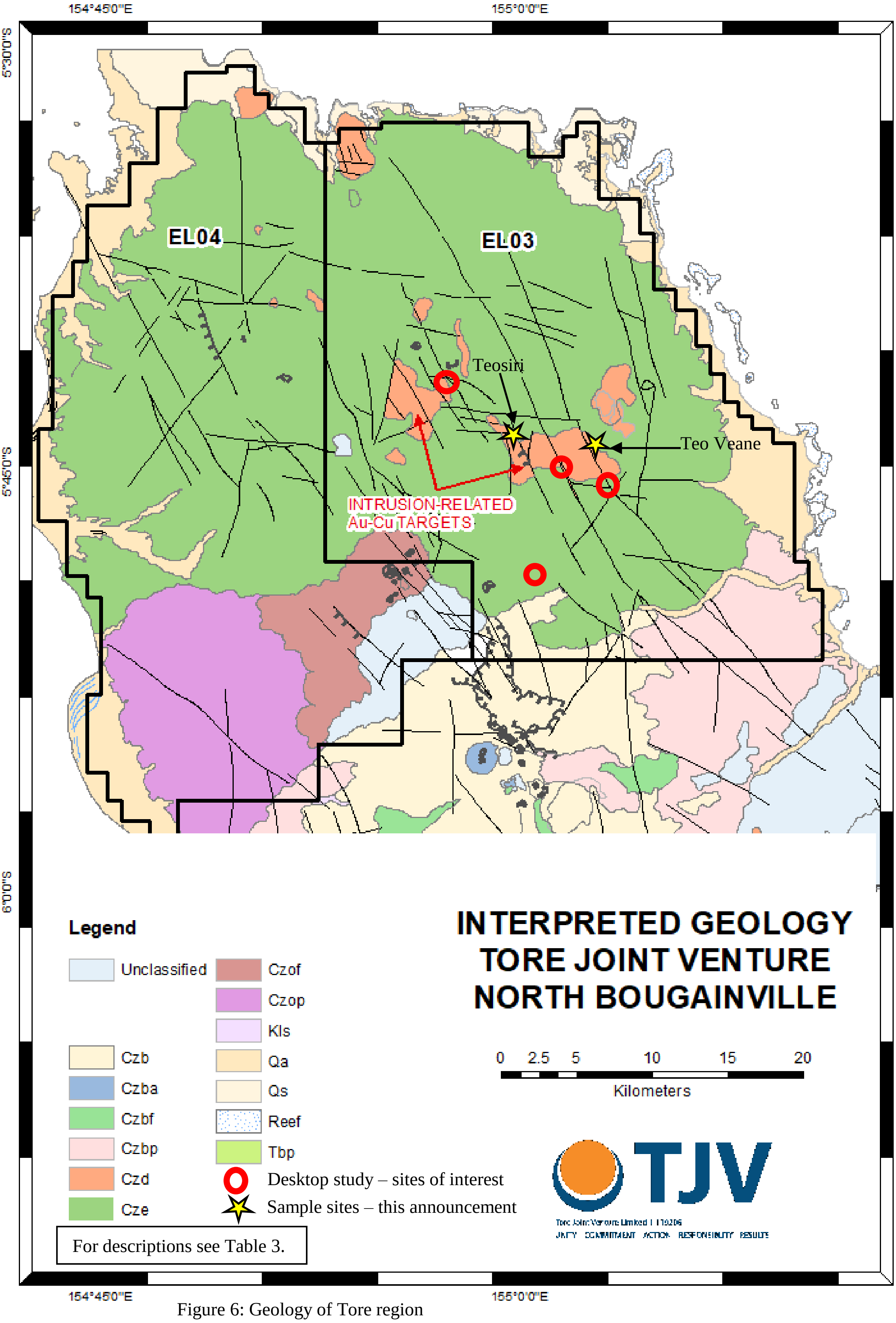

Figure 6: Geology of Tore region

The team returned to this area twice in January 2019. One trip to Teosiri, an area northwest of Rarie (Figures 5 & 6), that passed through Teo Veane and another to the Puspa area, west of Teo Veane.

The trip yielded 30 samples, mainly from Teo Veane and Teosiri, of which 9 showed anomalous Au values. No significant results were returned from the Puspa sampling. (For results see Table 2.)

At Teo Veane, 4 samples returned positive results for gold (Figure 7) and 1 sample anomalous for zinc. Teosiri produced one positive gold result (Figure 7) which is also anomalous for Ag, Cu, Pb and Zn, two anomalous for Ag, Cu with elevated Zn and result anomalous for Cu only (Figure 8).

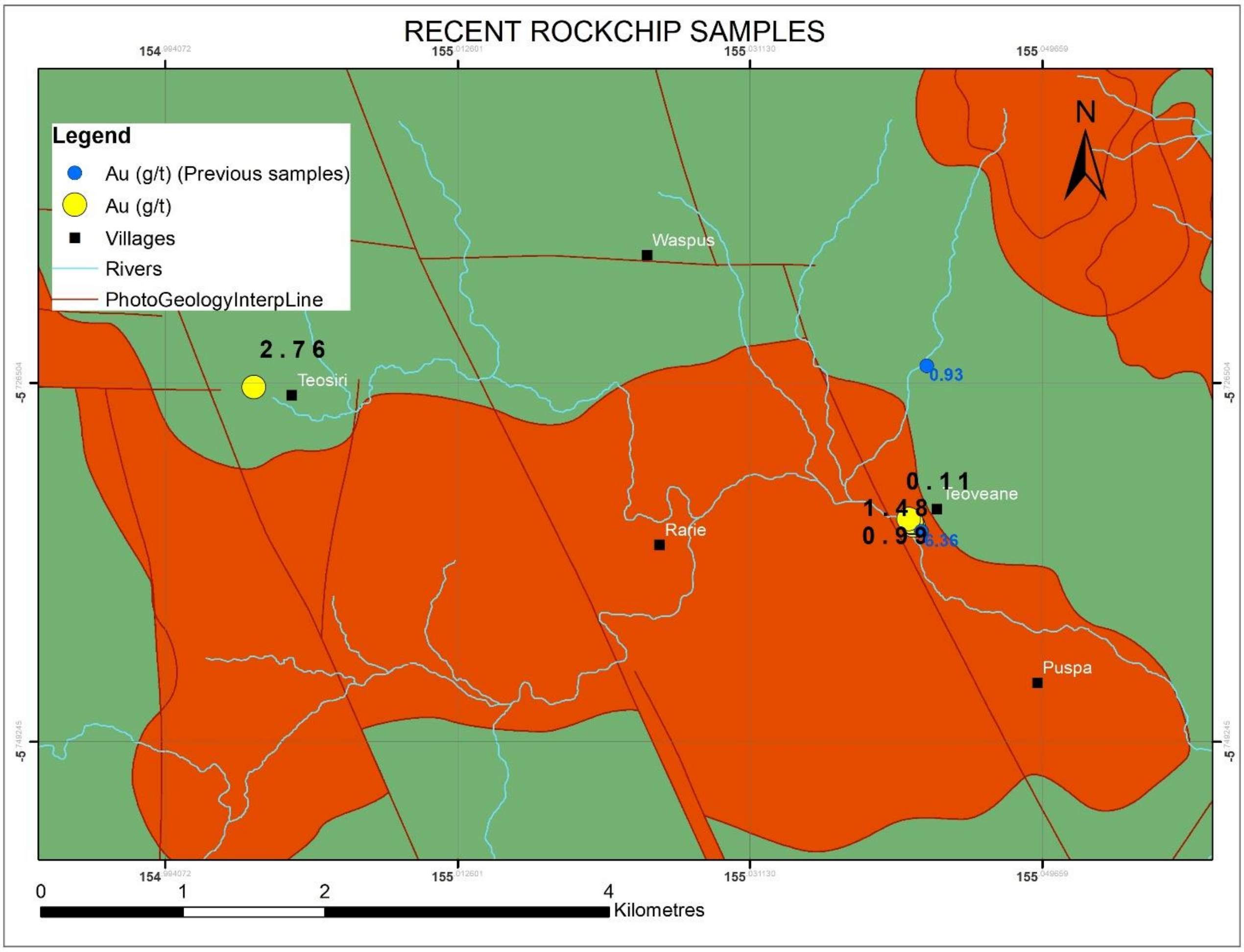

Figure 7: Teo Veane – Teosiri anomalous gold sample results

The sampling at Teosiri produced the highest grade of the expedition with ETRK00033 producing **2.76 gpt Au, 4.90 gpt Ag, 0.32% Cu, 1.22% Pb and 2.40% Zn**.

Teosiri is 4.7km from Teo Veane and is on the western edge of the projected intrusive complex. The outcrop sampled was a biotite altered Monzonite, with significant sulphides. The three other anomalous results from Teosiri and the mineralised outcrops at Teo Veane and North Teo Veane clearly show that this complex is mineralised. More work is required to expand on these footprints and determine the extent and concentration of this mineralisation at surface.

The significance of these results is in relation to the work completed by Tsiperau at Rarie, which mapped and sampled intrusive monzonite outcrops hosting copper sulphides (see Kalia announcement November 2017).

Biotite and quartz monzonites were extensively sampled during fieldwork completed by Tsiperau in 2012 and based on the whole rock analysis conducted show that within the Melilup – Puspa intrusive complex are considered favourable host rocks for copper gold mineralisation of this style.

The samples taken from Teo Veane were from the same outcrop that hosted the 6.37 gpt Au result from a previous trip. This sampling confirmed and extended the known signature of the diorite and monzodiorite at this location. Three more anomalous copper results bolster the previous elevated and anomalous results.

The second field trip to Teo Veane did not return any significant values from the southwest bank of the river and the focus of subsequent work will be to infill stream sediment sampling along the enclosing waterways of Teo Veane, rock chip sampling to the northwest of the Teo Veane – Teo Veane North line and mapping of all lithologies in outcrop. Ongoing work at Teosiri will attempt to expand on the existing mineralised footprint.

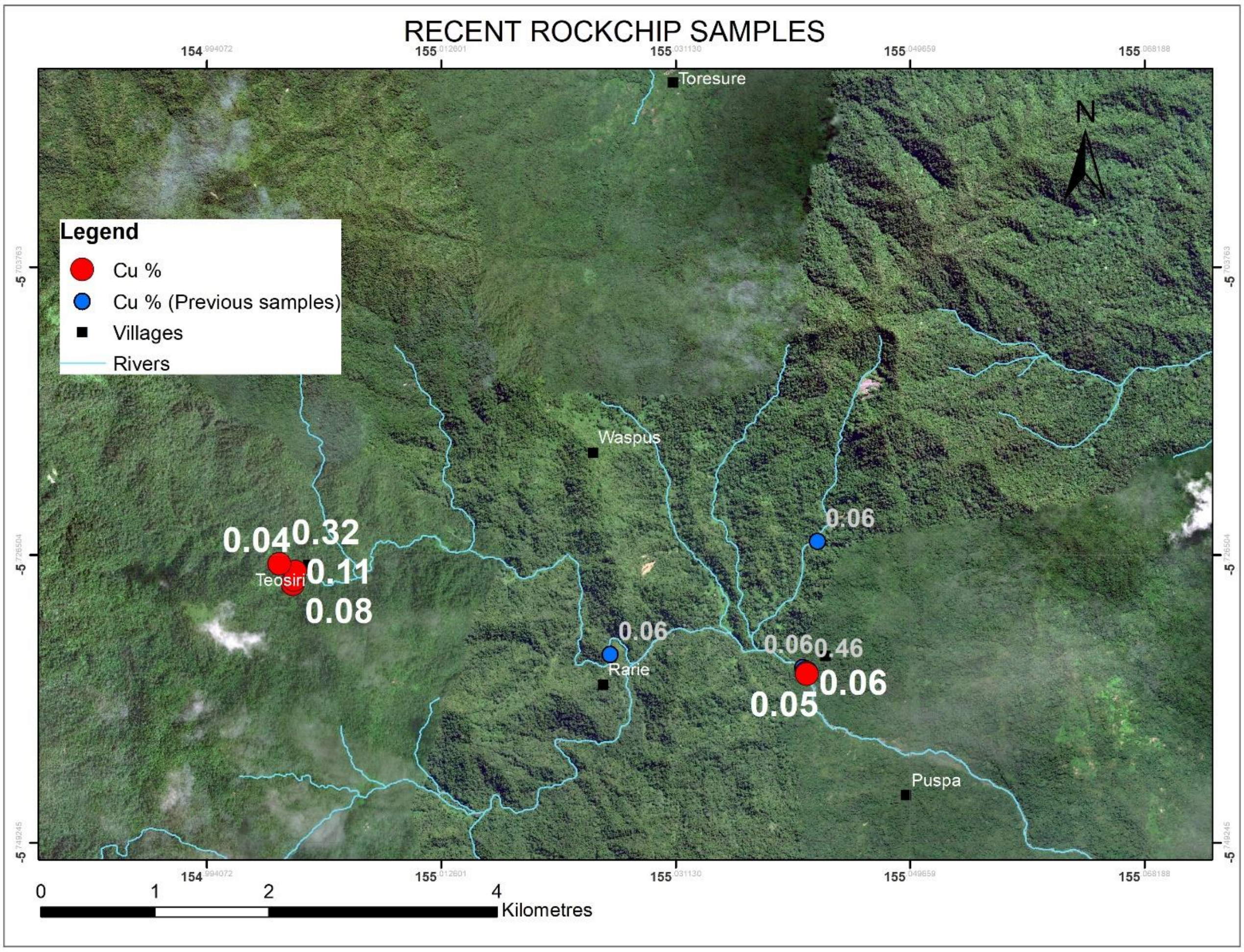

Figure 8. Copper results

The sampling along the outcrop at Teo Veane has now returned 7 samples anomalous for gold and copper. The host rock is consistent with porphyry copper deposits elsewhere in PNG and Teo Veane is now one of three locations within the interpreted (geophysics and mapping) volcanic intrusive complex.

The lithologies at each of those locations, Teo Veane North and Teosiri, are also consistent for a porphyry copper and the distance between the sites, 1.1 and 4.7 kms, is encouraging for scale.

This region of Bougainville has, historically, been sparsely explored. Grassroots exploration in a desired location has been able to locate three mineralised intrusive outcrops within an interpreted intrusive complex with geophysics results pending that, hopefully, will enable the exploration team of the Tore Joint Venture to focus more closely and determine which of these areas will present as the first drill location.

Melilup

The first field trip was intending to explore the northern extents of the Melilup Intrusive, prospective for porphyry and epithermal-style gold-copper mineralisation. Previous work during the late 1980s included geological reconnaissance and stream sediment sampling, however, minimal outcrop sampling has been completed in this area.

Previous attempted field trips to Melilup were aborted due to social issues, not related to resistance to exploration activities.

18 samples were collected from the Melilup area in 2017. Only one sample (399621) of quartz veining with epidote and pyrite returned significant values of 0.065ppm Au, 3.1ppm Ag, 11.3ppm Cd, 1800ppm Cu, 1610ppm Pb and 2475ppm Zn.

Near Melilup, four small monzonitic stocks, a large dome and many small monzonitic-monzodioritic dykes and sills occur within a north trending, 6 km wide corridor dominated by hydrothermally altered Emperor Range Volcanics and composite caldera rims. The largest intrusion, in the upper Ramazon River, is approximately 5 km^2, another intrusion, 2 km downstream, is 2 km^2, while the remaining two are less than 1 km^2 in area. All intrusions, including smaller dykes and sills, consists of fresh to variably altered, coarse to fine, pink to grey, leucocratic, partly porphyritic monzonite, monzodiorite, and quartz monzodiorite. Outcrops are generally well jointed and faulted and joint and fault planes have acted as fluid conduits.

Many outcrops are yellow and rusty and the rock mass is often pyritic and argillised. Mafic phases are often chloritised and epidotised, except for biotite, which occurs as scattered brown-black, relatively fresh rocks. Feldspars are generally pink.

The Melilup and Puspa intrusives have been enriched in K_20 at a late-magmatic or metasomatic stage. The late-magmatic or post-magmatic introduction of K_20 led to intense metasomatism of the rocks and Cu-Au mineralisation may be associated with this stage. The diorite is surrounded by a broad zone of alteration, which affects both it as well as the adjacent volcanics, and has resulted in propylitization and argillisation (Rammlmair,1989).

According to Rammlmair (1989), the fine to medium grained diorite is comprised of plagioclase, potassium feldspar and quartz. Additional epidote, actinolite, chlorite, biotite. pyrite, titanite and magnetite are present in the alteration zones. The adjacent volcanics are comprised of basalt to andesite with a dense groundmass as well as phenocrysts of plagioclase, clinopyroxene and opaque minerals (and occasionally also hornblende). There are indications of alteration in most of the volcanics as is shown by the secondary formation of clay minerals, albite, calcite, epidote and biotite.

The field trip failed to reach the main Melilup Intrusive body due to social issues. Rocks encountered in the northern portion of the Ramazon were invariably andesite, in some areas silicified with increased pyrite content. An outcrop at 716848E 9373046N, and 100m to the south, appeared to be granitic with 1-5% disseminated magnetite and 1-5% disseminated pyrite, hosting quartz stringers to 0.5cm. The outcrop occurs immediately west of a photo-interpreted intrusive body.

There was not a significant amount of quartz observed in downstream float material within the Ramazon, although minor pieces of breccia and some laminated veining was recognised.

The second field trip to Melilup sampled altered intrusive lithologies along the tracks and river float from the Ramazon. The location of the Fathom generated targets were not reached and will require further fieldwork and greater access.

No significant results were returned from the samples.

Puspa

The expedition was undertaken to through the presence of photo-interpreted intrusive rocks (quartz diorite-monzonite) within the Puspa area and to visit an area of historic mining by “Germans”.

Previous stream sediment and rock sampling by TJV and Rogerson was undertaken along streams bounding the Motaha-Sivo (Puspa) clan area and along minor tributaries. Rock sampling occurred along the Uruai and Gita Creek.

No significant results were returned from previous sampling within the Puspa area, although significant results, to 6.5g/t Au, were received at Teoveane, on the opposite side of the Uruai from the Puspa ground.

A photo-geological interpretation by Bougainville Copper Ltd outlines intrusive rocks (quartz diorite-monzonite) associated with the Puspa Intrusive which are located within the northern portion of the Motaha-Sivo area, south of the Uruai.

Reconnaissance along the southern bank of the Uruai, and along south-trending tributaries within the interpreted intrusive area, did not encounter any intrusive rock types.

In most cases, outcrop appeared to comprise fine-grained, silicified andesite with disseminated pyrite, magnetite and epidote, with zones of quartz and/or pyritic stringer veins. Alteration of the andesite is propylitic in nature, and therefore distal to a main intrusive body.

Results from this trip are did not return any results of significance.

The fieldwork completed one aspect of the programme and additional work is required.

Rapoma

The first field trip into Rapoma (Figure 5) was completed during the quarter.

The objective was to cover an area of interest highlighted by the recent geophysical survey report. Unfortunately, outcrop across this area was sparse and intrusive lithologies were not sampled and the results from this trip did not return any results of significance.

The fieldwork completed one aspect of the programme and additional work is required with field expeditions planned for Q2019.

Results will be reported when they are received.

Community

In the first quarter of 2019, the community liaison team's efforts were focused on obtaining landowner consent to access areas of interests in Rarie (Amara clan), Puspa (Motaha clan), Vasutea (Motaha clan), Teosiriata (Moataha clan), Melelup Suir side & Melelup Tinputz side (Piraui & Motaha clans), Karamus (Amara clan), Turiviki (Tasia/Virau villages).

This has resulted in the company's exploration activities being concentrated in the Taonita Teop areas.

AUSTRALIAN ASSETS

Following a strategic review of all assets the Company has decided to focus solely on the high potential Bougainville Exploration Licences 03/2017 and 04/2017. Accordingly, Kalia has surrendered the remaining Australian licences.

TENEMENT	LOCATION	NAME	INTEREST
EL03	Bougainville	Tore East	75%
EL04	Bougainville	Tore West	75%

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 Phd. 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.

Geochemistry analysis of samples Table 2

Sample ID	Area	Description	GDA94 mE	GDA 94 mN	Au_ppb	Au_ppm	Ag_ppm	Cu_ppm
399601	Topis/Melilup	Qtz, feldspar, epidote + py	715593	9377006	4	0.004	0.0	51
399602	Topis/Melilup	Qtz, feldspar + py	715593	9377006	8	0.008	0.0	9
399603	Topis/Melilup	Pyrite rich felsic	715990	9375232	2	0.002	0.0	167
399604	Topis/Melilup	Banded qtz (epithermal) and qtz	715990	9375232	3	0.003	0.0	50
399605	Topis/Melilup	Pyrite rich felsic	715990	9375232	3	0.003	0.0	43
399606	Topis/Melilup	Qtz vein breccia	716050	9375101	11	0.011	0.0	103
399607	Topis/Melilup	Siliceous felisic breccia	716114	9374966	30	0.030	1.1	41
399608	Topis/Melilup	Siliceous diorite	716114	9374966	0	0.000	0.0	41
399609	Topis/Melilup	Oxidised breccia (Fe after chlor.?)	716192	9374848	2	0.002	0.0	155
399610	Topis/Melilup	Brecciated felsic	716245	9374739	3	0.003	0.0	25
399611	Topis/Melilup	Qtz vein + py + cpy?	716272	9374641	2	0.002	0.0	18
399612	Topis/Melilup	Qtz and feldspar + py	716337	9374158	8	0.008	0.6	69
399613	Topis/Melilup	Fine grained qtz feldspar + py	716337	9374158	25	0.025	0.0	76
399614	Topis/Melilup	Coffee rock, qtz feldspar + Fe	716337	9374158	2	0.002	0.0	161
399615	Topis/Melilup	Coffee rock, Fe_2O_3 rim	716312	9372189	2	0.002	0.0	226
399616	Topis/Melilup	Friable qtz feldspar, opaline Si + py	716312	9372189	4	0.004	0.0	40
399617	Topis/Melilup	Calcite feldspar + py (Kokok - German camp)	716210	9372064	23	0.023	0.0	91
399618	Topis/Melilup	Calcite, qtz and feldspar + py	716210	9372064	0	0.000	0.0	2
399634	Topis/Melilup	Mafic porphyry, siliceous, magnetite rich	716210	9372064	2	0.002	0.0	114

Geochemistry analysis of samples Table 2

KTR00017	Tai Tai	ANDESITE RK	721500	9374373	4	0.004	0.0	90
KTR00018	Tai Tai	ANDES FLT	721507	9374378	0	0.000	0.0	79
KTR00019	Tai Tai	BLKSAND	721509	9374366	2	0.002	0.0	140
KTR00020	Tai Tai	BLKSAND+SED	721389	9374286	2	0.002	0.0	90
KTR00021	Tai Tai	ANDESFLT	721417	9374128	20	0.020	0.2	392
KTR00022	Tai Tai	ANDES ROCK	721423	9374128	2	0.002	0.0	106
KTR00023	Tai Tai	BLK SAND	721435	9374097	3	0.003	0.0	102
KTR00024	Tai Tai	ANDES FLT	720901	9374489	1	0.001	0.2	36
KTR00025	Tai Tai	ANDES FLT	720901	9374492	2	0.002	0.0	90
KTR00026	Tai Tai	RIV SAND+MT	720895	9374487	2	0.002	0.0	73
KTR00027	Perovasu	FE SI ALTERED O0 DIOR? POSS FLT	724287	9365257	6	0.006	0.0	269
KTR00028	Perovasu	PORPH DIOR? 2ND MT O0	724112	9365295	0	0.000	0.0	82
KTR00029	Perovasu	SIL DIOR? 2ND FE POSS FLT	724026	9365416	0	0.000	0.0	35
KTR00030	Perovasu	SIL DIOR? 2ND FE	723907	9365446	4	0.004	0.0	235
KTR00031	Perovasu	HI SIL DIOR? PERV FE VEIN	723841	9365473	25	0.025	0.0	76
KTR00032	Perovasu	DIOR FSPAR MT 2ND BT	723739	9365403	0	0.000	0.0	127
KTR00033	Perovasu	FSPAR DIOR MT 2ND BT	723594	9365317	0	0.000	0.0	127
KTR00034	Perovasu	FSPAR DIOR MT BT	723389	9365198	0	0.000	0.0	169
KTR00035	Perovasu	DIOR QTZ MT BT AMPH?	723101	9365266	2	0.002	0.0	59
KTR00036	Perovasu	DIOR QTZ MT BT AMPH?	723107	9365248	1	0.001	0.0	97
KTR00037	Perovasu	SIL ALTER ANDES? 2ND FE VEIN O0	723254	9364904	7	0.007	0.0	65
KTR00038	Perovasu	DIOR QTZ MT BT AMPH?	723469	9364460	5	0.005	0.0	83

Geochemistry analysis of samples Table 2

KTR00039	Perovasu	SS ALL SIZE	723718	9364493	4	0.004	0.0	159
KTR00040	Perovasu	PYT IN GRAN DIOR	724000	9364826	2	0.002	0.0	91
KTR00041	Perovasu	GRAN DIOR FEW PYT	723948	9364689	3	0.003	0.0	88
KTR00042	Perovasu	SIL ALT GRAN DIOR? PYT VEINING	723797	9364657	10	0.010	0.0	96
KTR00043	Perovasu	SIL ALT GRAN DIOR? PYT VEINING	723796	9364647	29	0.029	0.0	81
KTR00044	Perovasu	SIL ALT GRAN DIOR? PYT VEINING	723763	9364619	9	0.009	0.2	268
KTR00045	Perovasu	SIL ALT GRAN DIOR? PYT VEINING	723893	9364676	2	0.002	0.0	47
KTR00046	Perovasu	PORPH DIOR FROM WEATHERED 1M FAULT GOUGE	723982	9364753	2	0.002	0.0	57
KTR00047	Perovasu	SIL RICH RK EPID CRYST IN VUGS MINOR PYT	723975	9364869	3	0.003	0.0	46
KTR00048	Perovasu	DIOR MINOR PYT	723942	9364901	2	0.002	0.0	109
KTR00049	Perovasu	HIGH SIL MINOR PYT	723867	9364977	2	0.002	0.0	276
KTR00050	Perovasu	QTZ FE VEINED FLT	723926	9365006	0	0.000	0.0	8
KTR00051	Perovasu	DIOR + MT	724124	9365054	0	0.000	0.0	59
KTR00052	Perovasu	DIOR + MT	724226	9364974	2	0.002	0.0	125
KTR00053	Perovasu	QTZ DIOR? QTZ+FE VEINS MINOR PYT	724386	9365027	22	0.022	0.1	53
KTR00054	Perovasu	DIOR FSPAR MT+PYT	724436	9365179	0	0.000	0.1	194
KTR00055	Perovasu	SIL RICH PYT NO MT SPARSE FE VEINS	724505	9365233	4	0.004	0.3	65
KTR00056	Perovasu	QTZ DIOR MINOR PYT + MT	724558	9365714	2	0.002	0.0	97
KTR00057	Perovasu	QTZ DIOR MINOR PYT + MT + O0 FRACTURE MATERIAL	724473	9365762	11	0.011	0.1	409
KTR00058	Perovasu	PORPH ANDES?	724411	9365771	0	0.000	0.0	110
KTR00059	Perovasu	HIGH SIL RK MINOR PYT	724392	9365760	2	0.002	0.0	152
KTR00060	Perovasu	HIGH SIL RK PYT VEINS+EPID ALT FINE GRAINED	724365	9365763	4	0.004	0.1	647

Geochemistry analysis of samples Table 2

KTR00061	Perovasu	GRAN DIOR? MT BT PYT	724273	9365671	4	0.004	0.2	425
KTR00062	Perovasu	QTZ DIOR 0ENO IN DIOR MULTI ORIS-VEINS?	724053	9365864	1	0.001	0.0	9
KTR00063	Perovasu	SIL ALT DYKE PERV QTZ VEIN	726058	9365635	188	0.188	0.3	193
KTR00064	Perovasu	ROUND BRECCIA MATERIAL (post genetic) cemented to SIL ALT DYKE	726065	9365641	5	0.005	0.2	165
KTR00065	Perovasu	SIL+EPID ALT MT+PYT ANDES?	727703	9364643	4	0.004	0.1	67
KTR00066	Pasuna Teabai	SS GRAVEL WFALL	729390	9370296	2	0.002	0.0	146
KTR00067	Pasuna Teabai	FLT ANDES V MINOR QTZ VEIN	728769	9369359	0	0.000	0.0	100
KTR00068	Pasuna Teabai	FLT ANDES V MINOR QTZ VEIN	728709	9369457	2	0.002	0.0	82
KTR00069	Pasuna Teabai	FLT ANDES V MINOR QTZ VEIN	728709	9369457	2	0.002	0.0	122
KTR00070	Pasuna Teabai	SS BLK SAND ALL SIZE	730332	9368765	2	0.002	0.0	149
KTR00071	Puspa	BANDED/BRECCIATED SIL CLASTS PY MATRI0?	727981	9364198	2	0.002	0.0	233
KTR00072	Teoveane	PERV SIL VEIN IN ARG ALT REPEAT OF KTR00063	726049	9365641	186	0.186	0.8	633
KTR00073	Teoveane	SIL EPI ALT ANDES 0ENO	726057	9365628	5	0.005	0.0	17
KTR00074	Teoveane	SIL EPI ALT VEIN?	726062	9365625	65	0.065	0.0	71
KTR00075	Teoveane	PERV SIL ARGIL ALT MINOR COLLAR VUG QTZ	726063	9365611	37	0.037	0.0	12
KTR00076	Teoveane	PERV SIL ARGIL ALT MINOR COLLAR VUG QTZ EPID MAG/BIOT	726068	9365609	321	0.321	0.0	195
KTR00077	Teoveane	PERV SIL ARGIL ALT MINOR COLLAR VUG QTZ EPID MAG/BIOT	726077	9365608	6368	6.368	3.3	4561
KTR00078	Puspa	SIL ALT RK MINOR QTZ VEIN	726019	9365233	42	0.042	0.0	75
KTR00079	Puspa	QTZ HEM BRECC IN ARGIL ALT RK	725987	9365232	32	0.032	0.0	14
KTR00080	Puspa	QTZ HEM IN ARGIL ALT RK NO BRECC	726010	9365225	15	0.015	0.0	12
KTR00081	Puspa	SIL ALT ANDES MINOR PYT	725941	9365065	8	0.008	0.0	385

Geochemistry analysis of samples Table 2

KTR00082	Teoveane	PERV SIL VEIN IN ARG ALT	726069	9365637	86	0.086	0.6	320
KTR00083	Teoveane	BAND QTZ ALT MINOR BT	726084	9365655	0	0.000	0.0	27
KTR00084	Teoveane	QTZ FE VEIN	726139	9365701	16	0.016	0.0	463
KTR00085	Teoveane	DIOR PYT	726143	9365699	5	0.005	0.0	181
KTR00086	Teoveane	PERV QTZ FE VEIN	726203	9365704	23	0.023	0.0	343
KTR00087	Teoveane	FINE GR ZONED QTZ ALT	726207	9365753	57	0.057	0.5	173
KTR00088	Teoveane	SIL ALT DIOR	726233	9365762	3	0.003	0.0	176
KTR00089	Teoveane	SIL PYT DIOR	726334	9365799	8	0.008	0.0	181
KTR00090	Teoveane	SIL PYT DIOR	726358	9365851	10	0.010	0.0	115
KTR00091	Teoveane	SIL ALT MINOR SIL VEIN	726054	9365666	23	0.023	0.0	10
KTR00092	Teoveane	SIL ALT MINOR SIL VEIN	726052	9365676	3	0.003	0.0	12
KTR00093	Teoveane	SIL ALT MINOR SIL VEIN	726045	9365696	44	0.044	1.5	304
KTR00094	Teoveane	QTZ RICH ALT DIOR	726086	9365718	5	0.005	0.0	28
KTR00095	Teoveane	QTZ RICH ALT DIOR	726056	9365740	0	0.000	0.0	25
KTR00096	Teoveane	SIL PYT DIOR EPI? VEIN	725761	9366105	9	0.009	0.5	127
KTR00097	Teoveane	SIL PYT DIOR EPI WEATHERED	725766	9366105	10	0.010	0.0	101
KTR00098	Teoveane	SIL PYT DIOR STRONG EPI	725821	9366110	10	0.010	0.0	36
KTR00099	Teoveane	SIL PYT DIOR EPI	725852	9366135	5	0.005	0.0	31
KTR00100	Teoveane	FG DIOR MINOR PY VEIN EPI ALT	725883	9366148	12	0.012	0.0	181
KTR00101	Teoveane	SIL ALT DIOR MINOR PYT VEIN	725908	9366177	5	0.005	0.0	203
KTR00102	Teoveane	SIL ALT DIOR MINOR PYT VEIN	725914	9366181	3	0.003	0.0	158
KTR00103	Teoveane	SIL ALT DIOR MINOR PYT VEIN	725987	9366215	10	0.010	0.0	127

Geochemistry analysis of samples Table 2

KTR00104	Teoveane	SIL DIOR MINOR PYT	726013	9366345	11	0.011	0.0	99
KTR00105	Teoveane	ARGIL ALT PERV QTZ? VEIN	726045	9366374	30	0.030	0.0	38
KTR00106	Teoveane	WEAK ARGIL ALT	726022	9366376	8	0.008	0.0	25
KTR00107	Teoveane	PYT RICH DIOR MINOR SIL VEIN	726033	9366384	32	0.032	0.0	100
KTR00108	Teoveane	FE BRECCI QTZ DIOR POSS WEATHERING	726068	9366510	27	0.027	0.5	82
KTR00109	Teoveane	FE VEIN SIL DIOR	726050	9366572	40	0.040	1.0	17
KTR00110	Teoveane	PYT QTZ DIOR	726056	9366574	15	0.015	0.0	80
KTR00111	Teoveane	PYT DIOR	726097	9366659	10	0.010	0.0	66
KTR00112	Teoveane	SIL PYT DIOR	726183	9366745	935	0.935	0.0	565
KTR00113	Teoveane	WEATH DIOR?	726222	9366793	34	0.034	0.0	176
KTR00114	Teoveane	SIL EPI ALT ZONED	726086	9365574	22	0.022	0.0	18
KTR00115	Teoveane	SIL EPI ALT ZONED VUG CRYST QTZ	726103	9365583	36	0.036	0.0	92
KTR00116	Teoveane	GRANODIOR MINOR PYT	726709	9365363	2	0.002	0.0	75
KTR00117	Puspa	SIL PYT BRECCIA	728026	9364185	3	0.003	0.0	84
KTR00118	Puspa	SIL PYT BRECCIA	728047	9364184	3	0.003	0.0	31
KTR00119	Puspa	FE ARGIL VEIN	727972	9364191	2	0.002	0.0	156
KTR00120	Puspa	FE ARGIL VEIN	727968	9364183	2	0.002	0.0	177
KTR00132	Aita	Qtz-feldspar-py float, rounded	731830	9354914	22	0.022	0.0	85
KTR00133	Aita river	Weathered Qtz-py float, with minor qtz-py banding? rounded	731748	9354907	29	0.029	0.0	165
KTR00134	Aita river	Silicified, mesocratic, aphinitic, FeO altered rounded float with qtz-py	731487	9354877	7	0.007	0.0	38
KTR00135	Aita river	Silicified, Felsic, brecciated, rounded float with diss. fine py.	729935	9354974	15	0.015	0.0	165

Geochemistry analysis of samples Table 2

KTR00136	Aita river	Qtz-feldspar float, sub-angular	728359	9354943	0	0.000	0.0	57
KTR00137	Aita river	Qtz-Feldspar vein? rounded float	728184	9354922	0	0.000	0.0	41
KTR00138	Aita river	Qtz-feldspar, porphyritic. With diss. Py, FeO altered, rounded float	728108	9354933	0	0.000	0.0	92
KTR00139	Aita river	Porphyritic, Qtz-py altrd with FeO rim, rounded float	728108	9354935	42	0.042	0.0	133
KTR00140	Aita river	Qtz-alunite, pyritized, sub-rounded boulder (50cm 050cm)	728043	9354994	15	0.015	0.0	85
KTR00141	Aita river	Porphyritic, Qtz-py altrd with FeO rim, rounded float	728022	9355203	7	0.007	0.0	148
KTR00142	Aita river	Sil. Brecciated andesite, sub-angular float	728013	9355222	0	0.000	0.0	11
KTR00143	Aita river	Qtz-Feldspar with diss. Py. Greenish-blue tint (malachite-azurite?)	728014	9355250	49	0.049	6.1	14549
KTR00144	Aita river	Aphanitic rock with qtz-diss. py, sub-angular float	727029	9356232	15	0.015	0.0	156
KTR00145	Aita river	Sil., weathered, porphyritic, qtz-feldspar, rounded float	727046	9356244	0	0.000	0.0	45
KTR00146	Aita river	Sil., weathered, porphyritic, Qtz-feldspar, purple coloration (tinted Fe or azurite?), rounded float.	727047	9356267	0	0.000	0.0	93
KTR00147	Aita river	Sil., brecciated/lithified andesite, rounded float.	727053	9356275	0	0.000	0.0	162
KTR00148	Aita river	Felsic, Qtz-Feldspar altered, porphyritic, sub-rounded boulder (~2m)	726966	9356275	13	0.013	0.0	10
KTR00149	Aita river	Vuggy Qtz-FeO vein with greenish tint (malachite?), float	726894	9356384	8	0.008	0.0	101
KTR00150	Aita river	O0idi0ed, Qtz-Felsdpar, diss. Py, minor vugs, rounded float	726522	9356790	0	0.000	0.0	62
KTR00151	Aita river	Sil., Oxidized Qtz-Feldspar, minor vugs. Float.	726525	9356798	48	0.048	0.0	136
KTR00152	Aita river	Qtz-FeO vein, green/purple tint (tarnished Fe, malachite, azurite??), Float.	726526	9356799	0	0.000	0.0	65
KTR00153	Aita river	Sil., Qtz-Fe altrd andesite breccia, rounded float	726508	9356809	10	0.010	0.0	495
KTR00154	Aita river	Brecciated qtz-feldspar altrd andesite, rounded float	725336	9357238	0	0.000	0.0	366
KTR00155	Aita river	Qtz-FeO vein, rounded float	725339	9357242	10	0.010	0.0	118

Geochemistry analysis of samples Table 2

KTR00156	Aita river	Sil., intensely o0idized qtz altrd andesite? Float.	725252	9357293	6	0.006	0.0	173
KTR00157	Aita river	Sil., porphyritic qtz-feldspar, predominantly K-spar. Float.	725187	9357315	0	0.000	0.0	9
KTR00158	Aita-Auauvi Crk	Sil, o0idized, porphyritic qtz-feldspar. Float.	725053	9357378	8	0.008	0.0	504
KTR00159	Aita-Auauvi Crk	Friable, porphyritic, epithermal altrd	725053	9357419	6	0.006	0.0	68
KTR00160	Aita river	Oxidized Qtz-feldpar float	724702	9357493	0	0.000	0.0	40
KTR00161	Aita river	Brecciated Qtz-Feldspar, prophyritic matri0 with andesitic clasts.	724686	9357493	0	0.000	0.0	13
KTR00162	Aita river	Sil., porphyritic, FeO altered, diss. Pyrite. Float.	724603	9357486	0	0.000	0.0	89
KTR00163	Aita river	Sil., residual Qtz-FeO vein, minor vugs, banded? Float.	724443	9357440	7	0.007	0.0	138
KTR00164	Aita river	Sil., residual Qtz-FeO, minor vugs. Float.	724399	9357404	0	0.000	0.0	201
KTR00165	Aita - Nenepai Crk	Friable, epithermal altered. Float.	724273	9357400	8	0.008	0.0	20
KTR00166	Aita river	Sil., intensely o0idi0ed, porphyritic Qtz-Feldspar. Float.	724203	9357223	0	0.000	0.0	46
KTR00167	Aita river	Argillic altered clay with diss. py. Landslide e0posed.	723871	9356967	13	0.013	0.0	250
KTR00168	Aita river	Sil., residual qtz-alunite, pyritized. Minor vugs. Sub-angular float.	723689	9356751	7	0.007	0.0	136
KTR00169	Aita river	Qtz-Feldspar altrd, aphinitic, diss. py. Angular Float	723050	9356677	58	0.058	0.0	185
KTR00170	Aita river	Qtz-alunite, pyritized. Rock chip.	723872	9356972	26	0.026	0.0	702
KTR00171	Aita river	Epithermal altrd qtz-feldspar. Rock Chip.	723924	9356980	21	0.021	0.0	15
KTR00172	Aita - Nenepai Crk	Qtz-Fe vein in unaltered diorite? Float, sub-angular.	724280	9357406	7	0.007	0.0	36
KTR00173	Aita - Nenepai Crk	Weakly friable, porhyritic, angular float	724236	9357403	107	0.107	0.0	13
KTR00174	Aita - Nenepai Crk	Fractured, o0idised, qtz-feldspar, aphinitic, with diss. py and qtz-py fractures. Sub-angular float.	724191	9357448	16	0.016	0.0	112
KTR00175	Aita - Nenepai Crk	Qtz-FeO altrd, minor vugs. Angular float.	724163	9357492	6	0.006	0.0	62
KTR00176	Aita - Nenepai Crk	Sil., Fractured, qtz-feldspar with diss. py and py in fractures.	724168	9357498	12	0.012	0.0	216

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KTR00177	Aita - Nenepai Crk	Sil., Fractured, qtz-feldspar with diss. py and py in fractures.	724186	9357503	12	0.012	0.0	190
KTR00178	Aita - Nenepai Crk	Sil., fractured, o0idized, qtz-feldspar with Fe0 in fractures. Angular float.	724143	9357518	26	0.026	0.0	114
KTR00179	Aita - Nenepai Crk	Sil., intensely o0idized, fractured qtz-feldspar with FeO in fractures.	723988	9357602	0	0.000	0.0	262
KTR00180	Aita - Nenepai Crk	Fractured, o0idized, porphyritic qtz-feldspar with qtz-FeO in fractures. Angular float (from landslide)	723901	9357660	34	0.034	0.0	64
KTR00181	Aita - Toreaparauvi Crk	Sil., Qtz-feldspar andesite? With cross-cutting veins. Rock chip from outcrop.	723813	9357672	7	0.007	0.0	13
KTR00182	Aita - Toreaparauvi Crk	Sil., porphyritic. Rock chip from outcrop.	723741	9357792	0	0.000	0.0	50
KTR00183	Aita - Ovariane Crk	Silicified, fractured, o0idized, porphyritic, qtz-feldspar. Rock chip.	724279	9357954	7	0.007	0.0	195
KTR00184	Aita-Auauvi Crk	Sil., Oxidized, porphyritic. Angular float.	724118	9358334	0	0.000	0.0	623
KTR00185	Aita-Auauvi Crk	Brecciated andesite with CaCo3 veins.	724107	9358326	8	0.008	0.0	711
KTR00186	Aita-Auauvi Crk	Sil., qtz-feldspar. FeO rim. Rounded float.	724123	9358319	0	0.000	0.0	39
KTR00187	Aita-Auauvi Crk	Friable, weathered, porphyritic. Rock chip.	724102	9358363	0	0.000	0.0	225
KTR00188	Aita-Auauvi Crk	Sil., brecciated, porphyritic, qtz-feldspar. Float.	724087	9358328	6	0.006	0.0	7
KTR00189	Aita-Auauvi Crk	Sil., weathered, brecciated, porphyritic, qtz-feldspar. Float.	724087	9358328	0	0.000	0.0	142
KTR00190	Aita-Auauvi Crk	Sil., weathered, brecciated/lithified? andesite. Rounded float.	724024	9358437	0	0.000	0.0	420
KTR00191	Aita-Auauvi Crk	Qtz-FeO altrd float.	724029	9358461	38	0.038	0.0	317
KTR00192	Aita-Auauvi Crk	Sil., porphyritic, o0idized qtz-fledspar with greenish tint (tarnished Fe?)	723995	9358443	0	0.000	0.0	31
KTR00193	Aita-Auauvi Crk	Friable, pyrite-rich clay. Rock fall from advanced argillic (alunite-kaolonite-native sulfur) altered ridge.	723875	9358449	0	0.000	0.0	74
KTR00194	Aita-Auauvi Crk	Sil., Oxidized qtz-feldspar. Float.	723875	9358449	57	0.057	0.0	744
KTR00195	Aita-Auauvi Crk	Sil., CaCO3 veined andesite. Rounded float.	723873	9358448	0	0.000	0.0	4

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KTR00196	Aita-Auauvi Crk	Sil., brecciated andesite. Rounded float.	723856	9358444	0	0.000	0.0	48
KTR00197	Aita-Auauvi Crk	Sil., brecciated, qtz-feldspar andesite. Angular float.	723849	9358411	10	0.010	0.0	13
KTR00198	Aita-Auauvi Crk	Sil., qtz-feldspar. Rock chip.	723832	9358432	6	0.006	0.0	27
KTR00199	Aita-Auauvi Crk	Sil., Oxidized qtz-feldspar with diss. py	723797	9358505	0	0.000	0.0	114
KTR00200	Aita-Auauvi Crk	Sil., Oxidized, qtz-feldspar with Qtz-FeO veinlets. Angular float.	723766	9358536	6	0.006	0.0	247
KTR00201	Aita-Auauvi Crk	Sil., FeO altrd andesite with diss. Py, qtz-py veins. Angular float.	723620	9358611	0	0.000	0.0	58
KTR00202	Aita-Auauvi Crk	Sil., py-rich, porphyritic. Rock chip from Outcrop.	723591	9358712	32	0.032	0.0	101
KTR00203	Aita-Auauvi Crk	Sil., qtz-feldspar andesite? Angular float.	723618	9358821	10	0.010	0.0	29
KTR00204	Aita-Auauvi Crk	Sil, breciatted, porphyritic, qtz-feldspar. Pyrite rimmed clasts. Angular float.	723620	9358835	15	0.015	0.0	13
KTR00205	Aita-Auauvi Crk	Sil., qtz-feldspar. Angular float.	723614	9358838	0	0.000	0.0	6
KTR00206	Nenepai Crk	Sil., porphyritic, with py veins. Float	723034	9357953	0	0.000	0.0	153
KTR00207	Nenepai Crk	Breccia with diss. Pyrite and pyrite rimmed clasts. Rounded float.	722983	9357999	0	0.000	0.0	137
KTR00208	Nenepai Crk	Sil. Andesite with magnetite veins (2 stages). Sub-angular float.	722759	9358781	10	0.010	0.0	247
KTR00209	Nenepai Crk	Sil. andesite with py veinlets and diss. pyrite. Sub-angular float	722736	9358818	0	0.000	0.0	135
KTR00210	Nenepai Crk	Sil. blue/grey andesite with qtz-mag vein. Sub-angular	722736	9358823	9	0.009	0.0	288
KTR00211	Nenepai Crk	Qtz-Py-FeO vein. Greenish tint (tarnished Fe?). (Angular float)	722731	9358825	13	0.013	0.0	80
KTR00212	Nenepai Crk	Porphyritic, qtz-py veinlets. Float	722723	9358837	0	0.000	0.0	120
KTR00213	Nenepai Crk	Sil., andesite, banded qtz py veinlets. Sub-rounded float	722647	9358885	13	0.013	0.0	273
KTR00214	Nenepai Crk	Sil., andesite, qtz py veinlets. Sub-rounded float	722636	9358905	62	0.062	0.5	650

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KTR00215	Nenepai Crk	Sil., fractured, K-spar (mirocline) altered andesite with qtz-py veins (2-3 stages). Angular float	722591	9359002	23	0.023	0.0	137
KTR00216	Nenepai Crk	Fractured, K-Spar (microcline) altered andesite, qtz-py vns (2-3 stages). Sub-angular float	722602	9359034	0	0.000	0.0	6
KTR00217	Nenepai Crk	Sil., K-spar altrd, qtz veins (3 stages). Float	722593	9359069	8	0.008	0.0	37
KTR00218	Nenepai Crk	Sil., aphanitic (andesite?), diss py, high mag, qtz-py veinlets. Angular float	722554	9359180	74	0.074	0.0	565
KTR00219	Nenepai Crk	Sil., aphanitic andesite, qtz-py veinlets. Angular float	722554	9359181	9	0.009	0.0	184
KTR00220	Nenepai Crk	Aphanitic andesite, qtz-py veinlets (2 stages). Sub-rounded Float	722562	9359200	12	0.012	0.0	352
KTR00221	Nenepai Crk/Koku Ovuama Crk	Sil., K-Spar altered Andesite with qtz-FeO veins. Angular float from Nenepai trib.	722586	9359284	7	0.007	0.0	398
KTR00222	Nenepai Crk	Qtz py vein. Sub-angular float	722550	9359283	30	0.030	0.0	38
KTR00223	Nenepai Crk	Sil., fractured andesite, qtz-py vns (3 stages?) Diss. Py. Float/Boulder	722541	9359304	0	0.000	0.0	181
KTR00224	Nenepai Crk	Fractured, highly o0idized, aphanitic, basalt OC. Contact with Fault Gourge.	722484	9359371	41	0.041	0.0	51
KTR00225	Nenepai Crk	Fault Gourge. Kaolonite-qtz.	722484	9359371	7	0.007	0.0	255
KTR00226	Nenepai Crk	Fract, Sil., K-spar altrd andesite with qtz, -py-FeO vns (2 stages). Angular float	722445	9359459	0	0.000	0.0	71
KTR00227	Nenepai Crk	FeO altered Qtz-Feldspar andesite, quartz-pyrite veinlets (2-3 stages). Sub-angular float	722431	9359478	13	0.013	0.0	1296
KTR00228	Nenepai Crk	Fractured FeO altered andesite, Sub-rounded float	722426	9359477	0	0.000	0.0	204
KTR00229	Nenepai Crk	Leucocratic andesite, qtz py veinlets. Float, rounded boulder	722411	9359526	0	0.000	0.0	62
KTR00230	Nenepai Crk	FeO altered andesite breccia. Rounded float	722398	9359538	0	0.000	0.0	385
KTR00231	Nenepai Crk	Silicified grey andesite with banded qtz py veinlets. Angular float	722385	9359556	9	0.009	0.0	346

Geochemistry analysis of samples Table 2

KTR00232	Nenepai Crk	Friable, o0idized, weakly argilized andesite breccia. Outcrop	722352	9359683	0	0.000	0.0	191
KTR00233	Nenepai Crk	Friable o0idised andesite with diss. Py. Outcrop	722366	9359673	7	0.007	0.0	127
KTR00234	Nenepai Crk	Friable qtz feldspar andesite with qtz py veins. Angular float	722300	9359803	17	0.017	0.0	88
KTR00235	Nenepai Crk	Friable, argillized diorite. Outcrop	722286	9359891	6	0.006	0.0	660
KTR00236	Nenepai Crk	Friable qtz fldspar andesite with diss py. Outcrop	722262	9359916	20	0.020	0.0	65
KTR00237	Nenepai Crk	Qtz feldspar andesite with qtz py veinlets (3 stages). Angular Float	722170	9359986	0	0.000	0.0	55
KTR00238	Nenepai Crk	Pyritised and clay altered andesite. Outcrop	722159	9359996	0	0.000	0.0	212
KTR00239	Auauvi Crk	Sil. andesite breccia. Float	723546	9359052	10	0.010	0.0	17
KTR00240	Auauvi Crk	Sil. andesite breccia, diss py, py rimmed clasts. Outcrop	723539	9359049	9	0.009	0.0	122
KTR00241	Auauvi Crk	Sil., brecciated porphyry with K-spar clasts. Rounded float	723535	9359103	0	0.000	0.0	4
KTR00242	Auauvi Crk	Pyritized and brecciated andesite. Angular float	723515	9359187	0	0.000	0.0	55
KTR00243	Auauvi Crk	Weathered, friable, pyrite rich andesite. Outcrop	723516	9359196	0	0.000	0.0	338
KTR00244	Poupouato Crk	Sil., pyrite rich, FeO rim, quartz-FeO in fractures.	723441	9359214	0	0.000	0.0	216
KTR00245	Poupouato Crk	Qtz FeO vein in weathered andesite. Angular float	723437	9359219	11	0.011	0.0	111
KTR00246	Toreaparauvi Crk	Sil., Oxidised andesite breccia. Angular float	723075	9359158	0	0.000	0.0	452
KTR00247	Toreaparauvi Crk	Sil., Oxidised qtz FeO vein. Angular float	723068	9359166	6	0.006	0.0	124
KTR00248	Toreaparauvi Crk	FUBAR, intensely FeO altered. Angular loat	723074	9359176	7	0.007	0.0	508
KTR00249	Toreaparauvi Crk	weathered and brecciated andesite. Angular float	723062	9359253	10	0.010	0.0	172
KTR00250	Toreaparauvi Crk	Highly oxidised/weathered andesite with qtz-FeO vein. Angular Float	722976	9359298	8	0.008	0.0	248
KTR00251	Raua River	Sil. Porphyritic and brecciated with K-spar alt. Round Float	711884	9386655	10	0.010	0.0	28

Geochemistry analysis of samples Table 2

KTR00252	Raua River	Chalcedonic qtz vein, k-spar altered with minor vugs. Rounded Float	711865	9386585	20	0.020	0.0	18
KTR00253	Raua River	Sil. Microdiorite, qtz py. Veins, k-spar altd with motled py. Rounded Float	711807	9386422	17	0.017	0.0	681
KTR00254	Raua River	Aphanitic basalt? Chalcedonic qtz-py, minor vugs with qty-py vein?	711807	9386422	38	0.038	0.0	27
KTR00255	Tavarun Crk	Chalcedonic, smoky qtz-vn with k-spar alteration. Angular Float	711433	9385959	9	0.009	0.0	25
KTR00256	Tavarun Crk	Clay/argillic Altn, FeO veins (2 stages). Outcrop	711411	9385916	9	0.009	0.0	413
KTR00257	Kakera Crk	Qtz-FeO vein in porphyritic rock, oxidized/weathered, with epidote altn. Outcrop	711250	9386851	0	0.000	0.0	113
KTR00258	Kakera Crk	Qtz-FeO, Porphyritic diorite? /microdiorite, high mag., SSW vein direction. Outcrop	710991	9386776	0	0.000	0.0	96
KTR00259	Kakera Crk	Qtz-FeO vein in microdiorite OC, ENE trending veins/fractures. Outcrop	710736	9386343	7	0.007	0.0	179
KTR00260	Torhut Crk	Vuggy qtz-FeO vein. Sub-Angular Float	710526	9386400	0	0.000	0.0	155
KTR00261	Torhut Crk	vuggy qtz-FeO vein. Sub-Angular Float	710515	9386279	0	0.000	0.0	184
KTR00262	Torhut Crk	Qtz-FeO vein in diorite/micro OC, argillic altrd. Outcrop	710555	9386226	0	0.000	0.0	195
KTR00263	Torhut Crk	Sil. Qtz-FeO vein (in diorite). Angular Float.	710474	9386087	5	0.005	0.0	159
KTR00264	Kaskurus Hubert	Chalcedonic qtz vein, minor vugs. Angular Float	732248	9373914	0	0.000	0.0	20
KTR00265	Btwn Nagam and Karar River	Pink porphyritic, k-spar altrd diorite? (Qtz-diorite?) coarse grained. Outcrop	699106	9375901	6	0.006	0.0	163
KTR00266	Oromarina Crk	K-spar altd diorite/andesite? Porphyritic with pink coloration. Sub-Rounded Float.	700457	9373114	7	0.007	0.0	172
KTR00267	Oromarina Crk	Black sand sample. Stream sediment	700468	9373133	15	0.015	0.0	94
KTR00268	Nagam River- Right Trib.	K-spar altd, porphyritic, magnetic diorite with NE/SW oriented fractures.	701651	9371746	9	0.009	0.0	155
KTR00269	Nagam River- Right Trib.	Stream sediment sample.	701636	9371812	49	0.049	0.0	106

Geochemistry analysis of samples Table 2

KTR00270	Nagam River	Friable weathered, K-spar altd, magnetized andesite? Rounded Float	701881	9371637	8	0.008	0.0	162
KTR00271	Nagam River	K-spar altd, porphyritic, diorite? On NW/SE trending fault contact. Outcrop	702310	9370850	5	0.005	0.0	90
KTR00272	Nagam River	K-spar altd, porphyritic, diorite? On NW/SE trending fault contact. Outcrop	702310	9370850	7	0.007	0.0	132
KTR00273	Nagam River	K-spar altd, porphyritic, diorite? On NW/SE trending fault contact. Outcrop	702310	9370850	7	0.007	0.0	207
KTR00274	Nagam River	Porphiritic diorite, with k-spar + magnetised crytals.	702498	9370789	7	0.007	0.0	96

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.*	• Samples taken were in situ rock chip (rock), river float or stream sediment, all samples were grab samples. • All samples taken were placed in numbered calico bags with coordinates recorded • Samples crushed to less than 10ml using a Terex jaw crusher • Pulverised on a LM5 pulveriser to at least 85% passing 75um. • 150g Pulps prepared at Intertek Lae PNG for transport to Intertek Townsville Aus for analysis • Pb collection Fire Assay – 50gm charge, new pots, solutions read on a ICP/OES • Base Metals – 0.2gm weighed in a four acid digest (hydrochloric, perchloric, hydrofluoric and nitric acids) offering a "near total" digestion. Solutions read on a combination of ICP/OES & MS. • Certified Reference Standards digested and read 1:15 throughout the job • Pulveriser duplicates digested 1:20 throughout the job • Repeats of highly anomalous results carried out
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 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.*	• No drilling results reported
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,*	• Samples have been logged by a geologist in the field. • Photographs of some samples taken with relevant photos appearing in this announcement.

Criteria	JORC Code explanation	Commentary
	channel, etc) photography. • *The total length and percentage of the relevant intersections logged.*	
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.*	• Samples crushed to less than 10ml using a Terex jaw crusher • Samples prepared in Lae PNG with 150g pulps send to Townsville Aus for analysis • Pb collection Fire Assay – 50gm charge, new pots, solutions read on a ICP/OES • Base Metals – 0.2gm weighed in a four acid digest (hydrochloric, perchloric, hydrofluoric and nitric acids) offering a "near total" digestion. Solutions read on a combination of ICP/OES & MS. • Certified Reference Standards digested and read 1:15 throughout the job • Pulveriser duplicates digested 1:20 throughout the job • Internal QAQC (duplicate) results all appear within limits. • Lab-produced QAQC (standard and blank) results all appear within limits.
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.*	• Repeat of one anomalous sample with result appearing within limits
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 were recorded using a Garmin hand held GPS which generally has an accuracy of ±5m • The datum used is GDA94 Zone 56 • Historic samples quoted in this announcement are from the geochemistry announcement dated 27/11/2017
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*	• No drilling results reported.

Criteria	JORC Code explanation	Commentary
	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.*	• Mineralisation reported at surface only.
Sample security	• *The measures taken to ensure sample security.*	• Samples in numbered calico bags were secured in polywoven cable tied bags and chain of custody maintained through DHL Buka (AROB) to Intertek Lae PNG, Intertek managed transport and customs requirements of 150g pulp freight to Intertek Genalysis Townsville (AUS).
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 (865.3sqkm) 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.*	• Government mapping, sampling and geophysics quoted in previous ASX release dated 27/11/2017 and 12/12/2017
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 –*	• No drilling results reported

Criteria	JORC Code explanation	Commentary
	elevation above sea level in metres) of the drill hole collar ○ *dip and azimuth of the hole* ○ *down hole length and interception depth* ○ *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	
Data aggregation methods	• *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 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 of relevant elements 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*	• All relevant exploration data has been released.

Criteria	JORC Code explanation	Commentary
	or contaminating substances.	
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 3: Photointerp Key Definitions

Key	Definition
Czb	Balbi Volcanics
Czba	Balbi Volcanics – pyroclastics
Czbf	Balbi Volcanics – lava flows
Czbp	Balbi Volcanics – mudflow deposits
Czd	Intrusive Dacite
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