

# **ASX**

# Announcement 27 October 2014



#### KRUCIBLE METALS LTD

Mineral Discovery Company

ABN:12 118 788 846 ASX Code: KRB

#### **About Krucible**

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Non-executive Chairman

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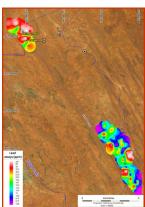
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Listed on Australia's main stock exchange since 2007, Krucible is an Australian-based resources company with an enviable history of discovery in phosphorus and heavy rare earths as well as other elements. Krucible continues to explore for precious metals, base metals and others, and is transitioning to a combined exploration and mining company. Krucible has plans and expectations to ultimately enter joint ventures to develop mines on tenements in the mineral rich Mount Isa area of north western Queensland. Krucible has a strong industry-based board and management, who promote aggressive value-added mining projects.

## Copper at Tobermorey

- Krucible Metals Ltd (Krucible) is pleased to announce the most recent drill hole at Tobermorey EL28170 has intersected two separate zones of visible malachite and chalcopyrite in a quartz vein host. This is the first hole to target this anomaly and finished still in mineralisation at 121m.
- Initial ground reconnaissance has located numerous parallel quartz veins and coarse magnetite veins and breccias. Further exploration along this trend revealed outcropping quartz breccias with copper mineralisation disseminated in the vein as well as in massive sulphide veins within the quartz including a 200m outcrop hosting copper mineralisation to the north.
- Tobermorey is prospective for copper/gold mineralisation similar to IOCG style deposits such as Tropicana (WA) and Olympic Dam (SA), related to magnetic and or major structural features.





Elstone prospect—lead surface values at left and current drilling program at right

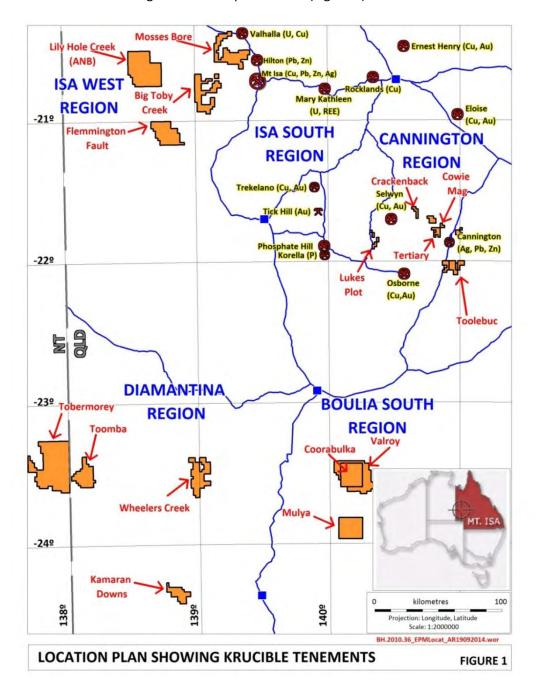
- Initial images from the processing work by GeoDiscovery on the magnetic survey completed on Tobermorey in July 2014 identified northwest trending structural targets through the Elstone prospect. It was announced on 3 October 2014 that further 3D modelling would be completed in early October on these interesting features and the data has now been received.
- This imaging and processing analysis highlighted a number of northwest trending magnetic ridges which appear to be associated with surface sampling base metal anomalism carried out by Krucible in July 2013.
- ▲ A number of these interpreted structural magnetic ridges are shallow at less than 100m in the northeast and southeast areas of the survey, and deeper in the central area where they are visible at 150m below surface.
- The magnetic ridge in the northeast corner is interpreted to be connected to the Toomba Fault, the central zone of magnetic ridges and troughs is possibly an extension of the Adam Fault to the north. To the south are another set of magnetic ridges believed to be an extension of the Stella/Dukes shear zone in Krucible's Toomba EPM15367 to the southeast.

#### **Copper at Tobermorey (Exploration Update)**

#### **Background**

In July 2014 UTS Geophysics completed an aerial geophysical survey over Krucible Metals Ltd ("Krucible") Tobermorey EL28170 which was to increase the definition of the existing broad regional government survey. Further to this Krucible then engaged GeoDiscovery to complete 2D processing which was received in mid-September 2014 and a 3D magnetic model completed on 9 October 2014, giving Krucible detailed images of the magnetic features as can be seen in Figures 2 and 3. This covers the Elstone prospect and has produced very prospective targets. Krucible has altered the drilling program to incorporate the newly available information.

This tenement lies on the Queensland border in the Northern Territory 60km west of Krucible's Toomba EPM and on the margins of the Simpson Desert (Figure 1).



#### **Timetable to discovery**

Tobermorey EL28170		
New Senior Geologist	June 2013	An existing employee of Krucible appointed to the role of Senior Geologist
Ground surveying	July 2013	Despite low funds, ground work conducted in anticipation
New funds arrive	February 2014	Proceeds of Korella assets sale for \$12m cash allowed meaningful exploration to recommence
Call for aerial surveying	March 2014	Exploration on Tobermorey began immediately
Selection of surveyor	April 2014	UTS Geophysics selected and scheduled
Aerial magnetic survey	June 2014	Conducted July
Call for drilling tenders	July 2014	
First Geophysical results returned	August 2014	UTS Geophysics survey report received.
Drill targets selected	August 2014	
Drilling commences	September 2014	
Analysis, 2D 3D modelling	September/	Analysis and interpretation performed with assistance of
	October 2014	GeoDiscovery
Altered drill program	October 2014	With new information available Krucible adjusted the drilling program
Copper discovery	October 2014	

#### **Aerial magnetic surveying**

The results of the data processing and analysis completed by GeoDiscovery indicate there is a large ovoid magnetic body interpreted to be a deep granitic body and which is obscuring the other magnetic features. The deep body has therefore been removed from the processed images to enhance the shallower targets. The images show a number of northwest trending magnetic ridges which in the 3D model are approximately 150m below surface (Figure 3). These are considered to represent structural features and are associated with surface sampling anomalism.

The main central feature of the survey is a magnetic ridge contrasted by a non-magnetic trough trending northwest through the centre of the survey area, possibly an extension of the Adams Fault to the north. In the centre of this structure is a disrupted zone, which may be a result of a crosscutting structure or a dilation zone (further interpretations would be needed to determine this). Krucible has previously completed surface sampling over parts of this zone which identified anomalous lead, copper and zinc (ASX Announcement 31 July 2013) in an area of iron and quartz breccias (Figure 2).

In the northeast corner of the survey is a western trending magnetic ridge which is interpreted to have a connection to the Toomba Fault to the east. The 3D modelling indicates the magnetic features are near surface (>50m) and reconnaissance sampling in this area has identified what has been interpreted as the basal sequence of a sedimentary unit thought to be neo-Proterozoic in age. Parallel sets of quartz veins are also apparent trending west in line with the magnetic images.

The southern area of the survey grid shows another northwest trending magnetic feature and Krucible believes this may be an extension of the Stella/Dukes shear zone identified in the Toomba EPM to the east in Queensland. Reconnaissance of this area has identified a number of parallel quartz veins cross-cutting a siliceous sandstone unit. One area (approximately 200m radius) comprises multiple phases of magnetite veining and brecciation with coarse magnetite and pyrite in scree/lag material with some possible sub-outcrop. Possible box work/gossan type outcrops have also been located from brief exploration to date.

Further exploration to the north along this trend has revealed a 200m outcrop of brecciated quartz veins hosting copper mineralisation (Figures 2 and 3). Visible malachite, chalcopyrite and pyrite have been identified disseminated through the vein as well as located in massive sulphide veins (up to 2cm wide) cutting the quartz vein. This is also a favourable environment for gold mineralisation. These locations are expected to be drill tested in late October or early November.



**Photo 1 Drilling at Tobermorey** 

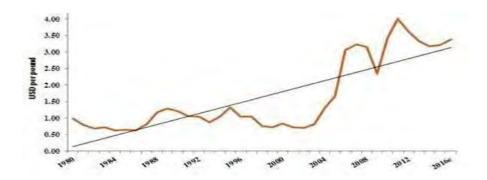
#### Copper Intersect in hole 14TYRC-8.

The current drill program is progressing with hole 14TYRC-8 drilled to 121m. Krucible is testing the central Elstone prospect area where previous surface sampling recorded up to 428ppm lead (ASX Announcement 31 July 2013). This is the first hole to target this specific anomaly and it has intersected numerous large quartz veins with 2 zones of copper mineralisation. Chalcopyrite and malachite have been identified in a 14m zone from 56m and a more enriched 10m zone from 112m. The hole had to be abandoned at 121m and was still in copper mineralisation. No values are available yet however the enriched zones have been logged with an average over the 2 zones of 0.1% of visible fine-grained chalcopyrite, higher grade zones within these intersections are expected to be evident in laboratory assay results which should be available in November. Previous drilling south of this location has identified an extensive shale unit with strong pyritic zones and quartz veins with rare disseminated magnetite.

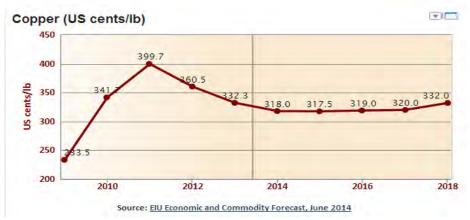
These are early indicative observations from a greenfields prospect confirming the presence of visible copper mineralisation. Krucible does not imply that potentially economic mineralisation has been discovered at Tobermorey. Nevertheless, this is the first time visible copper has been discovered in this tenement and is considered by Krucible to be important for the Company's base metal exploration plans.

#### Copper

Copper prices worldwide have been affected by the global financial crisis (GFC) like most commodities from approximately 2006 to 2012, but the trend curve in Graph 1 shows it appears to have returned to its pre GFC levels and predictions are that this return to normal growth will continue. A longer term forecast in Graph 2 suggests that the future for copper is assured.



Graph 1: Multi-Year Global Copper Market Outlook (kitco June 19, 2014)

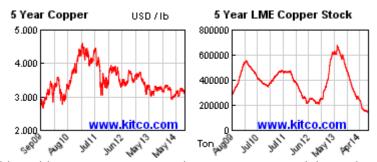


Graph 2: IEU Economic and Commodity Forecasts (The Economist June 2014)

Interestingly BHP Billiton stated on 14 August 2014 that it has a focus on copper:

"We believe that a portfolio focused on our major iron ore, copper, coal and petroleum assets would retain the benefits of diversification, generate stronger growth in cash flow and a superior return on investment." (Source: Melanie Timbrell, CBA 15 August 2014)

Also announced just this week, one of Australia's top analysts has painted a bright outlook for emerging North Queensland copper junior Syndicated Metals, saying its shares should more than double as it continues to grow its copper inventory and moves closer to production.



Graph 3: Reasonably Stable Copper Prices Over the Last Five Years While Stocks of Copper are at an Historical Low (Kitco August 2014).

The price of copper over the last 5 years has been reasonably stable as seen above in Graph 3 at left, and at right the current world stocks are seen to be at a historical low.

Short Term Price Forecast according to Kitco is that on average, copper prices are likely to creep higher from 2015 (see Table 1 below). The International Copper Study Group (ICSG) expects continued mine growth of 4.7% in 2014 and 7.3% in 2015.

Average Price		Trading Fluctuation Range	
for year	Target	Min	Max
2014	3.18	2.65	3.72
2015	3.21	2.68	3.75

Table 1.Predicted trading range 2014 and 2015. Source: ZC estimates

Krucible is presenting at the Brisbane 2014 Mining Convention this week (9:40 am Thursday 30<sup>th</sup> Oct) and you can meet our people at Booth number 39.

Attached: Figures 2-3
Annexure A

**Further Information:** 

**Allan Branch** 

Managing Director & CEO

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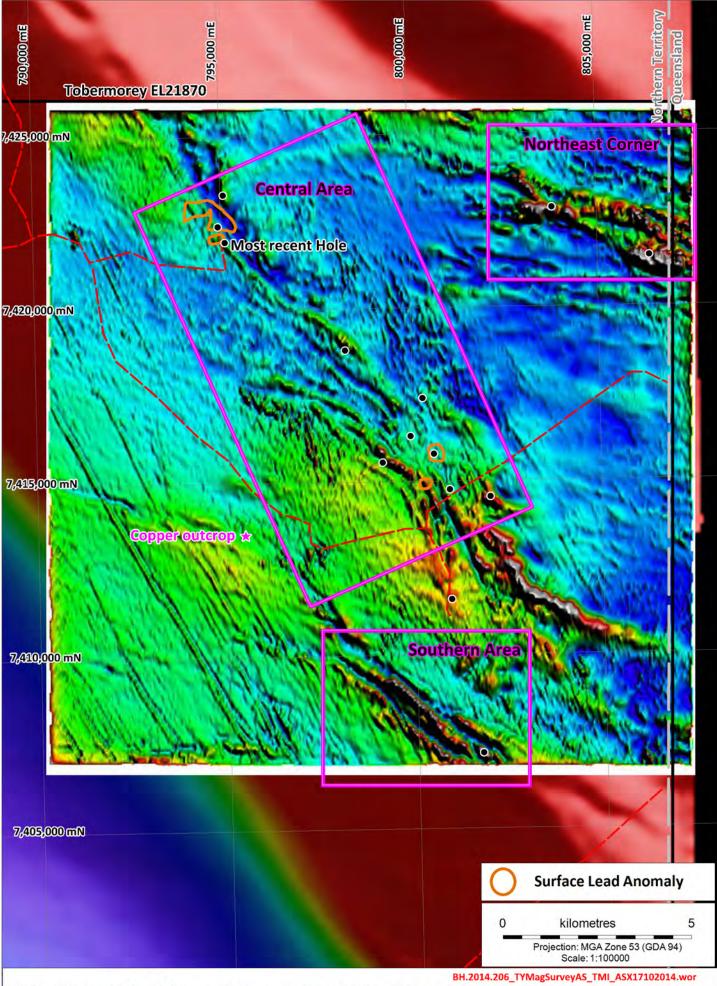
#### About Krucible Metals Limited:

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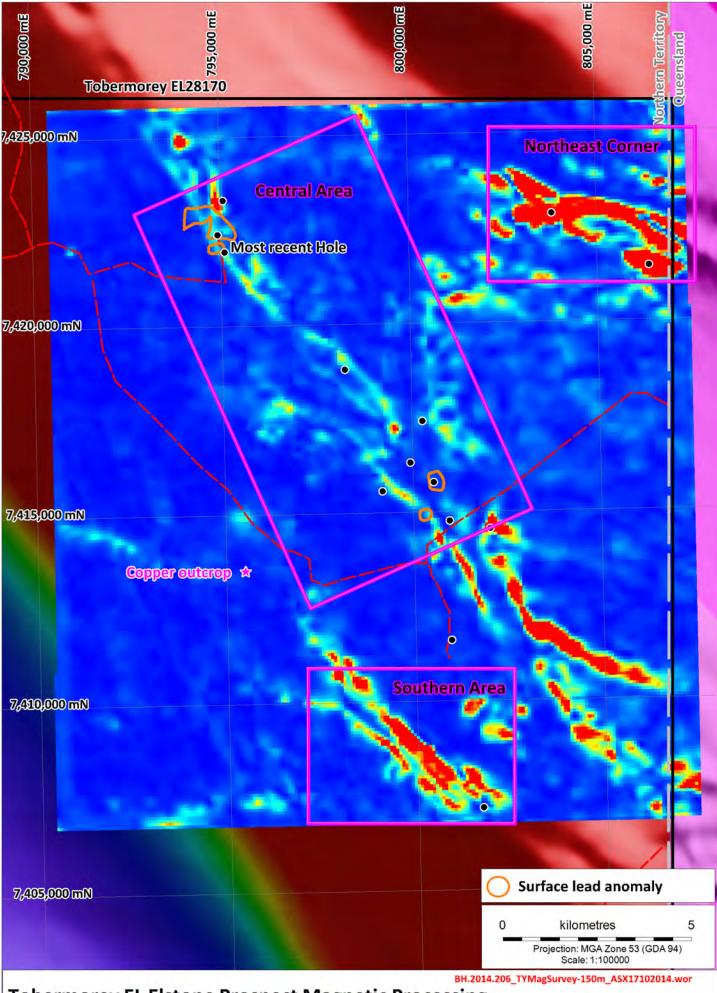
#### COMPETENT PERSON STATEMENT

"The information in this report that relates to Mineral resources and Exploration Results is based on information compiled by Mr Andrew J Vigar who is a Fellow of The Australasian Institute of Mining and Metallurgy and is employed by Mining Associates Limited, Hong Kong and is a non-executive director of Krucible Metals Ltd. Mr Vigar has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Vigar consents to the inclusion in this report of the matters based on his information in the form and context in which it appears".

This report may contain forward-looking statements. Any forward-looking statements reflect management's current beliefs based on information currently available to management and are based on what management believes to be reasonable assumptions. A number of factors could cause actual results, or expectations to differ materially from the results expressed or implied in the forward looking statements.



Tobermorey EL Elstone Prospect Magnetic Processing Analytical Signature Image with Proposed Drill Holes (black) and Tracks
FIGURE 2



Tobermorey EL Elstone Prospect Magnetic Processing -150m from Surface Image with Proposed Drill Holes (black) and Tracks
FIGURE 3

### Annexure A

## Section 1 - Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul> <li>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.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>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.</li> </ul>	<ul> <li>RC Drilling preliminary results no sampling results a nnounced</li> <li>Copper mineralisation in the rock chips is considered prospective but is not indicative of a deposit further exploration is required to determine the extent of the mineralisation. Results also need to be verified by a laboratory to be confirmed</li> </ul>
Drilling techniques	<ul> <li>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).</li> </ul>	<ul> <li>Reverse circulation drilling was used to obtain 1m samples from which the field geol ogist has logged and reported the visible findings. No assay results are announced.</li> </ul>
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>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.</li> </ul>	<ul> <li>Standard reverse circulation drilling</li> <li>Chip sample recovery is assessed with a geologist on site for the drilling of the hole. Therefore recovery can be determined by watching the cyclone and the bag volume.</li> <li>No assay results have been received so this relationship cannot be determined</li> </ul>
Logging	<ul> <li>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.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul> <li>All holes were geologically logged every metre and magnetic susceptibility and CPS reading were recorded every metre.</li> <li>Logging is completed on paper log sheets which will then be transferred to the digital database where standardised codes are utilised to make sure data is consistent.</li> <li>No claims are being made a bout resource estimation.</li> <li>Logging is qualitative in nature. Amounts of minerals per metre are estimated by the geologist through their observations of the drillchips. No assay results have been received.</li> </ul>
Sub- sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results</li> </ul>	<ul> <li>Each metre is riffle split 87% into a         UV bag and 13% into a calico.         Samples are dry when collected.</li> <li>No sub-sampling has been         completed.</li> <li>No sample results are being         announced</li> </ul>

Criteria	JORC Code explanation	Commentary
	<ul> <li>for field duplicate/second-half sampling.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>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.</li> <li>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.</li> </ul>	No Laboratory results are being announced
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul> <li>No Laboratory results are being announced</li> </ul>
Location of data points	<ul> <li>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.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>Sample points were located using a Garmin 76 GPS with an accuracy of 5m</li> <li>All surveys were MGA Zone53 (AGD66)</li> </ul>
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>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.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>These are preliminary observations of minerals in the drilling no degree of grade is appropriate for this announcement.</li> </ul>
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>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.</li> </ul>	The drill hole in relation to this announcement was drilled on an azimuth of 220 degrees with an inclination of 60 degrees. This is perpendicular to the interpreted strike of the targeted structural feature.
Sample security	The measures taken to ensure sample security.	All drill samples were stored at a secure location and delivered to the Laboratory for analysis by Company personnel. Laboratory pulps and residues after analysis is complete will be returned to the company for permanent storage in a secure location.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	<ul> <li>No independent audit or review undertaken.</li> </ul>

# Annexure A Section 2 - Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul> <li>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.</li> <li>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.</li> </ul>	<ul> <li>Tobermorey EL28170 is located in the Diamantina Region approximately 400km from Alice Springs in the Northern Territory.</li> <li>There are no known impediments to obtaining a licence to operate in the area.</li> </ul>
Exploration done by other parties	<ul> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul> <li>No previous drilling or systematic exploration is recorded in this area</li> </ul>
Geology	Deposit type, geological setting and style of mineralisation.	<ul> <li>Krucible is exploring for IOCG style mineralization within this area. Also structural related copper/gold mineralization. The visible mineralistion forms within quartz veining which is in parts brecciated. The quartz veining is interpreted to be the surface expression of a fault system. Mineralization appears associated with magnetite and magnetic ridges are evident in the area.</li> </ul>
Drill hole Information	<ul> <li>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:         <ul> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>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.</li> </ul>	<ul> <li>This report provides preliminary information on findings from one drill hole. Identified in Figures 2 and 3 of the announcement. The exact zones of mineralization will not be known until assay results area received.</li> <li>Hole 14TYRC-8 was drilled at azimuth 220° at a dip of 60° and finished at 121m.</li> </ul>
Data aggregation methods	<ul> <li>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.</li> <li>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.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul> <li>No assay results have been received, this announcement refers to initial visible copper minerals in RC drill chips.</li> </ul>
Relationship between mineralisation widths and intercept lengths	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>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').</li> </ul>	<ul> <li>This is preliminary announcement of the work at Tobermorey no further work has been done on interpreting the zone of mineralisation as this will wait until the laboratory results are received therefore the true width of the intersected zone is not known.</li> </ul>

Criteria	JORC Code explanation	Commentary
Diagrams	<ul> <li>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.</li> </ul>	No assay results have been received.
Balanced reporting	<ul> <li>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.</li> </ul>	No assay results have been received.
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.	<ul> <li>Krucible has also completed geophysical modelling which is discussed in this announcement.</li> </ul>
Further work	<ul> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale stepout drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	Further work on this prospect will be evaluated once assay results have been received. Krucible is continuing with the current drilling program. No work has been completed on the trend of mineralization or future drilling this will be released once assay results have been received.