

ASX Announcement (ASX:AXE)

18 November 2019

## Halloysite-Kaolin projects update

### Highlights

- Drilling commenced at Franklyn Halloysite-Kaolin Project.
- Franklyn drilling designed to confirm the extent and quality of the kaolin mineralisation and to collect bulk sample for further testing.
- Assay and drill results from Franklyn expected during the next 4-6 weeks.
- Results from recent reconnaissance sampling confirm presence of halloysite and kaolin outside of the area of the current Exploration Target at Bunora and Kelly Tank on the Eyre Peninsula.

Archer Materials Limited ("Archer", "Company") is pleased to provide this update on the Company's 100% owned Franklyn Halloysite-Kaolin Project ("Franklyn Project") and Eyre Peninsula Halloysite-Kaolin Project ("EP Project"). The Franklyn Project is located approximately 220km north of Adelaide, South Australia (Fig. 1). The EP Project is located 115km west of the Whyalla Port, South Australia and 150km south-east of Andromeda Metals Ltd (ASX:ADN) Poochera Project (Fig. 1).

### Background

A review of historical drill results has resulted in the establishment of the following kaolin Exploration Target for the EP Project (ASX announcement 19 August 2019) and Franklyn Project (7 November 2019):

Project	Tonnes	Grade
Franklyn Project	45 - 91 million	30 – 36% Al <sub>2</sub> O <sub>3</sub> (-45 µm size fraction)
EP Project	55 - 135 million	33 – 36% Al <sub>2</sub> O <sub>3</sub> (-53 µm size fraction)

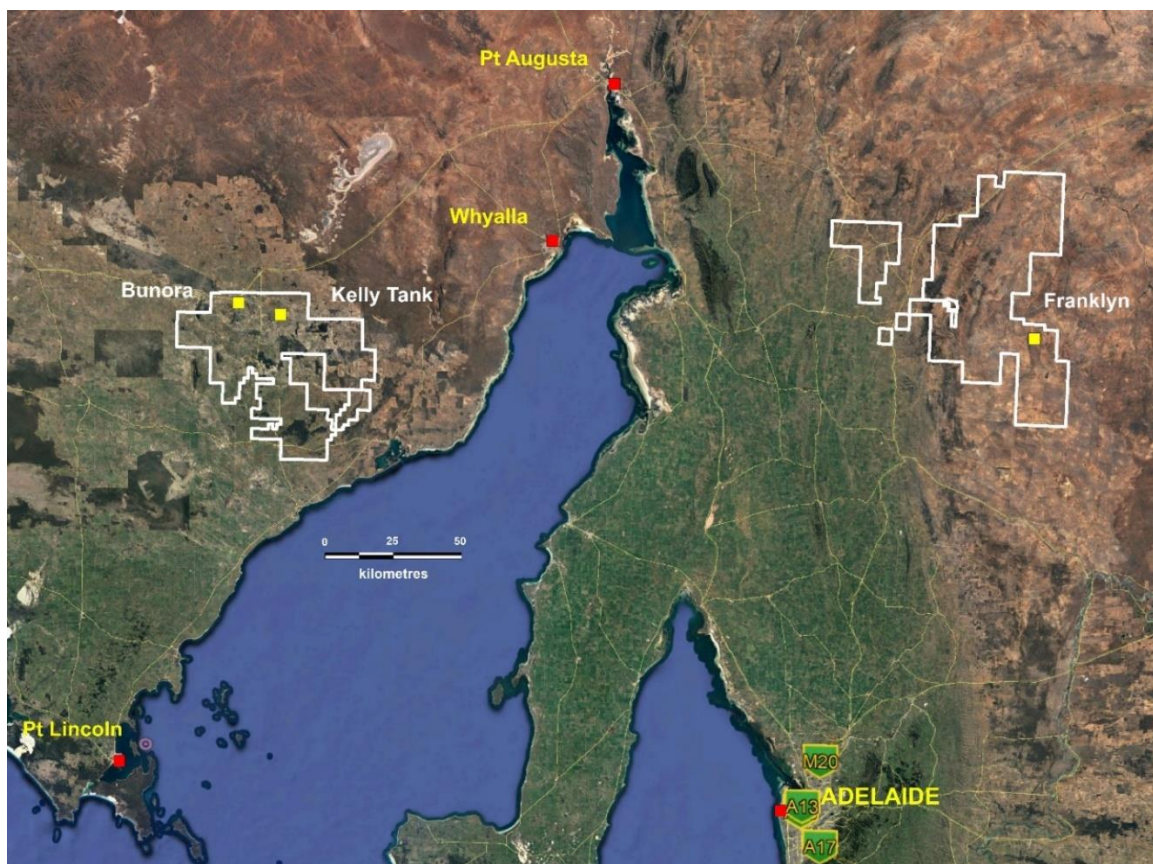
**Table 1.** EP Project and Franklyn Project Exploration Targets

Investors should be aware that the potential quantity and grade of the Exploration Targets reported are conceptual in nature, there has been insufficient exploration to estimate a Mineral Resource and it is uncertain if further exploration will result in the estimation of a Mineral Resource EP Project or Franklyn Project.

**Commenting on the Projects, Archer Executive Chairman Greg English said,** "Franklyn and Eyre Peninsula are both large projects with early regional exploration results showing the potential to expand these projects further. Both projects are ideally located to existing infrastructure and easily accessed by existing roads and tracks thereby making exploration easier and relatively low cost".

“In addition to the presence of a large kaolin Exploration Target, the confirmation of the presence of halloysite at both the Franklyn and Eyre Peninsula projects increases the potential of these projects.”

“We expect to finish drilling at Franklyn sometime this week with results to be reported during the next 4 to 6 weeks” said Mr English.



**Fig. 1.** Location of EP Project and Franklyn Project

### Franklyn Project

At Franklyn, weathering of the Delamerian Granite (Bendigo Granite) has resulted in the development of a kaolinite rich profile buried under Cainozoic transported sediments. Historical drilling by the SA Government at Franklyn intersected substantial widths of kaolin mineralisation over an extensive area during their search for copper and gold mineralisation. Limited work was undertaken on the kaolin material as it was not the focus of exploration, however halloysite comprising over 15% of one sample was reported.

Yesterday, the Company commenced an aircore drill program at Franklyn for the purpose of confirming the extent of the mineralisation and collecting sufficient sample for further testing. The drill program involves the drilling of 18 holes, to an average depth of 47 metres for a total of 850 drill metres. The drilling should be completed by Wednesday with assay and test results expected progressively over the next 4 - 6 weeks.





**Image 1.** Drill rig on site at Franklyn Project.

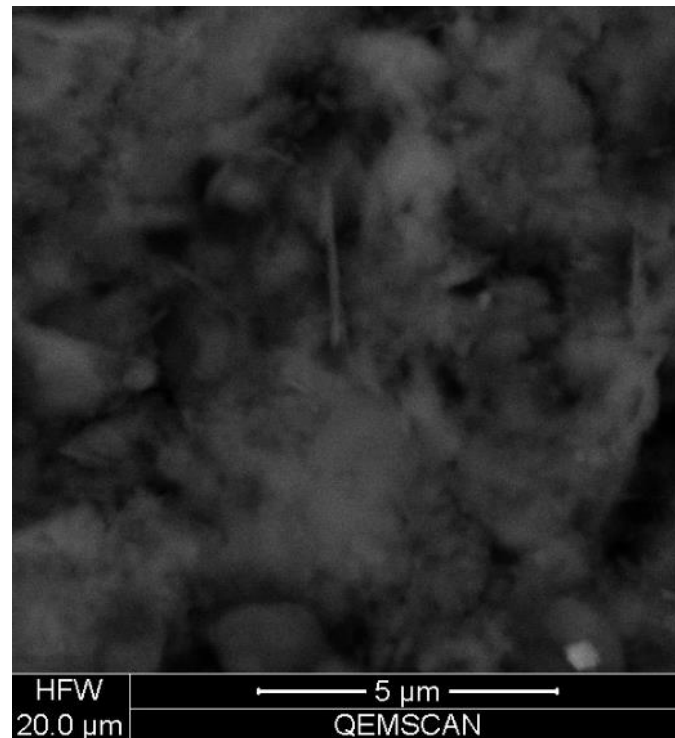
## **EP Project**

The EP Project comprises both the Kelly Tank and Bunora prospects. The Exploration Target for the EP Project only includes the Kelly Tank and Bunora kaolin prospects and does not include other known kaolin occurrences within Archer's Eyre Peninsula tenement area.

A review of historical reports for the EPHPA Project by Pechiney (Australia) Exploration Pty Ltd ("Pechiney") identified the presence of halloysite in composite sampling work undertaken at both Bunora and Kelly Tank.

The Company recently collected two rock chip samples at Kelly Tank (samples KT 26 & KT 35) and one sample from Bunora South (sample KT 27), as a part of reconnaissance exploration work during a meeting with landowners. Descriptions of the areas sampled were provided in a previous announcement (ASX announcement 26 September 2019).

The samples were submitted for wet testing and scanning electron microscopy (SEM) testing to identify the presence of halloysite. Halloysite was identified from the SEM images (refer to Image 2 below).



**Image 2.** SEM photo from the -20μm size fraction showing the needle like material Halloysite.

The samples were submitted for wet screening and blunging to recover the various size fractions for analyses. The results of the screening are summarised below:

**KT 26** (MGA 94, Zone 53 638280 E, 6316714N)

A grade of +33% is reported for the finest screen size (-20μm), with a significant amount (38%) of low grade material (quartz dominant) reporting to the coarsest fraction (+53 μm).

Screen Fraction	Recovery (%)	Al <sub>2</sub> O <sub>3</sub> (%)	SiO <sub>2</sub> (%)	Fe <sub>2</sub> O <sub>3</sub> (%)	TiO <sub>2</sub> (%)	LOI (%)
+ 53 μm	38	6.72	88.2	0.75	0.19	2.43
+45 μm, -53 μm	3	26.6	60.4	0.76	0.52	9.57
+38 μm, -45 μm	2	30.3	55	0.82	0.51	10.73
+20 μm, -38 μm	4	30.9	55	0.85	0.58	10.98
-20 μm	52	33.3	48.4	1.08	1.64	12.32
Calculated Head	100	22.71	64.49	0.93	0.98	8.34

**Table 2.** Results from the screening of sample KT 26.

**KT 35** (MGA 94, Zone 53 638474 E, 6317073N)

A grade of +30% is reported for the finest screen size (-20µm), with a significant amount (40%) of low grade material (quartz dominant) reporting to the coarsest fraction (+53 µm).

Screen Fraction	Recovery (%)	Al <sub>2</sub> O <sub>3</sub> (%)	SiO <sub>2</sub> (%)	Fe <sub>2</sub> O <sub>3</sub> (%)	TiO <sub>2</sub> (%)	LOI (%)
+ 53 µm	40.1	2.29	94.7	0.77	0.08	0.85
+45 µm, -53 µm	1.3	16.2	71.2	1.04	0.57	6.54
+38 µm, -45 µm	1.2	19.8	66.1	0.94	0.63	7.19
+20 µm, -38 µm	2.5	22.3	62.8	1.12	0.81	7.65
<b>-20 µm</b>	<b>54.9</b>	<b>30.8</b>	<b>46.5</b>	<b>1.17</b>	<b>1.23</b>	<b>13.33</b>
Calculated Head	100	18.84	66.79	1.00	0.74	8.02

**Table 3.** Results from the screening of sample KT 35.

**KT 27** (MGA 94, Zone 53 625134 E, 6317256N)

A grade of +29% is reported for the finest screen size (-20µm), with a significant amount (52%) of low grade material (quartz dominant) reporting to the coarsest fraction (+53 µm).

Screen Fraction	Recovery (%)	Al <sub>2</sub> O <sub>3</sub> (%)	SiO <sub>2</sub> (%)	Fe <sub>2</sub> O <sub>3</sub> (%)	TiO <sub>2</sub> (%)	LOI (%)
+ 53 µm	51.7	4.39	91.9	0.72	0.12	1.19
+45 µm, -53 µm	0.8	14.1	73.1	0.34	0.47	1.85
+38 µm, -45 µm	0.8	16.3	70.1	0.26	0.38	2.06
+20 µm, -38 µm	2.0	17.1	66.7	0.24	0.38	1.82
<b>-20 µm</b>	<b>44.7</b>	<b>29.2</b>	<b>54.6</b>	<b>0.63</b>	<b>0.4</b>	<b>10.23</b>
Calculated Head	100	15.90	74.40	0.66	0.26	5.25

**Table 4.** Results from the screening of sample KT 27.

**Next Steps**

The drilling at Franklyn Project is expected to be completed by Wednesday. Drill samples will then be submitted for wet screening and XRD testing to determine the presence of halloysite. The test work is expected to take 4-6 weeks with the results being disclosed as soon as they become available.

## About Archer

Archer provides shareholders exposure to financial returns from innovative technologies and the materials that underpin them. The Company's strategy is to build an industry-leading Materials Technology company, that delivers maximum value to shareholders through the commercialisation of assets at various stages of the materials lifecycle. Archer has strong intellectual property, broad-scope mineral tenements, world-class in-house expertise, a diverse advanced materials inventory, and access to over \$300 million of R&D infrastructure.

## For further information, please contact:

### General Enquiries

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For more information about Archer's activities,  
please visit our:

Website

<https://archerx.com.au/>

Twitter:

<https://twitter.com/archerxau?lang=en>

YouTube:

<https://bit.ly/2UKBBmG>

Medium:

<https://medium.com/@ArcherX>

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## Competent Person Statement

The information in this announcement that relates to Exploration Results is based on information compiled by Mr Wade Bollenhagen, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy and is a full-time employee of Archer Materials Limited.

Mr Bollenhagen has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken 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. Bollenhagen consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

**JORC Code, 2012 Edition – Table 1 Section 1 Sampling Techniques and Data** *(Criteria in this section apply to all succeeding sections.)*

Criteria	JORC Code Explanation	Commentary
<b>Sampling Techniques</b>	<ul style="list-style-type: none"> <li>Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as downhole 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 (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul style="list-style-type: none"> <li>Samples were large (5kg) grab samples taken at individual locations.</li> <li>Due to the grab nature they are not representative of the kaolin prospects, but do provide an indication only of the material being sampled.</li> </ul>
<b>Drilling Techniques</b>	<ul style="list-style-type: none"> <li>Drill type (e.g. core, reverse circulation, open hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).</li> </ul>	<ul style="list-style-type: none"> <li>No drilling being reported.</li> </ul>
<b>Drill Sample Recovery</b>	<ul style="list-style-type: none"> <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 style="list-style-type: none"> <li>No drilling being reported.</li> </ul>

Criteria	JORC Code Explanation	Commentary
<b>Logging</b>	<ul style="list-style-type: none"> <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 style="list-style-type: none"> <li>No drilling being reported.</li> </ul>
<b>Sub-Sampling Techniques and Sample Preparation</b>	<ul style="list-style-type: none"> <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 for field duplicate/second-half sampling.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul style="list-style-type: none"> <li>No drilling being reported..</li> </ul>
<b>Quality of Assay Data and Laboratory Tests</b>	<ul style="list-style-type: none"> <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 (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.</li> </ul>	<ul style="list-style-type: none"> <li>All wet chemistry laboratory work was undertaken by ALS, which included the blunging and screening work.</li> <li>ALS Geochemistry code ME-XRF26</li> <li>All work is very early indicative work on random samples that are not representative of an ore body.</li> <li>All Industry Standard practices are used in laboratory.</li> </ul>



Criteria	JORC Code Explanation	Commentary
<b>Verification of Sampling and Assaying</b>	<ul style="list-style-type: none"> <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 style="list-style-type: none"> <li>No drilling being reported.</li> <li>No verification of historical work has been undertaken by Archer.</li> <li>In 1993, the SA government undertook a review of the kaolin deposits on the Eyre peninsula, Report Book 93/57, where this historical work is summarised.</li> <li>The results being reported are still not of a quality to be considered of a verification standards</li> </ul>
<b>Location of Data Points</b>	<ul style="list-style-type: none"> <li>Accuracy and quality of surveys used to locate drillholes (collar and downhole 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 style="list-style-type: none"> <li>No drilling being reported.</li> <li>Sample positions are shown in images and co-ordinates reported.</li> </ul>
<b>Data Spacing and Distribution</b>	<ul style="list-style-type: none"> <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 style="list-style-type: none"> <li>No drilling being reported.</li> </ul>
<b>Orientation of Data in Relation to Geological Structure</b>	<ul style="list-style-type: none"> <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>	<ul style="list-style-type: none"> <li>No drilling being reported.</li> <li>The types of rocks that have been weathered to produce the kaolin cover very large aerial extents, far beyond the areas deemed exploration targets.</li> <li>Faults and other fracture type systems can enhance local weathering, i.e. deepen the system, it is unknown what influence if any these have played in the kaolin development,</li> </ul>
<b>Sample Security</b>	<ul style="list-style-type: none"> <li>The measures taken to ensure sample security.</li> </ul>	<ul style="list-style-type: none"> <li>No drilling being reported.</li> </ul>

Criteria	JORC Code Explanation	Commentary
<b>Audits or Reviews</b>	<ul style="list-style-type: none"><li>The results of any audits or reviews of sampling techniques and data.</li></ul>	<ul style="list-style-type: none"><li>No audits undertaken.</li><li>One review by the SA government in 1993 and summarised in Report book 93/57.</li></ul>

## Section 2 Reporting of Exploration Results

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

Criteria	JORC Code Explanation	Commentary
<b>Mineral Tenement and Land Tenure Status</b>	<ul style="list-style-type: none"> <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 style="list-style-type: none"> <li>Tenement status confirmed on SARIG</li> <li>All work being reported is from EL 5815 and ELA 2019/102, Archer Energy &amp; Resources Pty Ltd (a subsidiary of AXE) owns the tenement.</li> <li>The granted tenement is in good standing with no known impositions.</li> <li>It is unknown if the ELA will be granted, however no reason can be seen for it not to be.</li> </ul>
<b>Exploration Done by Other Parties</b>	<ul style="list-style-type: none"> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul style="list-style-type: none"> <li>Pechiney (1968 - 1971) and CSR (1971 - 1973).</li> <li>WMC (CRA) mid 1980's, exploring for base metals.</li> <li>Other explorers have held exploration licences over the ground up till the current date. Exploration has been for precious metals</li> </ul>
<b>Geology</b>	<ul style="list-style-type: none"> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<ul style="list-style-type: none"> <li>Deep weathering of the Cleve Uplands, south of Kimba on northern Eyre Peninsula, has resulted in widespread kaolinisation of early Proterozoic Hutchinson Group schist and Lincoln Complex.</li> </ul>

Criteria	JORC Code Explanation	Commentary
<b>Drillhole Information</b>	<ul style="list-style-type: none"> <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 style="list-style-type: none"> <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>Downhole 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 style="list-style-type: none"> <li>No drilling being reported.</li> </ul>
<b>Data Aggregation Methods</b>	<ul style="list-style-type: none"> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.</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 style="list-style-type: none"> <li>No drilling being reported.</li> </ul>
<b>Relationship Between Mineralisation Widths and Intercept Lengths</b>	<ul style="list-style-type: none"> <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 downhole lengths are reported, there should be a clear statement to this effect (e.g. ‘downhole length, true width not known’).</li> </ul>	<ul style="list-style-type: none"> <li>No drilling being reported.</li> </ul>
<b>Diagrams</b>	<ul style="list-style-type: none"> <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>	<ul style="list-style-type: none"> <li>No drilling being reported.</li> </ul>
<b>Balanced Reporting</b>	<ul style="list-style-type: none"> <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>	<ul style="list-style-type: none"> <li>The reporting is considered to be balanced.</li> </ul>

Criteria	JORC Code Explanation	Commentary
<b>Other Substantive Exploration Data</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>None to report at this stage of the review.</li> </ul>
<b>Further Work</b>	<ul style="list-style-type: none"> <li>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out 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>	<ul style="list-style-type: none"> <li>Exploration work is required to confirm the historical work and advance the projects towards a more certain nature, which will hopefully lead to a confidence level where resources can be estimated.</li> </ul>