



**10 September 2018**

## **First results confirm new areas with potential for further high grade NdPr mineralisation**

Rift Valley Resources Limited ("Company") (ASX: RVY) is pleased to report the results of recently completed geophysical and geological surveys at the Longonjo NdPr project.

Located adjacent to the \$1.8 billion rail link to the Atlantic Port of Benguela in the emerging West African economy of Angola the Company's 9,000 metre drill programme is setting out to confirm that the six square kilometre Longonjo Carbonatite hosts one of the world's largest deposits of NdPr.

Early field work results have confirmed extensive new areas of deep weathering with the potential to host high grade NdPr mineralisation as well as a large extension of the six square kilometre carbonatite to the southeast.

A ground penetrating radar geophysical survey has confirmed that the deep weathering profile that is host to the high grade NdPr mineralisation in the current Mineral Resource area continues over large areas to the east, west and north and that the weathering increases in thickness to the north.

The results correlate well with logged geology from diamond drilling, successfully defining the undulating weathered fresh rock interface in detail

- Extensive zones of deep weathering are indicated to the west, east and north of the previously drill tested area;
- The survey indicates even deeper weathering in the northern area of the carbonatite;
- Geological mapping has identified extensions to the Longonjo Carbonatite that will be drill tested by extending the current programme 900 metres to the southeast.

The 9,000 metre reverse circulation drilling programme currently in progress will test the entire prospective area of the Longonjo Carbonatite including these new areas, to determine the full extent of the NdPr mineralisation.

The Company is targeting a large high grade deposit that would rank Longonjo as one of the largest NdPr projects in the world. The Company expects to report the initial assay results from the drilling programme within a few weeks.

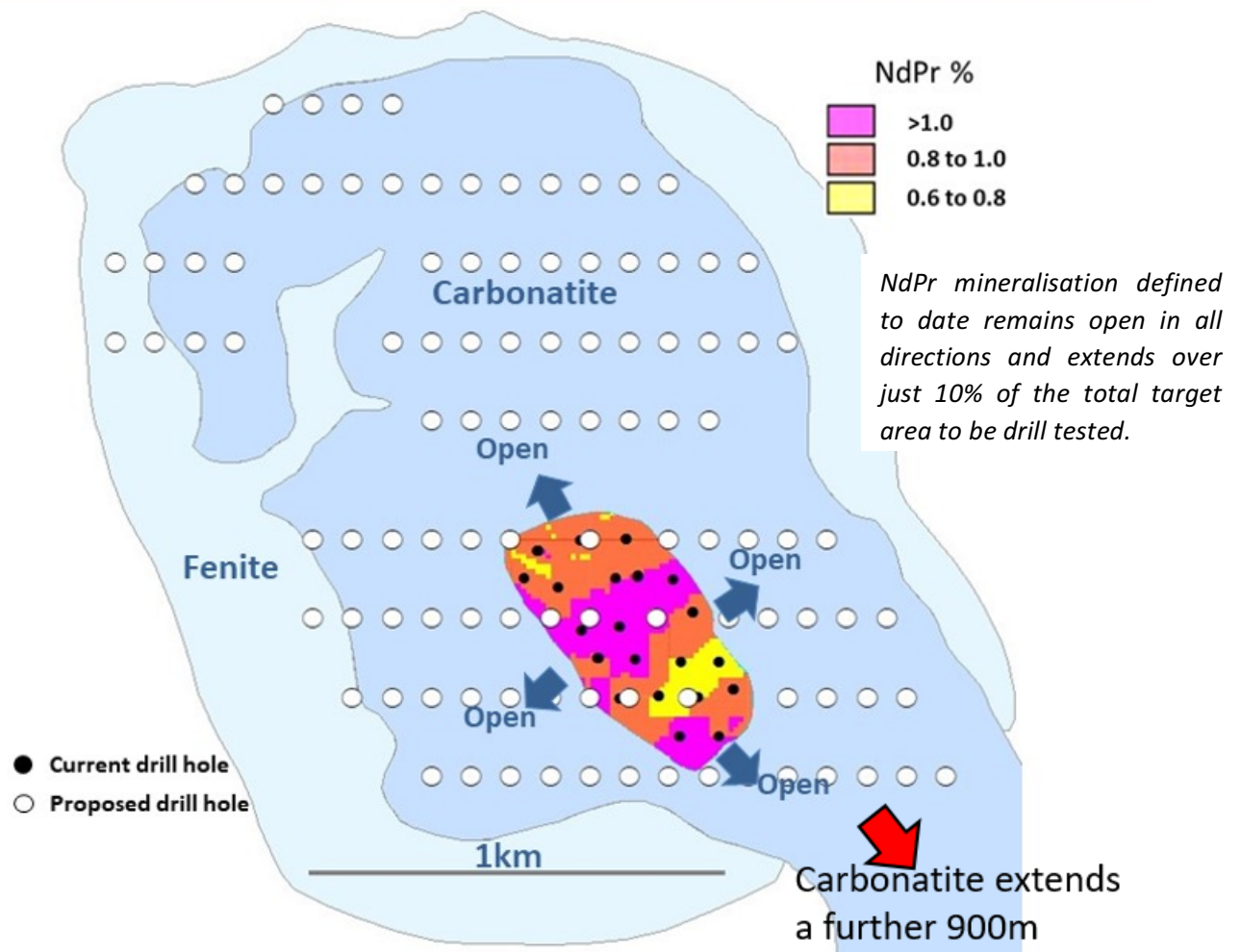
The project is situated in infrastructure rich Angola and linked by modern rail and road to a major Atlantic port.

**Chief Operating Officer Dave Hammond commented:**

*“The early results from the field programme have confirmed extensive new areas of deep weathering that have the potential to host high grade NdPr mineralisation. Geological mapping also confirms the target areas as well as a new extension of the carbonatite to the southeast. We look forward to testing these areas in the current programme and reporting the first assay results from the drilling within a few weeks.”*

## Technical Report

Encouraging results have been received from a ground penetrating radar geophysical survey. Geological mapping has identified potential extensions to the Longonjo Carbonatite which will extend the current drill programme 900 metres to the southeast.



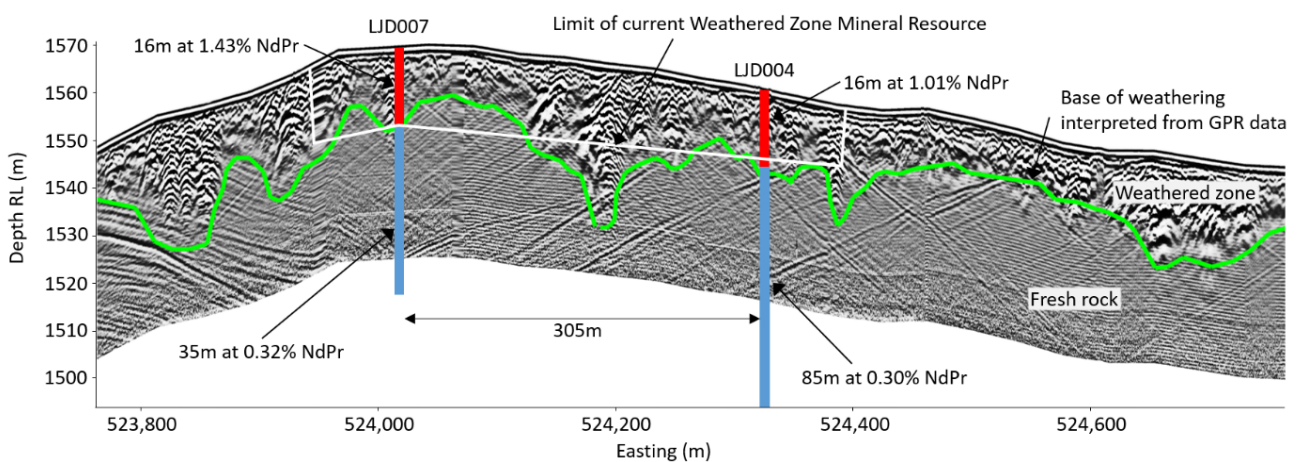
*Proposed drill holes, simplified geology and NdPr (oxide) grade block model. The red arrow illustrates the continuation of the carbonatite 900 metres to the south east.*



*Ground penetrating survey in progress over the largely soil covered Carbonatite.*

The high grade NdPr mineralisation at Longonjo is hosted by strongly weathered carbonatite rocks. The ground penetrating radar survey results have correlated well with the diamond drill logging in the Mineral Resource area, indicating that it is effective in mapping the important weathered rock to fresh rock interface.

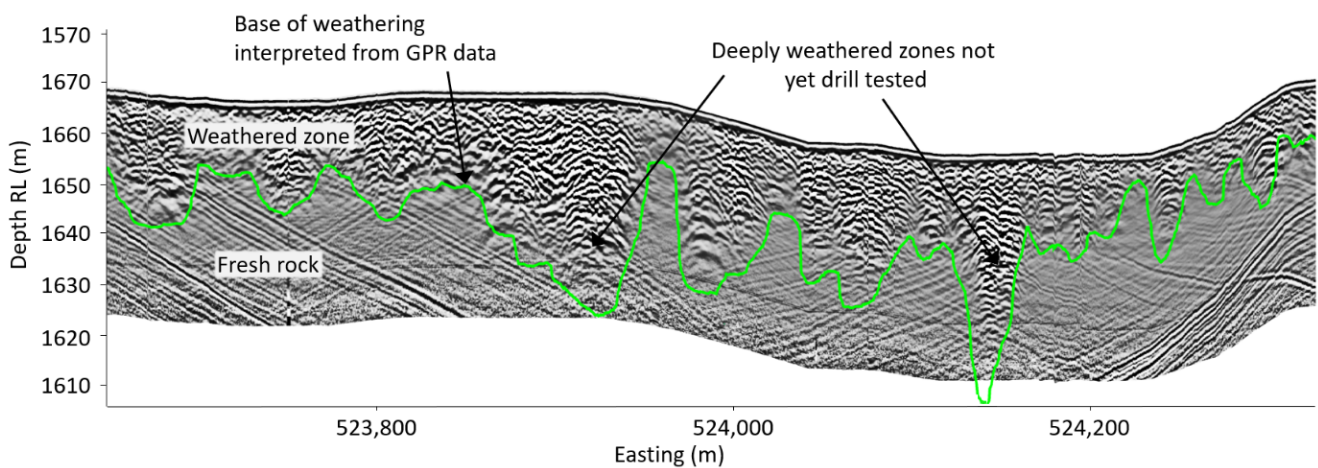
The results indicate a typically undulating interface and will be valuable in constructing an accurate geological model for future Mineral Resource estimation.



*The ground penetrating radar interpreted weathering interface in green correlates closely existing diamond drill logs (red = weathered, blue = fresh rock).*

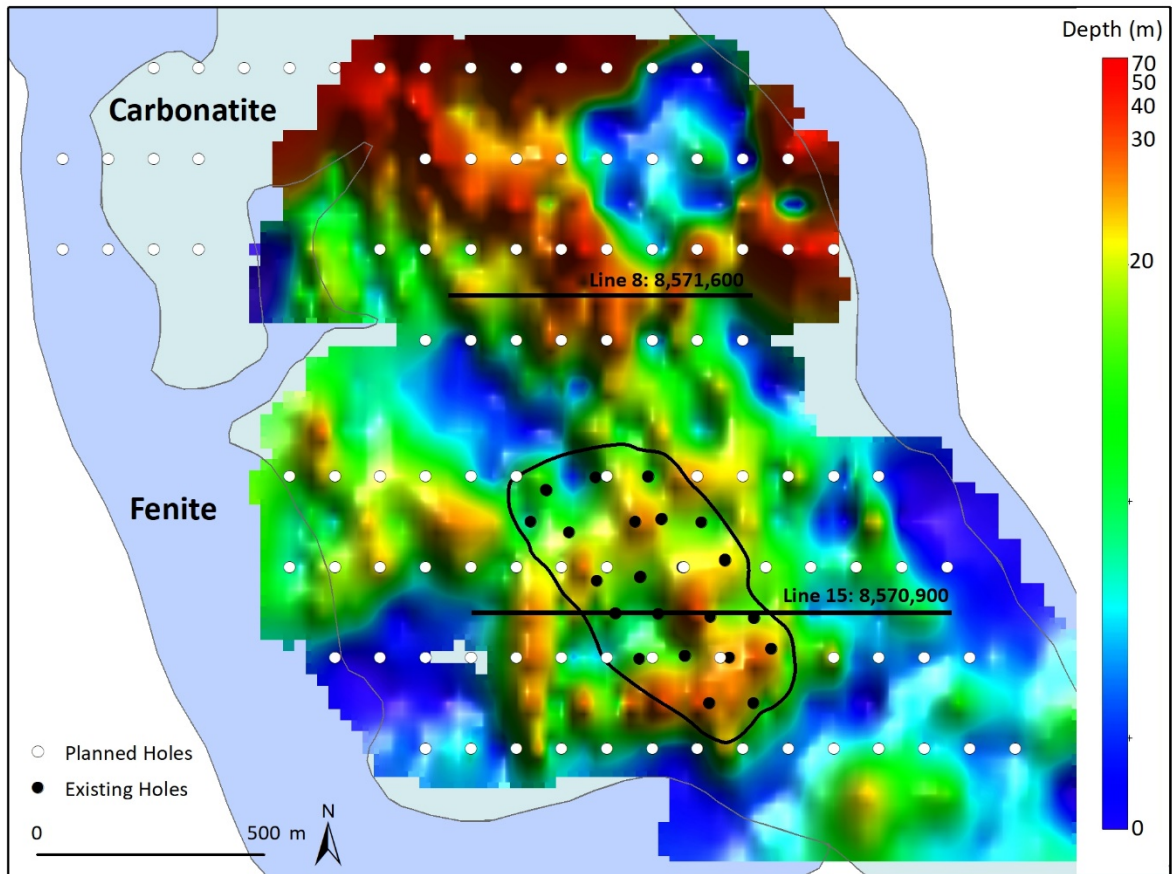
In addition extensive areas of deep weathering are indicated to continue immediately to the west and east of the current Mineral Resource area. (ASX announcement "Maiden JORC Mineral Resource estimate" 26 September 2017)

In the north of the Carbonatite, a large untested area of even deeper weathering, up to twice the average depth of the weathering in the area drill tested to date, has been identified by the ground penetrating radar survey and will be drill tested.



*Deeper undulating weathering profile in the north of the carbonatite, an area not yet drill tested.*





*Ground penetrating radar interpreted depth of weathering. Orange to red colours indicate zones of deeper weathering of 20 to 70 metres thickness.*

A programme of geological mapping and diamond core logging to define the extent of the NdPr prospective geology was completed by specialist geological consultant Dr Wally Witt.

The carbonatite takes the form of a sub-circular diatreme (a volcanic pipe formed by gaseous explosion), which is elongated to the south east. Carbonatite and associated rocks were located in sparse outcrops within soil covered fields up to one kilometre from the originally planned drilling programme. The drill pattern will be extended 900 metres to the south east to test these areas.





*Dr Wally Witt mapping geological outcrops within the Longonjo Carbonatite*

Additional work completed includes the successful acquisition of a satellite image and digital terrain model survey, which will provide an accurate surface topographic model over the entire carbonatite area to enable a high quality Mineral Resource estimate to be completed once drilling is completed.



*Laying out markers on accurately surveyed Ground Control Points for the satellite digital terrain survey.*

### **Competent Persons Statement**

The information in this report that relates to Geology and Exploration is based on information compiled and/or reviewed by David Hammond, who is a Member of The Australian Institute of Mining and Metallurgy. David Hammond is the Chief Operating Officer and a Director of the Company. He has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and the activity which he is undertaking to qualify as a Competent Person in terms of the 2012 Edition of the Australian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves. David Hammond consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

**-ENDS-**

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## Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections)

Criteria	JORC Code explanation	Commentar
Sampling techniques	<ul style="list-style-type: none"> <li><i>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 down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</i></li> <li><i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i></li> <li><i>Aspects of the determination of mineralisation that are Material to the Public Report.</i></li> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>Geophysical survey. No new sampling reported.</li> <li>Not applicable. See below regarding calibration of GPR results to accurately geologically logged diamond drilling</li> <li>High grade NdPr mineralisation occurs from surface in the weathered zone of the Longonjo Carbonatite above a sharp, undulating karstic contact with unweathered carbonatite rock. The dielectric permittivity, conductivity and magnetic permeability contrast between the two rock types can be detected by GPR.</li> <li>Not applicable</li> </ul>
Drilling techniques	<ul style="list-style-type: none"> <li><i>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).</i></li> </ul>	<ul style="list-style-type: none"> <li>Geophysical survey. No new drilling reported. Previous drilling details in ASX Announcement “Positive diamond drilling assay results at Longonjo” of 24 August 2017.</li> </ul>



<p><i>Quality of assay data and laboratory tests</i></p>	<ul style="list-style-type: none"> <li>• <i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i></li> <li>• <i>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.</i></li> <li>• <i>Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Geophysical survey. No new drilling or sampling reported.</li> <li>• Rift Valley contracted Core Geophysics to complete a trial UltraGPR system survey of the soil covered areas of the Longonjo Carbonatite. 30MHz and 80MHz transmitters and real time receivers with a 32,000 stacking rate were tested on 2 traverses before the 30MHz system was selected as optimum. The UltraGPR system comprises a 6m 'snake' towing a radar receiver in front of a radar transmitted, connected by dipole antennae. Data is transmitted via Bluetooth to a hand held DPA device and location is obtained via backpack DGPS. Data processing involves: zero time correction; gaining; dewowing; removal of signal ring down; band pass filtering; velocity analysis (depth); and migration. Interference was removed using a FFT filter.</li> <li>• Not applicable</li> </ul>
<p><i>Verification of sampling and assaying</i></p>	<ul style="list-style-type: none"> <li>• <i>The verification of significant intersections by either independent or alternative company personnel.</i></li> <li>• <i>The use of twinned holes.</i></li> <li>• <i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i></li> <li>• <i>Discuss any adjustment to assay data.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Geophysical survey. No new drilling or sampling reported.</li> <li>• Not applicable</li> <li>• Not applicable.</li> <li>• Not applicable</li> </ul>
<p><i>Location of data points</i></p>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> <li>• <i>Specification of the grid system used.</i></li> <li>• <i>Quality and adequacy of topographic control.</i></li> </ul>	<ul style="list-style-type: none"> <li>• All previous drilling and sample locations were surveyed using a hand held GPS, accurate to within 3-5m.</li> <li>• The grid system used is WGS84 UTM Zone 33S. All reported coordinates are referenced to this grid.</li> <li>• Ground Control Points have been established at Longonjo by a professional surveyor using an RTK DGPS. Handheld GPS are checked against these points</li> </ul>
<p><i>Data spacing and distribution</i></p>	<ul style="list-style-type: none"> <li>• <i>Data spacing for reporting of Exploration Results.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The UltraGPR data after processing provided along line station spacing of approximately 50cm and depth spacing of approximately 20cm to a maximum depth of 51.2m</li> </ul>



	<ul style="list-style-type: none"> <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>• Geophysical exploration results only being reported.</li> <li>• Not applicable</li> </ul>
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Orientation of data in relation to geological structure	<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>• The target is a subhorizontal blanket of weathered rock from surface. The GPR survey orientation of 100m spaced east – west lines with north – south tie lines is considered suitable for this style of mineralisation.</li> <li>• Not applicable</li> </ul>
Sample security	<ul style="list-style-type: none"> <li>• The measures taken to ensure sample security.</li> </ul>	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
Audits or reviews	<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>• Not applicable</li> </ul>

## Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
<i>Mineral tenement and land tenure status</i>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Prospecting License 013/03/09T.P/ANG-M.G.M/2015. Rift Valley owns a 70% holding in the Project with Ferrangol (10%), an agency of the Angolan government, and other Angolan partners (20%).</li> <li>• The concession is in good standing and no known impediments exist.</li> </ul>
<i>Exploration done by other parties</i>	<ul style="list-style-type: none"> <li>• <i>Acknowledgment and appraisal of exploration by other parties.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Previous workers in the area include Black Fire Minerals and Cityview Corporation Ltd who conducted geological mapping, rock and soil sampling over the Longonjo Carbonatite</li> </ul>
<i>Geology</i>	<ul style="list-style-type: none"> <li>• <i>Deposit type, geological setting and style of mineralisation.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The Longonjo Carbonatite is an extrusive sub circular diatreme. High grade NdPr mineralisation occurs within the shallow weathered zone from surface above a sharp karstic contact with unweathered rock. Disseminated mineralisation is residually enriched in the regolith zone.</li> </ul>

<i>Drill hole Information</i>	<ul style="list-style-type: none"> <li>• <i>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:</i> <ul style="list-style-type: none"> <li>○ <i>easting and northing of the drill hole collar</i></li> <li>○ <i>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</i></li> <li>○ <i>dip and azimuth of the hole</i></li> <li>○ <i>down hole length and interception depth</i></li> <li>○ <i>hole length.</i></li> </ul> </li> <li>• <i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>• No new drilling results reported. Previous drilling reported in ASX announcement “Positive diamond drilling assay results at Longonjo” of 24 August 2017.</li> <li>• No material information was excluded.</li> </ul>
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<i>Data aggregation methods</i>	<ul style="list-style-type: none"> <li><i>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.</i></li> <li><i>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.</i></li> <li><i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i></li> </ul>	<ul style="list-style-type: none"> <li>Not applicable</li> <li>Not applicable</li> <li>Not applicable</li> </ul>
<i>Relationship between mineralisation widths and intercept lengths</i>	<ul style="list-style-type: none"> <li><i>These relationships are particularly important in the reporting of Exploration Results.</i></li> <li><i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i></li> <li><i>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').</i></li> </ul>	<ul style="list-style-type: none"> <li>Not applicable, no new intersections reported</li> <li>Geometry of the mineralisation to previously reported drill hole intercepts is approximately perpendicular – vertical drill holes testing a sub horizontal weathered zone</li> <li>Not applicable</li> </ul>

<i>Diagrams</i>	<ul style="list-style-type: none"> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>An appropriate plan and sections have been included in this release.</li> </ul>
<i>Balanced reporting</i>	<ul style="list-style-type: none"> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>A plan view image portrays the interpreted weathering depth for all the survey area. Two typical survey lines are shown of the total 20 surveyed</li> </ul>
<i>Other substantive exploration data</i>	<ul style="list-style-type: none"> <li><i>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological</i></li> </ul>	<ul style="list-style-type: none"> <li>All information for the geophysical survey reported is presented. Refer to previous ASX announcements for details of previous exploration.</li> </ul>



*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.*

*Further work*

- *The nature and scale of planned further work (e.g. 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.*
- A 9,000m drilling programme commenced on 27 August 2018 at Longonjo to test the high grade weathered zone mineralisation over the entire prospective area of the carbonatite. The drilling will test the entire extent of the Longonjo Carbonatite, approximately 10x's the area of the current Mineral Resource estimate
- Appropriate diagrams accompany this release.