ASX Release: 9 August 2022

2022 DRILL PROGRAM CONFIRMS SCALE AND SIGNIFICANCE OF CUMMINS RANGE RARE EARTH DEPOSIT

Ten diamond holes completed to date underpinning an updated geological model that confirms the quality of the Cummins Range asset

HIGHLIGHTS

- **Excellent progress with 2022 growth drilling program at Cummins Range**
- **Ten diamond holes completed to date over 500m of strike and to depths of 600m**
- **Drilling identifies three large south-westerly dipping carbonatite dykes ranging from 50m to 250m in width**
- **Mineralisation is controlled by structures related to the carbonatite dykes**
- **Multiple target areas favourable for carbonatite dykes remain untested**
- **Deeper diamond holes support geological interpretation of regolith mineralization extending to greater depths**

RareX Limited (ASX: **REE**; "**Rarex**") is pleased to provide an update on the growth drilling program currently underway at its 100%-owned **Cummins Range Rare Earths Project** in the Kimberleys, Western Australia.

The drilling is making excellent progress with a total of twenty six drill holes with ten diamond holes completed so far in the 2022 program. The ten diamond holes have been completed over a strike length of 500m, testing multiple mineralised positions to depths greater than 600m.

These holes, combined with the historical database, have been used to create a geological model. The model is constrained by drilling in the north-western portion of the 2km diameter pyroxenite carbonatite pipe. Over 50% of the pipe remains largely untested with less than 2,000m of sparsely drilled holes completed to less than 50m deep.

The geological model highlights the scale and quality of the Cummins Range deposit, as well as its substantial growth potential.

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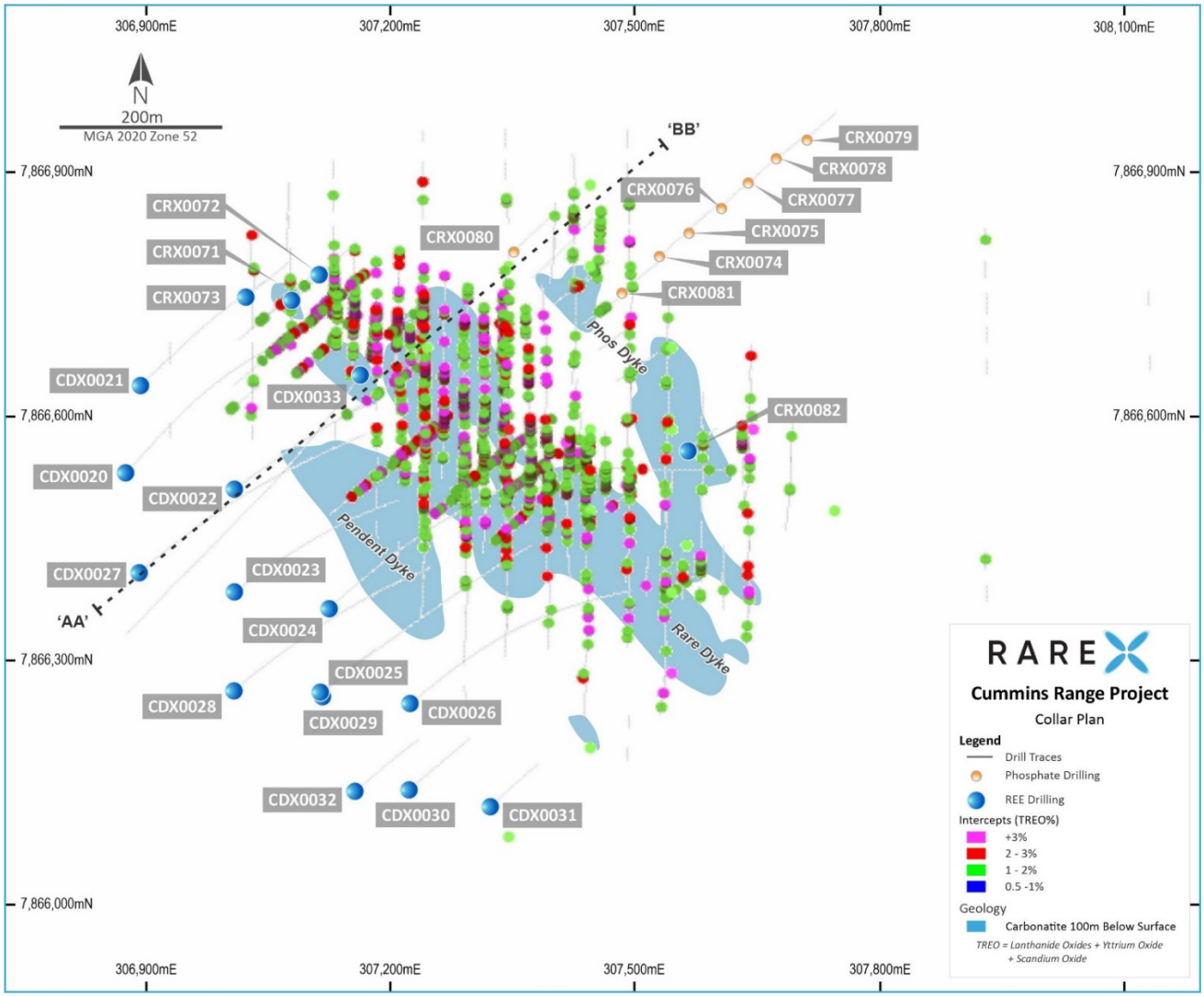

Figure 1. Collar Plan

Carbonatite Architecture

The Cummins Range Resource[1] sits largely within the regolith overlying three sub-parallel carbonatite dykes that strike at 320 degrees and dip to the south-west at 55 degrees (Figure 2). The dykes range from 50m to over 200m wide and have proximal networks of carbonatite dykes generally less than 5m wide.

The high-grade regolith mineralisation sits above the central dyke and this has been named the Rare Dyke. The northern dyke is characterised at surface by high-grade phosphate mineralisation as previously announced in February (see ASX announcement dated 14 February 2022) and is named the Phos Dyke. The Pendent Dyke sits above the Rare Dyke.

[1] Indicated 11.1Mt at 1.32% TREO + 0.17% Nb_2O_5; Inferred 7.7Mt at 0.88% TREO + 0.11% Nb_2O_5

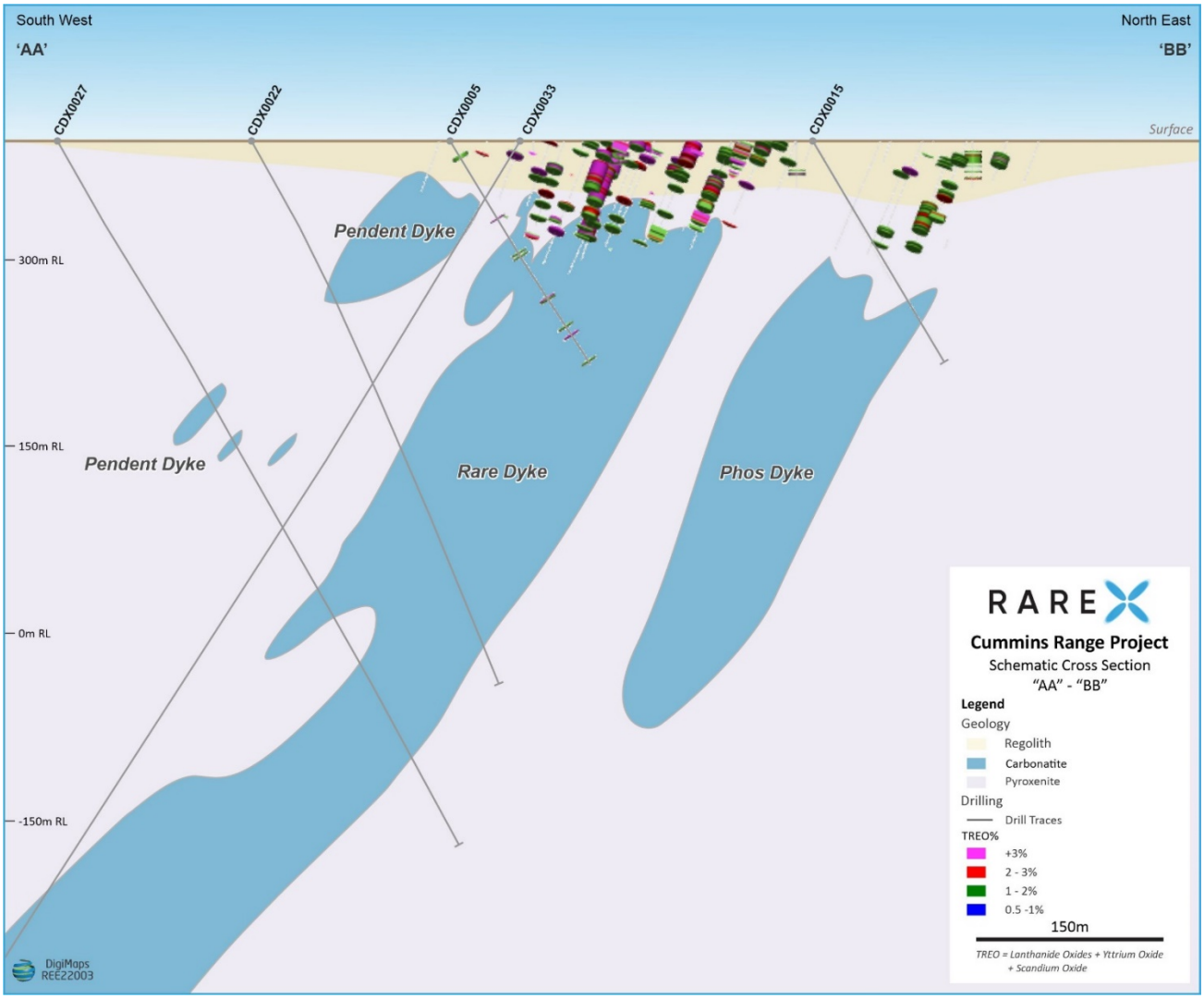

Figure 2. Cross Section showing the three main modelled dykes

The **Rare Dyke** has been modelled for 750m of strike and is open to the south-east and at depth. To the north- west, the dyke thins as it approaches the north-western boundary of the pipe. Rare Dyke hosts monazite and bastnäsite minerals with mineralised zones on the hanging wall, within the carbonatite itself and in the footwall position. The dyke and surrounding wall rocks have been structurally disrupted with common foliation, brecciation and faulting. Structures are controlling mineralisation and the strongly mineralised Main Fault is located on or proximal to the hanging wall contact of the Rare Dyke.

The **Phos Dyke** is only defined by a few holes at depth and is poorly constrained on its northern boundary. Its most distinguishing feature is the presence of high-grade phosphate as coarse apatite in phoscorite rocks. The Phos Dyke remains inadequately tested for REE mineralisation and contains significant phosphate (see ASX announcement dated 14 February 2022).

The **Pendent Dyke** is poddy and irregular and joins the Rare Dyke at surface in the centre of the deposit and is no more than 50m thick.

Monazite and Bastnäsite Mineralisation

Monazite and bastnäsite hosted REE mineralisation is found in 3 positions shown on Figure 3.

The first is located within the hanging wall where monazite-bastnäsite in carbonatite veins are found within a fenitized clinopyroxene host. These mineralised veins are within or proximal to structures. A scissor hole drilled at 230 degrees (CDX0033) has been drilled down the hanging wall position and initial investigations of structures and mineralisation are confirming dipping contacts and structures to the south-west.

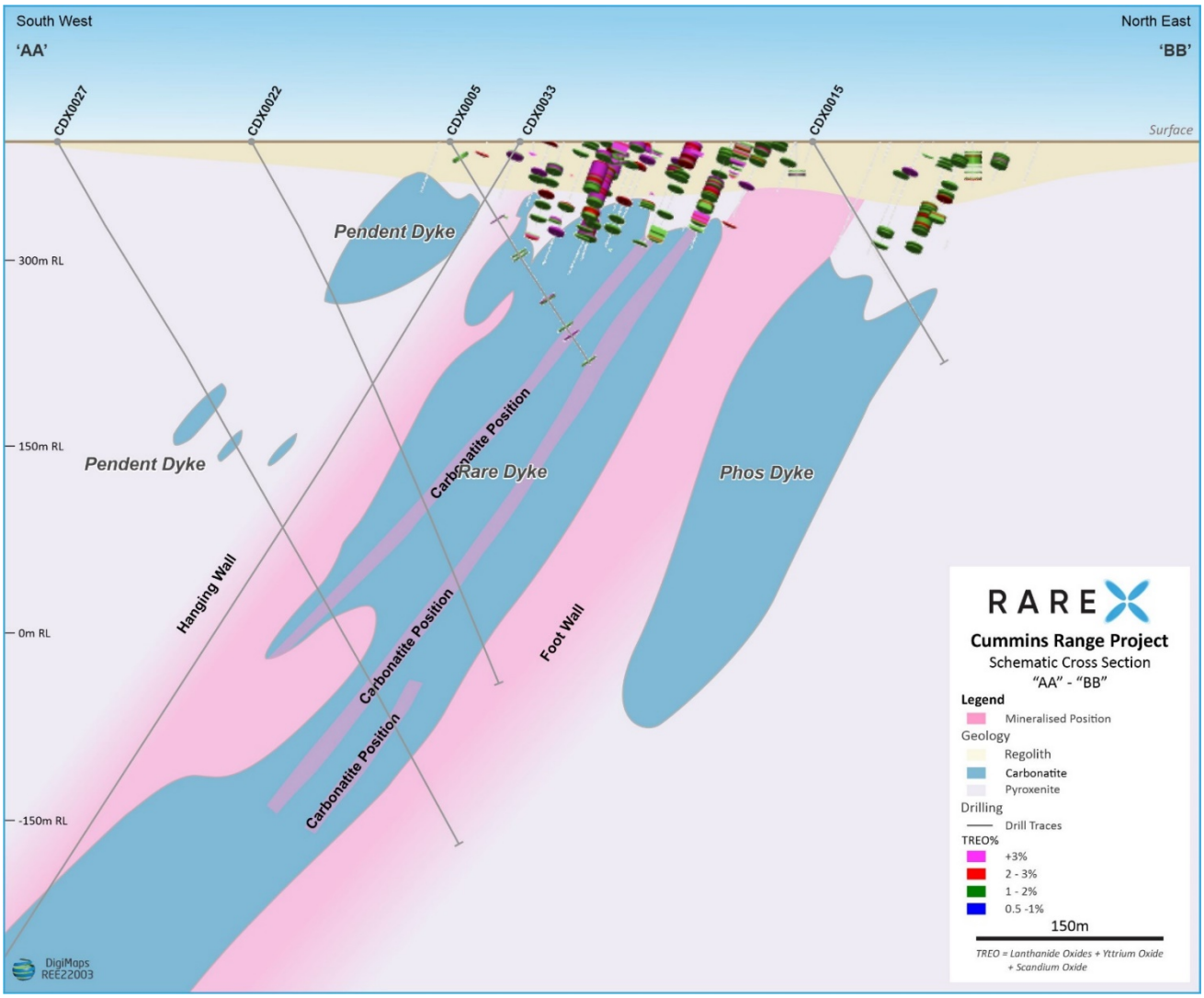

Figure 3. Section showing mineralised positions. The 2022 diamond holes are being drilled towards the north-east at 50 degrees azimuth.

The second mineralised setting is within the Rare Dyke. Monazite and bastnäsite form in or proximal to structurally disrupted horizons. These range from intensely faulted zones or a weakly crackle brecciated zones. There are multiple zones throughout the Rare Dyke.

Mineralisation is lastly located within the footwall of the Rare Dyke. This setting has the same mineralisation characteristics as the hanging wall. Not many drill holes have been drilled through to this position and it remains poorly tested.

In the 2022 drilling program, RareX are testing these three REE mineralization settings at depth. It is expected that the bulk of REE will be found in the hanging wall and within the Rare Dyke. The geological model has highlighted additional targets that are only being partially tested this year, particularly in areas between the Rare and Phos Dykes and along the north eastern edge of the Phos Dyke.

The geological interpretations continue to evolve with each drill hole in 2022 as more dykes are explored within the pipe.

CSA Global are reviewing the Cummins Range Project with carbonatite specialist, Pete Siegfried. Pete has vast experience in carbonatite mineral systems and is focusing on the regolith mineralisation at Cummins Range.

This announcement has been authorised by the Board of RareX Limited.

Competent Person's Statement

The information in this announcement that relates to the geological model is based on and fairly represents information compiled by Mr Guy Moulang, an experienced geologist who is an employee of RareX Limited. Mr Moulang is a Member of the Australian Institute of Geoscientists and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity to 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 Moulang consents to the inclusion in this announcement of the matters based on this information in the form and context in which it appears. Prior exploration results were reported in accordance with Listing Rule 5.7 and the Company confirms there have been no material changes since the information was first reported.

The Mineral Resource Estimate in this announcement was reported by the Company in accordance with listing rule 5.8 on 19 July 2021. The Company confirms it is not aware of any new information or data that materially affects the information included in the previous announcement and that all material assumptions and technical parameters underpinning the estimates in the previous announcement continue to apply and have not materially changed.

Appendix 1: Drill Collar Table

Hole ID	East MGA	North MGA	RLUTM	End Depth (m)	Azimuth	Dip	Type	Status
CRX0071	307080	7866743	393	144	50	60	RC	Awaiting Assays
CRX0072	307113	7866776	393	96	50	60	RC	Awaiting Assays
CRX0073	307023	7866747	393	138	50	60	RC	Awaiting Assays
CRX0074	307528	7866794	390	120	50	60	RC	Awaiting Assays
CRX0075	307561	7866824	390	114	50	60	RC	Awaiting Assays
CRX0076	307602	7866854	390	114	50	60	RC	Being processed
CRX0077	307638	7866884	390	102	50	60	RC	Being processed
CRX0078	307672	7866914	390	102	50	60	RC	Being processed
CRX0079	307708	7866938	390	102	50	60	RC	Being processed
CRX0080	307349	7866800	390	126	50	60	RC	Being processed
CRX0081	307480	7866749	390	156	50	60	RC	Awaiting Assays
CRX0082	307564	7866558	390	96	50	60	RC	Being processed
CDX0020	306874	7866530	393	666	50	60	Diamond	Awaiting Assays
CDX0021	306893	7866640	393	345.2	50	60	Diamond	Awaiting Assays
CDX0022	307007	7866508	393	470.6	50	60	Diamond	Awaiting Assays
CDX0023	307008	7866383	393	198	50	60	Diamond	Awaiting Assays
CDX0024	307124	7866364	390	545.8	50	60	Diamond	Awaiting Assays
CDX0025	307115	7866259	390	198	50	60	Diamond	Being processed
CDX0026	307222	7866245	390	578.8	50	60	Diamond	Awaiting Assays
CDX0027	306890	7866407	390	653.8	50	60	Diamond	Being processed
CDX0028	307005	7866261	390	695.8	50	60	Diamond	Being processed
CDX0029	307115	7866260	390	578.8	50	60	Diamond	Being processed
CDX0030	307221	7866140	390	198	50	60	Diamond	Hole In progress
CDX0031	307323	7866121	390	150	50	60	Diamond	Hole In progress
CDX0032	307156	7866139	390	198	50	60	Diamond	Hole In progress
CDX0033	307164	7866652	390	701	230	60	Diamond	Being processed

Appendix 2: JORC 2012 Table 1

Cummins Range Section 1 Sampling Techniques and Data		
Criteria	**JORC Code Explanation**	
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.*	• The Cummins Range Rare Earth deposit is being drilled tested with RC drilling and diamond drilling. • The RC drill rig used a 5 ½ inch diameter hammer. Each 1m bulk sample was collected in a plastic bag. • Diamond drill sizes used are PQ, HQ and NQ2 • Each metre was analysed with a portable XRF, and recovery and geology logs were completed. • Sample interval selection was based on geological controls and mineralisation • Each 1m RC bulk sample was split with a riffle splitter to the appropriate size. Samples varied in length from 1m to 4m. • Each core sample was cut in half with a brick saw. The half core sample was sent to the laboratory with intervals ranging from 0.3m to 1.3m. • Samples were assayed for 42 elements using either a peroxide fusion with a ICP-OES and ICP-MS finish, or a four acid digest with a ICP-OES and ICP-MS finish
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).*	• Prefix CRX drill holes are reverse circulation (RC) drilling • Prefix CDX are diamond drilling. CDX0020 to CDX0032 have RC precollars ranging from 150-200m deep. Holes were then continued NQ2 diamond core
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.*	• Recoveries for diamond drill holes were recorded for each metre. • Recoveries for the RC drill holes are characterized as good=>70%, Moderate=40-70%, Poor=<40%.

Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* *The total length and percentage of the relevant intersections logged.*	• All metres drilled had a geology log completed. Geology logs were aided using geochemical analysis from a portable XRF. • The detail of logging is appropriated for Mineral Resource estimation.
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.*	• Splits from the drill rig were not used. The entire 1m bulk sample was split with a riffle splitter to the appropriate size. Samples varied in length from 1m to 4m. • This RC sampling technique is better than industry standards and is appropriate for this style of mineralisation and for resource estimation. • Diamond core was cut in half with an automatic core saw and sent to the laboratory. This is an appropriate method for this style of mineralization and for resource estimation.
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.*	• No assay results have been released in this announcement.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.* *The use of twinned holes.*	• No assay results have been released in this announcement.

	The verification of significant intersections by either independent or alternative company personnel. *Discuss any adjustment to assay data.*	• Historic assay results are reported to RareX in parts per million (ppm). RareX geological staff then convert the parts per million to ppm oxides using the below element to stoichiometric oxide conversion factors. La_2O_3 1.1728, CeO_2 1.2284, Pr_6O_{11} 1.2082, Nd_2O_3 1.1664, Sm_2O_3 1.1596, Eu_2O_3 1.1579, Gd_2O_3 1.1526, Dy_2O_3 1.1477, Ho_2O_3 1.1455, Er_2O_3 1.1435, Tm_2O_3 1.1421, Yb_2O_3 1.1387, Lu_2O_3 1.1371, Sc_2O_3 1.5338, Y_2O_3 1.2699, Nb_2O_5 1.4305, P_2O_5 2.2916
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.*	• Drill hole collars were located by handheld GPS • All coordinates are in MGA Zone 52H 1994 • Topographic control is maintained by the use of previously surveyed drill holes. The Cummins Range deposit is located on flat terrain. • Down hole surveys were taken every 30m, using a digital Reflex multi shot camera.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.* *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* *Whether sample compositing has been applied.*	• The purposed of the drill program is to test for primary mineralization. Drill lines are 80m apart with 160m spaced drill hole. This is appropriate to establish geological and grade continuity. • 2m to 4m RC composites were completed in areas where higher grades were not expected
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.*	• The angled drill holes were directed as best as possible across the known geology.
Sample security	*The measures taken to ensure sample security*	• Drill samples are delivered to Halls Creek by RareX staff. Then the samples are transported from Halls Creek to Perth via a reputable transport company.

Cummins Range Section 2 Reporting of Exploration Results		
Criteria	***JORC Code Explanation***	
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 Cummins Range REO deposit is located on tenement E80/5092 and is 100% owned by Cummins Range Pty Ltd which is a wholly owned subsidiary of RareX Ltd.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	• CRA Exploration defined REO mineralisation at Cummins Range in 1978 using predominantly aircore drilling. Navigator Resources progressed this discovery with additional drilling after purchasing the tenement in 2006. Navigator announced a resource estimate in 2008. Kimberly Rare Earths drilled additional holes and upgraded the resource estimate in 2012.
Geology	*Deposit type, geological setting and style of mineralisation.*	• The Cummins Range REO deposit occurs within the Cummins Range carbonatite complex which is a 2.0 km diameter near-vertical diatreme pipe that has been deeply weathered but essentially outcropping with only thin aeolian sand cover in places. The diatreme pipe consists of various mafic to ultramafic rocks with later carbonatite intrusions. The primary ultramafic and carbonatite rocks host low to high grade rare earth elements with back ground levels of 1000-2000ppm TREO and high grade zones up to 17% TREO. The current resource sits primarily within the oxidised/weathered zone which reaches to 120m below the surface. Metallurgical studies by previous explorers and by RareX show the rare earth elements are hosted by Monazite and bastnasite which is a common and favourable host for rare earth elements.
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:*	• All drill hole locations are shown on the drill plan and collar details are tabled within the announcement

	• *easting and northing of the drill hole collar* • *elevation or RL (Reduced Level – 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 results were reported in this announcement
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').*	• The angled drill holes were directed as best as possible across the known geology. • The true width of the intercepts in this announcement are >80% of the down hole lengths
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.*	• Sections, a drill hole plan and a vertical longitudinal projection are with in the announcement.
Balanced reporting	*Where comprehensive reporting of all Exploration Results is not practicable,*	• Reporting is considered balanced

	representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	
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.*	• This announcement describes the first diamond drill holes targeted at expanding the Cummins Range resource. Cummins Range deposit has a JORC compliant resource of 18.8Mt at 1.15% TREO + 0.14% Nb2O3. Metallurgical studies, water monitoring bores and flora studies are currently being conducted and a mining lease is under application.
Further work	*The nature and scale of planned further work (eg tests for lateral 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 further 14 000m to be drilling in 2022 • Metallurgical tests are being conducted • Scoping studies are being conducted