LOTUS DISCOVERS HIGH-GRADE RARE EARTH OXIDES AT KAYELEKERA

Lotus Resources Limited (**LOT**, **Lotus** or the **Company**) is pleased to announce it has discovered high-grade rare earth oxide (REO) material up to 16% total REO and 3.4% critical REO at Milenje Hills prospect, 2km from its Kayelekera Uranium Mine in Malawi, following a preliminary low-cost exploration program.

While the Company remains firmly focused on the development and subsequent recommencement of uranium production at Kayelekera, given the grade and favourable assemblage of these rare earths, it is considering additional work to determine the potential of this discovery, prior to assessing the optimal path forward.

HIGHLIGHTS

- **Exploration activities including geophysics, mapping, and trenching at the Milenje Hills prospect 2km from the Kayelekera Mine has discovered total REOs up to 16% (average 8% from 22 mineralised samples), and critical REOs up to 3.4% (Dy, Eu, Nd, Pr, Tb, Y oxides; average 1.6% across the 22 mineralised samples)**
  - While the results have been obtained from trenching material, the average grade of the Total REO (3.5%) across all 70 samples assayed is attractive given that the average grade of the resources of ASX listed Rare Earth companies ranges between 0.63% and 5.4% (Appendix 2)
  - REO mineralisation is hosted in allanite-rich pegmatites and granitoids and starts from surface (see Images 8 and 9)
- **Rare-earth assemblage includes significant portions of neodymium (Nd), europium (Eu), terbium (Tb), dysprosium (Dy), yttrium (Y), and praseodymium (Pr)**
  - Neodymium and praseodymium oxides represent on average ~20% of the Total REO content of the assayed samples. These two elements, along with Dy and Tb are essential for the manufacture of permanent magnetics, which make-up ~90% of the value of the REO market.
  - Neodymium-Praseodymium oxide, Dysprosium Oxide and Terbium Oxide experienced a significant price increase in 2H2020 (see Image 1)
- **In addition to rare earth oxides, samples with up to 7% TiO_2 present as rutile were seen, with this mineralisation consistent with the high-grade REO mineralisation.**
- **Geophysics has identified additional targets, including some below the trenching limits, which require further investigation.**
- **Lotus is considering additional low-cost exploration and testwork to further define the potential of this discovery.**

Eduard Smirnov, Managing Director, commented:

"Whilst the Company remains firmly focused on the development and recommencement of production at the Kayelekera Uranium Mine, these results are highly encouraging given the mineralisation starts from surface, the high-grade nature and most importantly the assemblage of rare earth minerals. Notably, the presence of high-grade neodymium-praseodymium oxide, a product which is an essential ingredient for multiple clean technologies, has experienced a significant price increase recently, with further price appreciation expected in the future.

"The Company is now assessing additional low-cost work to better understand the potential and viability of rare earths at the Project before considering the optimal path forward to crystalise value for shareholders."

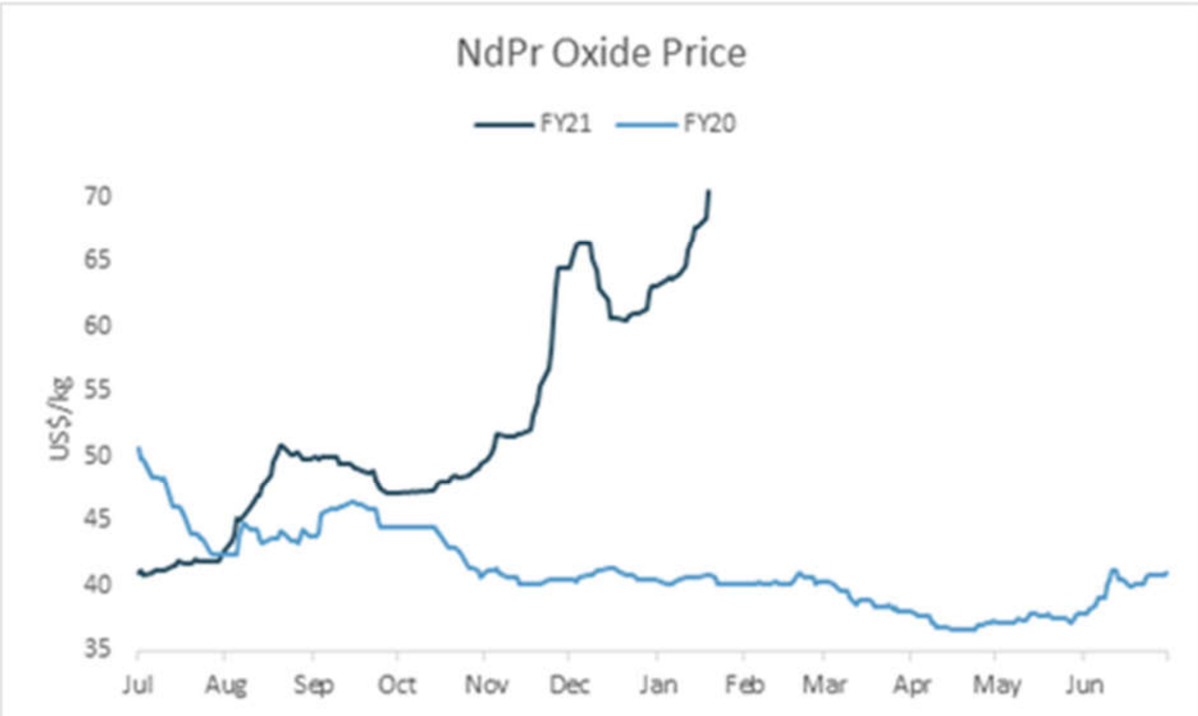

Image 1: Neodymium- Praseodymium oxide price (source: Euroz Hartleys)

MILENJE HILLS REO PROSPECT

The Milenje Hills prospect is located 2km north of Lotus's Kayelekera Uranium Mine and was first identified through ground surveys and mapping in 2014 whilst exploring for uranium mineralisation adjacent to the Kayelekera uranium resource.

info@lotusresources.com.au
lotusresources.com.au
TEL +61 892782441
ABN: 38 119 992 175
Lvl 1, 1202 Hay St, West Perth WA 6005
PO BOX 1968, West Perth WA 6872

Image 2: View from the Milenje Hills Rare Earth prospect to Uranium Processing Facility

Historical work identified the presence of rare earth oxide material (see ASX Announcement – 7 April 2020). Lotus completed this additional program to better define the nature and extent of the mineralisation which had not been fully outlined due to lack of surface exposure of the mineral bearing rocks. Specifically, the program consisted of:

- Geological mapping;
- Geophysical surveys;
- Rock and soil sampling; and
- Trenching and sampling.

Ground Magnetics program

A ground magnetics survey consisted of a total of 12 lines (L106 to L109, L103 and L112 to L118) traversed from north to south. Initial data processing showed large anomalies occupying the lower regions in the south-western area and formed a band trending in the NW-SE direction which is parallel to the Karoo-basement contact and the NW trending boundary fault.

Image 3: Kayelekera personnel in the field undertaking the geophysics surveys

Further processing of the residual data generated the reduction to pole derivatives i.e., first vertical derivative, low pass and high pass filtered data.

A low pass filter, which highlights long wavelength signals, identifies large, deep and regional types of bodies, whilst the high pass filtering highlights short wavelength and smaller near surface anomalies (see maps in Images 4 and 5). The Milenje data identified large deep and regional anomalies to the west, followed by a flat featureless middle section and ending in a section with some regional anomalies.

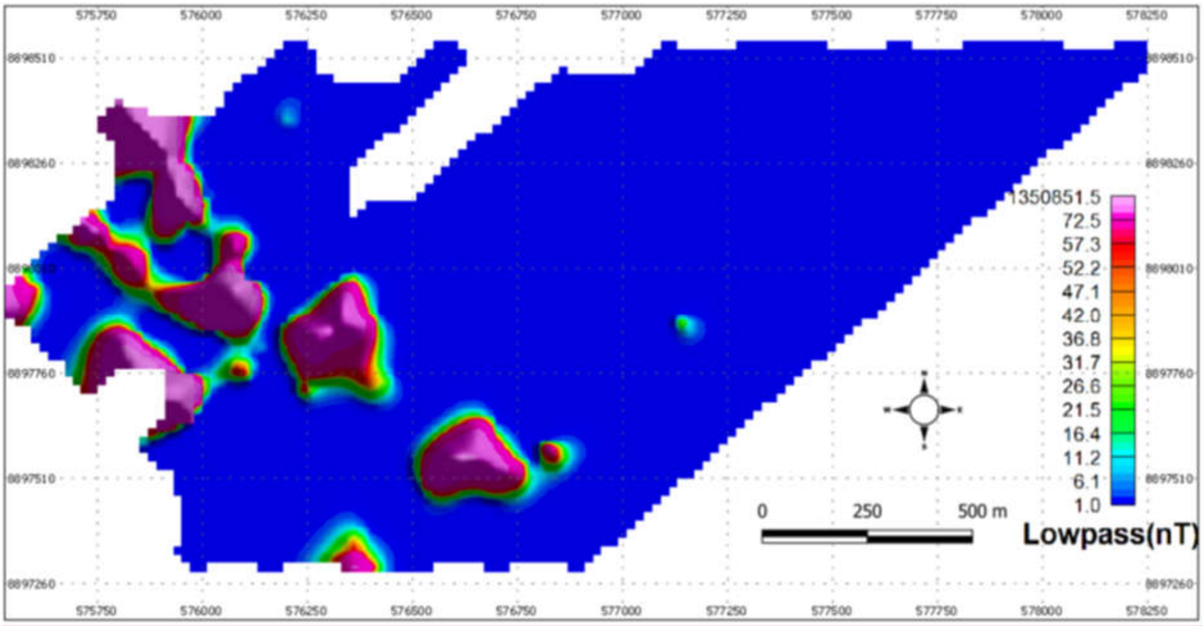

Image 4: Map showing low pass filtered data for the southern block

The high pass filtered signal shows an interspacing of peaks which could be attributed to thin dykes in the area.

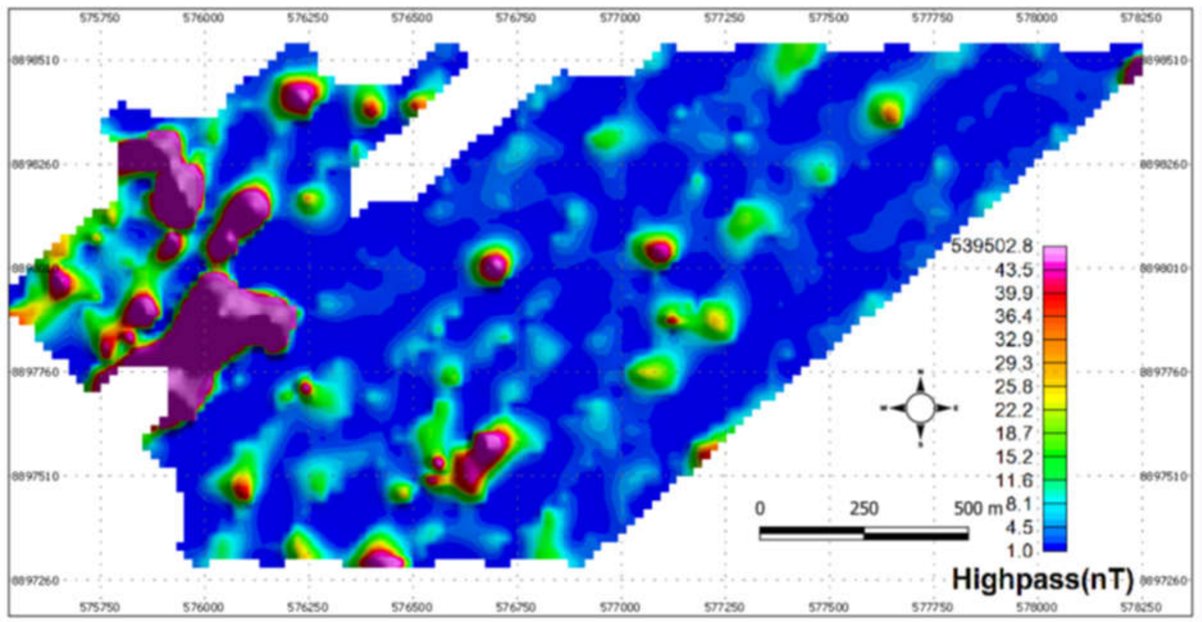

Image 5: Map showing high pass filtered data for the southern block

From these maps, Lotus identified targets for modelling, with attention given to peaks in the filtered data which would result in sizable magnetic bodies close to surface as these were suitable for trenching.

Modelling produced 29 magnetic bodies with depth ranging from 73m to 450m and thickness varying from 2m to 54m. The modelling work also showed that the areas with the highest potential overlaps the Karoo-basement boundary, an area dominated by high amplitude magnetic anomalies.

The modelling also revealed a large anomaly which was not fully covered by the survey lines that will need to be followed up. Based on these results a map was generated which identified the potential targets for the trenching program.

Trenching and Sampling

Lotus completed 17 trenches across an area of approximately 3km of strike (see Image 7). All trenches were logged for geology and radiometrics with channel samples collected at 1m spacing along the length of the trench (see Image 6).

Preliminary sample analysis was completed using a portable XRF analyser to confirm the host rocks and samples showing prospective geochemical signatures were selected for further chemical analysis. Samples from twelve trenches were selected on this basis and sent to SGS Laboratories in Johannesburg for assay. Standard QA/QC protocols including standards, duplicates and blanks were incorporated to ensure the validity of the assay results.

Image 6: Logging trenches

Two of the trenches sampled were excavated in the microgranites (MTR16 and 17) and four trenches were cut across the pegmatitic granites (MTR24A and B, 25A and 26). The remaining trenches were excavated in predominantly biotite granite gneisses.

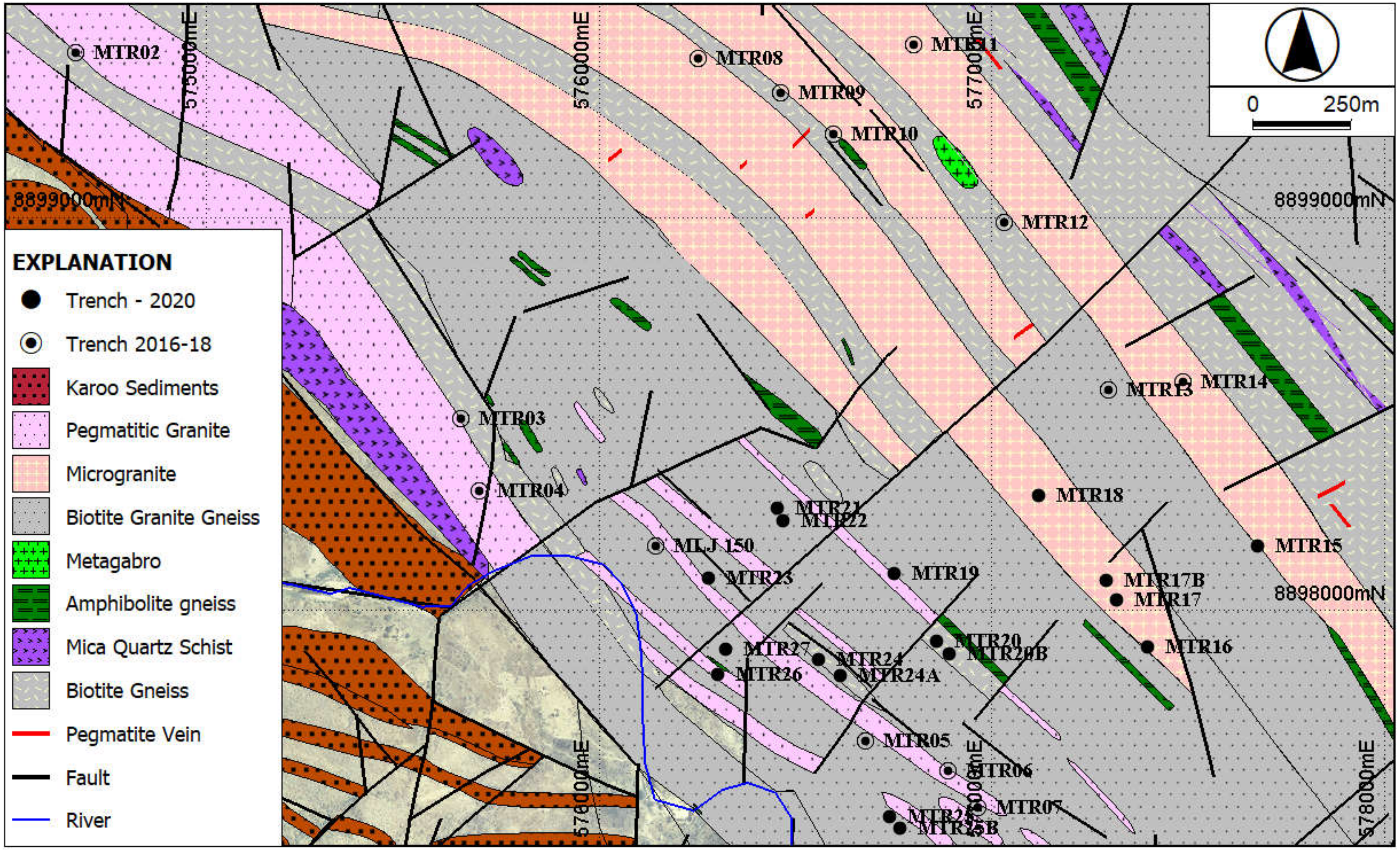

Image 7: Plan View showing trenching locations

Images 8 and 9 show a selection of trenches with the lithology boundaries and descriptions highlighted. The areas of interest are the alanite-bearing host rocks (highlighted in yellow) which can be seen to start from surface.

A cross-section of assay results is shown below in Tables 1 and 2 for the two lithology types identified. The pegmatites appear to be generally higher grade, specifically with regard to TiO_2 levels (3.4% vs. 2.1%) and NdPrO (1.6% vs. 1.3%). A full table of results for all samples collected and assayed from the trenches is shown in Appendix 3.

Table 1: Channel Samples (highlights) with REO & TiO2 analysis (%) - Micrograntes

Sample ID	Trench #	Length (m)	TiO_2	Critical REO (+Y)	TREO (+Y)	NdPr Oxide	NdPr/TREO ratio
13419	MTR16	1 – 2 m	3.30	1.14	5.55	1.09	0.20
13420	MTR16	2 – 3 m	3.30	1.31	6.24	1.25	0.20
13421	MTR17A	0 - 1 m	0.33	0.31	2.27	0.29	0.13
13422	MTR17A	1 – 2 m	0.82	1.15	8.48	1.10	0.13
13423	MTR17A	2 - 3 m	4.30	2.56	14.32	2.47	0.17
13424	MTR17A	3 - 4 m	1.17	1.17	6.91	1.13	0.16
13425	MTR17A	4 – 5 m	1.42	1.77	9.79	1.70	0.17
Average		**7**	**2.09**	**1.34**	**7.65**	**1.29**	**0.17**
Note: 'Critical' REO have been defined here as Neodymium (Nd), Europium (Eu), Terbium (Tb), Dysprosium (Dy) and Yttrium (Y), and Praseodymium (Pr)							

Table 2: Channel Samples (highlights) with REO & TiO2 analysis (%) - Pegmatites

Sample ID	Trench #	Length (m)	TiO_2	Critical REO (+Y)	TREO (+Y)	NdPr Oxide	NdPr/TREO ratio
13449	MTR24B	2 – 3 m	4.24	2.31	10.85	2.21	0.20
13450	MTR24A	3 – 4 m	3.74	1.86	8.80	1.79	0.20
13451	MTR24A	4 – 5 m	3.22	1.86	8.88	1.78	0.20
13452	MTR24A	6 – 7 m	2.45	1.05	4.96	0.99	0.20
13456	MTR24A	2 – 3 m	3.59	1.70	8.24	1.64	0.20
13457	MTR24A	5 – 6 m	1.42	0.17	0.80	0.16	0.19
13458	MTR24B	3 – 4 m	4.97	2.39	10.99	2.28	0.21
13460	MTR25A	2 – 3 m	0.98	1.45	6.88	1.39	0.20
13461	MTR25A	3 – 4 m	1.07	1.56	7.41	1.50	0.20
13463	MTR25A	4 – 5 m	3.09	2.64	13.55	2.56	0.19
13464	MTR25A	5 - 6 m	3.09	1.26	5.71	1.20	0.21
13469	MTR26	5 – 6 m	4.35	1.76	8.76	1.71	0.19
13470	MTR26	6 - 7 m	4.89	0.61	5.93	0.58	0.10
13471	MTR26	7 – 8 m	7.04	3.40	15.79	3.30	0.21
13492	MTR24B	2 – 3 m	2.69	0.91	4.10	0.88	0.21
Average		**15**	**3.39**	**1.66**	**8.11**	**1.60**	**0.19**
Note: 'Critical' REO have been defined here as Neodymium (Nd), Europium (Eu), Terbium (Tb), Dysprosium (Dy) and Yttrium (Y), and Praseodymium (Pr)							

The mineralisation is associated with allanite-rich pegmatite dykes and associated fluid alteration within associated granitoids. Importantly, the rare-earth assemblage identified includes significant portions of the high-value critical rare earth oxides of neodymium (Nd), europium (Eu), terbium (Tb), dysprosium (Dy), yttrium (Y), and praseodymium (Pr): up to 3.4% across all samples (Table 1). Of this, neodymium and praseodymium oxides represent on average approximately 20% of the TREO content of the assayed samples. These two elements, along with Dy and Tb, are essential for the manufacture of permanent magnetics, which make-up approximately 90% of the value of the REO market.

Assay results indicated high-grade TREOs in a significant portion of the samples analysed, and TREO grades compared favourably to other REO deposits globally (Appendix 2).

Projects with JORC Mineral Resources that have grades similar to those seen in the Milenje trench samples include Peak Resources' Ngulla Project in Tanzania (214Mt @ 2.16% TREO) and Arafura's Nolan Bore Project in Australia (56Mt @ 2.59% TREO). Arafura has indicated a portion of the REO present in Nolans Bore are associated with allanite mineralisation.

Image 8: Trench Lithologies (REO mineralsation highlighted in yellow box)

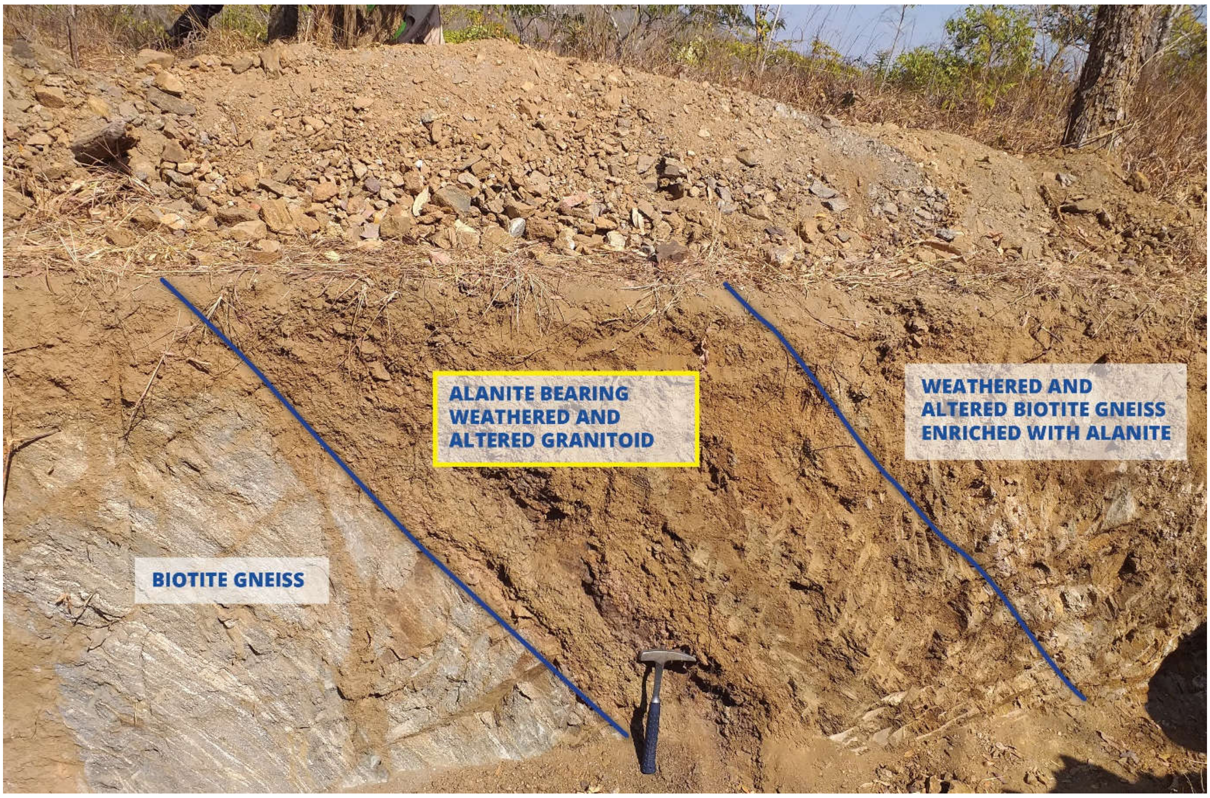

Image 9: Trench Lithologies (REO mineralsation highlighted in yellow box)

Next Steps

The Company plans to undertake a second stage of work to further define the potential of this new discovery. The work plan is currently being finalised and will consist of the following activities:

- Further interpretation of the geophysical data, including some additional survey lines to cover the large anomaly identified in the first pass work.
- Additional mapping in the broader area to define new mineralised zones.
- Further trenching in the identified mineralised zones with potential for shallow drilling.
- Mineralogical testwork to better understand the REO host minerals, associations and sizing.
- Initial physical beneficiation tests to determine if producing a physical concentrate is viable.

This announcement has been authorised for release by the Company's board of directors.

For further information, contact:

Eduard Smirnov
Managing Director
T: +1 647 741 88 41 (North America)

Adam Kiley
Business Development
T: +61 (08) 9278 2441 (Australia)

Competent Person's Statements

The information in this document that relates to exploration results at Kayelekera is based on information compiled by Mr Alfred Gillman of Odessa Resources Pty Ltd. Mr. Gillman is a Fellow and Chartered Professional of the Australian Institute of Mining and Metallurgy (AUSIMM) and 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 JORC Code. Mr. Gillman consents to the inclusion in the report of the matters based upon the information in the form and context in which it appears.

Reference to Previous Announcements

In relation to the Restart Study announced on 21 October 2020, the Company confirms that all material assumptions underpinning the production target and forecast financial information included in that announcement continue to apply and have not materially changed.

The information in this announcement that relates to the Mineral Resource at Kayelekera was announced on 26 March 2020. Lotus confirms that it is not aware of any new information or data that materially affects the information included in the announcement of 26 March 2020 and that all material assumptions and technical parameters underpinning the Mineral Resource estimate in that announcement of continue to apply and have not materially changed.

ABOUT LOTUS

Lotus owns a 65% interest in the Kayelekera Uranium Project in Malawi. The Project hosts a current resource of 37.5M lbs U_3O_8 (see Table 3), and historically produced ~11Mlb of uranium between 2009 and 2014. The Company completed a positive Restart Study which demonstrated that Kayelekera can support a viable long-term operation and has the potential to be one of the first uranium projects to recommence production in the future.

For more information, visit www.lotusresources.com.au

Table 3. Kayelekera Mineral Resource Estimate – March 2020

Category	Mt	Grade (U_3O_8 ppm)	U_3O_8 (M kg)	U_3O_8 (M lbs)
Measured	0.7	1,010	0.7	1.5
Measured – RoM Stockpile[1]	1.6	760	1.2	2.6
Indicated	18.7	660	12.3	27.1
Inferred	3.7	590	2.2	4.8
Total	**24.6**	**660**	**16.3**	**36.0**
Inferred – LG Stockpiles[2]	2.4	290	0.7	1.5
Total All Materials	**27.1**	**630**	**17.0**	**37.5**

[1] RoM stockpile has been mined and are located near mill facility.
[2] Medium-grade stockpiles have been mined and placed on the medium-grade stockpile and are considered potentially feasible for blending or beneficiation, with studies planned to further assess this optionality.

Appendix 1 – Rare Earth Market[3]

What are Rare Earths?

The term rare earths refer to a group 17 elements including the 15 elements of the lanthanide series plus Scandium and Yttrium. The term rare earth was devised due to the initial discovery being considered quite rare and earths being a common chemical term to describe the oxide state.

Rare earths are chemically quite similar, which is part of the reason why they occur together and are also difficult to separate. Although they are metals, rare earths are most often referred to as Rare Earth Oxides (REOs) – their natural and stable state.

It is quite common for rare earths to be discussed in subsets, typically referred to as light, medium or heavy rare earths. The below tables summarise each subset and provides an overview of each rare earth's typical applications.

Table A1 – Light rare earths (LRE)

Symbol	Element	Main Applications
Sc	Scandium	Key use is in aluminium alloys. It is not a typical product for a RE primary producer. Bayan Obo (Baotou) has produced in the past. World market approximately 10tpa.
La	Lanthanum	Fluid Catalytic Cracking (FCC) in petroleum refining, batteries (NiMH), metal alloys, mischmetal, optical glass, phosphors (green), ceramic capacitors
Ce	Cerium	Catalytic converters, FCC, polishing powder, mischmetal, batteries (NiMH), decolorize iron in glass, UV stabiliser in glass, phosphors (green), ceramic capacitors, magnet alloys
Pr	Praseodymium	Permanent magnets (NdFeB), yellow pigment in glass and ceramics, welding goggle glass, ceramic capacitors
Nd	Neodymium	Permanent magnets (NdFeB), welding goggle glass, ceramic capacitors, purple pigment in glass and ceramics, dopant in yttrium aluminium garnets, magnesium alloys, precious metal capacitors
Pm	Promethium	Is radioactive and does not occur naturally. It is typically produced by bombarding U235 with neutrons. It has little applications except in chemical research

[3] Information summarised from Ashanti Capital Rare Earths Desk Note (June 2019)

Table A2 – Medium rare earths (MRE)

Symbol	Element	Main Applications
Sm	Samarium	Permanent magnets (SmCo), neutron absorber in nuclear reactors, carbon-arc lighting, bio-fuel catalysts
Eu	Europium	Phosphors (red, blue, white), lighting, neutron absorbers
Gd	Gadolinium	MRI contrast agents, X-ray film, phosphor production (green), superconductors, refrigeration, garnets, ceramics

Table A3 – Heavy rare earths (HRE)

Symbol	Element	Main Applications
Tb	Terbium	Phosphors (green), permanent magnets (NdFeB), magneto-strictive alloys, magneto-optic recording films, fuel cells
Dy	Dysprosium	Permanent magnets (NdFeB), doping lasers, ceramics, nuclear applications, phosphors, lighting, catalysts
Ho	Holmium	Blue pigment in glass production, doping lasers, nuclear control rod, medical applications, ceramic pigments, gamma-ray spectrometers
Er	Erbium	Pink glass and ceramic pigments, fibre-optic amplifiers, doping lasers, nuclear applications
Tm	Thulium	Medical imaging and irradiation, phosphors, lasers, superconductors, fibre optics, glass colouring, ceramic magnets
Yb	Ytterbium	Thermal barrier coatings, fibre optics components, lasers, silicon photocells, glass, X-ray machine sources, stress monitoring gauges
Lu	Lutetium	Phosphors (white), single crystal scintillators, X-ray phosphors, positron emission tomography, highly refractive lenses
Y	Yttrium	Phosphors (major phosphor rare earth ~80% usage), high wear componentry, ceramics, sintering agent, stainless steel additive

Summary of Applications

The most common rare earth applications, the associated volumes of rare earths used in these applications and estimated percentage of total value associated with the specific use are shown below in Table A4.

Table A4 – Rare Earth applications

Category	Applications	Rare Earths Used	Volume (%)	Value (%)
Permanent magnets	Electronics, motors, miniature technology	Pr, Nd, Sm, Gd, Tb, Dy	35%	91%
Catalysts	Petroleum production, chemical processing	La, Ce, Pr, Nd, Sm	26%	2.5%
Phosphors	Screens, lights, radar equipment	La, Ce, Pr, Nd, Eu, Gd, Tb, Er, Y	3%	1%
Glass / polishing	Coloured glass, UV resistant glass, screens, mirror, silicon chips	La, Ce, Nd	14%	1%
Metallurgy	Batteries, alloys, fuel cells, steel, aluminum	La, Ce, Pr, Nd, Y	7%	1%
Battery alloys	NiMH batteries, consumer electronics	La, Ce, Pr, Nd	6%	1%
Ceramics	Coloured ceramics, capacitors, sensors	La, Ce, Pr, Nd, Eu, Gd, Dy, Lu, Y	5%	1.5%
Other	Various	All	4%	1%

Mineralogy

Processing circuits are heavily dependent on the type of mineralogy that hosts the rare earths. For this reason, it is important to understand the mineralogy of a rare earths deposit as there are a number of aspects associated with each.

Overall, bastnasites are the most common source of rare earths and have arguably the best understood processing technology. Monazites are relatively common, but some deposits can have radioactive uranium and thorium present – largely a problem from a waste management perspective.

Ionic adsorption clays (IAC) are the most common source of heavy rare earths. They occur in much lower grades compared to light rare earth deposits and have reduced operating costs (heap leach) and generally better payability of products due to scarcity. Lastly, xenotime has for a long time been referred to as the next source of heavy rare earths (HRE). Northern Minerals' (ASX:NTU) Browns Range is the first commercially producing example of this mineral and results to date have been encouraging, particularly as the world is largely reliant on China's IAC sourced HRE supply.

Supply Chain

The rare earths supply chain is dominated by China from exploration through to end use. Outside of China, most of the direct investment opportunities exist in the exploration and mining of rare earths deposits, through to the production of either mixed or separated REOs.

An overview of the industry's supply chain is provided below.

Exploration	Mining & Beneficiation	Cracking & Leaching	Solvent Extraction	REO	RE Metals & Alloys	End Users
Stagnated over the last decade due to low pricing	Head grade and strip ratios do not influence project success as much as typical mining projects Beneficiation crucial as drives reagent cost in cracking and leaching	Complex chemistry highly dependent on deposit mineralogy Can cause lengthened ramp up periods	Complexity drives high capital expenditure -key reason that producers attempt large economy of scale	Cut-off point in supply chain for typical RE primary producers Many do not produce fully separated REO (e.g. Produce a mixed LRE / MRE / HRE concentrate)	Large portion of this industry's value in China Estimated that approx. 10x more value compared to primary production	Buy on price discrimination alone Large companies such as Apple, Google etc. now require source certification Often faked by Chinese illegal producers

As is typical with most industries, the further down the value chain you are the larger the market is of each stage. For instance, rare earth exploration is a <US$1B market, whereas the market(s) of end use applications is worth several trillion dollars. The unique aspect of the rare earth industry is that China is either already dominant or increasingly dominant in each stage of the supply chain, and therefore can make macro decisions that simultaneously impact all stages of the supply chain. Western REO developers are therefore somewhat reliant on the direction that China takes. The key risk is that China may not require profitability at each individual stage of the supply chain, so long as it is profitable across the entire supply chain.

The flow on effect is that REO development companies need to carefully consider contractual negotiations around offtake, more than is typical in established global industries such as base metals.

info@lotusresources.com.au
lotusresources.com.au

TEL +61 892782441
ABN: 38 119 992 175

Lvl 1, 1202 Hay St, West Perth WA 6005
PO BOX 1968, West Perth WA 6872

Appendix 2 – ASX Listed Companies with Rare Earths Projects

Allanite hosted REO

Extraction of REOs from allanite has been undertaken previously (Mary Kathleen Uranium (MKU), Queensland, Australia) and typically requires sulphation roasting at elevated temperature. The MKU uranium leach tailings contained 4.4% REO, with only about 10% of the REE dissolved in the mild leach conditions (pH 1.8-2.2, 8 h, 40°C). Sulphation roasting, followed by water leaching recovered about 70-75% of the REE (Baillie and Hayton 1970[4]).

ASX Listed REO Companies

LYNAS (ASX: LYC)

Lynas operates the Mt Weld mine in Western Australia, which is generally accepted as the highest grade rare earths deposit in the world. It produces a concentrate at this site, which is shipped for further processing at the LAMP (Lynas Advanced Materials Plant) located in Kuantan, Malaysia. It is one of the largest and most modern rare earths separation facilities in the world. Lynas is the largest non-Chinese rare earth producer and it primarily produces LRE (hence NdPr).

JORC Resources – 55Mt @5.4% TREO

JORC Reserves – 19.7Mt @8.6% TREO

NORTHERN MINERALS (ASX: NTU)

Northern Minerals operates the Browns Range mine, also in Western Australia. It is well positioned as the most significant non-Chinese source of dysprosium and terbium, which are expected to experience a growth in demand alongside Nd and Pr.

JORC Resources – 9Mt @0.63% TREO

JORC Reserves – 3.3Mt @0.68% TREO

GREENLAND MINERALS AND ENERGY (ASX: GGG)

Greenland Minerals and Energy's primary focus is the development of the Kvanefjeld rare earth project in south west Greenland. It is planned to be a massive scale, bulk development but has the resource scale to be a significant global contributor to total REO production for decades to come.

JORC Resources – 673Mt @1.12% TREO

JORC Reserves – 108Mt @1.32% TREO

ALKANE (ASX: ALK)

Alkane is a gold production company, operating the Tomingley Gold mine in central NSW. For a long time though, this has been viewed as the secondary project, to the Dubbo Project, a large polymetallic resource containing zirconium, rare earths, hafnium and niobium. The project has been around for a while and has changed shape a few times now in terms of target production, scale and capital requirement.

JORC Resources – 75Mt @0.74% TREO

[4] Baillie, M.G. and Hayton, J.D. (1970). A process for the recovery of high-grade rare earth concentrates from Mary Kathleen uranium tailings, Proc. Int. Miner. Process. Congr. 9th, pp 334-345.

JORC Reserves – 18.9Mt @0.74% TREO

PENSANA METALS (ASX: PM8)

Pensana Metals is developing its 84% owned Longonjo project in Angola. It released a scoping study in late 2017. A drilling campaign in the second half of 2018 has delineated a high-grade zone amongst a larger resource. The project is on an accelerated timeline to production and is planning to use nearby existing infrastructure to ship a concentrate, rather than processing to the separated REO stage.

JORC Resources – 240Mt @1.6% TREO

JORC Reserves – none declared

PEAK RESOURCES (ASX: PEK)

Peak are 75% owners of the Ngualla project in Tanzania, one of the largest and higher grade projects known of globally. For a long time, many viewed this project as the next cab off the rank. Its DFS, published in 2017 suggests that it has a competitive cost of production and is on the lower end of the scale with respect to operating costs. A distinguishing feature of the project is that it plans to complete separation, purification and product finishing in the UK (in a similar fashion to Lynas's Malaysian LAMP Project).

JORC Resources – 214Mt @2.16% TREO

JORC Reserves – 18.5Mt @4.8% TREO

ARAFURA RESOURCES (ASX: ARU)

Arafura are developing the Nolans rare earth project located in the Northern Territory, about 135km north of Alice Springs. After evaluating several processing and logistics options in Australia and South East Asia, Arafura eventually settled on building all of its downstream processing facilities in Australia.

JORC Resources – 56Mt @2.59% TREO

JORC Reserves – 19.2Mt @3.0% TREO

HASTINGS TECHNOLOGY METALS (ASX: HAS)

Hastings are developing the Yangibana project in the Gascoyne region of Western Australia. Yangibana was initially discovered in 2014 and was well funded through a prolonged downturn in the rare earths industry, delivering a scoping study in 2015, PFS in 2016 and DFS in 2017. Hastings released a revised DFS in the first quarter of 2019 that increased the capital requirement from A$335M to A$427M.

JORC Resources –22Mt @1.17% TREO

JORC Reserves – 10.3Mt @1.22% TREO

Rutile

The Engebo Deposit in Norway is considered a high-level analogy for how a hard-rock rutile project could be viable. Engebo contains a JORC 2012 resource of 254Mt at 3.2% TiO_2 and 41% garnet, hosted in hard-rock eclogite facies gabbroic protolith. The 2020 DFS study (refer Nordic Mining Announcement 28 January 2020) of the deposit indicated that rutile can be economically extracted from the parent rock.

Appendix 3 – Trenching and Assay Details

Sample #	Trench ID	Length from m	Length to m	TiO_2 %	TREO %	LREO[5] %	HREO[6] %	CREO[7] %	%NdPr oxides	NdPrO /TREO ratio
9153-13417	MTR15	3	4	1.27	0.88	0.86	0.02	0.19	0.17	0.20
9153-13418	MTR15	4	5	1.75	3.55	3.47	0.08	0.75	0.71	0.20
9153-13419	MTR16	1	2	3.30	5.55	5.45	0.11	1.14	1.09	0.20
9153-13420	MTR16	2	3	3.30	6.24	6.12	0.12	1.31	1.25	0.20
9153-13421	MTR17A	0	1	0.33	2.30	2.27	0.04	0.31	0.29	0.13
9153-13422	MTR17A	1	2	0.82	8.59	8.48	0.10	1.15	1.10	0.13
9153-13423	MTR17A	2	3	4.30	14.32	14.10	0.23	2.56	2.47	0.17
9153-13424	MTR17A	3	4	1.17	6.91	6.81	0.10	1.17	1.13	0.16
9153-13425	MTR17A	4	5	1.42	9.80	9.65	0.15	1.77	1.70	0.17
9153-13426	MTR17A	Rock sample		1.27	18.90	18.63	0.27	3.42	3.30	0.17
9153-13427	MTR17A	Field Blank		0.03	0.03	0.03	0.00	0.01	0.01	0.18
9153-13428	MTR17B	3	4	0.37	0.12	0.12	0.01	0.03	0.02	0.17
9153-13429	MTR17B	4	5	0.38	0.15	0.14	0.01	0.02	0.02	0.13
9153-13430	MTR17B	6	7	0.30	0.08	0.07	0.00	0.02	0.01	0.16
9153-13431	MTR17B	7	8	0.23	0.25	0.24	0.01	0.02	0.02	0.07
9153-13432	MTR19	0	1	0.38	0.10	0.09	0.01	0.02	0.02	0.16
9153-13433	MTR19	1	2	2.12	4.83	4.74	0.09	0.90	0.85	0.18
9153-13434	MTR19	2	3	0.20	0.17	0.16	0.01	0.03	0.03	0.15
9153-13435	MTR21	1	2	2.72	5.34	5.24	0.10	1.10	1.05	0.20
9153-13436	MTR21	2	3	0.97	0.71	0.69	0.02	0.12	0.11	0.16
9153-13437	MTR22	0	1	2.32	1.66	1.62	0.04	0.35	0.33	0.20
9153-13438	MTR22	1	2	1.40	3.48	3.40	0.08	0.75	0.71	0.20
9153-13439	MTR19	Rock sample		2.54	6.35	6.23	0.11	1.34	1.29	0.20
9153-13440	MTR22	Field Blank		0.03	0.02	0.02	0.00	0.00	0.00	0.19
9153-13441	MTR22	2	3	1.98	5.20	5.10	0.10	1.05	1.01	0.19
9153-13442	MTR22	3	4	1.23	0.25	0.24	0.01	0.06	0.05	0.19
9153-13443	MTR22	5	6	0.95	0.07	0.07	0.01	0.02	0.01	0.20
9153-13444	MTR23	4	5	1.13	2.22	2.18	0.04	0.45	0.43	0.19
9153-13445	MTR23	5	6	1.77	4.31	4.24	0.08	0.90	0.87	0.20
9153-13446	MTR24B	0	1	2.15	0.06	0.05	0.01	0.02	0.01	0.19
9153-13447	MTR24B	2	3	0.62	0.05	0.04	0.00	0.01	0.01	0.19
9153-13448	MTR24B	Field duplicate		4.19	10.61	10.39	0.22	2.27	2.18	0.21
9153-13449	MTR24B	2	3	4.24	10.85	10.63	0.22	2.31	2.21	0.20
9153-13450	MTR24A	3	4	3.74	8.79	8.63	0.17	1.86	1.79	0.20
9153-13451	MTR24A	4	5	3.22	8.87	8.69	0.17	1.85	1.78	0.20

[5] Light REOs include La, Ce, Pr, Nd, Am oxides
[6] Heavy REOs include Y, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu oxides
[7] Critical REOs include Dy, Eu, Nd, Pr, Tb, Y oxides

9153-13452	MTR24A	6	7	2.45	4.96	4.85	0.11	1.04	0.99	0.20
9153-13453	MTR24A	0	1	0.92	0.14	0.13	0.01	0.04	0.03	0.20
9153-13454	MTR24A	1	2	1.60	0.12	0.11	0.01	0.03	0.02	0.18
9153-13455	MTR24A	Field Blank		0.03	0.01	0.01	0.00	0.00	0.00	0.18
9153-13456	MTR24A	2	3	3.59	8.24	8.09	0.15	1.70	1.64	0.20
9153-13457	MTR24A	5	6	1.42	0.80	0.78	0.02	0.17	0.16	0.19
9153-13458	MTR24B	3	4	4.97	10.98	10.75	0.23	2.39	2.28	0.21
9153-13459	MTR25A	0	1	0.38	0.17	0.16	0.01	0.04	0.03	0.19
9153-13460	MTR25A	2	3	0.98	6.80	6.67	0.13	1.45	1.39	0.20
9153-13461	MTR25A	3	4	1.07	7.42	7.27	0.14	1.56	1.50	0.20
9153-13462	MTR25A	4	5	3.02	10.23	10.10	0.13	1.82	1.76	0.17
9153-13463	MTR25A	Field duplicate		3.09	13.54	13.35	0.19	2.64	2.56	0.19
9153-13464	MTR25A	5	6	3.09	5.70	5.58	0.12	1.26	1.20	0.21
9153-13465	MTR25B	3	4	0.48	0.14	0.14	0.01	0.03	0.03	0.19
9153-13466	MTR25B	4	5	2.80	3.82	3.74	0.08	0.80	0.77	0.20
9153-13467	MTR25B	5	6	2.09	4.91	4.82	0.09	1.05	1.01	0.21
9153-13468	MTR26	4	5	0.88	1.64	1.63	0.02	0.13	0.12	0.07
9153-13469	MTR26	5	6	4.35	8.75	8.61	0.14	1.76	1.71	0.19
9153-13470	MTR26	6	7	4.89	5.92	5.86	0.06	0.61	0.58	0.10
9153-13471	MTR26	7	8	7.04	15.77	15.50	0.27	3.40	3.30	0.21
9153-13472	MTR26	Field Blank		0.03	0.02	0.02	0.00	0.00	0.00	0.20
9153-13473	MTR15	2	3	1.17	0.05	0.04	0.01	0.02	0.01	0.20
9153-13474	MTR15	5	6	0.43	0.09	0.09	0.01	0.02	0.02	0.19
9153-13475	MTR16	0	1	0.92	0.31	0.30	0.01	0.04	0.03	0.10
9153-13476	MTR16	3	4	1.07	0.08	0.07	0.01	0.02	0.02	0.21
9153-13477	MTR16	4	5	0.68	0.29	0.28	0.01	0.03	0.03	0.09
9153-13478	MTR16	5	6	0.52	0.05	0.05	0.01	0.01	0.01	0.16
9153-13479	MTR18	0	1	0.83	0.41	0.40	0.01	0.07	0.07	0.16
9153-13480	MTR18	1	2	0.60	0.19	0.19	0.01	0.04	0.04	0.19
9153-13481	MTR17B	5	6	0.30	0.11	0.11	0.01	0.02	0.02	0.16
9153-13482	MTR25B	6	7	0.05	0.02	0.01	0.01	0.01	0.00	0.10
9153-13483	MTR25B	7	8	0.57	0.03	0.03	0.01	0.01	0.01	0.19
9153-13484	MTR25B	8	9	0.52	0.03	0.03	0.01	0.01	0.01	0.20
9153-13485	MTR25B	9	10	0.72	0.05	0.04	0.00	0.01	0.01	0.16
9153-13486	MTR22	0	1	1.20	2.22	2.17	0.05	0.42	0.40	0.18
9153-13487	MTR22	1	2	0.60	0.10	0.09	0.01	0.02	0.02	0.20
9153-13488	MTR22	2	3	1.10	0.22	0.21	0.01	0.05	0.04	0.19
9153-13489	MTR24B	0	1	0.92	0.08	0.07	0.01	0.02	0.02	0.21
9153-13490	MTR24B	1	2	0.73	0.08	0.07	0.01	0.02	0.02	0.21
9153-13491	MTR24B	2	3	2.69	4.21	4.13	0.07	0.93	0.90	0.21
9153-13492	MTR24B	Field duplicate		2.69	4.10	4.03	0.07	0.91	0.88	0.21

info@lotusresources.com.au
lotusresources.com.au

TEL +61 892782441
ABN: 38 119 992 175

Lvl 1, 1202 Hay St, West Perth WA 6005
PO BOX 1968, West Perth WA 6872

Appendix 4 – JORC Code, 2012 Edition, Table 1 Reporting

The information in this document

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	• The Milenje Hills Prospect has been sampled by ground scintillometer and follow-up with mechanised trenching and grab sampling by Paladin Africa Limited (PAL) in 2017. • All sampling was carried out under PAL's sampling protocols and QA/QC procedures as per industry best practice. • Ground scintillometer readings of trench samples were collected every 1m across the length of trenches and averaged to determine an overall counts per second (CPS) • Hand specimens from the trench cut channel samples were analysed with handheld XRF to determine which samples would be sent for further analysis – these XRF results are not reported. • Handheld XRF and scintillometer instruments were regularly calibrated during sample programs.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast,*	• No drilling activities undertaken.

Criteria	JORC Code explanation	Commentary
	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).	
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• No drilling activities undertaken.
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.*	• Trenches are geologically logged for lithology, textural features and minerology on 1m sample lengths. • Structural features such as foliation, joints and faults were mapped from trench wall.
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*	• All sampling was carried out using PAL's sampling protocols and QA/QC procedures as per industry best practice. • Representative samples of lithologies were analysed by handheld XRF to determine which samples would receive follow-up elemental analysis.

Criteria	JORC Code explanation	Commentary
	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.*	
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.*	• Elemental analysis of samples was completed by SGS Labs, Johannesburg, South Africa. • Elemental analysis of As, Ag, Be, Bi, Cd, Ce, Co, Cs, Dy, Er, Eu, Ga, Gd, Ge, Ho, In, La, Lu, Mo, Nb, Nd, Ni, Pb, Pr, Rb, Sb, Sc, Sm, Sn, Ta, Tb, Th, Tl, Tm, U, W, Y, Yb was determined by fusion/ICP-MS. • Elemental analysis of Al, Ba, Ca, Cr, Cu, Fe, K, Li, Mg, Mn, P, S, Si, Sr, Ti, V, Zn was determined by fusion/ICP-OES. • Preliminary elemental analysis onsite of U, P, S, Cl, K, Ca, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, As, Se, Rb, Sr, Zr, Mo, Ag, Cd, Sn, Sb, W, Hg, Pb, Bi, Th was determined by handheld XRF.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and*	• Significant results were verified by company and consultant geologists. • Primary laboratory documents were reviewed to confirm reporting accuracy.

Criteria	JORC Code explanation	Commentary
	electronic) protocols. • *Discuss any adjustment to assay data.*	
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.*	• Trench sample locations are surveyed with a handheld GPS in WGS84 36S coordinate system. • Topographic surveys at the Kayelekera mine have been carried out several times and the latest pit survey was conducted in early 2015. • Trench Sample Locations (WGS84 36S coordinate system): (see table below)
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.*	• Data spacing is broad and results can only be considered as a preliminary identification of mineralisation in the region. • Samples should be considered as character samples. • No sample compositing has been applied.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is*	• Trench samples are orientated perpendicular to the strike of foliation. • Mineralised zones dip around 50 degrees to the southwest and trenches are completed across the full width of the mineralised zones and extended into the unmineralized zones. • No orientation based sampling bias has been identified in the data. • Rock samples are character samples.

Trench	Easting	Northing
MTR15	577680	8897864
MTR16	577399	8897607
MTR17	577321	8897729
MTR17B	577293	8897778
MTR18	577123	8897994
MTR19	576755	8897795
MTR20	576861	8897622
MTR20B	576894	8897591
MTR21	576456	8897960
MTR22	576469	8897928
MTR23	576281	8897783
MTR24	576562	8897576
MTR24A	576617	8897536
MTR25	576742	8897176
MTR25B	576768	8897146
MTR26	576303	8897537
MTR27	576324	8897602

Criteria	JORC Code explanation	Commentary
	considered to have introduced a sampling bias, this should be assessed and reported if material.	
Sample security	• *The measures taken to ensure sample security.*	• Chain of custody was managed by PAL. • Samples were driven by PAL personnel to Kamuzu International Airport, Malawi and air freighted by DHL courier to SGS Labs in Johannesburg, South Africa.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• Data was validated by PAL whilst loading into database.

Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• The Milenje Hills REE Prospect is located in Malawi, East Africa. The project site is located within the Kayelekera Village, in the Karonga District of Northern Malawi about 35km from the local centre of Karonga and 650km north of the national capital of Lilongwe. • A formal and detailed Development Agreement for the neighbouring Kayelekera Uranium Project was approved by the Government of Malawi and executed on 22nd February 2007. The Development Agreement provides a stable fiscal regime for at least 10 years from the commencement of production. • The prospect is covered by a single licence, Mining Licence (ML) 152, of 55.5 square kilometres granted on 9th April 2007 for an initial term of fifteen years renewable for further 10-year periods. The current term expires on 9th April 2022. • The tenement is in good standing and no known impediments exist.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• No previous exploration activities for REE mineralisation have been undertaken at Milenje Hills prior to the previous operators of the project (Paladin Energy). • Trench samples referred to in this announcement represent the first exploration activities undertaken in relation to REE mineralisation at Milenje Hills by Paladin Energy in 2014 and no follow-up exploration activities were completed at Milenje Hills due to the Kayelekera mine being

Criteria	JORC Code explanation	Commentary
		places under care and maintenance by Paladin Energy.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The local geology is dominated by basement Ubendian gneisses and biotite-rich granitoids dipping at a shallow angle of around 50 degrees to the southwest, against which Karoo beds which host the Kayelekera deposit have been juxtaposed by shearing along the Eastern Boundary Fault of the local basin. Geology mapping in the area indicates the presence of multiple granitoid lenses (0.5 to 5m wide) which are believed to be the host rock for REE mineralisation.
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* o *easting and northing of the drill hole collar* o *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* o *dip and azimuth of the hole* o *down hole length and interception depth* o *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.*	• No drill holes reported in this announcement.
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*	• Metal equivalent values have not been used.

Criteria	JORC Code explanation	Commentary
	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.*	
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').*	• Channel samples are reported as horizontal widths. True widths of mineralised zones can be determined from trenches but have not been reported in this announcement.
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.*	• See included plans and section.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• All available historical exploration results have been included in this announcement.
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*	• N/A

Criteria	JORC Code explanation	Commentary
	characteristics; potential deleterious or contaminating substances.	
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Additional exploration work is being planned and will be announced when appropriate.