11th November 2019

Petrographic Study Indicates Favourable Mineralogy - Laramie Rare Earths (REE) Project, Wyoming USA

- **Initial petrographic analyses confirm REEs occur predominantly as the mineral allanite at the Company's newly secured 100% owned Laramie REE Project located in Wyoming, USA;**

- **Allanite crystals observed are generally relatively coarse grained (0.4mm to 2.5mm) with distinct mineral grains indicating potential for easy liberation from the syenite host rock;**

- **Zenith surface rock grab sampling returned REE mineralisation with TREO (Total Rare Earth Oxide) grades up to 0.60% whilst widespread, continuous REE mineralisation confirmed in all of nine recently announced systematic chip sample traverses (ZNC ASX Release 6th Nov 2019), including:**

  - **80m @ 0.40% TREO – Traverse A;**
  - **60m @ 0.39% TREO – Traverse B;**
  - **40m @ 0.35% TREO – Traverse C;**
  - **60m @ 0.37% TREO – Traverse D;**
  - **137m @ 0.37% TREO – Traverse E;**
  - **332m @ 0.26% TREO – Traverse F;**
  - **72m @ 0.33% TREO – Traverse G;**
  - **60m @ 0.34% TREO – Traverse H;**
  - **17m @ 0.24% TREO – Traverse I.**

- **Zenith has now identified three sampling areas 2 to 3km apart with strong values of high-value neodymium, praseodymium and dysprosium within a 30 sqkm monzonitic pluton part of a very large anorthosite complex, providing Zenith with the opportunity to define a very large-scale exploration target once initial first pass drill testing is completed;**

- **Wyoming is home to multiple existing major mining operations and the project area has excellent existing road and rail infrastructure; and**

- **Next steps include further mapping, surface sampling and geophysical surveying to establish the overall extent of the mineralised zone(s) and target highest grade areas for drill testing, along with further mineralogical and beneficiation studies.**

Zenith Minerals Limited ("Zenith" or "the Company") is very pleased to announce details from a petrological study conducted on REE mineralisation at its 100% owned

Corporate Details

ASX: ZNC

Issued Shares (ZNC)	212.8M*
Unlisted options	4.15M
Mkt. Cap. ($0.06)	A$13M
Cash (30th Sep 19)	A$0.64 M*
Debt	Nil

*1 for 6 Rights Issue Opened 5th Nov 19 to raise A$1.95M

Directors

Michael Clifford:
Managing Director

Mike Joyce:
Non-Exec Chairman

Stan Macdonald:
Non-Exec Director

Julian Goldsworthy:
Non-Exec Director

Graham Riley:
Non-Exec Director

Major Shareholders

HSBC Custody. Nom.	12.2%
J P Morgan	6.7%
Nada Granich	5.4%
Miquilini	4.3%
Abingdon	4.1%

Contact Details

Level 2/33 Ord Street
West Perth, WA, 6005

Mail: PO Box 1426
West Perth, WA, 6872
T: +61 8 9226 1110
E: *info@zenithminerals.com.au*
W: www.zenithminerals.com.au

Laramie REE Project. Zenith recently secured federal lode claims and state lease applications over the Laramie REE Project located in central Wyoming USA (Figure 1), as announced to the ASX 17th Oct 2019. Wyoming is home to multiple existing major mining operations (coal and uranium) and has local engineering and construction companies capable of supporting mine project development.

The project area has excellent existing infrastructure being located 3km from the national road network, 30km to interstate and 35km to rail, in addition Wyoming has abundant low-cost commercial electricity. Rare Element Resources (OTCQB: REEMF) are currently assessing the advanced Bear Lodge REE project in north east Wyoming.

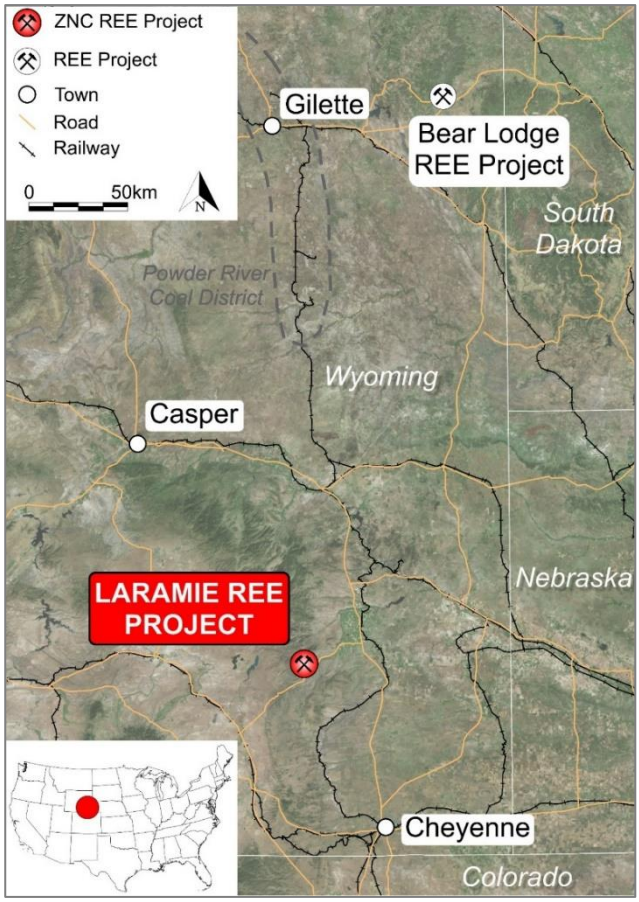
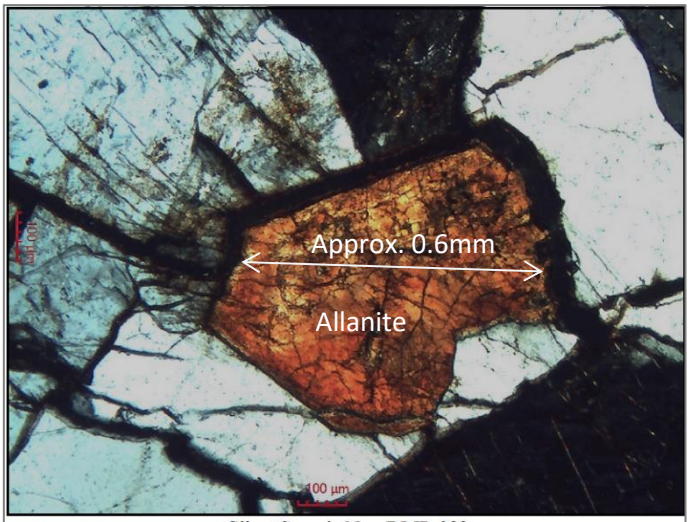


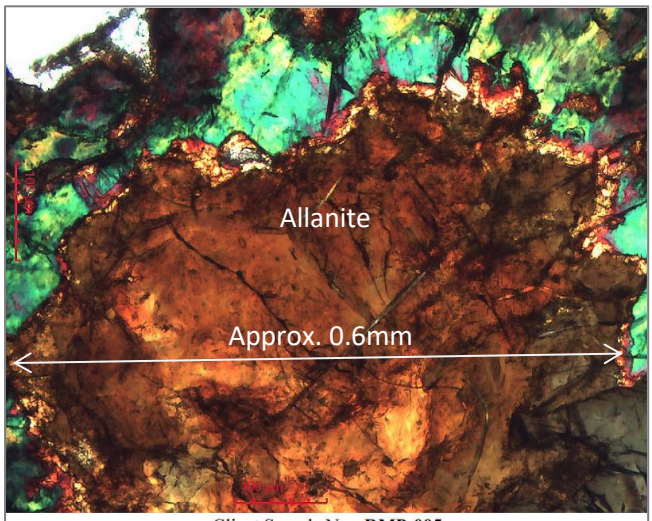
Figure 1: Laramie REE Project – Location Map

Petrographic Study

Petrographic analyses of four surface samples was carried out by DCM Science Laboratory Inc (DCM) of Colorado, USA. The study confirmed the bulk analyses and rock types of all four samples are essentially the same. The work confirmed the presence of the REE mineral allanite. Allanite occurs as relatively coarse grained (0.4mm to 2.5mm) generally distinct mineral grains (Figure 6). DCM reported that …."*the large size of the allanite crystals should facilitate liberation upon grinding*"……from the syenite host rock.



Client Sample No: **RMP-032**
Subhedral grain of brown allanite in quartz/feldspar – 50X PL



Client Sample No: **RMP-005**
Large grain of brown allanite rimmed in epidote – 100X PL

Results from Recent Sampling (Refer to ZNC ASX Release 6th Nov 2019)

As previously announced to the ASX on the 7th Oct 2019, initial rock grab sampling and mapping by Zenith in three key areas 2 to 3km apart returned up to 0.60% TREO (Figure 2).

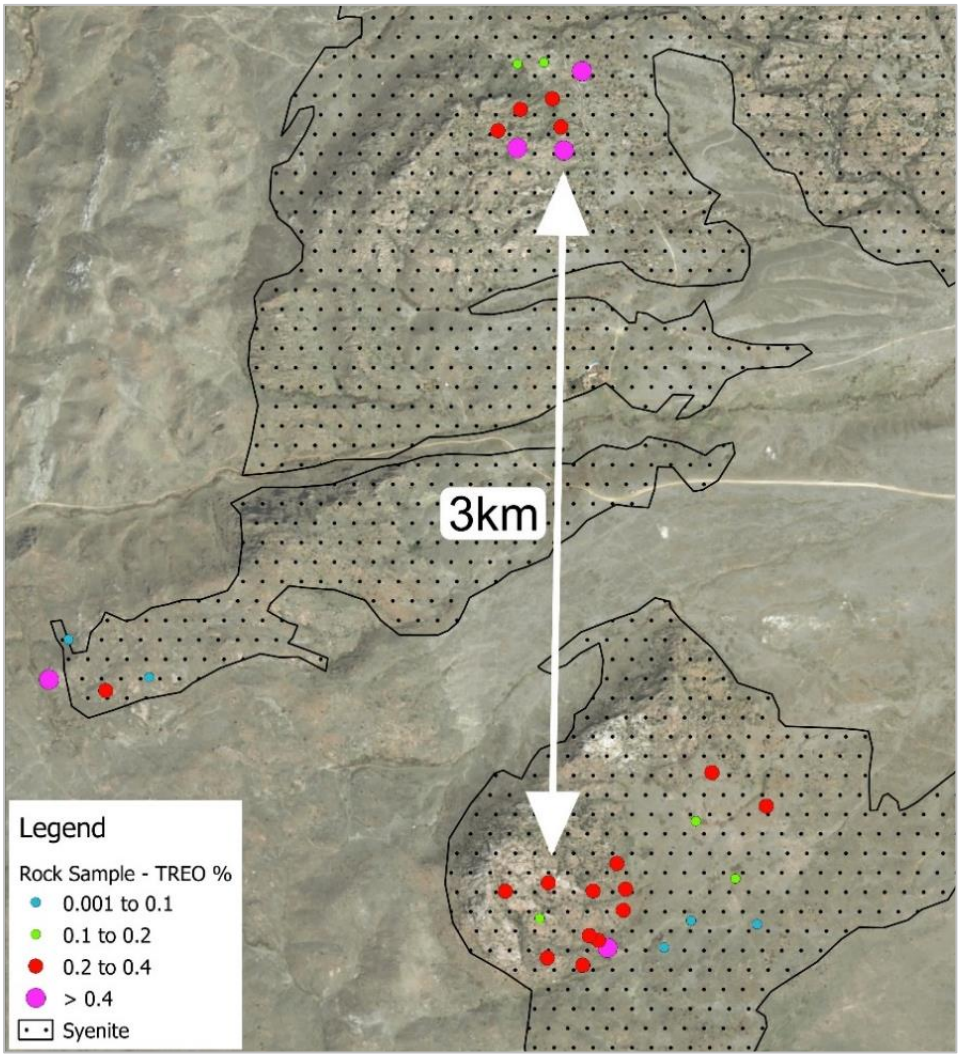


Figure 2: Laramie REE Project – Geochemical Results – Summary Map

Follow-up sampling included nine systematic rock chip sample traverses by Zenith with five traverses across portions of the north of the initial sampling area and four across the southern zone. All nine traverses returned consistent, strong REE mineralisation along their entire lengths (Figures 3 - 4), including:

- **80m @ 0.40% TREO – Traverse A;**
- **60m @ 0.39% TREO – Traverse B;**
- **40m @ 0.35% TREO – Traverse C;**
- **60m @ 0.37% TREO – Traverse D;**
- **137m @ 0.37% TREO – Traverse E;**
- **332m @ 0.26% TREO – Traverse F;**
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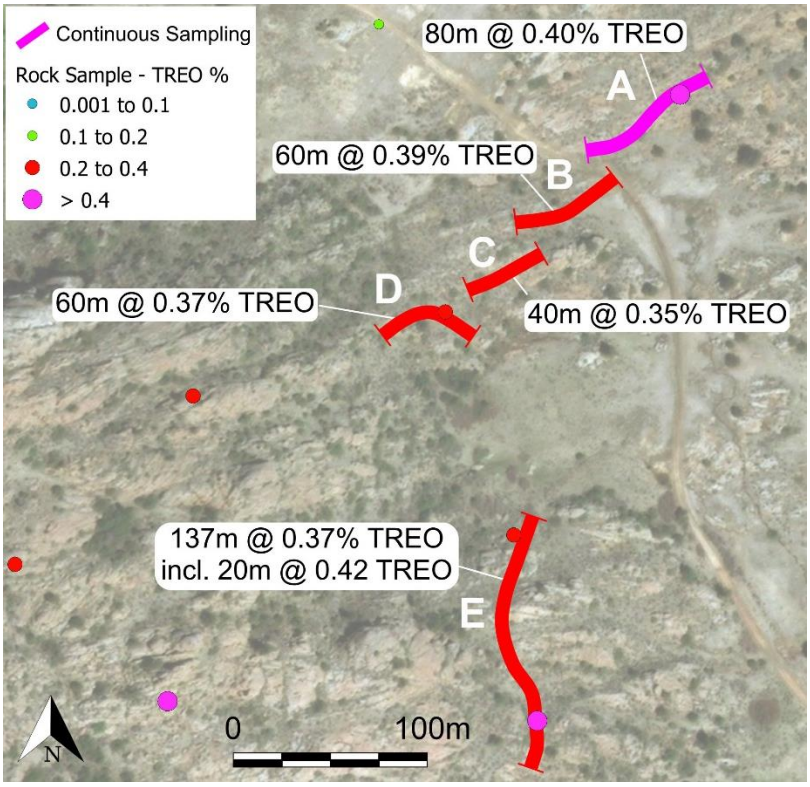

Figure 3: Laramie North - Systematic Chip Sample Traverse Results

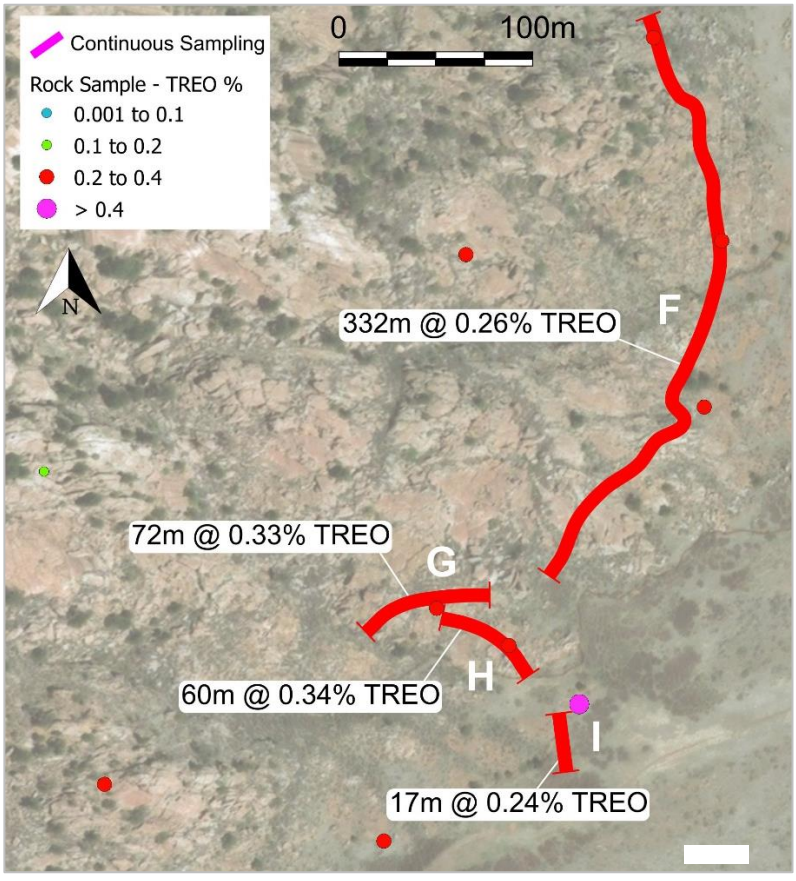

Figure 4: Laramie South - Systematic Chip Sample Traverse Results

Background on Rare Earth's (REE)

A renewed interest in REE projects has come about as a result of the recent US – China trade dispute. The USA has listed REE's as critical minerals in the federal report "A Federal Strategy to Ensure Secure and Reliable Supplies of Critical Minerals [1]". There is strong Federal US Government support to secure a stable domestic REE supply.

REE projects in production, development and exploration stages span a wide range of size and grade (Figure 5). Deposit size, grade, mineability and metallurgical performance are key factors in the economic viability of all mining projects but in the case of REE projects the type of REE minerals present are critically important.

The 17 chemical elements that occur together in the periodic table are referred to as rare earth elements (REE's). The group consists of yttrium and the 15 lanthanide elements (lanthanum, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, and lutetium)[2]. A project may have a very high content of total rare earth oxides (TREO) but what is more important is the proportion of highly valuable REE's such as neodymium, praseodymium and dysprosium. Notably it is those elements that are strongly anomalous in the regional reconnaissance sampling results from the Laramie REE project area.

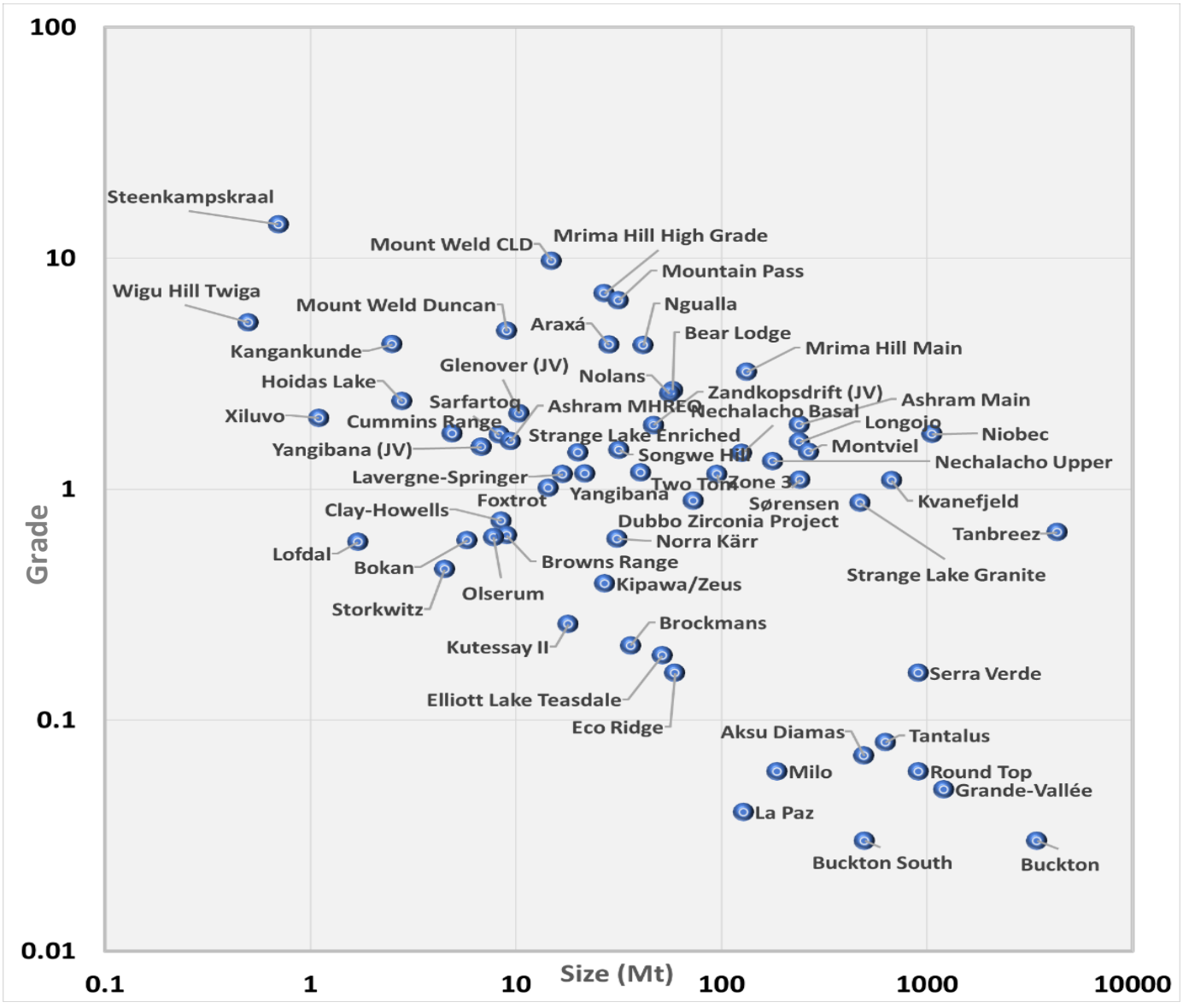

Figure 5: World REE Projects Size and Grade[3]

Laramie Project - Geology

The Laramie REE Project occurs within the Laramie Anorthosite Complex a Proterozoic massif consisting of three anorthositic intrusions, three syenitic to monzonitic intrusions and several smaller intrusions of leucogabbro and ferrodiorite[4 5].

REE's are reported to occur at the Laramie REE project predominantly as the mineral allanite hosted by clinopyroxene and hornblende syenites that are part of a very large differentiated Laramie anorthosite complex, providing Zenith with the opportunity to define a very large-scale exploration target once initial follow-up work is completed.

Competent Persons Statement

The information in this report that relates to Exploration Results is based on information compiled by Mr Michael Clifford, who is a Member of the Australian Institute of Geoscientists and an employee of Zenith Minerals Limited. Mr Clifford has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Clifford consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

References:

[1] As defined in Executive Order 13817, a critical mineral is "a mineral identified by the Secretary of the Interior [pursuant to the Executive Order] to be (i) a non-fuel mineral or mineral material essential to the economic and national security of the United States, (ii) the supply chain of which is vulnerable to disruption, and (iii) that serves an essential function in the manufacturing of a product, the absence of which would have significant consequences for our economy or our national security." 82 Fed. Reg. 60835; 2017; https://www.federalregister.gov/documents/2017/12/26/2017-27899/a-federal-strategy-to-ensure-secure-and-reliable-supplies-of-critical-minerals

[1] Department of the Interior, "Final List of Critical Minerals 2018," 83 Fed. Reg. 23295; 2018, https://www.federalregister.gov/documents/2018/05/18/2018-10667/final-list-of-critical-minerals-2018

[1] U.S. Geological Survey, "Mineral Commodity Summaries 2018," 2018, https://doi.org/10.3133/70194932

[2] https://geology.com/articles/rare-earth-elements/

[3] Source: http://www.techmetalsresearch.com/metrics-indices/tmr-advanced-rare-earth-projects-index/ updated where new information available by Zenith 29-05-2019 from Company ASX reports and from SEDAR for TSX listed entities .

[4] Frost, B.R., and Frost, C.D., 2014, Essentials of Igneous and Metamorphic Petrology, Cambridge University Press, published in November 2013, ISBN 978-1-107-02754-1.

[5] Frost, C.D., Frost, B.R., Lindsley, D.H., Chamberlain, K.R., Swapp, S.M., Scoates, J.S., 2010, Geochemical and isotopic evolution of the anorthositic plutons of the Laramie anorthosite complex: explanations for variations in silica activity and oxygen fugacity of massif anorthosites. Canadian Mineralogist, v. 48, 925-946.

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For further information contact:

Zenith Minerals Limited
Directors Michael Clifford or Mike Joyce
E: mick@zenithminerals.com.au
Phone +61 8 9226 1110

Media and Broker Enquiries
Andrew Rowell
E: arowell@canningspurple.com.au
Phone +61 8 6314 6300