ASX / Media Announcement
30 May 2023

Vital intersects up to 2.8% TREO in drilling at Tardiff

Highlights

- **Tardiff resource definition drilling returns large intersections of total rare earth oxides (TREO) from initial results of 74-hole, 6,664m resource definition drilling program.**
- **Assays for the first 17 infill drillholes return 35+ intervals greater than 1% TREO, confirming strong REO mineralisation in the drilling area. Results include:**
  - **14.0m at 2.8% TREO from 76m;**
  - **20.45m at 2.2% from 6.25m; and**
  - **38.25m at 1.7% TREO from 21.35m.**
- **Drilling aimed to increase confidence of the Tardiff Zone 1 and 3 resource areas from Inferred to Measured and Indicated Mineral Resources.**
- **Assay results from the remaining 57 holes are expected over the next 3 to 4 months.**
- **Vital is focused on developing the large-scale Tardiff deposit, one of the largest single rare earths deposits in the western World, estimated to contain 416,000 tonnes of permanent magnet minerals neodymium and praseodymium (NdPr)[1].**

Vital Metals Limited (ASX: **VML** I OTCQB: **VTMXF**) ("**Vital**", "**Vital Metals**" or "the **Company**") is pleased to announce positive initial results for the first 17 drill holes from its 2023 resource definition drilling program completed at the Tardiff deposit at its Nechalacho Rare Earth Project in NWT, Canada.

The Tardiiff Deposit boasts an impressive light rare earth oxides (LREO) resource of 119 million tonnes at 1.4% TREO[1] in the measured, indicated and inferred JORC 2012 categories and the 2023 drilling program is a major step towards future economic studies in the development of this world class light rare earth deposit.

Vital's successful drill program consisted of 74 drillholes for 6,664m (Figure 1), expanding on drilling completed in 2021 and 2022. The 2023 program aimed to increase the Measured and Indicated components of the 2023 Mineral Resource Estimate, focusing on the Tardiff Upper Mineralised Zone above the 150RL which is held by Vital. Vital's 2023 resource definition drilling program was drilled on a nominal 50m by 50m grid to infill areas previously drilled by Avalon Advanced Materials Inc on nominal 100m to 200m drill spacing.

[1] VML ASX Announcement 14/02/2023 – Vital Achieves 26% Increase in Tardiff Mineral Resource

Vital has received assay results for 17 drillholes (1,534m) (Figure 2), confirming previous geological interpretations of mineralisation in the Inferred resource areas and a better understanding of the rare earth mineralisation at Tardiff.

Vital Chief Operating Officer Eben Visser said: *"Tardiff is already positioned as a world-class rare earths deposit, but we are keen to continue our exploration and drilling efforts to uncover the full potential of its rare earth mineralisation. We're pleased with the results received to date for the infill drilling as these confirm the zones of REE mineralisation at Tardiff. We are continuing to log and process drill core for assaying and will report further results from this program as they are received. We are working towards a better understanding of the geology at Tardiff and increasing confidence in our Inferred components of the Mineral Resource Estimation towards Measured and Indicated categories."*

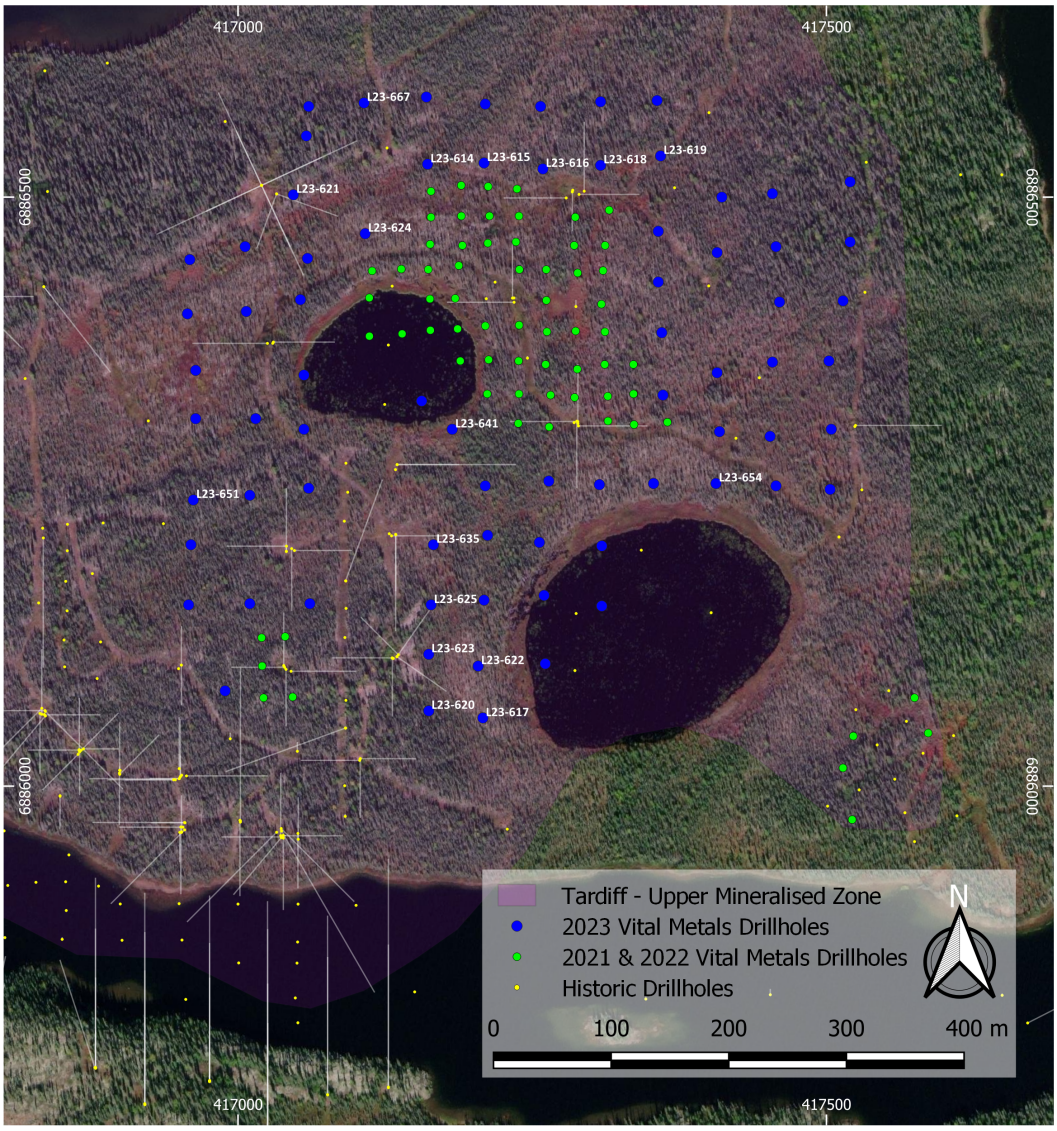

Figure 1: Plan view of the 2023 Tardiff drill program, showing locations of 2021- 2022 drilling and historical drillholes.

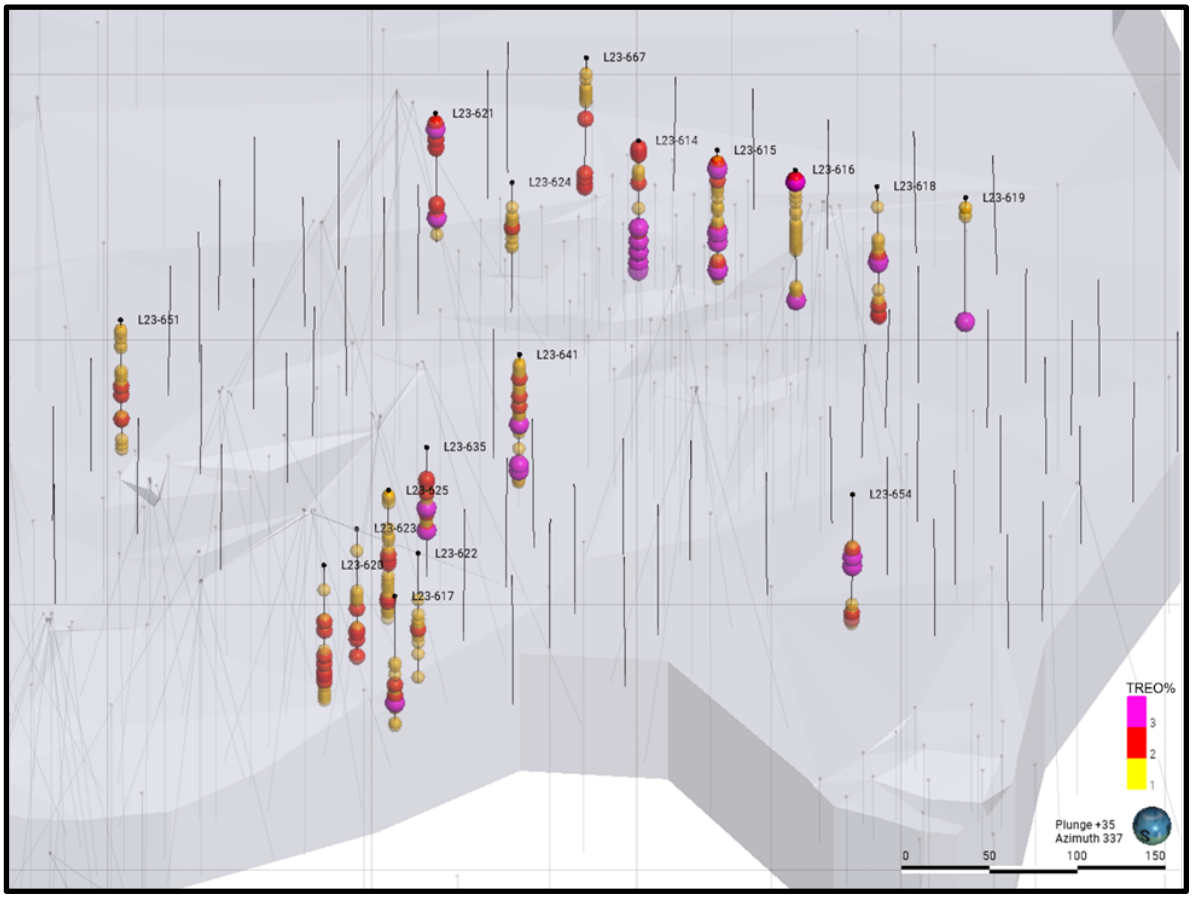

Figure 2: Selected results for assays from the first 17 drillholes from the winter 2023 drill program. Grey outline indicates extent of the February 2023 Mineral Resource Estimate; Assay results: Yellow 1-2% TREO, Red 2-3% TREO and Fuchsia >3% TREO.

Results received to date from the northern portion of the drill program consist of relatively broad zones of near-surface mineralisation, generally ~10 to 40m from surface, with TREO grades above 1%. Results include:

L23-621: **20.45m at 2.2% TREO from 6.25m;**
L23-615: **35.55m at 1.7m TREO from 7.3m;**
L23-624: **13.7m at 1.8% TREO from 22m.**

In addition, the northern drillholes indicate zones of deeper mineralisation just above the 150RL boundary of Vital's ground as demonstrated by the following intercepts:

L23-614: **14.0m at 2.8% TREO from 76m;**
L23-615: **14.8m at 2.1% TREO from 75.2m;**
L23-618: **13.0m at 1.9% TREO from 77m;**

Results received to date from the southern portion of drillholes confirm significant zones of mineralisation as indicated by the following intercepts:

L23-620: **28.0m at 1.7% TREO from 66m;**
L23-625: **26.8m at 1.5% TREO from 58.8m;**
L23-635: **38.25m at 1.7% TREO from 21.35m.**

All the intercepts over 1% TREO for the 17 drill holes are listed in the following table.

Hole ID	From	To	Length	TREO%
L23-614	4	11.8	7.8	2.3
L23-614	19.3	30	10.7	1.3
L23-614	58	64	6	2.6
L23-614	76	90	14	2.8
L23-615	7.3	42.85	35.55	1.7
L23-615	48	67	19	2.1
L23-615	75.2	90	14.8	2.1
L23-616	5.8	19.5	13.7	1.5
L23-616	27	31	4	1.1
L23-616	35	56	21	1.4
L23-616	79	90	11	1.8
L23-617	45	49	4	1.3
L23-617	59.9	73.6	13.7	1.6
L23-618	35	53.25	18.25	1.7
L23-618	77	90	13	1.9
L23-619	NSR*			
L23-620	36.7	46.25	9.55	1.8
L23-620	66	94	28	1.7
L23-621	6.25	26.7	20.45	2.2
L23-621	70.4	77.6	7.2	2.4
L23-622	44.8	58	13.2	1.4
L23-623	42	50.85	8.85	1.2
L23-623	67	77.15	10.15	2.1
L23-624	22	35.7	13.7	1.8
L23-625	3.1	9.5	6.4	1.5
L23-625	43.25	52	8.75	2.1
L23-625	58.8	85.6	26.8	1.5
L23-635	21.35	59.6	38.25	1.7
L23-641	5.9	54.45	48.55	1.5
L23-641	73	88.6	15.6	1.9
L23-651	6.4	13.5	7.1	1.1
L23-651	34	52	18	1.5
L23-651	65	70.25	5.25	1.6
L23-654	35	53	18	1.9
L23-654	75	90	15	1.7
L23-667	19.4	31	11.6	1.2
L23-667	79	90	11	2.1

Table 1: Intercepts above 1% TREO for the initial 17 drill-holes of the 2023 resource definition drilling.
*NSR – No Significant Result.

Logging, processing and assaying of core from the remaining 57 drillholes in Vital's 2023 resource definition drilling is ongoing with all the assay results expected in the next 3 to 4 months.

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This announcement has been approved by the Board of Vital Metals Limited.

About Vital Metals

Vital Metals Limited (ASX: VML) is developing the large Nechalacho Rare Earth Project in Canada's Northwest Territories. Nechalacho has the potential to underpin a significant rare earths supply chain for North America and Europe with responsibly sourced critical minerals for the green economy transformation.

Qualified/Competent Persons Statement

Nechalacho Rare Earth Project

The information in this report relating to Exploration Results at the Nechalacho Rare Earths Project is based on, and fairly represents, information and supporting documentation prepared for Vital Metals Limited by Mr Brendan Shand. Mr Shand is a Competent Person and a member of the Australasian Institute of Mining and Metallurgy and an employee of the Company. Mr Shand has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Shand consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

ASX Listing Rule Information

This announcement contains information relating to Mineral Resource Estimates in respect of the Nechalacho Project extracted from ASX market announcements reported previously and published on the ASX platform on 14 February 2023. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that all material assumptions and technical parameters underpinning the estimates in the original market announcements continue to apply and have not materially changed. The Mineral Resource estimate of 119.0Mt @ 1.4% TREO comprises 108.1Mt @ 1.39% TREO Inferred, 6.3Mt @ 1.45% TREO Indicated and 4.6Mt @ 1.59% TREO Measured.

This announcement contains information relating to Exploration Results extracted from ASX market announcements reported previously in accordance with the 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" ("2012 JORC Code") and published on the ASX platform on 26 May 2021, 9 March 2022 9 June 2022 and 22 July 2022. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements.

Appendix 1 - JORC Code, 2012 Edition – Table 1 report – Nechalacho Upper Zone

Section 1 Sampling Techniques and Data

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

	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.*	• Sampling of 2023 diamond drill core are half splits of drill core using a core splitter. • Samples were collected from the bastnaesite mineralisation with lengths ranging 0.35 to 2.45 metres. The typical sample length was 1.0 to 2.0 metres. The sampling lengths were dictated by the lithology of the core. • All drill core samples were crushed to 90% <2 mm, then 1 kg was riffle split. The 1 kg splits from the samples were then pulverized to 85% <75 µm. • The samples were assayed using ICP-MS for the REE. • The accuracy of the assaying has been validated through a combination of using standards with a known grade and inserting field blanks.
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).*	• HQ diameter core using standard tube was used for the 2023 drill program. As the holes were short and vertical no orientation was carried out on the 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.*	• Good core recovery was observed for the 2023 drill program. • The geological nature of the mineralization in the Upper Zone (coarse bastnaesite), in many cases, is such that the risk of biased sampling is somewhat reduced. • No relationship has been identified between sample recovery and grade.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource*	• Geological drill logs completed by an experienced professional geoscientist were produced to a standard to support a mineral resource estimation.

	JORC Code explanation	Commentary
	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.*	• For the 2023 drill program, core photographs are available. • All the half splits from the 2021 and 2022 drilling programs were retained with the drill core stored on site, as half core, and can be viewed. • Total length of the core for the first 17 holes of the 2023 program is 1431.4 m and the core was 100% logged.
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.*	• Half core splits were sampled for the 2023 drill program. • For each sampled interval the entire interval was half split to ensure a representative sample of the interval. The sampled core was crushed before assaying to ensure the material from the entire interval was analysed during the assaying process. • Duplicates of both the coarse-crushed (<2 mm) rejects and of the assay pulps were analysed and showed good reproducibility of the REE assays, indicating that both materials are sufficiently homogeneous. • The core sample intervals honour the contacts of the mineralization zones, thus providing adequate sample coverage.
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.*	• The assay methods for the REE include lithium borate fusion followed by ICP-MS and are thus considered total. • External REE standards supplied by Avalon Advanced Materials Inc. and inserted in the field, and external REE standards inserted by the laboratory (ALS) were analysed with each batch of assays to ensure the assaying procedures gave accurate results. • Field blanks were inserted to monitor contamination; results were acceptable.
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 electronic) protocols.* • *Discuss any adjustment to assay data.*	• The assay data was collated by Mercedes Rich of Cheetah Resources. • The entire data set was received by email from ALS and converted to oxides. No assay data was manually inserted reducing the likelihood of human data entry errors. Assay data for rare earth elements was converted to rare earth oxides. • Geology tables distinguishing host rock syenite were created from the original drill logs.

	JORC Code explanation	Commentary
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.*	• The 17 drill holes samples have been received for have been surveyed using a handheld GPS by the supervising geologist. It is expected all the 2023 drill holes will by professional surveyor using more accurate surveying methods before any resource modelling is carried out. • The grid system used is UTM NAD83 Zone 12 N, currently the standard system used in the area.
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 drill hole spacing is approximately 50 by 50 m. • The drill hole spacing is considered to be adequate for the indicated resource confidence category. • Sample compositing will be applied when using the data for resource estimation.
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.*	• All 2023 drill-holes were drilled at -90 to intersect the horizontally layered REO mineralisation at 90 degrees to achieve unbiassed sampling.
Sample security	• *The measures taken to ensure sample security.*	• All assay samples were sealed using zip locks, and multiple samples were placed in rice bags sealed with zip locks. Independent lab verified sealed sample integrity upon receipt. • Analyses for elements such as rare earths, niobium and zircon are unlikely to be altered as a result of insecurity of samples such as contamination.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• As the drilling is only recent no audits have been carried out on the sampling techniques and data.

Section 2 Reporting of Exploration Results

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

	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 Upper Zone is located on Mining Lease NT-3178 registered to Avalon Advanced Materials Inc. and expires 21 May 2027. On June 24, 2019, Avalon Advanced Materials Inc. announced that it has entered into a definitive agreement with Cheetah Resources Pty Ltd. to transfer ownership of the near-surface mineral resources on the Property, which includes the Upper Zone (see Avalon News Release NR 19-04). On October 30, 2019, it was announced that Avalon received the full payment from Cheetah Resources Pty Ltd. for the near-surface resources on the Nechalacho rare earth elements property at Thor Lake (see Avalon News Release NR 19-04). On February 6, 2020, the completion of a co-ownership agreement was announced, under which Cheetah Resources Pty Ltd. acquired ownership of the near-surface resources on the property, including the Upper Zone, and a jointly-owned special purpose vehicle to hold and manage the permits and authorizations to operate at the site was created (see Avalon News Release NR 20-01). • Operating licenses in the Northwest Territories are subject to the approvals by provincial and environmental regulators and require consultation with local communities.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• The historic resource development drilling was carried out by Avalon Materials Inc with the bulk of this drilling carried out between 2007 and 2013. • The geologist who supervised the historic work, J.C. Pedersen, P. Geo, is an experienced geologist in the rare earths field and is well known as a reliable geoscientist to the present parties. He also supervised the 2021 and 2022 drilling programs and some of the 2023 drilling program.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Upper Zone is a polymetallic (REE, Nb, Zr) deposit hosted by the Thor Lake Syenite. It is a large layered magmatic deposit. • REO mineralization in the Lake Zone is layered in separate zones of light rare

	JORC Code explanation	Commentary
		earths at the top of the deposit (Upper Zone) and a mixture of light and heavy REO mineralisation in the lower part of the deposit (Basal Zone).

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:*
	  ○ *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.*
		• The historic data set for the Lake Zone includes 582 diamond drill holes with many of them in fans from the surface utilising a small number of drill pads to target the basal zone which begins approximately 80 metres below the surface. The historic drill hole data gave poor representation of the Upper Zone as the fans resulted in many holes close together in clusters and wide spaces between the clusters.
		• The historic drill holes ranged from 1.5 to 1070 m in length with the bulk of the drill holes between 150 and 300 m long for a total length of 120,062 m.
		• See Appendix 2 and Table 1 for the details of each of the holes and the assay intervals in the 2023 drilling program.

Data aggregation methods	• *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.* • *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.*	• Where there was more than 1 assay for an interval a weighted average was used for the grade of the interval. The weighted average was calculated by using the following formula. Interval grade= (Sum of (Assay length X assay grade))/(total interval length) • No capping was applied as no outliers were observed. • Nd2O3 and Pr2O3 has been reported as 24.5% of the total REO. This was calculated by summing the Nd2O3 and PR6O11 assay grades and dividing by the sum of the Total REO grades.
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').*	• For the 2023 drilling the intervals reported closely approximate the true width of the mineralisation as most holes intersect at right angles to the dip of the mineralisation. • The sample intervals are suitable for the mineralisation. • The drill holes intersect the deposit at approximately right angles to the orientation of the orebody which is the ideal orientation. • The orientation of the holes to the mineralization is well established.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should*	• See figures in this ASX release for map of collars and a 3D sectional view.

	JORC Code explanation	Commentary
	include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	
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 intervals greater than and equal to 4 metres in length and 1% TREO are reported in Table 1.
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.*	• Not applicable as no other exploration data is available. • Deleterious and contaminating materials are not present except for some thorium as is commonly present in rare earth deposits and well established with respect to levels.
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.*	• The 2023 drilling program should outline enough resources in the Measured and Indicated categories to allow mining and processing studies to be carried for a pre-feasibility study. If the mining and processing studies successfully show that mining is economically viable then further close space drilling will be carried out to further expand the Measured and Indicated resources in the Tardiff Zone where there are currently Inferred mineral resources and indicated mineral resources.

Appendix 2: List of the first 17 drill-holes for the 2023 resource definition drilling

Hole_ID	Northing	Easting	Elevation	Length (m)	Azimuth	Dip
L23-614	6886528	417161	235	90	0	-90
L23-615	6886529	417209	241	90	0	-90
L23-616	6886524	417259	244	90	0	-90
L23-617	6886058	417208	238	90	0	-90
L23-618	6886527	417308	244	90	0	-90
L23-619	6886535	417359	245	90	0	-90
L23-620	6886064	417162	243	94	0	-90
L23-621	6886502	417047	240	90	0	-90
L23-622	6886102	417204	238	90	0	-90
L23-623	6886112	417162	237	90	0	-90
L23-624	6886469	417108	230	90	0	-90
L23-625	6886154	417164	237	90	0	-90
L23-635	6886205	417166	234	90	0	-90
L23-641	6886303	417182	239	90	0	-90
L23-651	6886243	416962	242	90	0	-90
L23-654	6886257	417406	233	90	0	-90
L23-667	6886580	417107	244	90	0	-90