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SIGNIFICANT UPGRADE AND EXTRACTION OF RARE EARTH ELEMENTS ACHIEVED IN DIAGNOSTIC LABORATORY TESTS

Transition Minerals Limited is pleased to provide an update on its metallurgical test work from its rare earth element (REE) project at Barkly.

Key Highlights

- **Flotation test work yielded a concentrate of 21,704 ppm Total Rare Earth Oxide (TREO) equivalent, including 7,529 ppm neodymium and praseodymium oxides (NdPr), 60 ppm terbium oxide, and 203 ppm dysprosium oxide.**
- **The concentrate represents just 2.6% of the original sample mass which contained 2,994 ppm TREO-equivalent, including 1,067 ppm NdPr. These outstanding initial test results now provide a beneficiation pathway to investigate infrastructure, energy and reagent optimisation in the design of a commercial process flowsheet.**
- **Extraction rate of 63.4% (676 ppm) of NdPr was achieved within an overall 60.7% extraction of TREO, using a common acid-bake followed by water leach of the original sample.**
- **A simple hydrochloric acid (HCl) leach extracted 26.8% (285 ppm) of NdPr equivalent from the original sample.**
- **Further flotation and leach tests are underway.**

Toby Foster, Managing Director, commented:

"These initial metallurgical results, undertaken by the specialist team at Nagrom, are an outstanding development for Transition Minerals. Testing demonstrates the potential to beneficiate the REE minerals through a traditional flotation system, facilitating efficiencies in infrastructure size and reagent and energy consumption in a future mining and processing scenario."

Metallurgical Sample Selection

In consultation with rare earths process experts, Wave International, Transition Minerals commenced a metallurgical test programme at Nagrom on samples from the Company's 2022 Barkly Project drilling programme. The work encompasses laboratory-scale diagnostic tests, using commercially applicable reagents on two composite samples, in addition to assessments of size fractions and flotation separation to potentially beneficiate a rare earths mineral concentrate.

The composite samples (Table 1) represent two chemically distinct sample populations from the REE-mineralised sediment which was identified at the Vanadis Prospect from the Company's 2022 drilling.

Table 1: Composite samples submitted for metallurgical test work.

Sample ID	TREO (ppm)	NdPr (ppm)	NdPr %	U (ppm)	Th (ppm)
TM001	2,994	1,067	35.6	4.5	5.5
TM002	2,003	672	33.5	3.0	5.5

TM001 is a composite of 14 samples of high-grade rare earths material from 14 drillholes (2,994 ppm TREO), while TM002 is a composite of 13 samples of moderate-grade rare earths (2,003 ppm TREO) from 13 drillholes (Figure 1 and Table 2).

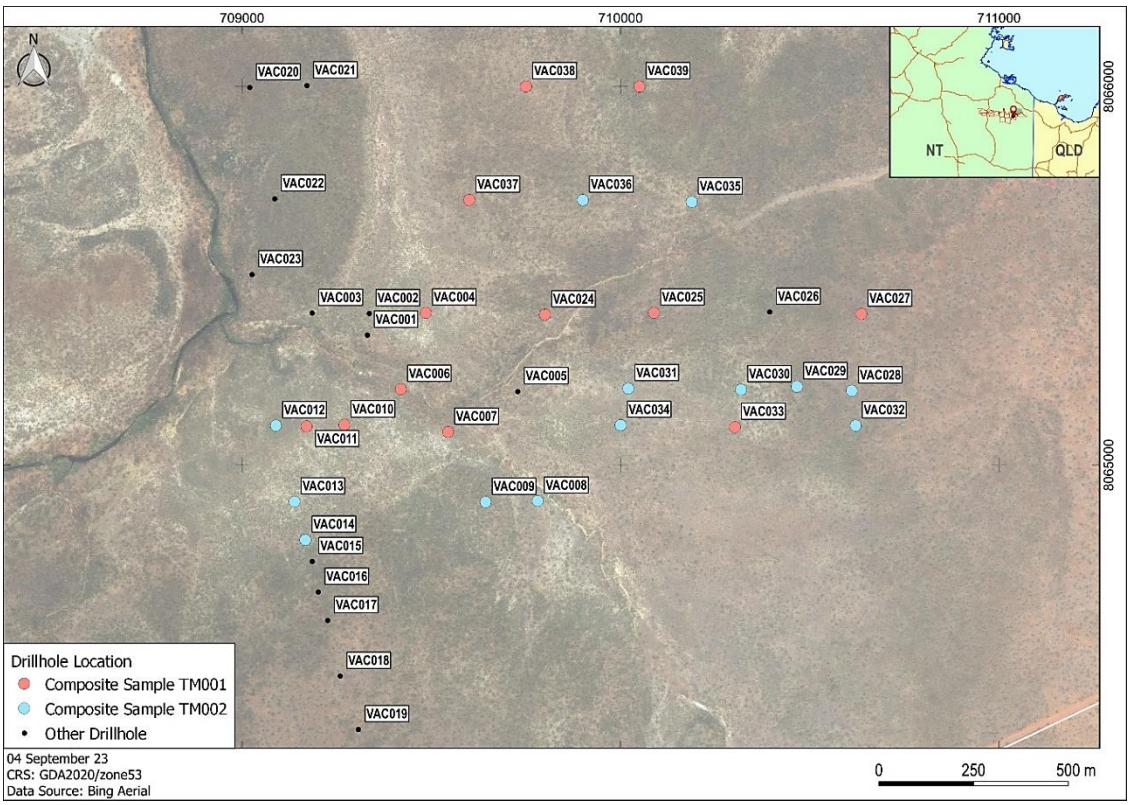

Figure 1: Drillhole locations for composited samples for metallurgical test work.

Table 2: Drillhole samples and coordinates (GDA94 Zone 53) as composite contributors to metallurgical samples.

Sample	Hole	From (m)	To (m)	Easting	Northing
TM001	VAC004	6	7	709485	8065402
	VAC006	4	5	709419	8065200
	VAC007	5	6	709544	8065087
	VAC010	5	6	709270	8065106
	VAC011	4	5	709170	8065102
	VAC024	11	12	709800	8065397
	VAC025	14	15	710088	8065402
	VAC027	22	23	710636	8065399
	VAC033	12	13	710302	8065100
	VAC034	8	9	710000	8065105
	VAC036	13	14	709900	8065700
	VAC037	11	12	709600	8065700
	VAC038	10	11	709750	8066000
	VAC039	16	17	710050	8066000
TM002	VAC008	6	7	709781	8064905
	VAC009	8	9	709643	8064902
	VAC012	3	4	709089	8065104
	VAC013	6	7	709138	8064903
	VAC014	8	9	709167	8064802
	VAC028	21	22	710611	8065196
	VAC029	17	18	710466	8065207
	VAC030	14	15	710318	8065199
	VAC031	9	10	710020	8065202
	VAC032	22	23	710621	8065104
	VAC034	9	10	710000	8065105
	VAC035	16	17	710188	8065695
	VAC036	12	13	709900	8065700

Both samples have very low concentrations of the radionuclides uranium (U) and thorium (Th), which is advantageous from a product handling and processing perspective. The presence of U and Th is often compounded in the processing of rare earth ores and can create considerable downstream cost, management and environmental issues.

Nagrom Test Work

Diagnostic beneficiation and ambient-pressure leach test-work was conducted under multiple conditions (Table 3).

Table 3 Preliminary metallurgical testing conditions at Nagrom.

Test	Details
Size-by-size analysis	• 7 sizes
Sighter flotation	• Tecrich Regime with HC310
Thermal roast leach	• Mix with H_2SO_4 (1000 kg/t), 2-hour roast at 300°C; 1 hour water leach • Mix with H_2SO_4 (500 kg/t), 2-hour roast at 300°C; 1 hour water leach • Mix with Na_2CO_3 (61 kg/t), 2-hour roast at 300°C; 1 hour water leach
Heavy liquid separation	• At densities of 2.8 g/cm^3, 3.0 g/cm^3 and 3.2 g/cm^3
Ambient temperature 6-hour leach	• 25 g and 100 g H_2SO_4 • 25 g and 100 g HCl • 1 M NaOH • 0.5 M $(NH_4)_2SO_4$ • 200 g/L HNO_3
Elevated temperature 6-hour leach	• 100 g H_2SO_4; 90°C • 100 g HCl; 90°C • 200 g/L HNO_3; 90°C

Results

Size-by-size analysis

Solid samples were screened by size to determine distribution of mass and rare earths in each size fraction. This step was taken to assess the potential to increase the rare earths concentration and decrease reagent consumption, by screening to remove lower-grade fractions. By crushing the samples to <2.36 mm, over 50% of the rare earths were enriched in the fine fraction (<53 µm) which, respectively, comprises just 30.7% and 33.2% of the original mass of samples TM001 and TM002.

Sighter flotation

The sighter flotation test provides an indication of whether flotation can separate the rare earth minerals into a smaller mass fraction for more efficient processing. The test demonstrated an effective concentration process with a significant upgrade factor. The test, undertaken on TM001, concentrated 55.9% of the TREO into 13.9% of the original sample mass, delivering a concentrate grade of 1.14% TREO. This represents an upgrade of over 380%. Included in the test results was the concentration of 19.9% of the TREO into just 2.6% of the sample mass for a grade of 2.17% TREO (Figure 2). This represents an upgrade of over 720%.

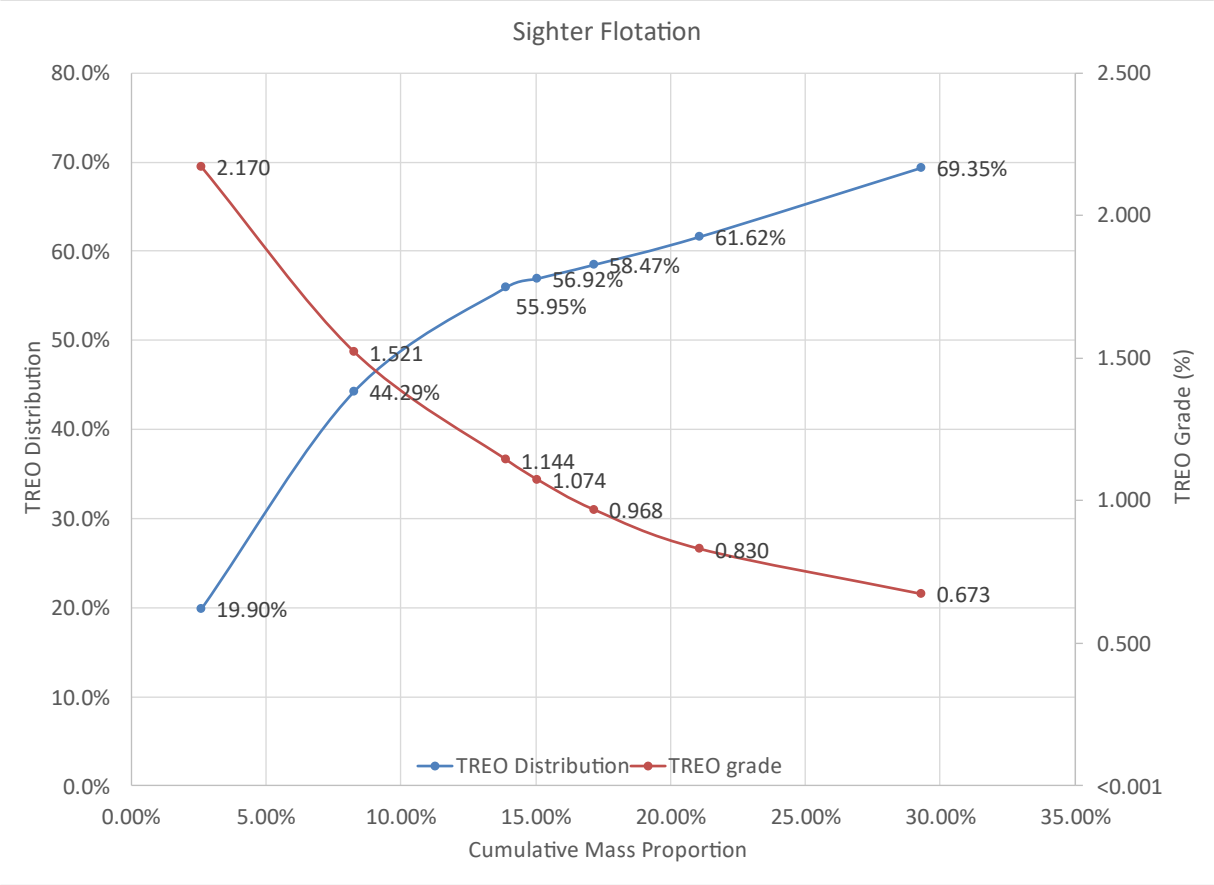

Figure 2: Sighter flotation results on sample TM001 demonstrating the capacity to generate a concentrate from a small fraction of the sample.

Thermal roast leach

Baking of TM001 (unconcentrated) with sulphuric acid (H_2SO_4) at 300°C for 2 hours, followed by a 1-hour water leach, resulted in up to 60.7% extraction of TREO, including 63.4% of NdPr and 62.0% of Magnet Rare Earth Oxides (MREO).

Elevated temperature leach

Leaching of TM001 (unconcentrated) with hydrochloric acid (HCl) at 90°C for 6 hours resulted in extraction of 26.8% of NdPr, 27.0% of MREO and 36.1% of Heavy Rare Earth Oxides (HREO).

Results of successful leach tests on composite sample TM001 are presented in Table 4.

Table 4: Successful leach testing results of sample TM001.

Test	TREO Extraction	NdPr Extraction	MREO Extraction	HREO Extraction
1000 kg/t H_2SO_4 bake, water leach	59.1%	62.5%	60.75%	17.4%
500 kg/t H_2SO_4 bake, water leach	60.7%	63.4%	62.0%	23.7%
100 g/L HCl, 90°C	26.1%	26.8%	27.0%	36.1%

Other tests

Other tests at ambient and elevated temperatures did not demonstrate suitability for concentration or extraction of rare earths from the samples tested.

Further flotation testing and leach testing is underway, which will conclude the current sighter metallurgical test programme.

Summary and Next Steps

Based on the positive initial diagnostic leach outcomes and the potential to upgrade the rare earths by flotation or removal of coarse material, further stages of work are proposed to define optimal leach conditions, including testing reaction kinetics. Additional characterisation of mineralogy, via scanning electron microscopy, X-ray diffraction, or similar, may be undertaken on leached material to better understand the nature of extraction rates observed, and to optimise future test work.

These preliminary results of the metallurgical test work have contributed to the mineral resource estimation (MRE) work in progress. Transition Minerals expects to release an initial resource statement by October, and to provide additional disclosures including from the ongoing metallurgical test programme, to compliment the outstanding results received to date.

Together, these metallurgical test results and the coming MRE enhance shareholder value and provide the necessary backdrop for investment, resource development, and further exploration for new discoveries.

For further information, please contact:

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Competent Person's Statement

The information presented here, that relates to exploration results, complies with the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012) and is based on information compiled by Mr Richard Hall of Transition Minerals Limited. Mr Hall is a Fellow of the Australian Institute of Mining and Metallurgy (AusIMM). Mr Hall 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 JORC Code. Mr Hall consents to the inclusion in this announcement of the matters based on the information in the form and context in which it appears.

JORC Code, 2012 Edition – Table 1 report template

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.*	• No drilling results are reported in this announcement. Sub-samples were collected from existing drill sample spoils and prepared for metallurgical analyses. • All information on previous sampling and drilling results is included in the Table 1, as included in previous announcements.
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).*	• No drilling is reported in this announcement. Sub-samples were collected from existing drill sample spoils and prepared for metallurgical analyses. • All information on previous sampling and drilling results is included in the Table 1, as included in previous announcements.
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 is reported in this announcement. Sub-samples were collected from existing drill sample spoils and prepared for metallurgical analyses. • All information on previous sampling and drilling results is included in the Table 1, as included in previous announcements.

Criteria	JORC Code explanation	Commentary
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.*	• No drilling is reported in this announcement. Sub-samples were collected from existing drill sample spoils and prepared for Metallurgical analyses. • All information on previous sampling and drilling results is included in the Table 1, as included in previous announcements.
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.*	• Sample preparation is integral to the analytical process, as it ensures a representative sample is presented for assay. The preparation process includes sorting, drying, crushing, splitting and pulverising. Nagrom is an AQIS registered site and has a licence to import and quarantine geological material. • The prepared sample is fused in lithium borate flux, with lithium nitrate additive. The resultant glass bead is analysed by XRF. XRF is suitable for the total analysis of a range of geological ores, including REE. XRF Suites are tailored to specific ore types, using predefined inter-element and matrix corrections. Loss on Ignition (LOI) is packaged with XRF suites to allow the determination of oxide totals. • The prepared sample is fused with sodium peroxide and digested in dilute hydrochloric acid. The resultant solution is analysed by ICP. This method offers total dissolution of the sample and is useful for mineral matrices that may resist acid digestions. • Solution samples are diluted and then analysed by ICP. Dilutions bring the concentration level to within the analytical range of the ICP instruments. Diluents are matched to sample matrix. • 27 drill spoil samples were batched into two test samples: one sample comprising a high grade REO composite (2,994 ppm

Criteria	JORC Code explanation	Commentary
		(TREO); n=14 samples for 9.15 kg total weight i.e. TM001) and the other, a moderate grade REO composite (2,003 ppm (TREO); n=13 samples for a total of 8.12 kg weight, i.e. TM002). • The samples were weighed, bagged and despatched to Nagrom Laboratory, per sample submission protocol and composited under laboratory supervision. • Samples crushed initially to P100 2.36 mm and split, with sub-samples staged crushed in a rod mill to P100 0.5 mm with the target at P80 0.355 mm, per instructions from Transition's metallurgical advisors Wave International. • Actual results achieved c.P90 0.355 mm.
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.*	• All sighter test work was carried out at Nagrom Laboratory, 49 Owen Rd, Kelmscott WA 6111. The company provides services to mining companies and their operations, both within Australia and overseas. Nagrom is thus considered a quality provider of metallurgical services.
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.*	• No drilling is reported in this announcement. Sub-samples were collected from existing drill sample spoils and prepared for metallurgical analyses. • All information on previous sampling and drilling results is included in the Table 1, as included in previous announcements. • The conversion of elemental weight percent of REEs to oxide weight percent, in order to calculate TREO, NdPr, MREO and HREO, can use the following

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>conversion factors:
<table><tr><td>La_2O_3</td><td>1.1728</td></tr><tr><td>CeO_2</td><td>1.2284</td></tr><tr><td>Pr_6O_{11}</td><td>1.2082</td></tr><tr><td>Nd_2O_3</td><td>1.1664</td></tr><tr><td>Sm_2O_3</td><td>1.1596</td></tr><tr><td>Eu_2O_3</td><td>1.1579</td></tr><tr><td>Gd_2O_3</td><td>1.1526</td></tr><tr><td>Tb_4O_7</td><td>1.1762</td></tr><tr><td>Dy_2O_3</td><td>1.1477</td></tr><tr><td>Ho_2O_3</td><td>1.1455</td></tr><tr><td>Er_2O_3</td><td>1.1435</td></tr><tr><td>Tm_2O_3</td><td>1.1421</td></tr><tr><td>Yb_2O_3</td><td>1.1387</td></tr><tr><td>Lu_2O_3</td><td>1.1371</td></tr><tr><td>Y_2O_3</td><td>1.2699</td></tr></table>
• TREO= $La_2O_3 + CeO_2 + Pr_6O_{11} + Nd_2O_3 + Sm_2O_3 + Eu_2O_3 + Gd_2O_3 + Tb_4O_7 + Dy_2O_3 + Ho_2O_3 + Er_2O_3 + Tm_2O_3 + Yb_2O_3 + Lu_2O_3 + Y_2O_3$
• HREO = $Gd_2O_3 + Tb_4O_7 + Dy_2O_3 + Ho_2O_3 + Er_2O_3 + Tm_2O_3 + Yb_2O_3 + Lu_2O_3 + Y_2O_3$
• MREO = $Pr_6O_{11} + Nd_2O_3 + Tb_4O_7 + Dy_2O_3$
• NdPr = $Pr_6O_{11} + Nd_2O_3$</td></tr>
<tr><td>Location of data points</td><td>• Accuracy and quality of surveys used to locate drillholes (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.</td><td>• No drilling is reported in this announcement. Sub-samples were collected from existing drill sample spoils and prepared for metallurgical analyses.
• All information on previous sampling and drilling results is included in the Table 1, as included in previous announcements.</td></tr>
<tr><td>Data spacing and distribution</td><td>• 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.</td><td>• Sub-samples were collected from existing drill sample spoils and composited for preliminary metallurgical analyses. Refer to
• Table 2 and Figure 1 for compositing details.</td></tr>
<tr><td>Orientation of data in relation to geological structure</td><td>• 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</td><td>• No drilling is reported in this announcement.
• All information on previous drilling results is included in the Table 1, as included in previous</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
	mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	announcements.
Sample security	• *The measures taken to ensure sample security.*	• All samples have been in the custody of Transition Minerals. The samples were weighed, bagged and dispatched to Nagrom Laboratory by Transition Minerals personnel, following sample submission protocols.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No audits have been undertaken.

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.*	• Tenement status confirmed on NT STRIKE. • The tenements are in good standing with no known impediments.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• No relevant previous exploration has been undertaken by other parties.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The tenements are within the Greater McArthur Basin, Northern Territory. • Transition Minerals is exploring for vanadium, other base metals and REE deposits. • This release refers to REE mineralisation related to lateritic weathering processes on Cretaceous sedimentary rocks (Mullaman Beds).
Drillhole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drillholes:* ○ *easting and northing of the drillhole collar* ○ *elevation or RL (Reduced Level –*	• No drilling is reported in this announcement. Sub-samples were collected from existing 2022 Barkly drill sample spoils for metallurgical composite samples. • Refer to previous announcements

Criteria	JORC Code explanation	Commentary
	elevation above sea level in metres) of the drillhole 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.*	for drillhole information relevant to sample intervals specified in • Table 2.
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 drilling is reported in this announcement. • All information on previous drilling results is included in the Table 1, as included in previous announcements.
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 drillhole 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').*	• No drilling is reported in this announcement. • All information on previous drilling results is included in the Table 1, as included in previous announcements.
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 drillhole collar locations and appropriate sectional views.*	• Relevant images and tables have been included in the body of the report.
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 relevant data have been reported. • The information reported here is considered transparent, balanced and inclusive of all relevant information.
Other substantive	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical*	• No drilling is reported in this announcement. Sub-samples were collected from existing drill sample

Criteria	JORC Code explanation	Commentary
exploration data	*survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	spoils and prepared for metallurgical analyses. • All information on previous sampling and drilling results is included in the Table 1, as included in previous announcements. • The Barkly project has low U and, Th concentrations globally from metallurgical samples submitted to date, including 4.5 ppm U and 5.5 ppm Th. These are deleterious and penalty elements that can be compounded in the processing of rare earth ores and the final marketable product. • U and Th can create considerable downstream cost, management and environmental issues.
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.*	• Other metallurgical test work will be conducted, aimed at optimising REE recoveries, including providing additional sample material through follow-up drilling. Recommendations are expected to be received from consulting metallurgists Wave International upon completion of the current programme of work at Nagrom.