ASX ANNOUNCEMENT

17 January 2023

CALDEIRA PROJECT DRILLING TO COMMENCE

Highlights

- **Diamond drilling program to commence week of January 23rd**
  - **Program of 25 diamond holes designed to test depth of REE mineralisation at Caldeira Project**
  - **85% of all (1311) historic holes finished with TREO grades higher than 1000ppm in end of hole sample.[1] All new holes will be drilled into basement granite to test the depth extent of mineralisation**
  - **20 of the holes are designed to twin historic auger holes drilled by the previous explorer between 2016-2019. 5 diamond holes are to test other licenses that have never been drilled**
  - **The diamond drill cores will be split into 2 portions with half for assay and half to come back to Australia for metallurgical testwork at ANSTO laboratory in Sydney[2]**
- **Meteoric has engaged ANSTO to provide metallurgical expertise and processing recovery for the REE at the Caldeira Project**
- **Meteoric has engaged BNA Mining Solution in Brazil to complete a JORC 2012 Mineral Resource estimation on the historic data that exists for the project.**
- **The maiden resource for the Caldeira Project will be available early in Quarter 2 - 2023.**

Meteoric Resources NL (**Meteoric** or the **Company**) (ASX: **MEI**) is pleased to announce that field based due diligence check sampling programs are progressing with re-sampling of selected historic coarse rejects and pulps complete and sent for assay, and with diamond drilling to commence in approximately 10 days.

Dr Andrew Tunks Meteoric's Director said, "The first phase of our DD in now well underway with resampling of historic samples complete and samples dispatched to the laboratory. In the coming weeks we will commence a diamond drilling program which will both: twin selected historic auger holes to validate geology and REE grades, plus identify the depth to the base of the REE mineralisation. Given the base of the mineralisation is unknown, with 85% of all holes terminating in grades above 1,000 ppm TREO, any depth extension will impact positively on the size of any resource. In addition, some clay hosted deposits report an increase in HREE at depth. If present at the Caldeira Project this also would impact positively on the REE grade of any resource.

At the same time we have been busy developing links into groups with significant REE research and processing experience. The Australian Nuclear Science and Technology Organisation (ANSTO) have a long history working in the REE industry and all the initial metallurgical testwork will be completed at the ANSTO facility in Lucas Heights Sydney. Likewise, BNA Mining Solutions (BNA) are a leading Resource Estimation consultancy in Brazil with significant previous involvement in the Caldeira Project. Work has already commenced on the historic drill hole and assay database in preparation for modelling and resource calculations and we plan to announce a maiden resource estimate under the JORC Code (2012) early in the second quarter 2023.

1. *ASX:MEI - Acquisition of potential world class Ionic Clay REE Project 16/12/2022*
2. *ASX:MEI - Metallurgical Tests Confirm Caldeira as Ionic Adsorption Clay REE Deposit 20/12/2022*

Due Diligence Diamond Core Drilling Program

Meteoric have executed a contract with a local service provider, **Thrust Drilling**. The Company's diamond core drilling program will start in late January. Twenty holes are designed to twin historic auger holes drilled by previous explorers JOGMEC between 2016-2019. All new holes will be drilled deeper than the original historic holes into unoxidised granite to ensure full mapping and documentation of the extensive regolith profile that hosts the REE mineralisation. Table 1 identifies historic auger holes that are being twinned and lists the mineralised intercepts for these holes.

The new diamond drilling will serve multiple purposes:-

1. Geostatistical comparison of downhole grades between diamond holes (new) and old auger holes; all new assays will be completed at the SGS-Geosol laboratory, located in Vespasiano, Minas Gerais by ICP-MS
2. Drill beyond the current base of drilling (max depth 20m average depth 10m) until granite basement is intersected to collect data on the thickness of the clay zone and the depth to which REE mineralisation is present
3. Provide sample material for metallurgical testwork across 6 licenses – previous testwork was only completed at Capo do Mel Prospect; and
4. To characterise the weathering profile and rock conditions to determine the optimum drilling method for any detailed resource drill out.

The auger holes for twinning were selected to represent all 6 prospects, with an emphasis on holes that finished in strong mineralisation.

***Table 1**. Historic auger holes that have been selected for diamond twins with mineralised intercepts. Data for all historic drilling was presented in the initial acquisition announcement (ASX:MEI - Acquisition of potential world class Ionic Clay REE Project 16/12/2022).*

Prospect	Hole #	EOH (m)	Min Interval (m)	TREO (ppm)	TREO EOH (ppm)
Capao do Mel	CDM-134	18.5	18.5	**6895**	**7840**
Capao do Mel	CDM-194	14.0	14.0	**4536**	**6042**
Capao do Mel	CDM-204	10.2	10.2	**5683**	**4953**
Capao do Mel	CDM-182	4.8	4.8	**1010**	**1064**
Cupim Vermelho Norte	CVN-22	12.0	12.0	**8367**	**5829**
Cupim Vermelho Norte	CVN-80	13.0	13.0	**6600**	**6817**
Cupim Vermelho Norte	CVN-98	8.0	8.0	**3667**	**4141**
Dona Maria I	DM1-109	15.5	15.5	**4278**	**6644**
Dona Maria I	DM1-177	13.0	13.0	**3946**	**4624**
Dona Maria I	DM1-36	20.0	20.0	**3074**	**7787**
Dona Maria I	DM1-70	8.2	8.2	**2932**	**6922**
Dona Maria II	DM2-28	7.0	7.0	**7646**	**12429**
Dona Maria II	DM2-54	2.5	2.5	**4515**	**4014**
Dona Maria II	DM2-73	10.5	10.5	**4239**	**1250**
Figueira	FG-36	14.0	14.0	**2461**	**4348**
Figueira	FG-48	12.0	12.0	**5462**	**3312**
Figueira	FG-67	17.3	17.3	**2453**	**2808**
Soberbo	SB-76	17.5	17.5	**5058**	**4050**
Soberbo	SB-157	11.0	11.0	**5034**	**8417**
Soberbo	SB-315	14.7	14.7	**4955**	**5077**

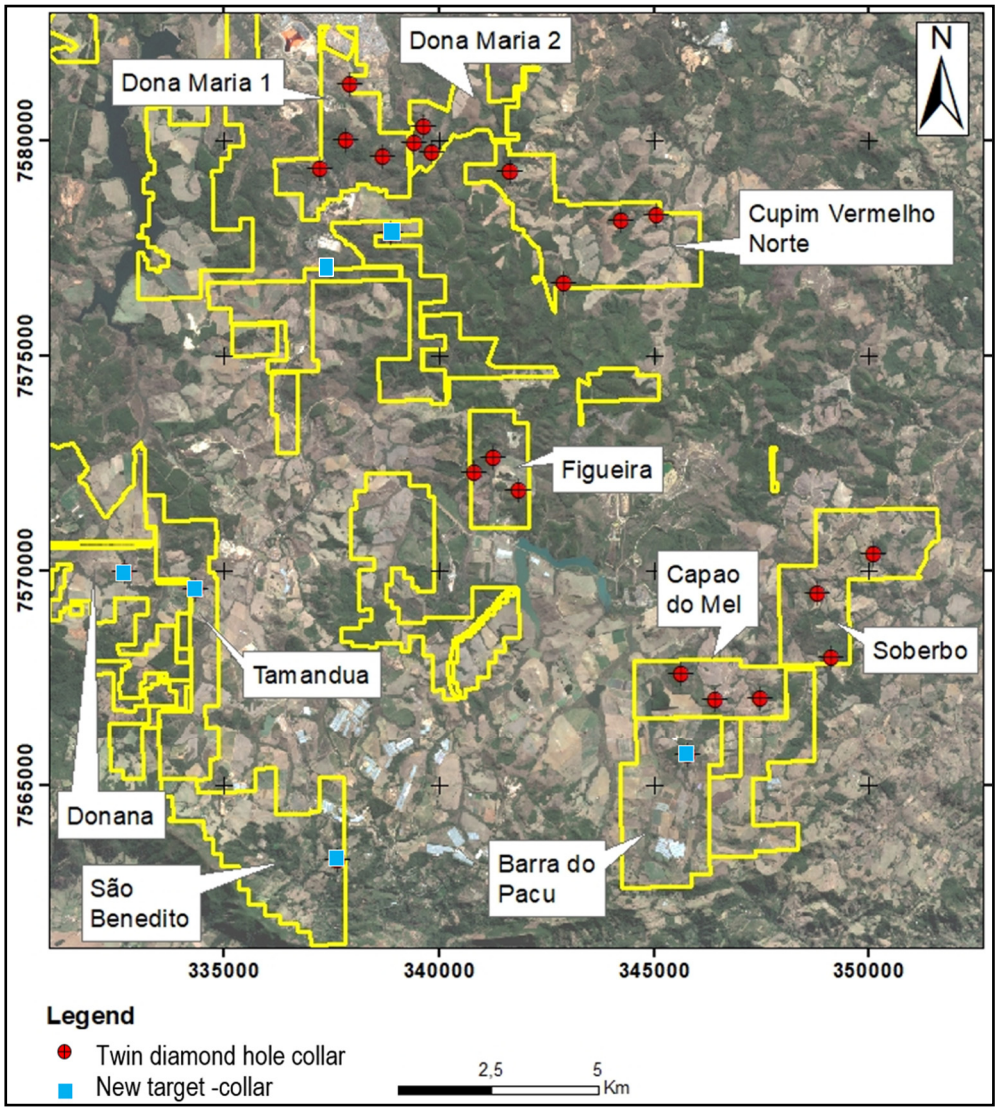

Figure 1. *Collar plan showing the location of the 25 programmed drilling for the DD phase. Twin holes are shown as red circles and diamond holes testing new areas as blue squares.*

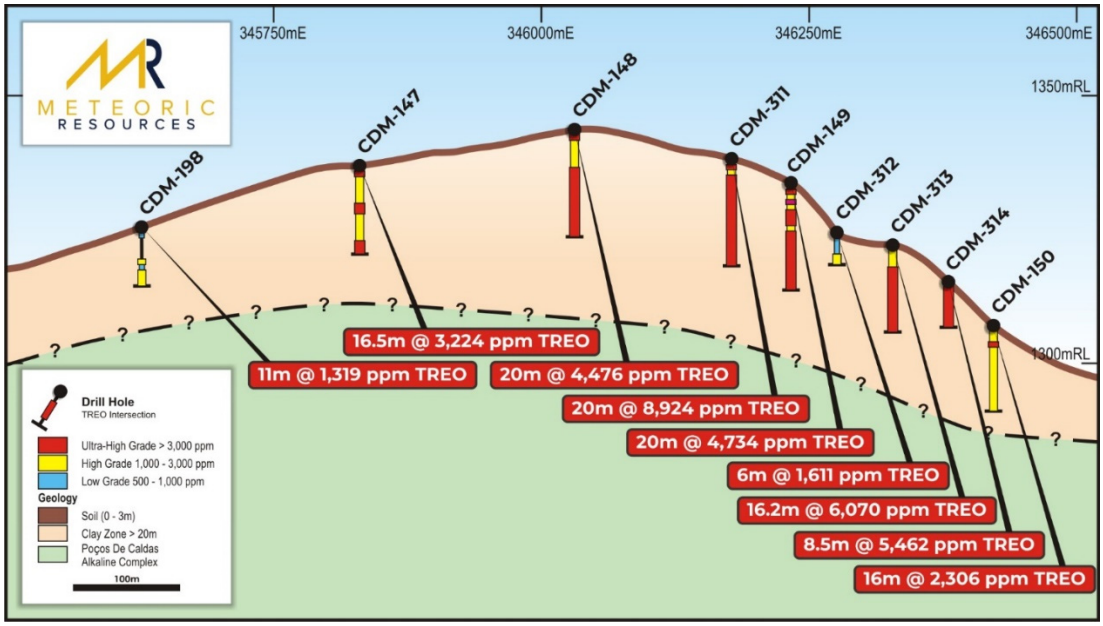

Figure 2. *Capáo do Mel - Stylised Cross Section 7 566 800m N – New drilling is designed to intersect the underlying granite (green) at depth to establish the thickness of the prospective clay zone. Every hole on this section finished in grades above 1000ppm TREO. Vertical exaggeration = 5 times (refer ASX release 16/12/2022)*

Metallurgical Testwork Program With ANSTO

The Company has formally engaged with the Australian Nuclear Science Technology Organisation (ANSTO) to devise and conduct a series of metallurgical recovery tests on the Caldeira Project ores. Sample material will be collected from all drillholes in the upcoming diamond drill program and after logging will be split into 2 fractions. Fraction 1 will be sent to SGS-Geosol laboratory in Vespasiano, Minas Gerais Brazil for analysis by ICP-MS. Fraction 2 will be packed and sent to ANSTO at Lucas Heights in NSW where they will undergo a series of mineralogical and metallurgical tests to assess any metallurgical variability across the system and to optimize REE recoveries. The Company has previously reported the preliminary metallurgical testwork completed on the Caldeira Project by JOGMEC. The results show that excellent REE desorption was achieved using a standard ammonium sulphate [$(NH_4)_2SO_4$)] solution at pH 4 and crucially confirms that the high-grade Caldeira Project is an Ionic - Adsorption Clay REE Deposit.(ASX:MEI -20/12/2022).

Maiden Mineral Resource Estimate

BNA Mining Solutions (BNA) have been involved as the competent group overseeing previous exploration at the Caldeira Project and are a well-known resource and mining consultancy based in Belo Horizonte in the state of Minas Gerais, Brazil.

Historic data collected by previous explorers, JOGMEC includes: 13,037 whole rock analyses collected from 1,311 auger holes drilled across 6 licences of the Caldeira Project. Rigorous procedures including the use of duplicates, blanks and standards were followed during the historic exploration. Work has already commenced on validation of the historical database and QAQC on the data. A Maiden Resource Estimate for the Caldeira Project reported under the JORC Code (2012) will be available in the second quarter of 2023.

Due Diligence Resample

As part of the Due Diligence assessment a total of 31 drill holes from JOGMEC's 2016-2019 drilling program were resampled, 315 pulp samples were collected from 23 drill holes and 109 samples of original unprocessed sample were collected from 8 drill holes, completing 424 samples. The resampling of historical course rejects from the auger drilling and pulps from the laboratory was designed to cover all the targets previously drilled.

This release has been authorised by the Board of Meteoric Resources NL.

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The information in this announcement that relates to exploration results is based on information reviewed, collated and fairly represented by Dr Andrew Tunks who is a Member of the Australasian Institute Geoscientists and a Director of Meteoric Resources NL. Dr Tunks has sufficient experience relevant to the style of mineralisation and type of deposit under consideration, and to the activity which has been undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Dr Tunks consents to the inclusion in this report of the matters based on this information in the form and context in which it appears. Dr Tunks confirms information in this market announcement is an accurate representation of the available data and studies for the material mining project.

Appendix 1: Collar table for planned diamond drilling

Drillhole Name	Easting	Northing	Elevation	Azimuth	Dip	Target Depth	Licence
PDH_PC_001	346439	7566994	1328	0	-90	50	Capão do Mel
PDH_PC_002	345627	7567601	1312	0	-90	50	Capão do Mel
PDH_PC_003	347477	7567050	1310	0	-90	50	Capão do Mel
PDH_PC_004	348796	7569488	1307	0	-90	50	Soberbo
PDH_PC_005	350108	7570389	1249	0	-90	50	Soberbo
PDH_PC_006	349110	7567995	1287	0	-90	50	Soberbo
PDH_PC_007	340839	7572261	1341	0	-90	50	Figueira
PDH_PC_008	341283	7572622	1334	0	-90	50	Figueira
PDH_PC_009	341838	7571850	1389	0	-90	50	Figueira
PDH_PC_010	345058	7578266	1265	0	-90	50	Cupim Vermelho Norte
PDH_PC_011	344236	7578150	1335	0	-90	50	Cupim Vermelho Norte
PDH_PC_012	342891	7576694	1426	0	-90	50	Cupim Vermelho Norte
PDH_PC_013	338718	7579651	1344	0	-90	50	DM1
PDH_PC_014	337944	7581338	1346	0	-90	50	DM1
PDH_PC_015	337263	7579355	1335	0	-90	50	DM1
PDH_PC_016	339649	7580345	1394	0	-90	50	DM2
PDH_PC_017	339848	7579738	1390	0	-90	50	DM2
PDH_PC_018	339440	7579946	1346	0	-90	50	DM2
PDH_PC_019	337849	7580037	1373	0	-90	50	DM1
PDH_PC_020	341664	7579280	1361	0	-90	50	Cupim Vermelho Norte
PDH_PC_021	334367	7569587	1358	0	-90	50	Tamandua
PDH_PC_022	332722	7570000	1362	0	-90	50	Donana
PDH_PC_023	337662	7563270	1375	0	-90	50	São Benedito
PDH_PC_024	345786	7565709	1363	0	-90	50	Barra do Pacu
PDH_PC_025	338907	7577859	1375	0	-90	50	Piao

Appendix 2 JORC Code, 2012 Edition – Table 1

Section 1 Sampling Techniques and Data (Criteria in this section apply to all succeeding sections.)

Criteria	Commentary
Sampling techniques	• Holes were sampled using a powered auger drill rig (open hole). Each drill site was cleaned, removing leaves and roots a the surface. Tarps were placed on either side of the hole and samples of soil and saprolite where collected every 1m of advance, logged, photographed with subsequent bagging of the sample in plastic bags.
Drilling techniques	• Powered auger drilling was employed. All holes are vertical and 4inch in diameter. The maximum depth achievable with the powered auger was 20m, and this was only achievable if the hole did not encounter fragments of rocks/boulders etc. sitting within the weathered profile, and / or the water table.
Drill sample recovery	• Auger sample recovery calculated as length of sample recovered per interval drilled. • Generally within a range of 75% - 100%.
Logging	• For every 1m drilled, the material was described in a drilling bulletin, and photographed. • The sample description is made according to the tactile-visual characteristics, such as material (soil, colluvium, saprolite, rock fragments); material color; predominant particle size; presence of moisture; indicator minerals; extra observations. If the water level is reached, it will also be described.
Sub-sampling techniques and sample preparation	• The auger drill samples undergo a physical preparation process: o Samples are weighed o If the samples are wet, they will be dried for several days on rubber mats. o Samples when dried will be passed through a screen (5mm). o Homogenization occurs by agitation in bags, followed by screening to <3mm. o Fragments of rock or hardened clay that are retained in the sieves are fragmented with a 10kg manual disintegrator and a 1kg hammer, until 100% of the sample passes through the screening . o The sample is homogenized again by agitation in bags.

Criteria	Commentary
	○ Sample then passes through a Jones 12 channel splitter, where 500g will be send of to the lab (SGS_geosol laboratory in Vespasiano – Minas Gerais). ○ Remaining samples are placed in 20 litre plastic buckets, clearly labelled by hole ID and depth, and stored on site. • All samples generated have identification that are registered in internal control spreadsheets. This identification is linked to the name of the hole and interval to which the sample belongs.
Quality of assay data and laboratory tests	• Each batch analysed at SGS Geosol laboratory are composed of 43 samples, 37 of which belong to exploration intervals and 6 are QAQC` samples (duplicate, blank and standards). • Duplicate samples are predetermined and identified in the splitting phase with two samples ~ 500g selected, receiving different identifications. Blank samples consist of milky quartz, two blank samples (100g each) are inserted in each batch. Two standard samples are inserted in each batch. • After the physical preparation of the samples at Plant 2, in Poços de Caldas, batches with 43 samples are sent to the SGS-Geosol laboratory, located in Vespasiano – MG for splitting of the natural sample in a Jones type splitter to remove an aliquot and later, pulverization in a steel mill, 95% minus 150 mesh. • The analytical methodologies used are identified by the codes IMS95A (determination by fusion with lithium metaborate - ICP MS) • For fusion with lithium metaborate, graphite crucibles are used, in which initially 0.5 g of lithium metaborate, 0.1 g of pulverized sample and other 0.5 g of lithium metaborate are inserted. Heated up to 950 °C. Molten content is placed in beaker with 100ml solution of 2% tartaric acid (C4H6O6), 10% nitric acidd (HNO3) and 88% purified water for homogenization. Two aliquots with 15ml each are transferred to test tubes and are sent for ICP analysis (analytical reference IMS95A). • The analyses are performed through mass spectrometry with inductively coupled plasma (ICP-MS). In this procedure, the ions are separated according to the mass / charge ratio through transport under the action of electric and magnetic fields. Quantitative analyzes include rare earth elements, in addition to Y, Co, Cu, Cs, Ga, Hf, Mo, Ni, Rb, Sn, Ta, Th, Tl, U and W (ICP-MS-IMS-95ª Detection limits are shown in the Table below).

Determinação por Fusão com Metaborato de Lítio - ICP MS							PB-000015/3
Ce	0,1 - 10000 (ppm)	Co	0,5 - 10000 (ppm)	Cs	0,05 - 1000 (ppm)	Cu	5 - 10000 (ppm)
Dy	0,05 - 1000 (ppm)	Er	0,05 - 1000 (ppm)	Eu	0,05 - 1000 (ppm)	Ga	0,1 - 10000 (ppm)
Gd	0,05 - 1000 (ppm)	Hf	0,05 - 500 (ppm)	Ho	0,05 - 1000 (ppm)	La	0,1 - 10000 (ppm)
Lu	0,05 - 1000 (ppm)	Mo	2 - 10000 (ppm)	Nb	0,05 - 1000 (ppm)	Nd	0,1 - 10000 (ppm)
Ni	5 - 10000 (ppm)	Pr	0,05 - 1000 (ppm)	Rb	0,2 - 10000 (ppm)	Sm	0,1 - 1000 (ppm)
Sn	0,3 - 1000 (ppm)	Ta	0,05 - 10000 (ppm)	Tb	0,05 - 1000 (ppm)	Th	0,1 - 10000 (ppm)
Tl	0,5 - 1000 (ppm)	Tm	0,05 - 1000 (ppm)	U	0,05 - 10000 (ppm)	W	0,1 - 10000 (ppm)
Y	0,05 - 10000 (ppm)	Yb	0,1 - 1000 (ppm)				

Verification of sampling and assaying	• There are no twin holes drilled. • Data entry procedures included: collar co-ordinates were recorded and holes were logged and photographed at the drill site prior to information being transferred into Excel Spreadsheets back at the office. Drilling data is kept in Excel Spreadsheets in a well organised structure of file folders on a local network and in the 'Cloud'. • There has been no adjustment to the REE assay results other than the accepted factors applied to report REO rather than REE
Location of data points	• All holes were picked up by NortearTopografia e Projectos Ltda., planialtimetric topographic surveyors. The GPS South Galaxy G1 RTK GNSS was used, capable of carrying out data surveys and kinematic locations in real time (RTK-Real Time Kinematic), consisting of two GNSS receivers, a BASE and a ROVER. The horizontal accuracy, in RTK, is 8mm + 1ppm, and vertical 15mm + 1ppm. • The coordinates were provided in following formats: Sirgas 2000 datum, and UTM WGS 84 datum - georeferenced to spindle 23S. • For the generation of planialtimetric maps (DEM), drones were used control points in the field (mainly in a region with more dense vegetation), in addition to the auger drillholes.
Data spacing and distribution	• Hole spacing varies across the prospect scale from a maximum of: 200m by 200m, infill drilled to 100m by 100m in some areas, with tighter spacing of 50m by 50m in the closest space areas. • Given the substantial geographic extent and generally shallow, flat lying geometry of the mineralisation, the spacing and orientation are considered sufficient to establish the geologic and grade continuity. • Samples are not composited.
Orientation of data in relation to geological structure	• The mineralisation is flat lying and occurs within the saprolite/clay zone of a deeply developed regolith (reflecting topography and weathering). Vertical sampling from the powered auger holes is appropriate. • As such, no sampling bias is believed to be introduced.
Sample security	• Samples are removed from the field and transported back to Plant 2 sample preparation and sample storage facility of the company where they are checked and organized on wooden pallets in a covered shed. After checking, all samples are weighed then the samples undergo a physical preparation process

Criteria	Commentary
	including: drying, sieving, homogenisation, and finally splitting before being packed in plastic bags, packed into batches of 43 samples, and despatched to SGS-Geosol for analysis. • The remaining sample is stored in 20 ltr plastic buckets, labelled with the name of the target, the hole name and sampled intervals. Samples are securely locked up in the storage shed.
Audits or reviews	• There have been no audits. MEI is conducting an audit of previous assay results by re-assaying pulps and coarse reject from 4-5% of all historic samples at an umpire Lab.

Section 2 Reporting of Exploration Results (Criteria listed in the preceding section also apply to this section.)

Criteria	Commentary
Mineral tenement and land tenure status	• Listed in Appendix 3. • Given the rich history of mining and current mining activity in the Pocos de Caldas there appears to be no impediments to obtaining a License to operate in the area.
Exploration done by other parties	• The Caldeira Project has had significant exploration in the form of surface geochem across 30 granted mining concessions, plus: geologic mapping , topographic surveys, and powered auger (1,396 holes for 13,710m and 12,962 samples). • Refer to body of the release for appraisal of previous exploration.
Geology	The Alkaline Complex of Poços de Caldas represents in Brazil one of the most important geological terrain which hosts deposits of ETR, bauxite, clay, uranium, zirconium, rare earths and leucite. The different types of mineralization are products of a history of post-magmatic alteration and weathering, in the last stages of its evolution (Schorscher & Shea, 1992; Ulbrich et al., 2005), described below: 1) Deuteric post-magmatic alteration and incipient hydrothermal alteration: potassium metasomatism and zeolitization and, subordinately, formation of clays under oxidizing conditions, with hematitization and hydrated iron oxides; 2) Hydrothermal alteration: piritization, strong potassium metasomatism, mobilization and concentration of U, Th, ETR, Zr and Mo; 3) Emplacement of mafic-ultramafic dikes (lamprophyres); 4) Development of lateritic surface and extensive saprolitization of the massif, supergenic remobilization and precipitation of uranium concentrations. 5) The REE mineralisation focused on in this release is of the Ionic Clay type as evidenced by development within the saprolite/clay zone of the weathering profile of the Alkaline granite basement as well as enriched HREE composition
Drill hole Information	• Drill hole information for all 1,396 powered auger holes drilled by previous explorers is in Appendix 1.
Data aggregation methods	• Appendix 1 lists Mineralised Intercepts for all powered auger holes drilled by previous explorers. For simplicity the mineralised intercepts reported are a weighted average grade of the entire drill hole. No top-cuts have been employed and no restriction on the amount of internal dilution. Inspection of the assay table shows there are only 26 samples of 12,964 total samples which are <500 ppm TREO, therefore it is effectively a 500ppm bottom cut. • No Metal Equivalents are used.
Relationship between mineralisation widths and intercept lengths	• The mineralisation is flat lying (reflecting topography and weathering) and occurs within the saprolite/clay zone of a deeply developed regolith. As the drilling is vertical, down hole intervals are assumed to be true widths.
Diagrams	• A tenement location plan, regional geology map, and a stylised cross section are presented in report.
Balanced reporting	• Collar information and Significant Intercepts for all drill holes from the project are reported in Appendix 1.
Other substantive exploration data	• A report on preliminary metallurgical testwork of material from Dona Maria I and a nearby pit was presented in the data package. A review is underway and will be released to the ASX as soon as completed.
Further work	• Proposed work is discussed in the body of the text.

Appendix 3 - Licence details

Process	Phase	Owner	Area (ha)
814.251/1971	Mining Concession	Mineração Perdizes Ltda	124.35
814.860/1971	Mining Concession	Mineração Zelândia Ltda	341.73
815.006/1971	Mining Concession	Mineração Perdizes Ltda	717.52
815.274/1971	Mining Request	Companhia Geral de Minas	739.73
815.645/1971	Mining Concession	Companhia Geral de Minas	366.02
815.681/1971	Mining Concession	Mineração Zelândia Ltda	766.54
815.682/1971	Mining Concession	Companhia Geral de Minas	575.26
816.211/1971	Mining Concession	Mineração Perdizes Ltda	796.55
817.223/1971	Mining Concession	Mineração Daniel Togni Loureiro Ltda	772.72
820.352/1972	Mining Concession	Mineração Zelândia Ltda	26.40
820.353/1972	Mining Concession	Mineração Zelândia Ltda	529.70
820.354/1972	Mining Concession	Mineração Zelândia Ltda	216.49
813.025/1973	Mining Request	Mineração Perdizes Ltda	943.74
808.556/1974	Mining Concession	Mineração Perdizes Ltda	204.09
811.232/1974	Mining Concession	Mineração Perdizes Ltda	524.40
809.359/1975	Mining Concession	Companhia Geral de Minas	317.36
803.459/1975	Mining Concession	Mineração Perdizes Ltda	24.02
804.222/1975	Mining Request	Mineração Perdizes Ltda	403.65
807.899/1975	Mining Request	Companhia Geral de Minas	948.92
808.027/1975	Mining Concession	Companhia Geral de Minas	600.76
809.358/1975	Mining Concession	Companhia Geral de Minas	617.23
830.391/1979	Mining Request	Mineração Perdizes Ltda	7.30
830.551/1979	Mining Request	Togni S A Materiais Refratários	528.88
830.000/1980	Mining Request	Mineração Perdizes Ltda	203.85
830.633/1980	Mining Request	Mineração Zelândia Ltda	35.25
831.880/1991	Mining Request	Mineração Zelândia Ltda	84.75
835.022/1993	Mining Concession	Mineração Perdizes Ltda	73.50
835.025/1993	Mining Concession	Mineração Perdizes Ltda	100.47
831.092/1983	Mining Concession	Mineração Perdizes Ltda	171.39
830.513/1979	Mining Request	Mineração Monte Carmelo Ltda	457.27