1 SUMMARY

EXECUTIVE SUMMARY

INTRODUCTION

Roscoe Postle Associates Inc. (RPA) was retained by Mineração Terras Raras S.A. (MTR) to prepare an independent Technical Report on the Morro do Ferro rare earth element project, located near the town of Poços de Caldas, Minas Gerais state, Brazil. The purpose of this report is to summarize the results of an updated Mineral Resource estimate that was based on drill hole information collected during the 2014 in-fill drilling campaign and to disclose the results of a metallurgical testing program that was completed in March 2017. This Technical Report conforms to NI 43-101 Standards of Disclosure for Mineral Projects but is intended for internal use by MTR.

MTR is a public limited company in Brazil which owns 100% of the Morro do Ferro Project. In June 2013, Prime Star Mineração Ltda. (Prime Star), together with EDM Ltda, acquired 100% ownership of MTR Ltda, then a limited liability Brazilian company. In December 2013, MTR was converted into a public limited company, after Prime Star's agreement with the other shareholders to develop the Morro do Ferro Project.

The presence of rare earth element (REE) enrichments at Morro do Ferro has been recognized since the mid-1950s. The area has been intermittently explored from 1956 to 1981 for the presence of uranium, thorium, and REEs. Much of the work was carried out by the Brazilian government and a private company. The historical work completed included three drilling campaigns, some trenching, excavation of a 200 m long adit, and completion of several preliminary metallurgical studies. The property is currently in the exploration stage and is viewed as having potential for production of economic quantities of REEs.

Mr. Reno Pressacco, M.Sc. (A)., P.Geo., RPA Principal Geologist, visited the property on November 24 and 25, 2014, accompanied by Messrs. Antonio Meneses and Afonso Manoel De Figueiredo. At the property, Mr. Pressacco reviewed the drilling and core recovery procedures at selected drilling sites and inspected selected drill core. Mr. Pressacco had previously visited the property in October 2012.

INTERPRETATIONS AND CONCLUSIONS

The development of high-technology and green-technology end uses over the past two decades has resulted in the growth of global demand for REEs. In many cases, the rare earth elements occupy a pivotal role in the efficient functioning of many of these high-technology devices such that they have now become to be considered as critical items in the technological supply chain. For much of this time period, the REE markets have been supplied virtually solely from Chinese sources, however, recent shifts in that country's policies with respect to REE exports have resulted in the desire by some end-users to diversify their supply chain to non-Chinese sources and so increase the security of the supply of these critical elements.

Knowledge of the presence of a thorium-uranium-REE deposit at the Morro do Ferro project dates back to the cold war period when the property was evaluated for its potential to produce uranium. In that era, the uses for REEs were minimal; hence little interest was given to the extraction of these elements from the deposit. Prime Star/MTR acquired the option to purchase 100% of the mineral and surface rights of the property in June 2011. It has proceeded to carry out three small exploration and deposit delineation programs to re-confirm the presence of the historically recognized mineralization and to collect detailed assay information on the distribution of the REEs using modern analytical methods. The mineralization has been recognized as being hosted within the saprolite weathering horizon, situated above the bedrock surface.

The exploration and deposit delineation drilling programs have been successful in confirming the presence of the historically recognized mineralized body and in providing sufficient detailed assay information on the REE distributions to permit the preparation of a Mineral Resource estimate and to carry out metallurgical testing programs. This estimate incorporated the results of the in-fill drilling program that was completed in 2015.

METALLURGY

A total of four metallurgical test programs have been carried out on samples from the Morro do Ferro property since 2012. Summaries of these test programs follow.

- 2012 – initial testing to examine the effectiveness of recovering the REE mineralization using ionic clay leaching methods,
- 2013 – mineralogical characterization,

- 2014 – preliminary testing to examine the effectiveness of recovering the REE mineralization by means of hot acid leaching and acid baking water leaching, impurity removal and REE precipitation, and
- 2015 and 2016 – scoping level testing to identify any upgrading potential via various beneficiation techniques, and complete to identify a hydrometallurgical REE extraction method and complete initial liquor treatment and REE precipitation and refining testwork.

The results of the 2012 ionic clay leaching tests indicated that only a limited amount of the REEs were extracted.

The 2013 mineralogical studies revealed that the major REE-bearing minerals in the samples from the mineralized intervals were bastnaesite and cerianite with a minor contribution from monazite. The thorium content of the sample is mostly distributed in bastnaesite, cerianite, and goethite.

The results of the 2014 preliminary tests of hot acid leaching and acid baking demonstrated that these methods were successful at providing acceptable extractions of REEs.

The results of the 2015-2016 beneficiation testing carried out as part of the scoping level test program indicated that unacceptably high losses of the REE values occurred in all beneficiation tests.

The extensive 2015-2016 hydrometallurgical test program is summarized as follows.

Mineral Cracking

The testing program examined various methods of solubilizing the REEs and concluded that the Morro do Ferro material is best processed by a two-stage acid baking process in which approximately 1.5 tonnes of concentrated sulphuric acid is mixed with a tonne of the ore and the mixture then baked at 250ºC for three hours, followed by a second bake at approximately 800ºC for half an hour and recovery of most of the acid from the off-gas.

Impurity Removal

While the acid baking method is successful at solubilizing the REEs, a number of other elements such as iron, aluminum, manganese, and thorium are also brought into solution. Removal of these impurities is essential to the production of an acceptable REE product. A procedure involving uranium removal by ion exchange, impurity precipitation using $CaCO_3$ and followed by $MgCO_3$ to a final pH of 3.6, with permanganate addition, was shown to be effective at removing contaminants with a low accompanying level of REE losses. Additional testing will be required to optimize the process.

REE Precipitation and Refining

Following the impurity removal step, SGS conducted REE precipitation tests using Na_2CO_3 as the reagent. The precipitate contained a high level of REE as carbonates (as high as 49% REE) but also contained Th (approximately 2,000 g/t), U (300 g/t), Ca (5%), and other contaminants. A sample of the impure REE precipitate was subjected to refining by dissolution in HCl, precipitation of impurities using $MgCO_3$, precipitation of the REE as an oxalate, and calcining to the oxide. Generally speaking, the quality of the product was excellent. The Th assay can probably be brought down with further work on the two impurity removal steps. The material produced had a slightly elevated U content but the U removal step described above had not been applied to the pregnant leach solution (PLS). A combination of U removal and selective precipitation should yield an on-specification product.

Proposed Flowsheet

In a proposed flowsheet, ore is dry ground to avoid the capital and operating costs of wet grinding and filtration ahead of the acid bake operation. Feed and sulphuric acid are mixed and fed into a low temperature (250ºC) baking device – possibly a rotating kiln but optionally a fluid bed reactor. The low temperature calcine is then baked at a high temperature (approximately 700ºC) to reduce impurity solubility and allow sulphuric acid regeneration. The second bake would likely be done in a fluid bed. These devices would burn fuel oil or gas.

The off-gas from the baking systems would be scrubbed free of particulates then ducted to a sulphuric acid plant where acid would be regenerated. The plant might also incorporate sulphur burning equipment to make all of the acid needed. Alternatively, the new acid required would be purchased as concentrated acid.

The calcine issuing from the high temperature bake would be cooled (with heat recovery) then quenched in water to dissolve the REE and filtered to separate the tailings from the PLS. The PLS would then go through the ion exchange (IX) and precipitation stages described earlier followed by precipitation of an intermediate REE product.

The intermediate product would be re-dissolved, purified, and precipitated as a high grade REE oxalate. This would be calcined and either packed for shipment to a refinery or further processed on site.

In another option, the high grade HCl PLS made in the re-leach and secondary purification processes could be directly sent to an on-site REE separation plant.

MINERAL RESOURCE ESTIMATE

Given the homogenous nature of the host material (the residual lateritic profile) to the REE values and the limited number of pierce points into the underlying fresh bedrock, no domain models were created of host lithologies or alteration. Rather, RPA applied the net smelter return (NSR) method to develop appropriate domain models of the mineralization. RPA constructed two domain models to represent a high grade population (greater than $300 NSR value) and a low grade population ($80 NSR to $300 NSR value). Overall, the REE mineralization is interpreted to sit as an overall flattened, flat-lying tube shaped feature that strikes in a northwest-southeast direction for a distance of at least 1,000 m. No apparent dip or plunge is noted in the orientation of the domain models. High grade values for each of the 15 REE (lanthanum to lutetium, plus yttrium) along with uranium and thorium were capped for each domain model prior to compositing the raw assay values into equal two metre long composites.

A sub-set of the density samples contained within the two domain models was extracted from the initial data set. RPA determined that the use of the dry bulk density is appropriate for this deposit and applied a constant bulk density of 1.68 tonnes/m^3 for all blocks in both domain models.

Grades for each of the 17 elements were interpolated into an upright, rotated block model that was constructed using block sizes that measured 5 m x 5 m x 5 m (length, width, height). In view of the shallow and flat-lying nature of the deposit, it is clear that the deposit could likely be exploited by means of open pit mining methods. RPA constructed a preliminary Whittle open pit shell that was used as a constraint in preparation of the Mineral Resource statement. The open pit shell used a revised set of NSR factors that reflected the metal prices and the metallurgical test results as of March 2017.

Table 1-1 summarizes RPA's estimate of the Mineral Resources. The mineralized material for each domain was classified by RPA into the Indicated Mineral Resource or the Inferred Mineral Resource category on the basis of the search ellipse range obtained from the variography study, the continuity of the mineralization, and the drill hole density. Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves dated May 10, 2014 (CIM definitions) were followed for Mineral Resource classification.

TABLE 1-1 MINERAL RESOURCE ESTIMATE FOR THE MORRO DO FERRO DEPOSIT – MAY 26, 2017

Mineração Terras Raras S.A. – Morro do Ferro Project

Indicated

Domain	Tonnes (000)	La_2O_3 (%)	CeO_2 (%)	Pr_6O_{11} (ppm)	Nd_2O_3 (ppm)	Sm_2O_3 (ppm)	Eu_2O_3 (ppm)	Gd_2O_3 (ppm)	Tb_4O_7 (ppm)	Dy_2O_3 (ppm)
High Grade	3,552	1.0	1.9	1,942	5,339	569	141	368	48	208
Low Grade	24	0.6	1.3	1,264	2,876	332	104	236	31	187
Grand Total	**3,576**	***1.0***	***1.9***	***1,938***	***5,323***	***567***	***141***	***367***	***47***	***207***

Domain	Tonnes (000)	Ho_2O_3 (ppm)	Er_2O_3 (ppm)	Tm_2O_3 (ppm)	Yb_2O_3 (ppm)	Lu_2O_3 (ppm)	Y_2O_3 (ppm)	ThO_2 (ppm)	U_3O_8 (ppm)
High Grade	3,552	34	89	12	70	9	775	5,661	53
Low Grade	24	35	110	15	91	12	867	3,264	90
Grand Total	**3,576**	***34***	***89***	***12***	***70***	***9***	***775***	***5,645***	***53***

Domain	Tonnes (000)	LREO (ppm)	HREO (ppm)	LREO (%)	HREO (%)	TREO-Y (ppm)	TREO-Y (%)
High Grade	3,552	37,242	1,753	3.72	0.18	38,996	3.90
Low Grade	24	24,008	1,687	2.40	0.17	25,695	2.57
Grand Total	**3,576**	***37,155***	***1,753***	**3.72**	**0.18**	***38,908***	**3.89**

Inferred

Domain	Tonnes (000)	La_2O_3 (%)	CeO_2 (%)	Pr_6O_{11} (ppm)	Nd_2O_3 (ppm)	Sm_2O_3 (ppm)	Eu_2O_3 (ppm)	Gd_2O_3 (ppm)	Tb_4O_7 (ppm)	Dy_2O_3 (ppm)
High Grade	358	0.68	1.34	1,343	3,790	432	102	263	36	165
Low Grade	27	0.54	1.36	1,209	2,633	305	79	185	25	165
Grand Total	**385**	***0.67***	***1.34***	***1,333***	***3,708***	***423***	***100***	***258***	***35***	***165***

Domain	Tonnes (000)	Ho_2O_3 (ppm)	Er_2O_3 (ppm)	Tm_2O_3 (ppm)	Yb_2O_3 (ppm)	Lu_2O_3 (ppm)	Y_2O_3 (ppm)	ThO_2 (ppm)	U_3O_8 (ppm)
High Grade	358	29	78	11	66	9	679	3,624	45
Low Grade	27	31	102	14	85	11	804	2,362	96
Grand Total	**385**	***29***	***80***	***11***	***67***	***9***	***687***	***3,535***	***49***

Domain	Tonnes (000)	LREO (ppm)	HREO (ppm)	LREO (%)	HREO (%)	TREO-Y (ppm)	TREO-Y (%)
High Grade	358	25,719	1,439	2.57	0.14	27,158	2.72
Low Grade	27	23,092	1,500	2.31	0.15	24,592	2.46
Grand Total	**385**	***25,534***	***1,443***	**2.55**	**0.14**	***26,977***	**2.70**

Notes:

1. CIM definitions were followed for Mineral Resource estimation and classification.
2. Mineral Resources are estimated using assumed metal prices (US$) of $2.00/kg lanthanum, $2.00/kg cerium, $80/kg praseodymium, $60/kg neodymium, $3.00/kg samarium, $300/kg europium, $20 gadolinium, $650 terbium, $350/kg dysprosium, $40/kg holmium, $40/kg erbium, $0.00/kg thulium, $30/kg ytterbium, $990/kg lutetium, and $15/kg yttrium.
3. Open Pit Mineral Resources are reported at an NSR cut-off grade of $240.
4. Bulk density is 1.68 t/m^3 for the high grade domain and 1.68 t/m^3 for the low grade domain.
5. Totals may not sum correctly due to rounding.

The limits of the high grade domain have been defined with only limited drilling to date. RPA believes that potential exists to add to the high grade domain by completion of additional drill holes along the southeastern and northwestern projections of the high grade domain. RPA also believes that potential exists to expand the limits of the high grade domain in some locations at depth.

RPA is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate.

RECOMMENDATIONS

RPA recommends a two phased approach for future work programs at the Morro do Ferro Project. The Phase 1 program would focus on the preparation of a Preliminary Economic Assessment.

A Phase 2 program would then be carried out which is contingent on the success of the Phase 1 program. A Phase 2 budget of up to $6,000,000 is recommended and the associated program would consist of:

1. Determine comminution parameters, i.e., work and abrasion indices.
2. Define grind size-bake conditions - recovery parameters.
3. Carry out scoping level investigation of liquid-solid separation options.
4. Complete additional work on impurity removal from the sulphate PLS using precipitation and IX methods.

5. Conduct further re-leach, secondary impurity removal, and REE precipitation tests.
6. Carry out pilot plant studies that include all segments of the proposed flowsheet in several campaigns using natural breaks in the flowsheet as division points.
7. Carry out preliminary market studies.
8. Conduct preliminary geotechnical analysis on the saprolite material in support of the selection of appropriate open pit wall slope angles.
9. Begin collection of environmental baseline data for the project area.
10. Identify candidate sites for plant and associated infrastructure and storage of tailings material.
11. In-fill diamond drilling to define the limits of the high grade domain and to upgrade the Mineral Resources to the Measured and Indicated Resource categories.
12. Completion of a prefeasibility study.

The anticipated budget for the proposed activities is presented in Table 1-1.

TABLE 1-1 PROPOSED PROGRAM AND ESTIMATED BUDGET
Mineração Terras Raras S.A.– Morro do Ferro Project

Item	Estimated Budget (US$)
Phase 1:	
Preliminary Economic Assessment	250,000
Sub-Total, Phase 1	**250,000**
Phase 2:	
Metallurgical Test Work	1,500,000
Pre-feasibility Study Engineering	1,000,000
In-fill Drilling	1,250,000
Preliminary Geotechnical Investigation	250,000
Preliminary Plant Site Evaluation	250,000
Environmental Baseline Studies	750,000
Preliminary Market Studies	100,000
Salaries	500,000
Logistics and Support	400,000
Sub-Total, Phase 2	**6,000,000**

TECHNICAL SUMMARY

PROPERTY DESCRIPTION AND LOCATION

The property is located in the southern part of Minas Gerais, Brazil, approximately 13 km southeast of the city of Poços de Caldas. The centre of the property is located at 46° 31' 53" W longitude and 21° 54' 47" S latitude (UTM coordinates 342,159E 7,575,230S, Zone 23K) and is approximately 200 km north of Sao Paulo. The property has an irregular outline that measures approximately 3,100 m in a northwest-southeast direction and approximately 2,000 m in a northeast-southwest direction. The area of the property is 300.72 ha.

LAND TENURE

The ownership of the property (mineral title No. 005444/1946) is held by MTR, a public limited company incorporated under the laws of Brazil. The property is considered as a unique mining permit ("Manifesto de Mina") and is a real property as opposed to a mining concession. Prime Star acquired the option to purchase the property ("Manifesto" + surface rights) from MTR, which was then a limited liability company, in June 2011 and had the right to explore the property for a period of two years. As the "Manifesto" is a real property, there is no expiration date as such, provided that the appropriate taxes are paid. The nature of the title is equivalent to a Mining Permit under the Brazilian Mining Code. In December 2013, Prime Star exercised the option, acquiring 100% ownership of MTR, which was subsequently converted into a public limited company, after Prime Star's agreement with the other shareholders to develop the Morro do Ferro Project.

The property is currently the site of a eucalyptus plantation which is being grown for eventual harvest. The vendor of the property has retained the right to harvest the eucalyptus trees when they reach maturity, as well as to lease those portions of the land for agricultural purposes that are deemed to be not necessary for mining activities. The issuance of such leases would be subject to the approval of the mining project.

No royalties, back-in rights, payments, or other encumbrances are attached to the property.

EXISTING INFRASTRUCTURE

The population of Poços de Caldas is approximately 150,000 people and the city offers many of the infrastructure items that are typically associated with a city of this size including a commercial domestic airport, high-quality all-season roads, close proximity to international airports, railroad access, close proximity to major port facilities on the Atlantic coast, the presence of an established electrical distribution grid, and a social and commercial environment that is experienced with mining enterprises. Indeed, a number of bauxite and clay projects and a past-producing uranium mine are present in the region.

The project site itself has no existing infrastructure other than a network of unmaintained dirt roads. The sufficiency of surface rights is dependent upon the details of the ultimate project scope. The current vision of the project scope contemplates an open pit mine, a comminution and leaching circuit, and the production of separated rare earth oxide products. Given this project scope, RPA believes that additional surface area will be required.

HISTORY

The mineral rights to the project area (originally referred to as Morro Alto e Consulta) were acquired in April 1935 by the Companhia Geral de Minas, which was interested in the presence of iron and associated metals. The area was registered with the Departamento Nacional de Produção Mineral (DNPM) as a manifesto (i.e., a real property) in 1947. The rights to the area were sold to MINEGRAL in 1968, which maintained the property in good standing.

In 2006, 100% of the mineral rights of the property were sold to a new group of partners, which proceeded to change the name of the company to MTR. Prime Star acquired an option to purchase the mineral and surface rights from MTR in June 2011.

The area was intermittently explored for the presence of uranium, thorium, and REEs during the 1956 to 1981 period. The exploration programs were carried out jointly between the Brazilian government and the previous owners of the property. In general, the previous exploration programs comprised three drilling campaigns, a trenching program, the excavation of a 200 m long adit, and the completion of several preliminary chemical and metallurgical studies.

GEOLOGY AND MINERALIZATION

The Morro do Ferro Project is hosted within a large circular alkaline intrusion. The complex is circular shaped, with a mean diameter of 33 km, and has an area of approximately 800 km^2. The plateau is a ring structure of Mesozoic age comprising a suite of alkaline volcanic and plutonic rocks, mainly phonolites and nepheline syenites. The local geology of the Morro do Ferro Project is characterized by hydrothermally altered country rocks termed “potassic rocks” overlain by a deep weathering cover.

The residual clay minerals are cross-cut by discrete veins and stockworks consisting of massive magnetite only, goethite only, or a combination of the two. The REE mineralization is related to the cryptocrystalline minerals bastnaesite and monazite, which is expected to be the main REE-bearing mineral. A number of other minor REE-related minerals such as monazite, thorite, cerianite, and others are described.

EXPLORATION STATUS

As an aid in determining the location of exploration drill holes, a ground-based magnetic survey was carried out along with a gamma spectrometry survey. The gamma spectrometry survey was carried out along north-south grid lines with readings of the uranium, thorium, and potassium counts collected at 20 m intervals. Exploration activities by Prime Star also included re-establishing access to the adit and carrying out a program of channel sampling. Approximately 160 m of the adit were re-habilitated. A survey program was carried out to determine the trace of the adit using a total station (Sokkia Set 600). A total of 103 m of the adit was sampled by means of channel samples of the residual weathering material from the walls of the adit.

Prime Star carried out three drilling programs in 2011, 2012, and 2014. The first program comprised a series of shallow drill holes completed using a mechanical auger. The second program comprised a series of conventional drill holes which recovered cores of the residual material. The third program of core drilling was carried out by MTR in 2014 with the goal of providing more detailed core hole information for the high grade domain defined in the 2012 Mineral Resource estimate.

The auger hole names have an “MFT” prefix. A mechanical auger (four inch diameter) was used to drill a total of 846.5 m in 106 holes.

The 2012 core drilling program used a standard wireline diamond drill rig to produce HQ-diameter (63.5 mm) cores of the weathered saprolite material and bedrock. The core hole names have an “MFSR” prefix. In all, 18 holes were completed for a total of 2,007.45 m in 2012.

The 2014 in-fill core drilling program used a standard wireline diamond drill rig to produce HQ-diameter (63.5 mm) cores of the weathered saprolite material and bedrock. As was the case with the 2012 drilling program, the core hole names have an “MFSR” prefix. In all, 32 holes were completed for a total of 2,149.85 m in 2014.

RPA reviewed the core recovery procedures along with the overall results and notes that no drilling, sampling, or recovery factors are present. RPA believes that the results from the drilling programs can be reliably used in the preparation of Mineral Resource estimates.

MINERAL RESOURCES

DESCRIPTION OF THE DATABASE

A digital database was provided to RPA by MTR in which drill hole information such as collar location, downhole survey, lithology, and assays was stored in comma delimited format. The cut-off date for the drill hole database is February 5, 2015. Drill hole information in this database includes only the data gathered by MTR and Prime Star and no historical information from prior activities on the property was used in support of the preparation of this Mineral Resource estimate. In total, the database contains information for 157 drill holes and 2,886 assay records as of the cut-off date. The drilling completed was carried out in the South America 1969 (SAD 1929) Zone 23 grid coordinate system.

GEOLOGICAL DOMAIN INTERPRETATION

The auger core drilling campaigns carried out by Prime Star were completed over a total of 17 transects that were oriented in a northeast-southwest direction (approximately azimuth 043°). The section spacing varies from approximately 50 m to 60 m apart in the resource area and increases to 200 m to 250 m along the strike away from the central resource area. The 2014 in-fill drilling program that focussed on the high grade domain has resulted in a drill hole spacing of 25 m to 50 m (on section) in the central resource area.

Given the homogenous nature of the host material (the residual lateritic profile) to the REE values and the limited number of pierce points into the underlying fresh bedrock, no domain models were created of host lithologies or alteration. Rather, RPA applied an NSR method to develop appropriate domain models of the mineralization.

Given the homogenous nature of the host material (the residual lateritic profile) to the REE values and the limited number of pierce points into the underlying fresh bedrock, no domain

models were created of host lithologies or alteration. Rather, RPA applied an NSR method to develop appropriate domain models of the mineralization. In this approach, a set of factors are developed that reflect the various contributions to the overall value from the different metals or elements present in the deposit. In developing these NSR factors, RPA considered such input items as the prices of the various elements as at May 2015, as well as metallurgical and marketing factors. For the purposes of this Mineral Resource estimate, all REEs are expressed on an X_2O_3 basis except for cerium (expressed as CeO_2), praseodymium (expressed as Pr_6O_{11}), and terbium (expressed as Tb_4O_7). In addition, no contribution is being ascribed to the NSR value for such elements as holmium, thulium, and lutetium such that in all, only 12 of the 15 REE elements contributed to the NSR value. An initial overall recovery of 80% for all of the REE elements has been assumed in the derivation of these NSR factors for use in preparing the outlines of the mineralized areas.

Updated price deck assumptions and updated estimated recoveries of the various elements were used to prepare updated NSR factors for the 2017 Mineral Resource estimate. These updated NSR factors were applied to the estimated block grades to derive an updated reporting pit shell and to prepare the 2017 Mineral Resource statement. For clarity, the outlines of the mineralized domain models were created using the 2015 NSR factors while the Mineral Resource statement was prepared using the 2017 NSR factors.

GRADE CAPPING

All samples contained within the two three-dimensional domain solids were coded in the database and extracted for analysis. Descriptive statistics were generated from this extraction file and frequency histograms of the sample data sets were prepared. The grade caps for each element in the two domains were selected by examining the histogram for the grade at which very high grade, outlier assays begin to occur. A summary of the selected capping values is presented in Table 1-3.

TABLE 1-3 SUMMARY OF CAPPING VALUES FOR THE HIGH GRADE AND LOW GRADE DOMAINS
Mineração Terras Raras S.A. – Morro do Ferro Project

Domain	La_2O_3 (ppm)	CeO_2 (ppm)	Pr_6O_{11} (ppm)	Nd_2O_3 (ppm)	Sm_2O_3 (ppm)	Eu_2O_3 (ppm)	Gd_2O_3 (ppm)	Tb_4O_7 (ppm)	Dy_2O_3 (ppm)
High Grade	30,000	85,000	7,000	20,000	2,000	450	1,250	150	700
Low Grade	6,500	20,000	1,400	3,000	350	110	250	30	175

Domain	Ho_2O_3 (ppm)	Er_2O_3 (ppm)	Tm_2O_3 (ppm)	Yb_2O_3 (ppm)	Lu_2O_3 (ppm)	Y_2O_3 (ppm)	ThO_2 (ppm)	U_3O_8 (ppm)
High Grade	100	250	40	180	30	2,500	15,000	150
Low Grade	30	125	15	85	10	800	5,000	175

COMPOSITING METHODS

The mean sample length for the high grade and the low grade domains was found to be 1.85 m. A composite length of two metres was selected for those samples contained within both of the domain models.

BULK DENSITY

MTR staff carried out a program of bulk density determinations during the course of the 2014 in-fill drilling campaign. Samples of the drill core were taken at a nominal spacing of 10 m down each drill hole and were collected as soon as the core boxes arrived at the core shack so as to ensure that the resulting reading would reflect the in-situ wet bulk density as closely as possible. RPA determined that the use of the dry bulk density is appropriate for this deposit and applied a constant bulk density of 1.68 tonnes/m^3 for all blocks in both domain models.

VARIOGRAPHY

RPA constructed downhole and omnidirectional variograms using the capped, two-metre composited sample data on a combined basis for the two domains, with the objective of determining an appropriate value for the global nugget (C0) for each of the elements. Given that the majority of the value of the mineralized material is derived from six of the fifteen elements, variograms were constructed for the metals having the largest contributions to the basket value.

BLOCK MODEL CONSTRUCTION

An upright, rotated, whole block model (i.e., the coding of a block is decided by the position of the centroid) with the long axis of the blocks oriented along an azimuth of 315º with no dip (i.e. horizontal) was constructed using the Gemcom-Surpac v.6.6.2 software package. The selected block sizes were 5 m x 5 m x 5 m (width, length, height).

Metal grades were interpolated into the individual blocks for the two domains using the ordinary kriging interpolation method. A single-pass approach was used that utilized a search ellipse with a major axis length of 160 m.

“Hard” domain boundaries were used along the contacts of the mineralized domain models. Only capped, composited grades of the drill hole contained within the respective domain models were allowed to be used to estimate the grades of the blocks within the domain in question, and only those blocks within the domain limits were allowed to receive grade estimates.

An updated set of NSR factors were calculated using an updated estimated price deck, and the most current estimated recoveries determined from the recently completed metallurgical testing program. The NSR values for the block model were derived by multiplying the individual element grade by its associated NSR factor to determine the contribution to the total value for each of the various elements. The value for each of the elements were then summed to derive a total NSR value for each block.

RESOURCE PIT SHELL

Given the shallow and flat-lying nature of the deposit, RPA is of the opinion that the deposit could potentially be exploited by means of open pit mining methods. A preliminary Lerchs-Grossmann optimized pit shell was developed using the GEOVIA Gemcom Whittle software package. An NSR approach was also applied for derivation of this initial open pit shell using the factors derived from the 2017 price deck and the recently completed metallurgical testing program.

In order to meet the CIM requirement that Mineral Resources have “reasonable prospects for eventual economic extraction”, the reported Mineral Resource is constrained within the preliminary Whittle pit shell at a cut-off grade of US$240 per tonne, the open pit discard value.