

ASX: VMM MARKET ANNOUNCEMENT

# DRILL CONTRACT AWARDED FOR MAIDEN EXPLORATION AT COLOSSUS

**ASX Release: 4 September 2023** 

# **Highlights**

- ▶ HIDROEX has been appointed as the drilling contractor with an established footprint in Poços De Caldas and can mobilise within 3 days' notice. Viridis intends to mobilise drill rigs to commence work in September 2023.
- ▶ Phase I of exploration will focus on the existing Mining Licenses, which adjoin and extend from the Caldeira Resource's northern boundary (409Mt @ 2,626ppm Total Rare Earths Oxide ("TREO")¹). This will consist of approximately 3,200 m of drilling comprising 213 Auger holes across four licenses – Caminho Das Pedras, Fazenda, Ceten, and Carijo prospects.
- ▶ Historic auger drilling has been limited to 3 metres deep onto the saprolite/soil profile's leached layer, generally presenting the lowest grades of Rare Earth Elements ("REE") mineralisation. On Fazenda and Ceten prospects, historic holes intersected high-grade Rare Earths from the surface, ending in mineralisation. This represents high-priority drill targets for Viridis to confirm the full depth and extent of REE mineralisation<sup>2</sup>:
  - 3m @ 2,003ppm TREO from surface (22% MREO) ending in mineralisation (TN-AG-222)
  - 3m @ 1,997ppm TREO from surface (22% MREO) ending in mineralisation (TN-AG-223)
  - 3m @ 1,936ppm TREO from surface (19% MREO) ending in mineralisation (TN-AG-145)
- ▶ Recent chemical and metallurgical results for randomised grab samples have also presented a new highpriority target on the Carijo Prospect. Two surface grab samples were taken from Carijo Prospect and sent to SGS Geosol for Chemical Analysis and Ammonium Sulfate testing (Room temperature, pH4, 30 minute leach); these returned exceptional grades and recoveries confirming Ionic mineralisation³:
  - Sample PC-09: 1,110ppm TREO (23% MREO), 40% Nd and 36% Pr Recovery.
  - Sample PC-10: 2,753ppm TREO (27% MREO), 48% Nd and 45% Pr Recovery. This sample also exceeded the detection limit for recovered Nd (>200 ppm), meaning actual recoveries are expected to be higher.
- ▶ Phase II will consist of auger drill holes to target new areas of the Alkaline Complex, focusing on the western and southeast licenses. Historic drilling on the southeast licenses was also limited to 3-metre auger drills, which intersected high grades into the leached layer of the complex and warrant further deeper drilling²:
  - 3m @ 1,785ppm TREO from surface (34% MREO) ending in mineralisation (F4)
  - 3m @ 1,780ppm TREO from surface (31% MREO) ending in mineralisation (F2)

# Map of Exploration Data on Colossus Project 328000 335000 349000 356000 Sample PC-10 2,753ppm TREO MINING & MINERALS 48% Nd Recovery Sample PC-09 45% Pr Recovery 1,110ppm TREO Sample PC-07 40% Nd Recovery 1,401ppm TREO 36% Pr Recovery 3m @ 2003ppm TREO 3m @ 1635ppm TREO from surface. Ending in min Sample PC-03 750ppm TREO 7572000 Sample PC-04 945ppm TREO 49% Nd Recovery 3m @ 1780ppm TREO 39% Pr Recovery Meters 8,800 2,200 4,400 **LEGEND** Mining Licence Poços de Caldas alkaline complex Syenite Mining Application Granite Right to Request Mining Charnockite **Exploration Licence Paragneiss** Orthogneiss **Exploration Licence Application** Weathered outcrop samples from Colossus Recently acquired Exploration Licences Concessions - Chemical Analysis (ASX Announcement 14/08/23) Recently acquired Right to Request Mining Saprolite samples from Colossus Concessions -(ASX Announcement 14/08/23) Chemical & Metallurgical Analysis (Ammonia Sulfate) Caldeira Mineral Resource Estimate Previous areas of historic auger drilling up to boundary - 409Mt @2,626ppm TREO 3meters depth

**Figure 1:** Map of all sample locations on Colossus concessions with highlights of areas previously drilled by 3-metre Auger holes ending in mineralisation<sup>2</sup>.



## Executive Chairman Agha Shahzad Pervez commented:

"The recent success in our due diligence sampling and review of exceptional historic drill holes has provided Viridis with numerous high-priority targets. We have developed a multi-phased drill plan to establish a significant Ionic Rare Earth resource that would make the Colossus Project a globally significant deposit.

The team has worked diligently to ensure we can commence drilling imminently. All permits and contractors have been put in place, and the Viridis team will conduct a final site visit in early September 2023 before its maiden drilling campaign begins.

With the initial metallurgical testing confirming Colossus REE ore to be easily leached through Ammonium Sulfate and the recent appointment of an experienced Brazilian executive team, we believe we have the geology and in-house expertise to develop a world-class project."

Viridis Mining and Minerals Limited ("Viridis" or "Company") is pleased to report that it has completed its maiden exploration plan on the Colossus project and appointed HIDROEX as the drilling contractor.

Viridis aims to execute Phase I and Phase II of its maiden drilling program under the direct supervision and guidance of newly appointed in-country Executives Dr Klaus Petersen and Dr Jose Marques Braga Junior. In parallel, Viridis will also send bulk samples for thorough metallurgical testing.

#### **Drill Plan**

#### Phase I

The primary focus of Phase I will be on the Mining Licenses and adjoining concessions of the Caldeira project, which can be fast-tracked to production for Rare Earths upon completion of exploration and research studies.

The Mining Licenses consist of Caminho das Pedras and Fazenda Prospects, which have confirmed surface highgrade rare earths mineralisation. These concessions comprise the northern extension of the Dona Maria 1 & 2 Resource (94Mt at 2,320ppm TREO<sup>4</sup>), part of the Caldeira Ionic Clay Project.

#### **Previous Exploration**

#### Fazenda

Historic Auger drilling was limited to 3 metres at the Fazenda Prospect into superficial, highly weathered clays. These intercepts represent a high-grade ionic clay REE mineralisation<sup>2</sup>:

- 3m @1,792ppm TREO (22% MREO) from surface, ending in mineralisation (FC-AG-121)
- 3m @1,612ppm TREO (21% MREO) from surface, ending in mineralisation (FC-AG-138)

## Caminho das Pedras

The Caminho das Pedras Prospect presents a greenfield discovery opportunity for high-grade ionic rare earths. Although no previous drilling has been conducted on this Mining License, JOGMEC completed hole DM2-06, located less than 5 metres from the Mining License and intersected 11.3m @2,502ppm TREO<sup>4</sup>.

#### Ceten

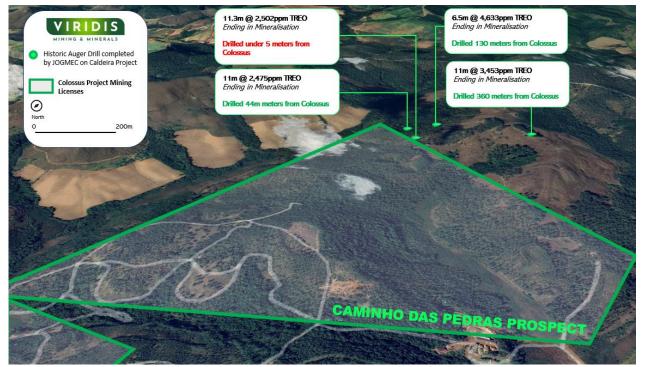
The Ceten Prospect consists of a Research Authorisation License, with **15 auger holes drilled to a depth of 3 metres at an average grade of 1,450ppm TREO<sup>2</sup>.** This high-grade prospect adjoins the existing Mining License and has been identified as a high-priority drill target.

#### Carijo

The Carijo prospect adjoins the Ceten prospect but has had no historical drilling. However, due diligence sampling results received by Viridis have recently identified Carijo as a high-priority target due to spectacular grab sample grades on the surface and excellent metallurgical recoveries from a single-step Ammonium Sulfate wash (pH4, room temperature, 30 minutes). These samples were taken from a saprolite hill with dimensions of 880m in length and 400m wide, which provides a substantial exploration target<sup>3</sup>.



- Sample PC-09: 1,110ppm TREO (23% MREO), 40% Nd and 36% Pr Recovery
- Sample PC-10: 2,753ppm TREO (27% MREO), 48% Nd Recovery, 45% Pr Recovery



**Figure 2:** Satellite image of Caminho Das Pedras Prospect, contiguous with the Dona Maria 2 resource body near JOGMEC historic auger holes.

#### Phase II

The primary focus of Phase II drilling will be on the southern extension of Cupim Vermelho Norte Resource (104Mt @2,485ppm TREO<sup>4</sup>), which forms part of the Caldeira project (409Mt @2,626ppm TREO<sup>4</sup>). The secondary focus will be on the Colossus southeast and western concessions. The southeast concessions have already presented high-grade mineralisation through a 3-metre auger drilling into the leached layer of the saprolite body.

## Cupim South

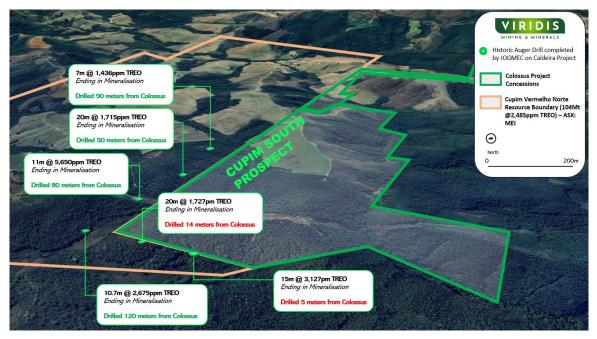
The Cupim South prospect has two concessions: Mining Requirement 833.560/1996 and Research Authorisation 830.518/2023. The Cupim South prospect is the southern border of the Cupim Vermelho Norte Resource (104Mt @2,485ppm TREO¹) body. Although no previous exploration has been done on the concession itself, JOGMEC drilled numerous auger holes within 100 metres of the Cupim South Prospect. Hole CVN-187 was drilled 5 metres from the Cupim South Prospect and intersected a remarkable 15m @3,127ppm TREO¹¹, ending in mineralisation. Hole CVN-186 was drilled by JOGMEC 14 metres away from the Prospect, intersecting 20m @1,727ppm TREO¹, ending in mineralisation, with 3,005ppm TREO¹ being intersected EOH.

These results and the geological homogeneity of the resource body make Cupim South a high priority for Phase II exploration and present a greenfield opportunity to make an Ionic Clay discovery that extends from the Caldeira project.

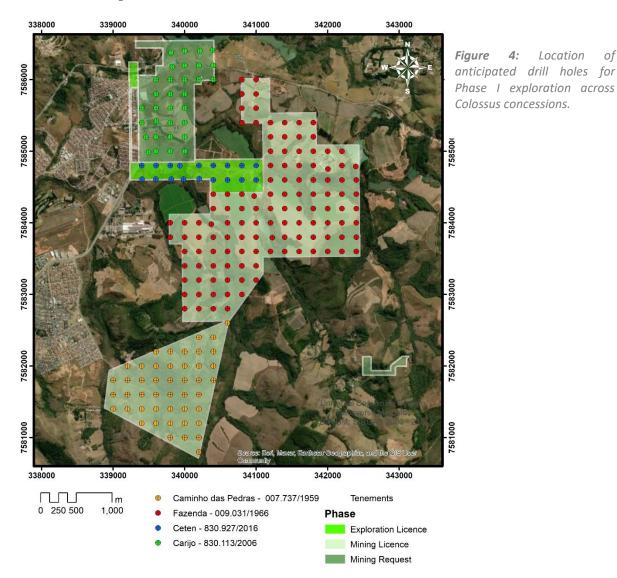
#### **Southeast Concessions**

A total of 4 historic 3-metre auger holes have been drilled into the Southeast of the Colossus Project within a previously untested area of the Poços de Caldas Complex. These four holes were likely drilled into the "leached layer" of the saprolite/soil body, averaging 1,679 ppm TREO<sup>2</sup>. More significantly, these four holes showed the highest levels of magnet rare earth ("MREO"), with an average MREO content of 32% and a minimum MREO content of 30%. The combination of consistently high grades of TREO and high MREO content makes these concessions a priority exploration target for Phase II of the maiden drilling campaign.





**Figure 3:** Satellite image of Cupim South Prospect, an extension of the Cupim Vermelho Norte resource body near JOGMEC historic auger holes.



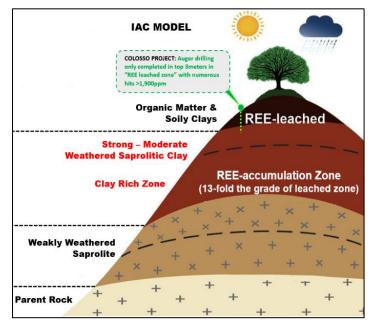


## **Geology of Ionic Clays**

In the Poços de Caldas Complex, we find the optimal conditions for an Ionic Adsorption Clay ("IAC") type REE deposit. Its alkaline rocks, rich in feldspars, weather mainly into kaolinite. Simultaneously, these rocks contain bastnaesite, a rare earth fluocarbonate. Upon weathering, bastnaesite releases REEs, which ionically bond with the existing clay minerals, further upgrading the region's mineral profile.

The upper layer in this region consists of clayey soil and bauxite. Through lateralisation, some of the upper layer's rare earths are mobilised to the intermediate horizon, where kaolinite is the main clay mineral, retaining the REEs in ionic form adsorbed onto its structure<sup>6,8</sup>.

Within IAC deposits, the top layer presents the lowest levels of REE mineralisation, as illustrated in the deposition model of both Malaysian and South China Ionic Clay Projects (see Figure 5 and Figure 6).



**Figure 5:** Deposition Model of Malaysian Ionic Clay Project superposition of Colossus Project Auger Drill depths<sup>7</sup>.

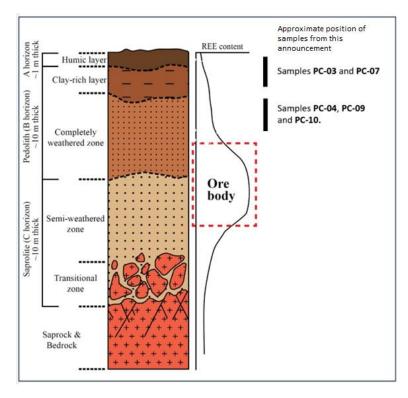


Figure 6: General IAC Deposition Model (Li & Zhou, 2020) with an estimated placement of the Colossus Project samples based on their visual and chemical characteristics.



#### **Future Work**

Viridis is compiling all available geological information and has commenced drill planning for the Colossus Project (see ASX announcement 1 August 2023²). The Company intends to initiate a comprehensive exploration program at Colossus, including mapping, sampling, metallurgical studies, and exploration drilling to establish a significant maiden JORC-compliant resource.

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## **About Viridis Mining and Minerals**

Viridis Mining and Minerals Limited is a resource exploration and development company with assets in Brazil, Canada and Australia. The Company's Projects comprise:

- The Colossus Project, which the Company considers to be prospective for Rare Earth Elements;
- The South Kitikmeot Project, which the Company considers to be prospective for gold;
- The Boddington West Project, which the Company considers to be prospective for gold;
- The Bindoon Project, which the Company considers to be prospective for nickel, copper and platinum group elements;
- The Poochera and Smoky Projects, which the Company considers to be prospective for kaolinhalloysite; and
- The Ytterby and Star Lake Projects, which the Company considers prospective for Rare Earth Elements.

## **Competent Person Statement**

Dr. José Marques Braga Júnior, the Executive Director of Viridis' Brazilian subsidiary (Viridis Mining and Minerals Brazil Ltda), compiled and evaluated the technical information in this release and is a member of the Australian Institute of Geoscientists (AIG) (MAusIMM, 2023, 336416), accepted to report in accordance with ASX listing rules. Dr Braga has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity that he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the 'Australian Code for Reporting of Regulation, Exploration Results, Mineral Resources, and Ore Reserves'. Dr Braga consents to the inclusion in the report of the matters based on information in the form and context in which it appears.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the market announcements referred to in this release, and that all material assumptions and technical information referenced in the market announcement continue to apply and have not materially changed.

All announcements referred to throughout can be found on the Company's website – viridismining.com.au.

## **Forward-Looking Statements**

This announcement contains 'forward-looking information' based on the Company's expectations, estimates and projections as of the date the statements were made. This forward-looking information includes, among other things, statements concerning the Company's business strategy, plans, development, objectives, performance, outlook, growth, cash flow, projections, targets and expectations, mineral reserves and resources, results of exploration and related expenses. Generally, this forward-looking information can be identified by the use of forward-looking terminology such as 'outlook', 'anticipate', 'project', 'target', 'potential', 'likely', 'believe', 'estimate', 'expect', 'intend', 'may', 'would', 'could', 'should', 'scheduled', 'will', 'plan', 'forecast', 'evolve' and similar expressions. Persons reading this announcement are cautioned that such statements are only predictions



and that the Company's results or performance may differ materially. Forward-looking information is subject to known and unknown risks, uncertainties, and other factors that may cause the Company's actual results, level of activity, performance or achievements to materially differ from those expressed or implied by such forward-looking information.

#### References

- 1. Meteoric Resources NL (ASX:MEI) ASX Announcement dated 1 May 2023 'Caldeira REE Project Maiden Mineral Resource' and 20 December 2022 'Caldeira Confirmed as Ionic Adsorption Clay REE Deposit'
- 2. VMM ASX Announcement dated 1 August 2023 'Acquisition Potential Tier One Ionic Clay Rare Earth Project'
- 3. VMM ASX Announcement dated 29 August 2023 'Initial Metallurgical Work Confirm Colossus True IAC Project'
- 4. MEI ASX Announcement dated 1 May 2023 'Caldeira REE Project Maiden Mineral Resource'
- 5. Review on the Development and Utilisation of Ionic Rare Earth Ore, X. Luo, Y. Zhang, H. Zhou et al., 2022
- 6. Polygenetic processes in the genesis of clay deposit of Poços de Caldas alkaline massif in southeastern Brazil, C. Montes, A. Melfi, A. Carvalho, A. Viera-Coelho, Journal of Applied Clay Science, 2016
- 7. Comparison of characteristics and geochemical behaviors of REEs in two weathered granitic profiles generated from metamictized bedrocks in Western Peninsular Malaysia, A. Yaraghi, K. Ariffin, N. Baharun, Journal of Asian Earth Sciences, 2020.
- 8. Adsorption of rare earth elements in regolith-hosted clay deposits, A. Borst, M. Smith et al., 2020

