



Inovação e Desenvolvimento Sustentável na Cadeia *Downstream* de Produção de Terras Raras

O Caso da Viridis com o Projeto Colossus em Poços de Caldas

**Klaus Petersen
Contry Manager
SIMEXMIN 2024**

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- This document contains information extracted from ASX market announcements reported in accordance with the 2012 edition of the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves” (2012 JORC Code) and available for viewing at <https://viridismining.com.au/>. VMM confirms that it is not aware of any new information or data that materially affects the information included in any original ASX market announcements.
- The release of this document on ASX has been authorized by the Board of Viridis Mining and Minerals Limited.
- **Competent Person Statement**
- Dr. José Marques Braga Júnior, the in-country 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, 2024, 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.
- All announcements referred to throughout can be found on the Company’s website – viridismining.com.au.

Time experiente: Forte Liderança, experiência técnica e comercial



Rafael Moreno
Chief Executive Officer

Mr. Moreno is a Chartered Professional Engineer with over 23 years' global experience in the mining & petrochemical industries. He has held executive & senior leadership roles at Argosy, Santos, & INPEX, specializing in execution of major capital projects and has extensive experience covering exploration, business development, commercial, offtake agreements involved with projects in Australia, Asia, Europe, S & N America.



Agha Shahzad Pervez
Executive Chairman

Mr. Pervez is an experienced Company Director, CFO and Company Secretary, with over 13 years' experience working with ASX listed companies. Mr. Pervez currently holds a role of Non-Executive Director of Equinox Resources Limited and Pioneer Lithium Limited. Previously, Mr. Pervez was Chief Financial Officer of Battery Age Mineral and also held numerals roles at Resonance Health Limited including CFO and Company Secretary.



Timothy Harrison
Non-Executive Director

Mr. Harrison has over 23 years' of experience as a metallurgist and executive with an extensive record advancing resource companies through to project development. He has a successful track record in fields of processing and hydrometallurgy across multiple commodities, including technology metals experience. Previously, Mr. Harrison held senior positions with BHP, WMC, Fluor, Ivanhoe Australia and is currently CEO/MD of Ionic Rare Earths Ltd.



Jose Carlos Guedes
Non-Executive Director

Mr Guedes is a senior industrial executive in the mining and chemical sectors, with an extensive record in delivering and operating projects in the EU, NORAM, LATAM and APAC regions. He was previously the COO of Serra Verde Mineração and Vice President Industrial of Lynas Corp, two leading Rare Earths businesses outside of China.



Christopher Gerteisen
Non-Executive Director

Mr. Christopher Gerteisen has over 25 years of experience as an economic geologist and executive with an extensive record of managing and advancing resource projects from discovery to start-up. Previously, he has held senior positions with Newmont, Sons of Gwalia, Oxiana, OZ Minerals, Pan Aust. He is currently CEO and Executive Director of Nova Minerals Limited.



Faheem Ahmed
Non-Executive Director

Mr. Ahmed holds a Bachelor of Engineering and Bachelor of Project Management and has over 6 years of experience in project evaluation, asset management, data analysis, lifecycle cost analysis and risk modelling including projects in the fields of infrastructure, mining, health and transport.



Carly Terzanidis
Company Secretary

Mrs Terzanidis is an experienced corporate professional with 20 years' prior experience in the financial services industry, with a focus on capital markets and governance, and is a Chartered Secretary. Mrs Terzanidis is an Associate of the Governance Institute of Australia, and holds a Bachelor of Commerce with majors in Accounting & Corporate Administration and a Graduate Diploma of Applied Corporate Governance.



Dr Jose Marques Braga
Executive Director Brazil and Lead Exploration

Dr Braga is former Principal Geologist at CBMM. His 12 years of experience at CBMM has allowed him to gain a unique skillset in Niobium and Rare Earth mineral assets. Dr Braga oversaw and managed CBMM's full suite of geological activities including prospecting, metallurgy, modelling, mining, and administrative rights. He has authored multiple scholarly publications on alkaline-hosted Nb, REE, P deposits, saprolite and weathered ores in Brazil.



Dr Klaus Petersen
Executive Director Brazil and Country Manager

Dr Petersen is a seasoned geologist and mining executive with 35-years' experience across Iron, Gold, Copper, Manganese and Rare Earth projects in Brazil. Dr Petersen has built an extensive network with mining investors, financiers, governmental and environmental agencies which has allowed him to introduce and execute numerous successful transactions. Dr Petersen has spent significant time in Poços De Caldas over the last year and is very familiar with Ionic Clay Rare Earth hosting mineralization in the Complex.

O cenário de Terras Raras Mundial

A busca de uma nova cadeia de
suprimentos de Minerais
Estratégicos

ARGILAS IÔNICAS: UMA SOLUÇÃO COMPETITIVA PARA TERRAS RARAS

VIRIDIS

ARGILAS IÔNICAS

VIRIDIS
MINING & RESOURCES

METEORIC
RARE EARTHS

ionic
RARE EARTHS

SERRA VERDE

BRAZILIAN
RARE EARTHS

aclara

ROCHA DURA

Lynas
Rare Earths Ltd

MP MATERIALS

ILUKA

LINDIAN
RESOURCES LTD

hastings

Peak
RARE EARTHS

PENSANA
RARE EARTHS

✓ Rápido desenvolvimento, baixo CAPEX e OPEX, processo simples e ambientalmente amigável.

× Tempo e custo significativos para desenvolver, processo complexo e alto impacto ambiental.

O PROJETO COLOSSUS APRESENTA AINDA MAIS VANTAGENS COMPETITIVAS:

MINERAÇÃO & EXPLORAÇÃO	<ul style="list-style-type: none">• A argila aflorante hospeda mineralização maciça e homogênea;• Não utiliza desmonte com explosivos;• Quase total ausência de estéril. Cava de mina reduzida pelo processo de lavra em tiras.
PROCESSAMENTO	<ul style="list-style-type: none">• Sem britagem e moagem;• Lixiviação simples "one-step" feita com sais de baixo custo como Sulfato de Amônio ou Sulfato de Magnésio;• Temperaturas e pressões ambientais com consumo baixos de reagentes e energia;• Sem exigência para barragem de rejeitos.
PRODUTO	<ul style="list-style-type: none">• Produto de carbonato químico de alto valor (90% + grau TREQ);• Lixiviação seletiva com baixo La, Ce permitindo alta valorização final da cesta de terras raras.
AMBIENTAL	<ul style="list-style-type: none">• Teor de urânio e tório insignificante e conseqüentemente sem rejeitos radioativo;• Recuperação ambiental sincronizada com processo de lavra em tiras: minimização do impacto ambiental!

TERRAS RARAS | CORRIDA PARA DESENVOLVER A CADEIA DE FORNECIMENTO OCIDENTAL

O Complexo Alcalino de Poços De Caldas apresenta oportunidade de ser o próximo “Centro Produtor de Terras Raras de Classe Mundial”

“Investimentos significativos por parte dos governos dos EUA, da UE e da Austrália estão agora sendo direcionados para terras raras... No entanto, deve haver mais apoio financeiro em toda a cadeia de abastecimento para reduzir a dependência da China.” – Wood Mackenzie

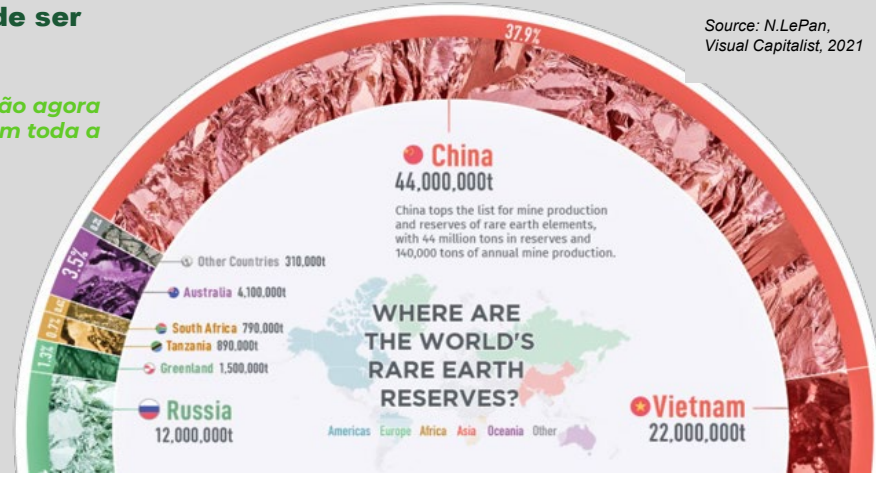
Source: N.LePan, Visual Capitalist, 2021

WED 9 AUGUST 2023 | 20:05 | UPDATED ON THU 10 AUGUST 2023 23:13
 Government signs partnership with Australian company to invest more than R\$1 billion in Poços de Caldas

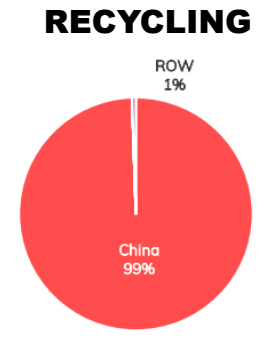
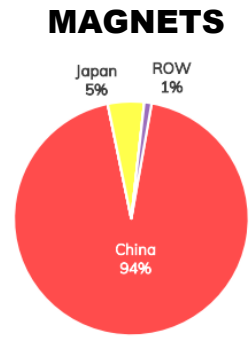
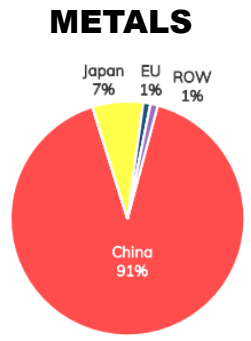
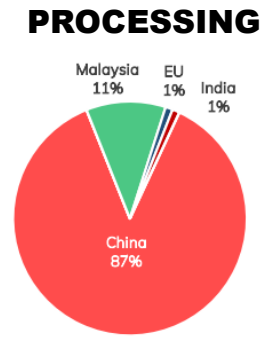
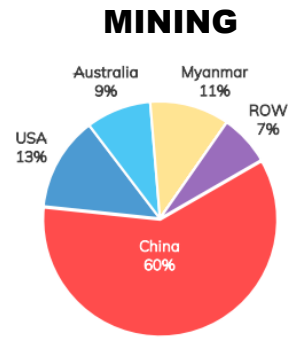
Australia joins Western alliance on critical minerals

 **Stuart McKinnon** | The West Australian
 Tue, 12 July 2022 1:02PM

 **Stuart McKinnon**



A CHINA CONTROLA TODOS ESTÁGIOS



TERRAS RARAS | METAL TECNOLÓGICO PARA UM FUTURO VERDE

VIRIDIS

CADA CARRO HYBRIDO USA 4.5KG DE TERRAS RARAS EM MÉDIA

Polimento dos vidros: **Cerium**

Vidro UV: **Cerium**

Display de LCD :
Europium, Yttrium, Cerium

Aditivo no combustível:
Cerium, Lanthanum

Sensores: **Yttrium**

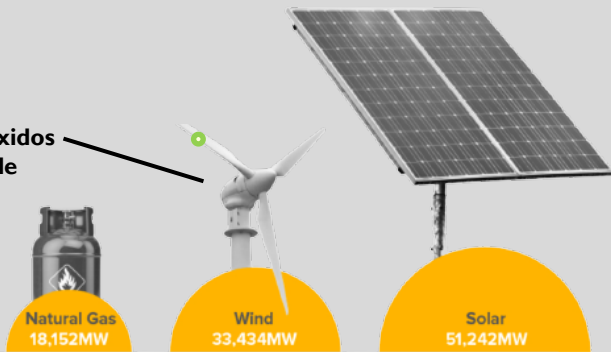
Catalisador:
Cerium, Lanthanum

Motor Elétrico: **NdPr, Dysprosium, Terbium**

Ímãs: **NdPr**



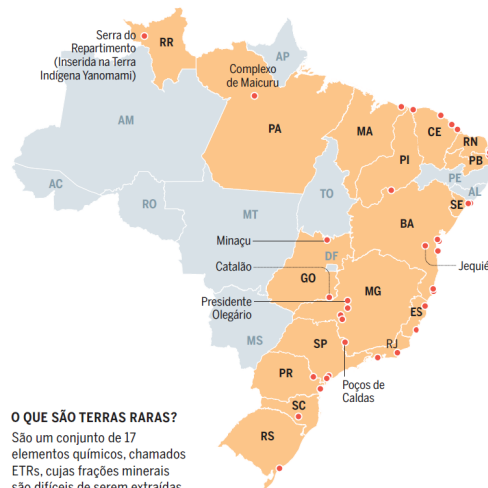
Quase 1t de óxidos de Nd-Pr Oxide por turbina



AS NOVAS MINAS DO MAPA

Mapeamentos indicam que o Brasil concentra uma das maiores reservas do mundo das chamadas "terras raras", essenciais para indústrias ligadas à transição energética, e já atrai investimentos para essa nova mineração

O GOVERNO JÁ MAPEOU ALGUNS DEPOSITOS MINERAIS COM POTENCIAL PARA TERRAS RARAS NO BRASIL

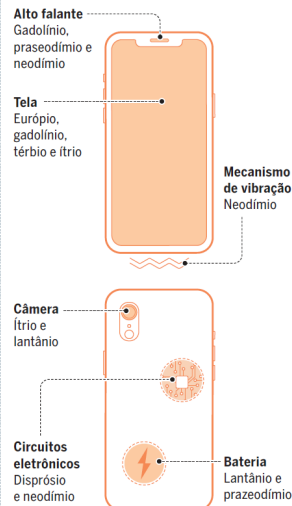


O QUE SÃO TERRAS RARAS?

São um conjunto de 17 elementos químicos, chamados ETRs, cujas frações minerais são difíceis de serem extraídas do solo e de rochas

1 Escândio (Sc)	3 Ítrio (Y)	5 Lantânio (La)	7 Cério (Ce)	9 Praseodímio (Pr)	11 Neodímio (Nd)	13 Promécio (Pm)	15 Samário (Sm)	17 Lutécio (Lu)
2 Gadolínio (Gd)	4 Terbício (Tb)	6 Dísprosio (Dy)	8 Hólmio (Ho)	10 Érbio (Er)	12 Túlio (Tm)	14 Íterbio (Yb)	16 Europio (Eu)	

ONDE ESTÃO AS TERRAS RARAS NO SEU CELULAR



PARA QUE SERVEM?

Os ETRs são matérias-primas para indústrias de tecnologia e transição energética e, por isso, considerados o "ouro do século XXI". Veja quais compõem alguns produtos:

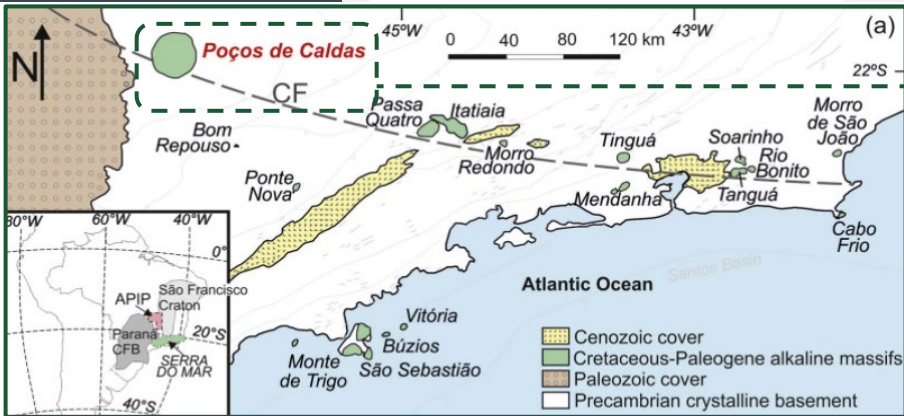
- Lâmpadas de LED: Cério
- Telas e monitores: Europio e cério
- Painéis solares: Lantânio
- Aviões: Europio, cério, cisprósio, ítrio e lantânio
- Veículos e catalisadores automotivos: Neodímio, cério, dísprosio, ítrio e lantânio
- Turbinas eólicas: Neodímio e dísprosio
- Dispositivos de Raios-X: Túlio
- Ímãs de discos rígidos de computadores e carros elétricos: Neodímio

PROJETO COLOSSUS

Avançando da pesquisa ao
desenvolvimento de lavra e
processamento.



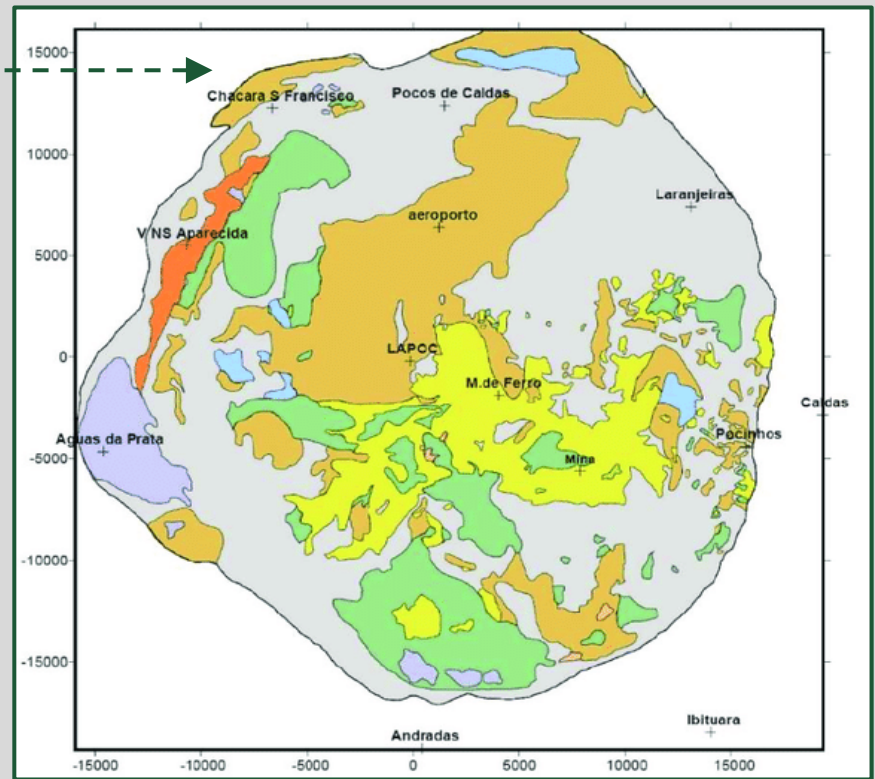
COLOSSUS | LOCAÇÃO IDEAL E MINÉRIO IDEAL



Poços De Caldas

O maior complexo de rochas alcalinas no hemisfério sul.

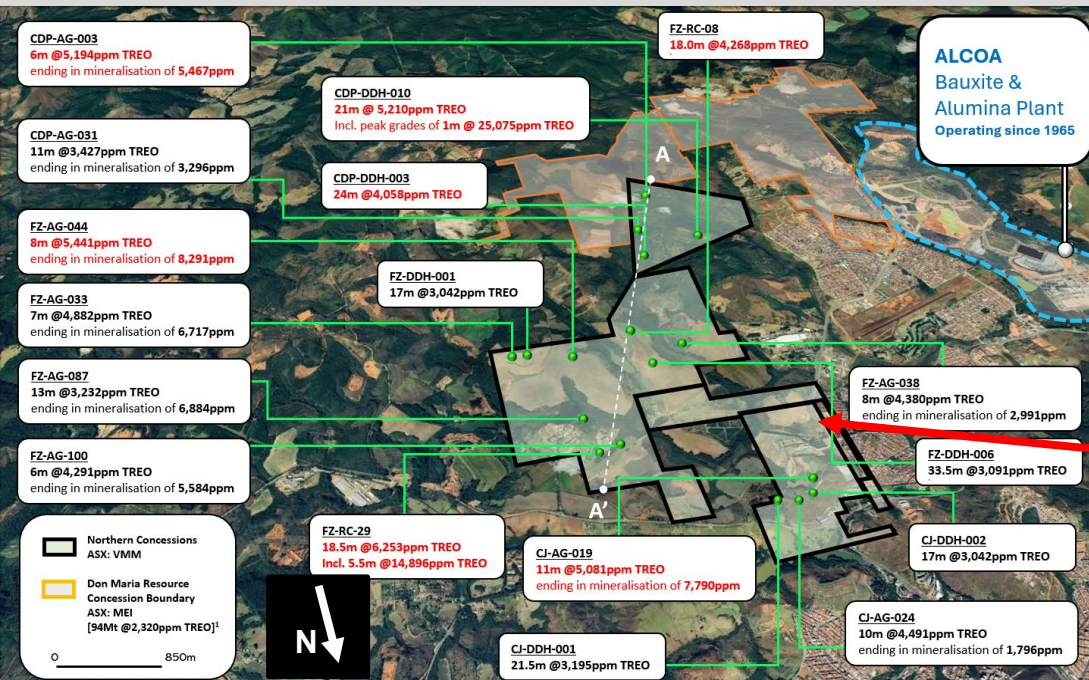
- Localizado no sul de Minas Gerais, Brasil
- A comunidade local apoia as operações de mineração
- Ampla infraestrutura, estradas pavimentadas e mão de obra focada na mineração
- Geologia comprovada de argila de adsorção iônica (IAC).
- Diametro do Complex Alcalino com aprox. 25Km



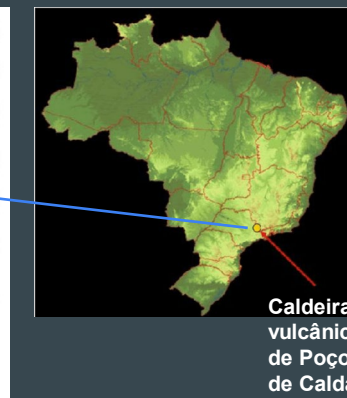
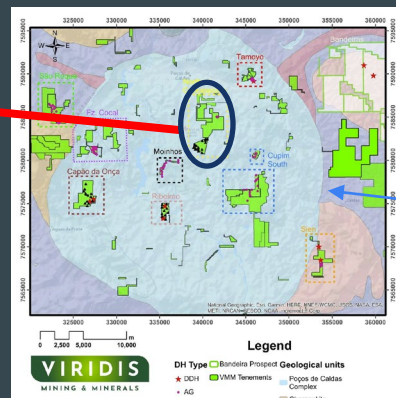
- Nepheline Syenites
- Sediments/Sandstones
- Tuffs
- Hydrothermally Altered Rock
- Phonolites
- Tinguaites

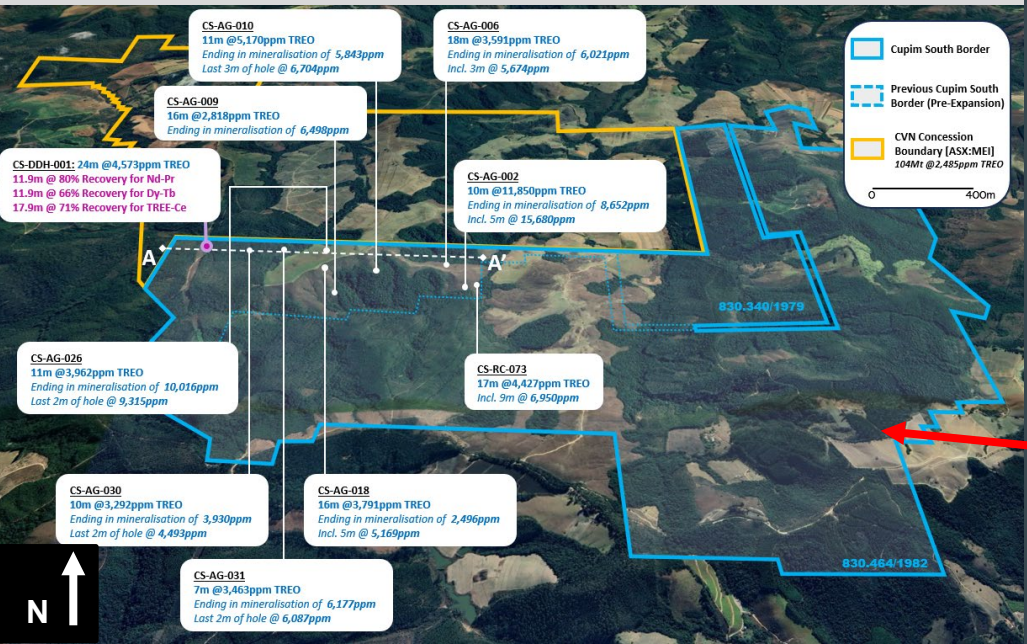
ALVOS NORTE | POSIÇÃO PRIVILEGIADA

VIRIDIS



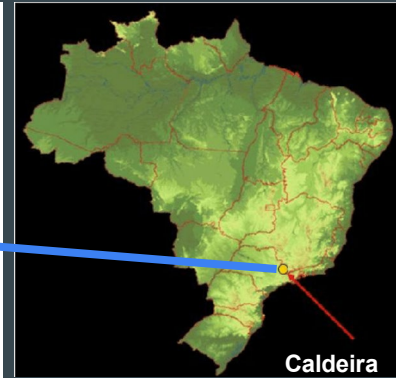
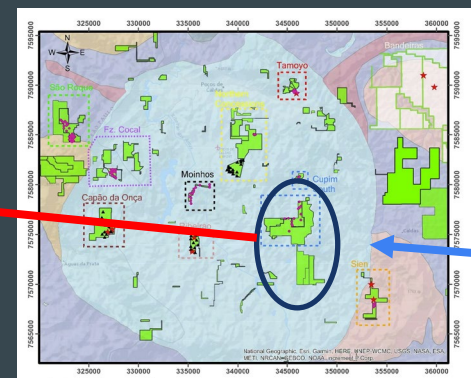
- No espaço de 10 meses, a Viridis passou de aquisição e pesquisa para estabelecimento de recursos
- Localizada a 2km da maior da planta da Alcoa, a maior do Complexo em operação desde 1965. Acesso à infraestrutura, energia barata, água e mão de obra qualificada
- Novos ensaios serão continuamente incluídos no modelo de recursos prevista para o Junho de 2024



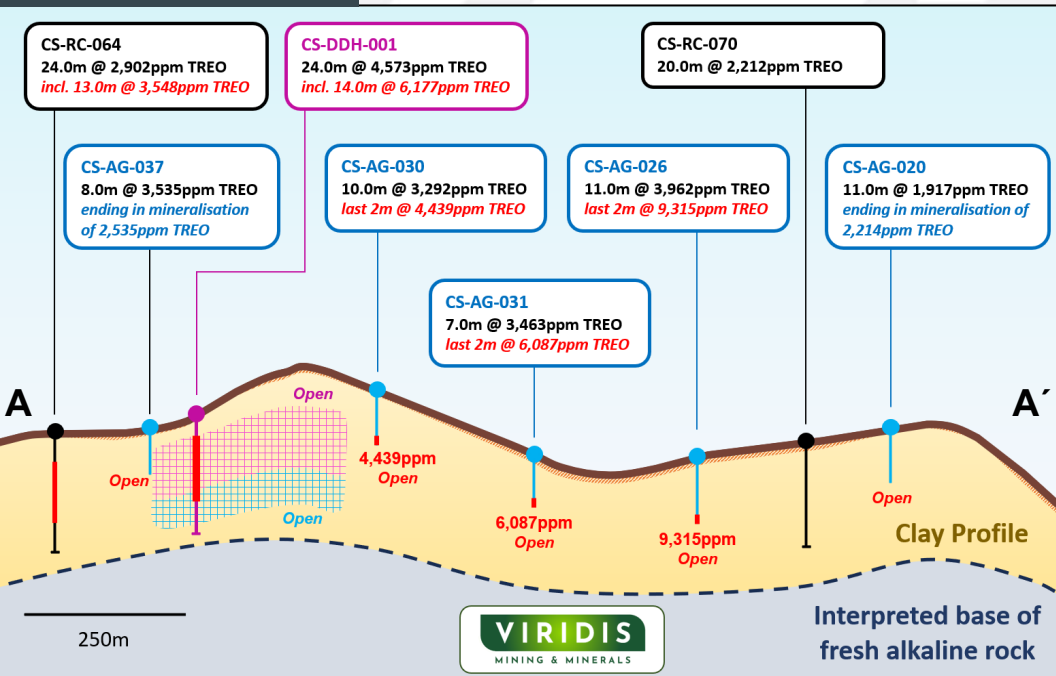


GRUPO NORTE

- ✓ Teor: Numerosas zonas com teores >4.000 ppm com picos de até 24.894 ppm de ETR.
- ✓ Potencial: com área total de 16,3 km² possui apenas ~14% explorados até o momento.



COLOSSUS | Um depósito de argila iônica verdadeiro



Metalurgia do projeto Colossus

- Primeiro furo testado pela ANSTO: 11,9m com 80% de recuperação de Nd-Pr. [Sulfato de Amônia, pH4, temperatura ambiente, ciclo de 30 minutos]
- Condições não otimizadas proporcionando à ANSTO um escopo de vantagem significativo.
- As recuperações permanecem fortes mesmo até 21,2 metros de profundidade.



Australia's Nuclear Science and Technology Organisation

LEGEND

- ANSTO Metallurgical Test High Grade Portion
- Previously reported Auger hole
- Previously reported RC/DD hole High Grade Portion
- High Recovery Zone
80% Nd-Pr Recovery
66% Dy-Tb Recovery
- Secondary Recovery Zone
53% Nd-Pr Recovery
43% Dy-Tb Recovery
- Leached Soil Cover/Saprolite Layer
- Saprolite Profile
- Fresh Alkaline Rock

CUPIM SUL

DRILL HOLE	DRILL LOG				RECOVERY - Ammonium Sulphate [pH4, Room Temp.]							
	DRILL ID	From m	To m	Intercept m	Head Assay TREE ppm	Pr %	Nd %	Tb %	Dy %	Nd-Pr %	Dy-Tb %	Magnets %
CS-DDH-001	3.3	6.3	3.0	3,807	76	80	56	55	78	55	79	74
	6.3	9.3	3.0	6,284	80	79	66	68	79	67	79	78
	9.3	12.3	3.0	5,821	83	84	70	73	84	72	83	84
	12.3	15.2	2.9	4,842	75	80	68	71	77	70	78	80
	15.2	18.2	3.0	3,456	49	53	44	45	51	45	52	54
	18.2	21.2	3.0	1,713	55	57	42	43	56	43	56	54

VIRIDIS e Parcerias Estratégicas

Inovação e Desenvolvimento
Sustentável na Cadeia
Downstream para uma nova
cadeia de suprimentos de Metais
Críticos



PROTOCOLO DE INTENÇÕES COM ESTADO E MUNICÍPIO

Parceiros alinhados para desenvolvimento do Projeto Colossus

VIRIDIS

Assinatura do Protocolo de Intenções com o Estado de Minas Gerais/Invest Minas

- A acordo foi assinado no final de Fevereiro de 2024 pela Sua Excelência, o Governador Romeu Zema, acompanhado do Secretaria de Estado de Desenvolvimento Econômico , Fernando Passalio e o do Invest Minas, representado pelo seu presidente, João Paulo Braga.

Assinatura do Protocolo de Intenções com o Município de Poços De Caldas

- O protocolo com Poços de Caldas solidifica o compromisso do município em apoiar o desenvolvimento do Projeto Colossus através da facilitação no fornecimento de energia, água e esgoto para nossas futuras instalações de Produção de ETR's.
- A secretaria regional de meio ambiente também acompanha de perto o desenvolvimento acelerado do projeto com orientações para otimizar os prazos para as aprovações ambientais.



Poços de Caldas, conhecida por suas belezas naturais e seu potencial turístico, está agora no radar global dos investidores de alta tecnologia. Nesta quinta-feira (29), um marco significativo foi estabelecido com a assinatura do protocolo de investimentos entre o Governo de Minas e a empresa australiana Viridis Mineração e Minerais. O investimento previsto é de R\$ 1,35 bilhão, destinado ao Projeto Colossus, que visa a exploração de terras raras na região. PÁGINA 8

CONSÓRCIO CONCLUÍDO 50:50 ENTRE IONIC RARE EARTHS (IXR) E VIRIDIS MINING AND MINERALS LTD (VMM)

ionic
rare earths

50%

VIRIDIS
MINING & MINERALS

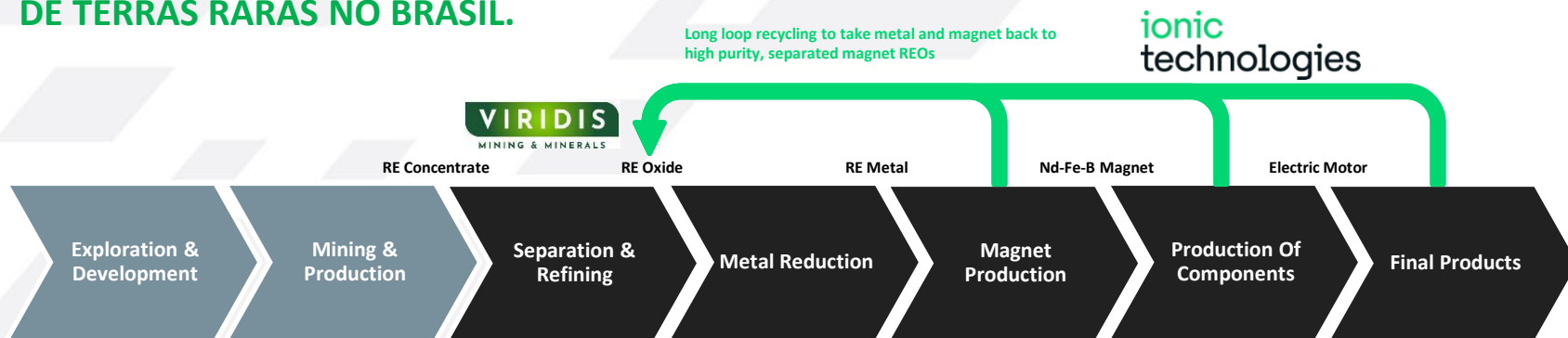
50%

JV Company



- Consórcio anunciado em abril de 2024. IXR é acionista de 4,5% da VMM.
- **Potencialmente a primeira produtora comercial de óxido de terras raras no Brasil:** construção de uma refinaria e instalação de reciclagem de ímãs no Brasil utilizando a tecnologia da Ionic Technologies (100% propriedade da IXR).
- Compartilhamento da experiência em operações comerciais da IXR na Europa.
- A VMM poderá fornecer carbonato de terras raras mistas do Projeto Colossus em condições padrão de mercado para IXR.
- Iniciou-se o estudo de escopo para o projeto de Refinaria e Reciclagem em poços de Caldas, com conclusão prevista para o quarto trimestre de 2024.

VIRIDIS AGREGA O POTENCIAL DE REFINAR RECURSOS PRIMÁRIOS ALIADO A CAPACIDADE DE RECICLAR RECURSOS SECUNDÁRIOS PARA SE TORNAR UM FUTURO FORNECEDOR NA CADEIA DE TERRAS RARAS NO BRASIL.



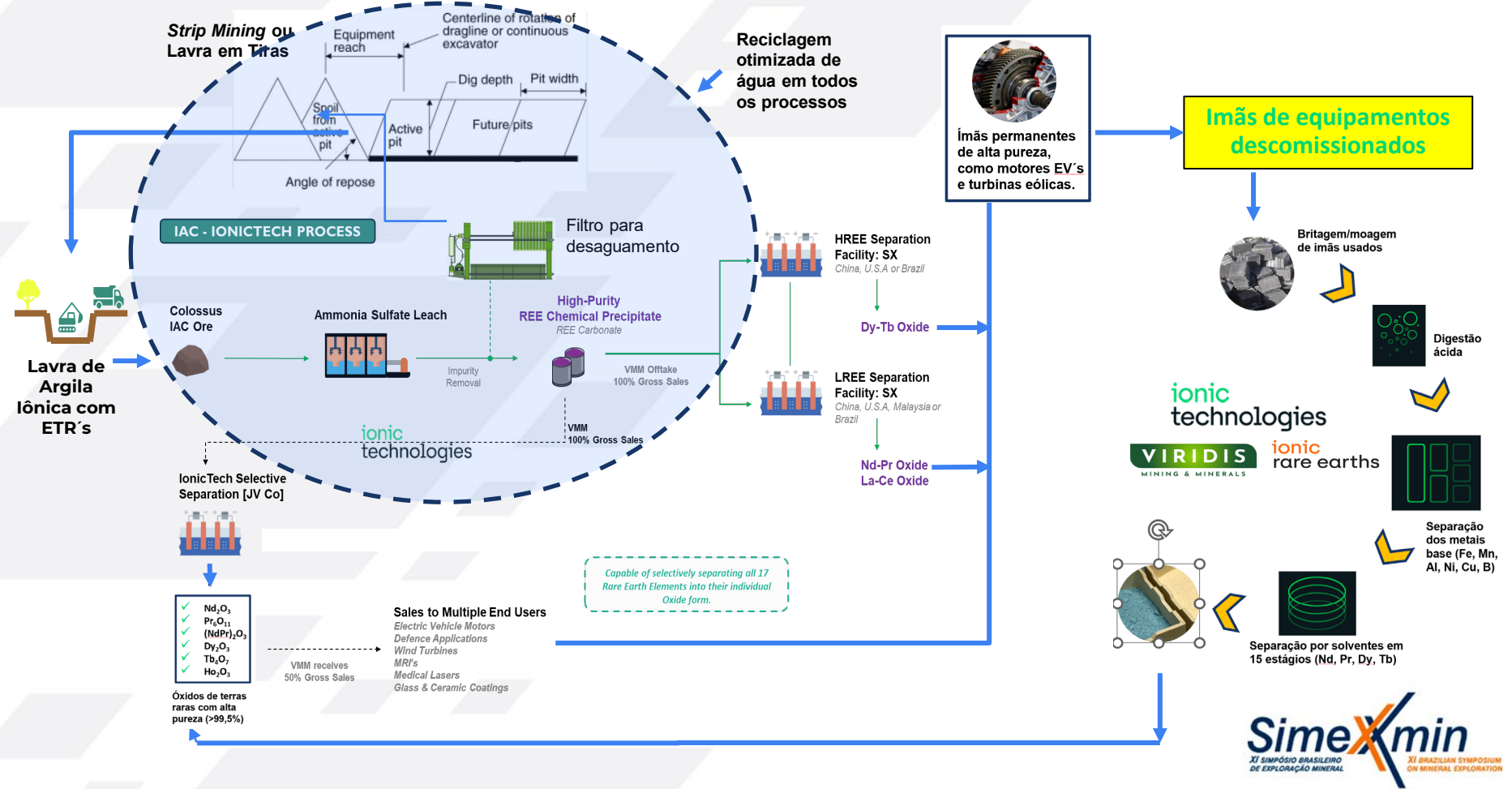
Produção VMM IAC e Refinaria VMM/IXR

- JV 50/50 com Viridis Mining & Minerals Ltd (ASX: VMM) para desenvolver pegada de refino e reciclagem no Brasil
- Aproveitando a propriedade intelectual da Ionic Technologies para ser pioneiro no estabelecimento de uma maior presença no emergente mercado brasileiro de terras raras
- Operações de início de lavra e produção na Colossus até o final de 2027

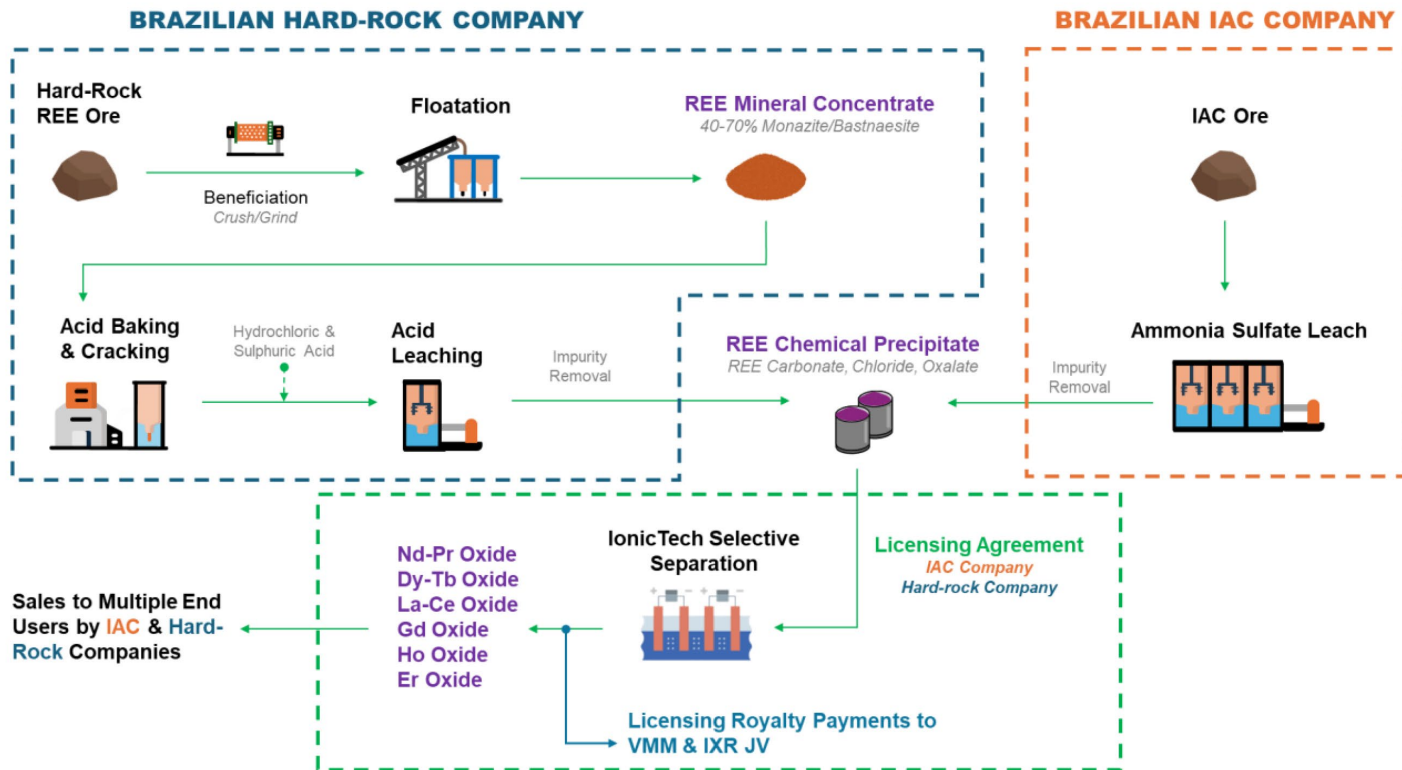
Reciclagem de Ímãs Refinaria VMM/IXR

- Capital relativamente baixo para instalação da reciclagem de ímãs e limalhas de produção de ímãs para produzir óxidos de ETR com 99,9% separados e refinados.
- Planta de demonstração operando 24/7 com produção de óxido de ETR magnéticos em andamento (Nd, Pr, Dy e Tb) na IXR Belfast
- Abordar a necessidade de capacidade soberana/cadeia de abastecimento nacional com oportunidades locais (Brasil) e globais com foco na UE e nos EUA.

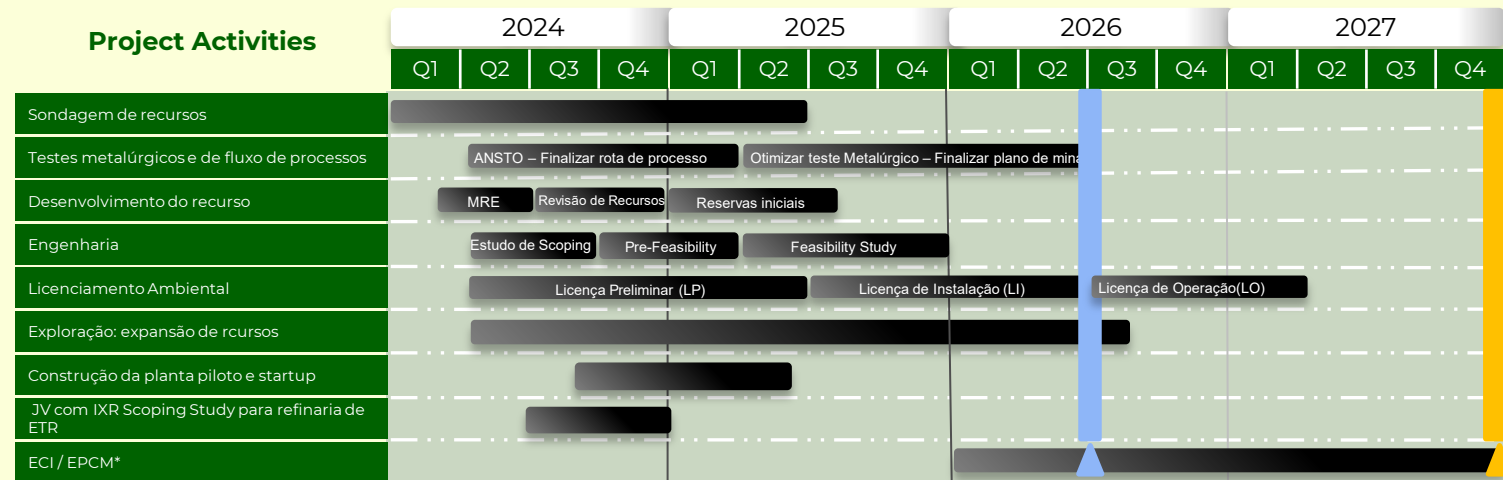
A Parceria VMM/IXR deve resultar na primeira Economia Circular de ETR's no Brasil



UM EXEMPLO SIMPLIFICADO DE PARCERIA COM OUTRAS EMPRESAS NO BRASIL (E PAÍSES VIZINHOS) PRA REFINO DE MINÉRIO COM A TECNOLOGIA IONICTECH



Marcos programados do Projeto: Programa de trabalho até início de Produção



▲ Início de Construção
▲ Início de Produção

*
EPCM - Modelos de entrega de construção: engenharia, compras e gerenciamento de construção
ECI - Envolvimento antecipado do contratante

SimeXmin

*XI SIMPÓSIO BRASILEIRO
DE EXPLORAÇÃO MINERAL* *XI BRAZILIAN SYMPOSIUM
ON MINERAL EXPLORATION*

VIRIDIS

THANK YOU

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