

Equinox Leads the Charge in World-Class Niobium Exploration in Minas Gerais, Brazil

Equinox further strengthens its emerging position in the global critical minerals sector, adding to its recently established rare earths projects.

Highlights

- Equinox has staked approximately 600km² of tenements with compelling potential for niobium deposits in the Alto Paranaíba Igneous Province, which currently accounts for over 97% of global niobium production.
- The staking of the new "Canastra" Niobium Project signifies a further strategic extension of Equinox's recently established stake in rare earth clays in Brazil, expanding the Company's total Brazilian exploration footprint to ~3,230km².

Equinox Resources Limited (ASX: EQN) ("Equinox" or "Company") is pleased to advise that it has further expanded its critical minerals portfolio in Brazil, with the application for a new package of highly prospective niobium exploration tenements in the heart of the world's dominant niobium production province.

The Company has submitted strategic pegging applications for approximately 600km² of Mining Rights to establish the newly defined "**Canastra**" Project, situated in the niobium-rich Alto Paranaíba Igneous Province, between Araxá and Patrocínio in Minas Gerais State, Brazil.

The Company considers the establishment of the Canastra Project as an important and cost-effective strategic extension of its rare earth tenements in Brazil with the recently established Campo Grande Project (see EQN ASX announcement, 28 November 2023) and Mata da Corda Project (see EQN ASX announcement 13 December 2023), supporting its continued growth and development as a diversified global resources company.

Equinox's CEO, Zac Komur, commented:

"I am delighted to announce our strategic expansion into world-class niobium exploration in Minas Gerais, Brazil. This initiative represents another important step towards cementing our position in the burgeoning global commodity sector, which is poised for substantial growth.

"Our application for new niobium tenements reflects our steadfast commitment to maximising shareholder value by diligently researching and identifying the potential of high margin deposits. The critical role of niobium in strengthening steel – a cornerstone in the green infrastructure of the future – cannot be overstated.

"Positioned within Brazil, we gain a competitive edge in a jurisdiction well-known for its cost-efficiency. The region's abundant resources and deep pool of skills and talent, along with its superior infrastructure and green energy grid, perfectly align with our commitment to environmentally responsible growth.

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"The Canastra Project is a strategic and cost-effective enhancement of our portfolio, complementing our existing rare earth exploration projects at Campo Grande and Mata da Corda.

"By establishing our project in Minas Gerais – the global hub for niobium production – we are poised to leverage local expertise, existing logistics and sustainable energy resources, building on a wellestablished industry which already dominates global niobium supply.

"The global scarcity of niobium, coupled with the premium prices for ferroniobium and niobium pentoxide, underscores the significant potential of this newly established project and is consistent with Equinox's strategic focus on high-margin, future-facing commodities.

"As the global economy shifts towards advanced technologies, the demand for niobium will surge, making this a very attractive commodity to add to our portfolio mix.

"We are looking forward to getting on the ground later this year at the new Canastra Project and commencing our maiden exploration programs to unlock the potential of this vast and highly prospective new exploration venture."

Project Overview

Brazil's dominance in the global niobium market is primarily attributed to its unique geological formations, especially within the Alto Paranaíba Igneous Province (APIP) which currently accounts for over 95% of global niobium production and hosts significant niobium deposits like those found in the Araxá and Catalão complexes. These complexes are renowned for their extensive carbonatite occurrences, which are pivotal hosts for niobium mineralisation.

The APIP is characterised by a series of alkaline-igneous rocks, including carbonatites and phoscorites, which intrude into the Neoproterozoic rocks of the Brasília Belt.

The geological formation of this province is linked to the impact of the Trindade Mantle Plume beneath central Brazil around 85 million years ago, leading to lithospheric thinning and consequent melting of fusible parts of the mantle.

The Canastra Project is situated within APIP on the northern edge of the Parana basin, in the foldbelt between the sedimentary basin and the Sao Francisco craton. Carbonatite complexes within the APIP are significant for their niobium-rich carbonatite and phoscorite rocks.

Complexes in the region feature a unique geological structure, with its carbonatite and phoscorite rocks hosting substantial niobium mineralisation. These complexes are divided into distinct zones, with the outer zone dominated by phlogopitite and the inner zone by dolomite carbonatites and phoscorite-series rocks, which are crucial for the complex's niobium content. The mineralisation process in these complexes is significantly influenced by the presence of pyrochlore, phosphate and niobium-bearing minerals.

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Figure 1: Canastra Project Location

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The Alto Paranaíba Igneous Province (APIP) was developed during the Upper Jurassic and Cretaceous periods. The APIP is considered one of the most voluminous potassic provinces in the world, encompassing mafic and ultramafic alkaline rocks in the form of intrusive bodies (dikes, diatremes, pipes, and plutonic complexes) and extrusive rocks (lavas and pyroclastics). The rock types within this province include kimberlites, olivine lamproites, kamafugites, alkaline-carbonatite complexes, and phlogopite picrite dikes. The volcanic rocks are primarily associated with the magmatism of the Mata da Corda Group and the plutonic complexes are referred to as Barreiro (Araxá), Tapira, Serra Negra, and Salitre. These plutonic complexes intrude rocks from the Araxá, Canastra, Ibiá and Bambuí groups. These complexes host deposits and occurrences of niobium, phosphate, rare earth elements (REE), titanium, molybdenum, zirconium, and radioactive minerals containing uranium and thorium. The tropical weathering in the area contributes to the concentration of these minerals, providing economic feasibility for the exploration of these resources¹.



Figure 2: Canastra Project proximity to the Parana basin and Sao Francisco craton

The Araxá Group is predominantly formed by schists with quartz, muscovite, biotite, chlorite, garnet and kyanite. quartzites, amphibolites and pegmatites occur subordinately. Canastra and Ibiá groups are also formed by metasedimentary rocks such as schists with quartz, muscovite, chlorite, micaceous quartzites, paraconglomerate, and sheets and layers of iron formation occur locally.

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¹ PINTO, C. P. (2022). Informe de recursos minerais do Estado de Minas Gerais.





Figure 3: Canastra Project Regional Geology

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Airborne Geophysical Data (AGD) acquired from the Brazilian Geological Service² were analysed. The alkaline intrusions of the Serra Negra, Salitre, Barreiro (Araxá), and Tapira complexes exhibit circular shapes, characterised by high magnetic gradients and amplitudes on the Total Gradient map. Additionally, the Laterite Index map displayed high values associated with these alkaline intrusions. Both the Total Gradient and Lateritic Index maps were reclassified, revealing that the high values coincide with the alkaline complexes associated with described mineralisations.



Figure 4 – Total Gradient map showing high magnetic gradients and amplitudes related to alkaline complexes.

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² GOMES, D. G. D. C. (2021). Atlas aerogeofísico do estado de Minas Gerais. Retrieved from https://rigeo.sgb.gov.br/handle/doc/22525.





Figure 5 – Lateritic Index map showing high magnetic gradients and amplitudes related to alkaline complexes.

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Figure 6 – Map showing the result of reclassifying the Total Gradient and Lateritic Index. High values coincide with the alkaline complexes associated with mineralizations described.

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Magnetic anomalies and high lateritic index values that occur within the tenements of the Canastra Project have similar values of the Serra Negra, Salitre and the other complexes, as well as the high values related to the reclassification of these maps. This last one shows the higher indicators of magnetic anomalous and laterite packages (lateritic index) also similar to the values of the Serra Negra, Salitre and the other complexes.



Figure 7 – Total Gradient map showing high magnetic gradients and amplitudes within the Canastra Project tenements, similar to the values of the alkaline complexes.

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Figure 8 – Lateritic Index map showing high values within the Canastra Project tenements, similar to the values of the alkaline complexes.

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Figure 9 – Map showing the result of reclassifying the Total Gradient and Lateritic Index with high values within the Canastra Project tenements, similar to the values of the alkaline complexes.

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Niobium Market Dynamics

The global supply of niobium is highly concentrated from just three mines: CBMM in Araxá in Brazil, China Molybdenum Co and Magris Resources Inc in Catalão in Brazil, and Niobec in Canada. Significantly, no new niobium mines have been brought into production for over fifty years³ⁱ.

The mines in Catalão and Araxá in Brazil are particularly dominant, accounting for 97% of the world's supply of niobium concentrate. Of these, CBMM leads with a significant annual output of around 150,000 tonnes per annum, compared to the contributions from Niobec and Catalão, which are 5,300 tonnes and 4,500 tonnes per annum, respectively⁴.

This concentration of production sources highlights a vulnerability in the niobium market, potentially impacting global consumers. The situation is further nuanced by the specialised production capacities of Niobec, China Molybdenum Co and Magris Resources Inc for ferro-niobium, and the unique position of CBMM as the sole manufacturer of Niobium Oxide, a crucial component for lithium-ion batteries.

Niobium's outstanding properties, such as its ability to enhance the strength and reduce the weight of steel, render it indispensable across various industries including steel production, aerospace and automotive manufacturing. These sectors benefit from niobium's capacity to improve material performance significantly, even when added in amounts less than 1%. It strengthens steel, reduces weight and enhances resistance to corrosion and high temperatures, making it vital for high-performance applications in construction and automotive manufacturing.

Furthermore, niobium's role extends beyond conventional uses to cutting-edge technologies. Its superconductive properties, when alloyed with titanium or tin, are critical for creating superconducting magnets used in MRI scanners, military applications, NMR equipment and particle accelerators, such as the Large Hadron Collider. Niobium's application in wind and gas turbines, space exploration and the burgeoning field of electric vehicle batteries underlines its pivotal role in driving technological advancements.

The battery industry in particular stands to benefit from niobium-based innovations, offering the prospect of greener, more affordable, and efficient battery technologies. For instance, advancements in niobium battery technology promise ultra-fast charging capabilities, potentially enabling batteries to reach full charge in under 10 minutes, increase energy density by 200%, and achieve enhanced performance stability across more than 10,000 charging cycles.

The Niobium Titanium Oxide (NTO)-SCiB battery developed by Toshiba exemplifies these advancements, with capabilities such as achieving a 90% charge in just six minutes and maintaining 80% capacity after 25,000 cycles, offering up to 320km range⁵. These developments highlight niobium's critical role in evolving battery technologies towards safer and ultra-fast battery charging solutions.

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³researchgate.net/publication/272424460 Niobium oxide mineral flotation A review of relevant literature and the current state of industrial operations

⁴ Globe Metals & Mining Limited Investor Presentation, August 2023

⁵ https://www.autofutures.tv/topics/how-niobium-makes-batteries-greener--cheaper-and-cleaner---with-insights-from-a-nobel-prize-

winner--/s/7457515b-c647-434f-8877-31321e968592



The market predominantly deals in ferroniobium, making up about 90% of trades and typically containing around 66% niobium. Standard ferroniobium metal is priced at approximately US\$47,000⁶ per tonne, while niobium pentoxide fetches over US\$50,000 per tonne⁷. These prices not only underscore niobium's intrinsic value but also highlight the lucrative margins it offers. Existing producers operate with high margins at less than US\$10/kg for open pit and less than US\$19/kg per unground block cave operations⁸. On average, the demand for niobium in non-ferrous alloys is forecast to grow by 5% in 2024⁹.

This pricing dynamic plays a crucial role in emphasising the strategic importance of diversifying and stabilising the supply of this critical mineral. Efforts to explore and develop new reserves, such as at the Canastra Project in Brazil, are central to this strategy.

Near-Term Exploration Priorities

The Company, in securing the grant of the new tenements, will conduct a comprehensive project review and intends to undertake the following activities:

- Application for Preliminary Environmental Licence Q2 CY2024
- Preparation of the exploration management plan Q2 CY2024
- Finalisation and selection of exploration contractors to commence a drilling campaign Q3 CY2024

Once the applications are granted, Equinox will initially undertake preparatory work including soil sampling on the Canastra Project. These activities are intended to be funded by utilising the portion of the funds raised under the Company's recent capital raising (see Equinox's announcement dated 28 November 2023) that was previously allocated towards working capital purposes.

The extent of any further exploration activities to be undertaken on the Project (and the requirement for the Company to raise any further funds to pay for such activities) will be assessed following the Company's initial activities on the Project.

Project Location

The Canastra Project, strategically located between Araxá and Patrocínio in the State of Minas Gerais, Brazil, represents a significant addition to Equinox's portfolio that leverages the unique economic, infrastructural, logistical, population and geological attributes of the region. This area is known for its diverse and rich resources, making it a focal point for development and investment.

Araxá and Patrocínio are economic powerhouses in their own rights, contributing significantly to the state's and Brazil's economy. Araxá is renowned for its mining activities, particularly niobium and phosphate production. The city hosts CBMM, the world's largest niobium producer, Vale and Mosaic Fertilizantes, a major player in phosphate and fertilizer production.

Patrocínio, on the other hand, has made a name for itself as one of Brazil's leading coffee producers, with a substantial portion of its economy tied to agriculture, especially coffee, soybeans, and dairy cattle. Both cities are well-connected by federal highways, with Araxá linked through BR-452 and BR-262, and Patrocínio through BR-365 and BR-462.

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⁶ Asian Metals Market mid case average price 6th Feb 2023 – 6th Feb 2024 Ferro Niobium Brazilian 66% in warehouse Rotterdam

⁷ Asian Metals Market mid case average price 6th Feb 2023 – 6th Feb 2024 Niobium Pentoxide 99.99% FOB China

⁸ WA1 West Arunta Project Luni Carbonatite Assay Results

⁹ Woodmac Steel alloys: 5 things to look for in 2024 – January 2024



These highways facilitate the movement of goods and people, making the region between Araxá and Patrocínio an ideal location for the Canastra Project. The presence of Araxá Airport and logistical support through the Centro Atlântica Railway in Araxá enhances the region's connectivity, while Patrocínio's strategic location on BR 365 provides direct access to major economic centers, including Uberlândia, and extends to the state of Goiás.

The combined population of Araxá and Patrocínio exceeds 220,000, offering a diverse labour pool for various industries. This demographic composition ensures a steady supply of skilled labour necessary for the Canastra Project's success, supported by educational institutions in both cities that cater to a broad spectrum of academic and professional skills.

The proposed logistical route to market is via the Port of Santos includes utilising the BR-262 highway from Araxá towards São Paulo, then heading south on the BR-050 to Campinas, and continuing on the SP-348 (Rodovia dos Bandeirantes) and SP-150 (Rodovia Anchieta) to the port. This route is designed for efficiency and capacity to manage heavy loads, which is used by the region's agricultural and mining products.



Figure 10: Canastra Project logistic route to Port of Santos

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Mining Rights Under Application

A summarised list of the 32 Exploration Licence Requests is provided below.

Tenement No.					
833517/2023	Exploration Request	Patrocinio	Minas Gerais	1,990.07	Niobium
833518/2023	Exploration Request	Patrocinio	Minas Gerais	1,942.25	Niobium
833519/2023	Exploration Request	Patrocinio	Minas Gerais	1,953.15	Niobium
833520/2023	Exploration Request	Patrocinio	Minas Gerais	1,901.47	Niobium
833521/2023	Exploration Request	Patrocinio	Minas Gerais	1,830.50	Niobium
833522/2023	Exploration Request	Patrocinio	Minas Gerais	1,898.55	Niobium
833523/2023	Exploration Request	Patrocinio	Minas Gerais	1,877.33	Niobium
833524/2023	Exploration Request	Patrocinio	Minas Gerais	1,863.37	Niobium
833525/2023	Exploration Request	Patrocinio	Minas Gerais	1,554.64	Niobium
833526/2023	Exploration Request	Salitre	Minas Gerais	1,998.52	Niobium
833527/2023	Exploration Request	Salitre	Minas Gerais	1,995.12	Niobium
833528/2023	Exploration Request	Salitre	Minas Gerais	1,996.26	Niobium
833529/2023	Exploration Request	Salitre	Minas Gerais	1,991.42	Niobium
833530/2023	Exploration Request	Salitre	Minas Gerais	1,984.90	Niobium
833531/2023	Exploration Request	Salitre	Minas Gerais	1,986.15	Niobium
833532/2023	Exploration Request	Salitre	Minas Gerais	1,522.65	Niobium
833533/2023	Exploration Request	Salitre	Minas Gerais	1,969.98	Niobium
833534/2023	Exploration Request	Muro de Pedra	Minas Gerais	1,934.65	Niobium
833535/2023	Exploration Request	Muro de Pedra	Minas Gerais	1,879.05	Niobium
833536/2023	Exploration Request	Muro de Pedra	Minas Gerais	1,878.04	Niobium
833537/2023	Exploration Request	Muro de Pedra	Minas Gerais	1,923.88	Niobium
833556/2023	Exploration Request	Muro de Pedra	Minas Gerais	1,879.64	Niobium
833557/2023	Exploration Request	Muro de Pedra	Minas Gerais	1,868.03	Niobium
833558/2023	Exploration Request	Muro de Pedra	Minas Gerais	1,677.04	Niobium
833559/2023	Exploration Request	Muro de Pedra	Minas Gerais	1,899.52	Niobium
833561/2023	Exploration Request	Muro de Pedra	Minas Gerais	1,873.59	Niobium
833562/2023	Exploration Request	Muro de Pedra	Minas Gerais	1,932.81	Niobium
833563/2023	Exploration Request	Muro de Pedra	Minas Gerais	1,923.55	Niobium
833564/2023	Exploration Request	Muro de Pedra	Minas Gerais	1,939.88	Niobium
833566/2023	Exploration Request	Muro de Pedra	Minas Gerais	1,906.34	Niobium
833567/2023	Exploration Request	Muro de Pedra	Minas Gerais	1,943.54	Niobium
833568/2023	Exploration Request	Muro de Pedra	Minas Gerais	1,899.52	Niobium

Equinox Resources Limited ASX: EQN ABN 65 650 503 325 www.eqnx.com.au T: +61 08 9389 4499 E: info@eqnx.com.au



Investor and Media Contacts

Investor Inquiries: Equinox Resources Zac Komur, Chief Executive Officer M: +61 467 775 792 E: zac.komur@eqnx.com.au Media Inquiries: Read Corporate Nicholas Read / Kate Bell M: +61 419 929 046 E: info@readcorporate.com.au

Authorised for release by the Board of Equinox Resources Limited.

COMPETENT PERSON STATEMENT

The information in this report which relates to Exploration Results is based on information compiled by Mr Luciano Oliveira, who is a Member of the Australasian Institute of Mining and Metallurgy (AusIMM 3117228). Mr Oliveira is the Exploration Manager for Equinox Resources Ltd and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australian Code of Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Oliveria consents to the inclusion in the announcement of the matters based on that 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: eqnx.com.au.

FORWARD LOOKING STATEMENTS

This announcement may contain certain forward-looking statements and projections. Such forward looking statements/projections are estimates for discussion purposes only and should not be relied upon. Forward looking statements/projections are inherently uncertain and may therefore differ materially from results ultimately achieved. Equinox Resources Limited does not make any representations and provides no warranties concerning the accuracy of the projections and disclaims any obligation to update or revise any forward-looking statements/projects based on new information, future events or otherwise except to the extent required by applicable laws. While the information contained in this report has been prepared in good faith, neither Equinox Resources Limited or any of its directors, officers, agents, employees, or advisors give any representation or warranty, express or implied, as to the fairness, accuracy, completeness or correctness of the information, opinions and conclusions contained in this announcement.

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JORC Code, 2012 Edition – Table 1 Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	 Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling. Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information. 	 Geophysical data/maps was sourced from the Government of the State of Minas Gerais survey of 2005-2006 for the area. Details are as following: Location - Patos de Minas- Araxá-Divinópolis Project year 2005 Contractor - Government of the State of Minas Gerais Contractor Consórcio Lasa Engenharia e Prospecções S.A. Method: Magnetometry Area (km²) 70473 Flight line spacing (m) 400 Spacing of control lines (Km) 8 Flight Height (m) 100 Direction of N-S flight lines Direction of E-W control lines Linear kilometers flown 185264 Year of Completion 2006
Drilling techniques	 Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face- sampling bit or other type, whether core is oriented and if so, by what method, etc). 	 No drilling has been undertaken.
Drill sample recovery	 Method of recording and assessing core and chip sample recoveries and results assessed. Measures taken to maximise sample recovery and ensure representative nature of the samples. Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material. 	No drilling has been undertaken.
Logging	 Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. The total length and percentage of the relevant intersections logged. 	 Not applicable as no drilling has been undertaken.
Sub-sampling techniques and sample preparation	 If core, whether cut or sawn and whether quarter, half or all core taken. If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. For all sample types, the nature, quality and appropriateness of the sample preparation technique. 	 Not applicable as no samples have been taken.

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Criteria	JORC Code explanation	Commentary
	 Quality control procedures adopted for all sub- sampling stages to maximise representivity of samples. Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. Whether sample sizes are appropriate to the grain size of the material being sampled. 	
Quality of assay data and laboratory tests	 The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established. 	 Not applicable as no samples have been taken.
Verification of sampling and assaying	 The verification of significant intersections by either independent or alternative company personnel. The use of twinned holes. Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. Discuss any adjustment to assay data. 	 Not applicable as no samples have been taken.
Location of data points	 Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. Specification of the grid system used. Quality and adequacy of topographic control. 	 Navigation was controlled by an integrated GPS Inertial Measurement System with Magnetic Heading Sensors.
Data spacing and distribution	 Data spacing for reporting of Exploration Results. Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. Whether sample compositing has been applied. 	Not available.
Orientation of data in relation to geological structure	 Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material. 	 Not applicable, as no samples have been taken. Historical reports suggests that the geophysical survey grid was aligned to cross the majority of the known structures and stratigraphy.
Sample security	The measures taken to ensure sample security.	Not applicable, as no drilling has been undertaken.
Audits or reviews	 The results of any audits or reviews of sampling techniques and data. 	Not applicable, as no samples have been taken.

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Level 50, 108 St Georges Terrace Perth, WA 6000



Section 2 Reporting of Exploration Results (Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	 Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area. 	 32 Mineral Exploration licence applications have been lodged by EQNX with the ANM. 02 licenses were granted and are now 30 pending assessment and grant. EQNX has 100% ownership of the EL applications. There are no known impediments to obtaining a licence to operate in the area
Exploration done by other parties	 Acknowledgment and appraisal of exploration by other parties. 	 No other exploration is known apart from the government agency's field mapping and geophysical datawork.
Geology	Deposit type, geological setting and style of mineralisation.	 Alkaline Complexes (Serra Negra, Salitre, Barreiro and Tapira) are intrusions that forms a circular structures ranging from 5 to 16 km in diameter generally featuring a flat top. These intrusions are characterised by alkaline- carbonatitic complexes with mafic/ultramafic rocks like peridotite, pyroxenite, dunite, carbonatite and lamprophyre in the form of intrusive bodies (dikes, diatremes, pipes, and plutonic complexes) The flat tops of intrusions and other flat tops are covered in iron- rich, predominantly clayey weathered soil. Laterite crusts are common in the landscape. The mineralization in the region consists of ionic adsorbed clay and residual heavy mineral concentrations of REE elements, niobium, titanium and phospates associated with weathered profiles (secondary) and mineral concentrations in fresh rocks (primary)
Drill hole Information	 A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: easting and northing of the drill hole collar elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar dip and azimuth of the hole down hole length and interception depth hole length. If the exclusion of this information is justified on the basis that the information is not Material and this 	Exploration results are not being reported.

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Criteria	JORC Code explanation	Commentary
	exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	
Data aggregation methods	 In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. The assumptions used for any reporting of metal equivalent values should be clearly stated. 	 Exploration results are not being reported.
Relationship between mineralisation widths and intercept lengths	 These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known'). 	 Exploration results are not being reported.
Diagrams	 Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views. 	Appropriate diagrams are included in the main body of this announcement.
Balanced reporting	 Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results. 	 Exploration results are not being reported.
Other substantive exploration data	 Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances. 	 Relevant maps and diagrams are included in the main body of the report.
Further work	 The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive. 	 Proposed work program after the grant of tenements is included in the main body of the report.

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