Macarthur Minerals Limited

March 2022

Advanced Project | Premium Product | Tier 1 Investment Jurisdiction | Sustainability Focus | Established Export Infrastructure

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- Mr David Williams, a member of the Australian Institute of Geoscientists, is a part-time employee of CSA Global Pty Ltd and is a Qualified Person as defined in National Instrument 43-101. Mr Williams has reviewed and approved the technical information in relation to the Iron Ore Projects contained in this Presentation.
- Mr Andrew Hawker, a member of the Australian Institute of Geoscientists, is a full-time employee of Hawker Geological Services Pty Ltd and is a Qualified Person as defined in National Instrument 43-101. Mr Hawker has reviewed and approved the technical information in relation to the gold acreage contained in this Presentation.
- All amounts are in Australian dollars unless otherwise stated.
- This presentation has been authorized for release to the market by Macarthur Minerals Limited.

Competent / Qualified Person Statement

Mineral Resources:

- The information in this presentation that relates to Mineral Resources is based on, and fairly reflects, information compiled by Mr. David Williams, a Competent Person, who is an employee of CSA Global Pty Ltd, a member of the ERM group of companies, and a Member of the Australian Institute of Geoscientists (#4176). Mr Williams has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for the Reporting of Exploration Results, Mineral Resources, and Ore Reserves (JORC Code). Mr Williams consents to the disclosure of information in the form and context in which it appears.

Ore Reserves:

- The information in this report relating to Ore Reserves is based on information compiled by Stephen Craig, a Fellow of the Australasian Institute of Mining and Metallurgy. Mr Craig is a full-time employee of Orelogy Consulting Pty Ltd. Mr. Craig has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for the Reporting of Exploration Results, Mineral Resources, and Ore Reserves (JORC Code). Mr Craig consents to the disclosure of information in the form and context in which it appears.

JORC Reporting Tables

- The Mineral Resource and Ore Reserve estimates presented herein have previously been released to the ASX on March 21, 2022, including supporting JORC reporting tables. Unless explicitly stated, no new information is contained in accordance with Table 1 checklist in the JORC Code. The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcements and, in the case of Mineral Resources and Mineral Reserves that all assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

Focused on the development of The Lake Giles Magnetite Project

Corporate Overview

Macarthur Minerals Limited
TSXV : MMS | ASX : MIO | OTCQB : MMSDF

Tier 1 Mining Jurisdiction

High Quality Assets

Global de-carbonisation targets

Feasibility Study Completed

Manageable project start up strategy

Multi-generational resource potential

Life of mine product offtake secured

Strategic Location - Close to existing infrastructure

Corporate Overview

Capital Structure

Macarthur is dual listed on ASX and on TSXV

Share Price (Australia)	Share Price (Canada)
$A0.54	$C0.47
(28 March 2021 close)	(28 March 2022 close)
52 week range: **$A0.31 - $A0.62**	52 week range: **$C0.28 - $C0.58**

Shares on issue	Total (Warrants[1] & Options[2])	Restricted vested shares[3]
145.75m	19.96m	8.43m

1. 3.02m warrants with an exercise price of C$0.40 expire 5 Aug 2022 and 1.07m warrants with an exercise price of C$0.40 expire 1 Oct 2022 - 3 Nov 2022.

2. 1.5m Options average exercise price C$0.24-C$0.32 expire 11 Dec 2022 – 31 Dec 2022. 1.5m Options average exercise price A$0.34-A$0.38 expire 31 Dec 2022. 11.36m options with an exercise price of A$0.90 expire 26 Oct 2022 – 2 Nov 2022. 1.5m options with an exercise price of A$0.75 expire 12 November 2022.

3. 1m Restricted Share Units vest in the event the Company's share price is C$0.65 for 20 consecutive trading days, and 2.28m Restricted Share Units vest in the event the Company's share price is C$0.70 for 20 consecutive trading days, and 5.35m Restricted Share Units vest in the event the Company's share price is C$0.90 for 20 consecutive trading days issued pursuant to the Share Compensation Plan.

Corporate Overview

Macarthur Minerals Limited
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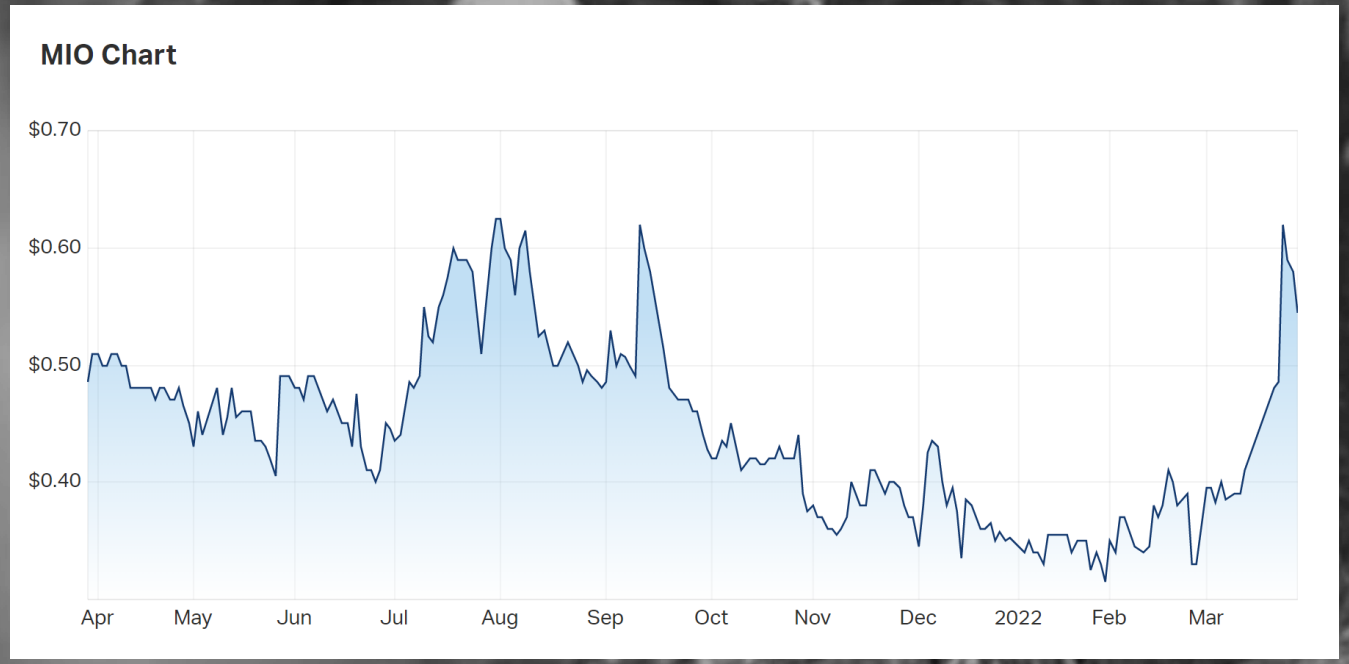
Historical 12 month share price



Source: Market Index

Market Statistics

ASX Share Price	$0.54^
Shares on Issue	145.75m
Market Capitalisation	$80m^^

Top 10 Shareholders^^^

Canadian Reegister Control\C	50.45%
Alemar Developments Pty Ltd	3.4%
HSBC Custody Nominees (Australia) Ltd	3.1%
Eyeon Investments Pty Ltd	2.4%
H&K Super Fund A/C	2.3%
First Apollo Capital Limited	2.8%
BNP Paribas Noms Pty Ltd	2.1%
CS Third Nominees Pty Ltd	1.7%
Cameron Hugh McCall	1.6%
Mr A Peden & Mrs M Peden	1.3%
Spacetime Pty Ltd	1.2%
Board and Management	7.6%

^As at 28 March, 2021
^^Source: Market Index
^^^ Rounded.

Investment Highlights

Macarthur Minerals Limited
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Growing demand for high grade Magnetite

- Global steel mills are seeking high quality +65% iron ore product.

Strong offtake partner

- Macarthur has a 10 year offtake agreement with Glencore who are seeking the highest grade material for their customers. They are active in seeking magnetite relationships globally.

Existing Infrastructure

- Having existing accessible infrastructure removes a major capital expenditure. Rail and Port access available through Esperance port on available capacity.

Feasibility Study Complete

- Positive Feasibility Study completed and key outcomes announced to the market on 21 March 2022, supported by a maiden Ore Reserve.

Advanced Project: significant sunk costs

- Over $100m has been spent in ground to delineate a Measured, Indicated and Inferred resource of 1.2b tonnes that is capable of being processed to produce a high grade magnetite concentrate.
- Proven and Probable Mineral Reserve to support 25-year mine life

Long mine life in a tier 1 mining jurisdiction

- The Lake Giles magnetite process plant and associated mining operations will have the capacity to produce 3mtpa of magnetite concentrate for an initial mine life of 25 years based on Measured and Indicated resources, with massive extension potential.

Attractive Valuation

- The current market capitalisation of $80m does not adequately reflect the in-ground investment, the relatively low capex to bring the operation into production, the recent completion of the Definitive Feasibility Study or the premium-attracting, high grade material to be produced.

Macarthur Minerals Limited
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CHAMPION IRON

MACARTHUR Minerals

- **Long Life Asset in Tier 1 Jurisdiction:** Politically stable, mining friendly location in Canada at Bloom Lake. Access to skilled workforce and low cost power. 412Mt reserves and 912Mt resource.
- **Pure Play:** Focus on magnetite production for +66% Fe product.
- **Advanced Infrastructure Solution:** Massive reduction in requisite capex for rail and port. Previous owners had spent over $3b on rail and port facilities which lowered overall start-up costs.
- **Premium Product / Premium Price:** High grade magnetite concentrate product will attract +65% Fe premium pricing.
- **Huge investment in asset:** Previous owners had invested massively in defining the resource through drilling providing a walk-up start for Champion Iron.
- **Phase 2 production ramp-up:** Started on a scheduled ramp up of 7.4Mtpa on $500m capex.

- **Long Life Asset in Tier 1 Jurisdiction:** Politically stable, mining friendly location in Western Australia at Lake Giles. Access to skilled workforce and low cost power. 272Mt reserves and 1.2Bt in resource.
- **Pure Play:** Focus on magnetite production for 66.1% Fe product
- **Advanced Infrastructure Solution:** Rail and port facilities exist from Kalgoorlie through to Esperance. Negotiated access is possible on this infrastructure, massively lowering the barriers to free cashflow.
- **Premium Product / Premium Price:** High grade magnetite concentrate product will attract +65% Fe premium pricing.
- **Huge investment in asset:** The Company has invested over $100m in the ground to define this massive ore body over ten years.
- **Production ramp-up:** Planned start-up of 3Mtpa (dry basis) for a 25 year life of mine on target capex of approximately USD569m.

*Note: This slide does not suggest a direction comparison can be made between MIO and CIA share price paths, or that there can be a correlation in potential future market capitalisation. It is used for the purposes of demonstrating the common project points which can exist between two similarly sized magnetite mining operations.

Champion Iron

Potential for market value re-rating as the Lake Giles Iron Project transitions from exploration to production*

*Note: This chart does not suggest a direction comparison can be made between MIO and CIA share price paths, or that there can be a correlation in potential future market capitalisation. It is used for the purposes of demonstrating the common project and corporate milestones which can exist between two similarly sized magnetite mining operations.

Champion Iron (ASX:CIA)

Market capitalisation	A$2.3b^
Annual production	7.9Mt

^As at 21 October, 2021

The Lake Giles Iron Project

Overview

Lake Giles Iron Project

Macarthur Minerals Limited
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An Advanced, World Class Asset

- **Established Iron Ore Region:** The Lake Giles Iron Project is a high grade magnetite project that is well positioned among established regional iron ore projects.
- **JORC Resource:** **1.2 billion tonne** magnetite Mineral Resource^.
- **Advanced Project Approvals:** Fully granted mining leases, no native title and cultural heritage issues on mining leases, environmental approvals to align with development schedule.
- **Premium Product / Premium Price:** High grade magnetite concentrate product will attract 65% Fe premium pricing.
- **Meeting Future Demand for High Grade Iron Ore:** Global policy shifts targeting net zero emissions are expected to underpin a growth in global demand for high grade iron ore and 'green steel'.
- **Product Offtake Secured**: Binding 10-year offtake agreement with Glencore for up to 4 Mtpa with option to extend for a further 10 years.

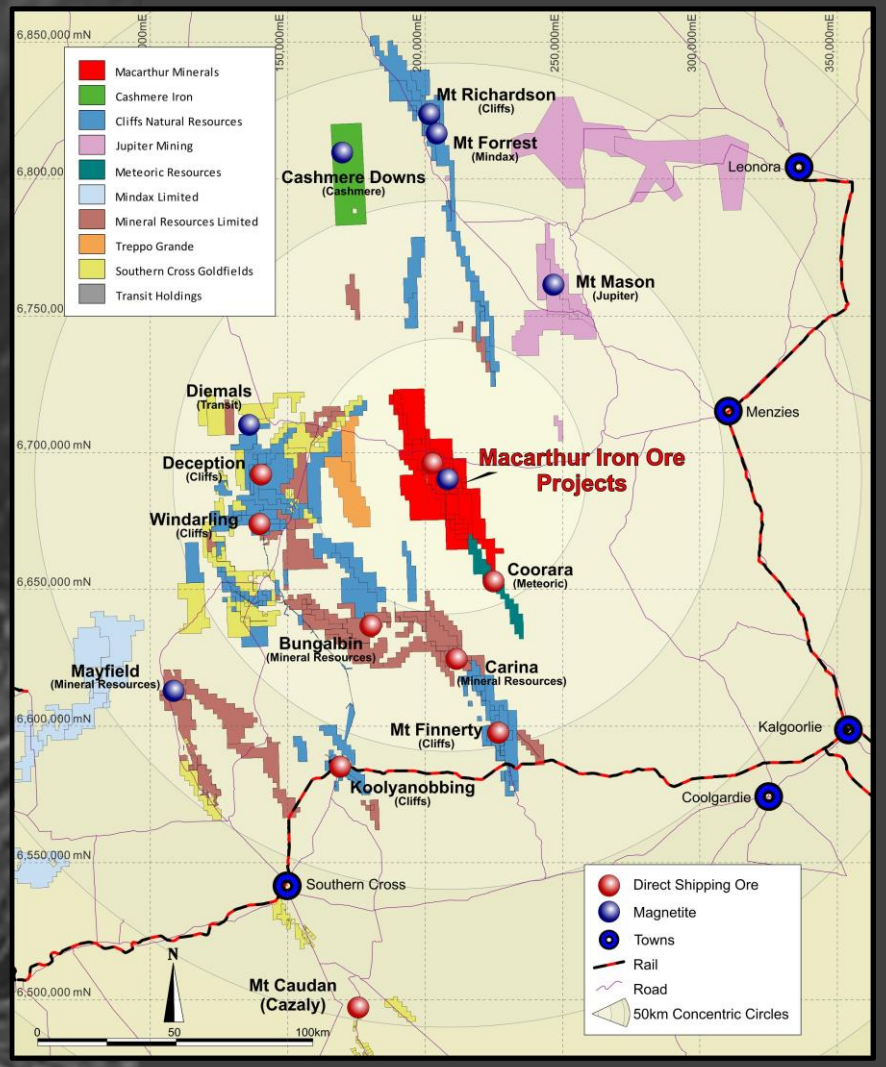

Figure: Lake Giles Iron Project proximity to regional iron ore projects, towns and infrastructure. (Source: Macarthur Minerals Limited).

^ As reported in ASX/TSXV news release dated 12 August, 2020. Supporting NI43-101 Technical Report filed 1 October, 2020.

Lake Giles Iron Project

An Advanced, World Class Asset

Macarthur Minerals Limited
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- **Close to Regional Infrastructure:**
  - Close to established rail network.
  - Proximate to established deep water Port.
- **Skilled Workforce:** Access to skilled labour force based in Kalgoorlie, Perth and surrounding regions.
- **Renewable Energy Advantage:** Location and regional climate can support integration of material renewable energy (solar / wind/ BES) as part of optimised energy solution.
- **Maiden Ore Reserve:** Maiden Ore Reserve announced to the market on 21 March 2022.
- **Feasibility Study:** Feasibility Study completed and key outputs announced to the market on 21 March 2022.
- **Commercial Production:** Commercial production of high grade magnetite concentrate can be commenced following a 24 month construction period.^

^ Subject to final project approvals being obtained and closing of project finance.

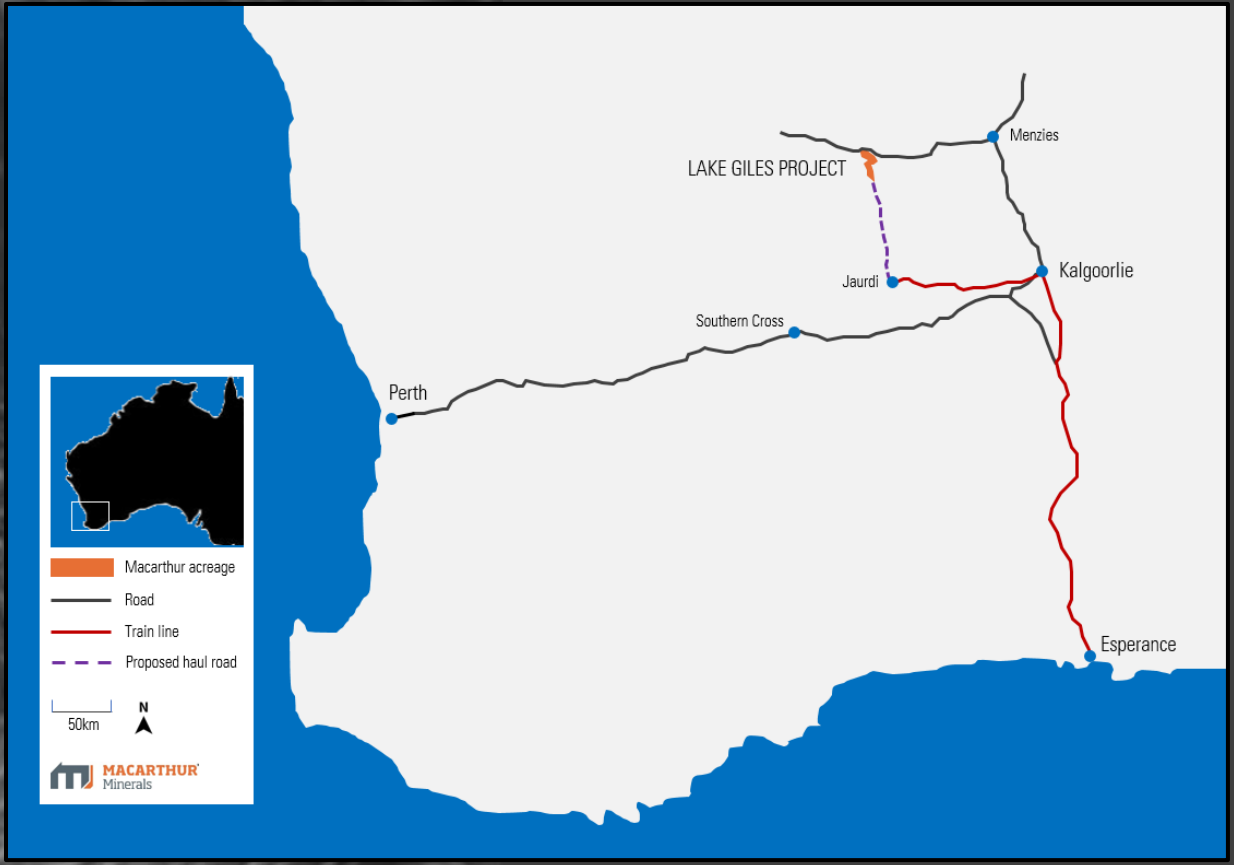

Figure: Lake Giles Iron Project proximity to the major regional hub of Kalgoorlie, Esperance Port and the capital of Western Australia, Perth. (Source: Macarthur Minerals Limited).

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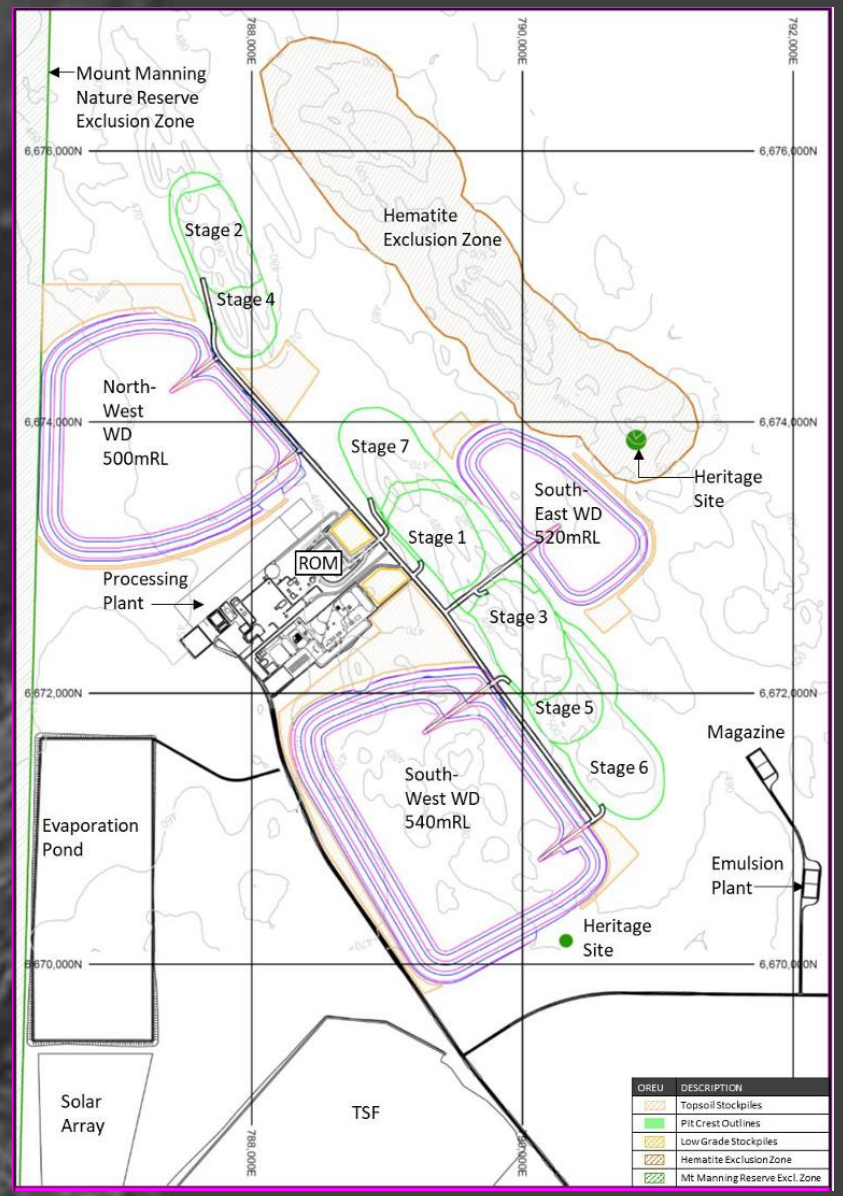
Lake Giles Iron Project

Site Layout

- Primary feed will be hauled to the ROM pad and direct tipped into one of 2 crusher pockets or placed in temporary finger stockpiles for later rehandling using a front-end loader.
- A central road will link Moonshine and Moonshine North pits. The ROM pad will be located close to the centre of mass between the two pits, with waste dumps located off the main haulage corridor.
- The site will include areas for a solar array which, together with battery energy storage will provide approximately 33% renewable energy penetration at start-up, with plans to expand renewable energy penetration over the life of mine..



Lake Giles Iron Project

One of the World's Largest Undeveloped Magnetite Projects

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Mineral Resource – All Deposits

Measured Mineral Resource^
(Moonshine#)

53.9 Mt

30.8% Fe head grade
66.0% Fe concentrate grade

Indicated Mineral Resource^
(Moonshine#)

218.7 Mt

27.5% Fe head grade
66.1% Fe concentrate grade

Inferred Mineral Resource^
(All Other Deposits*)

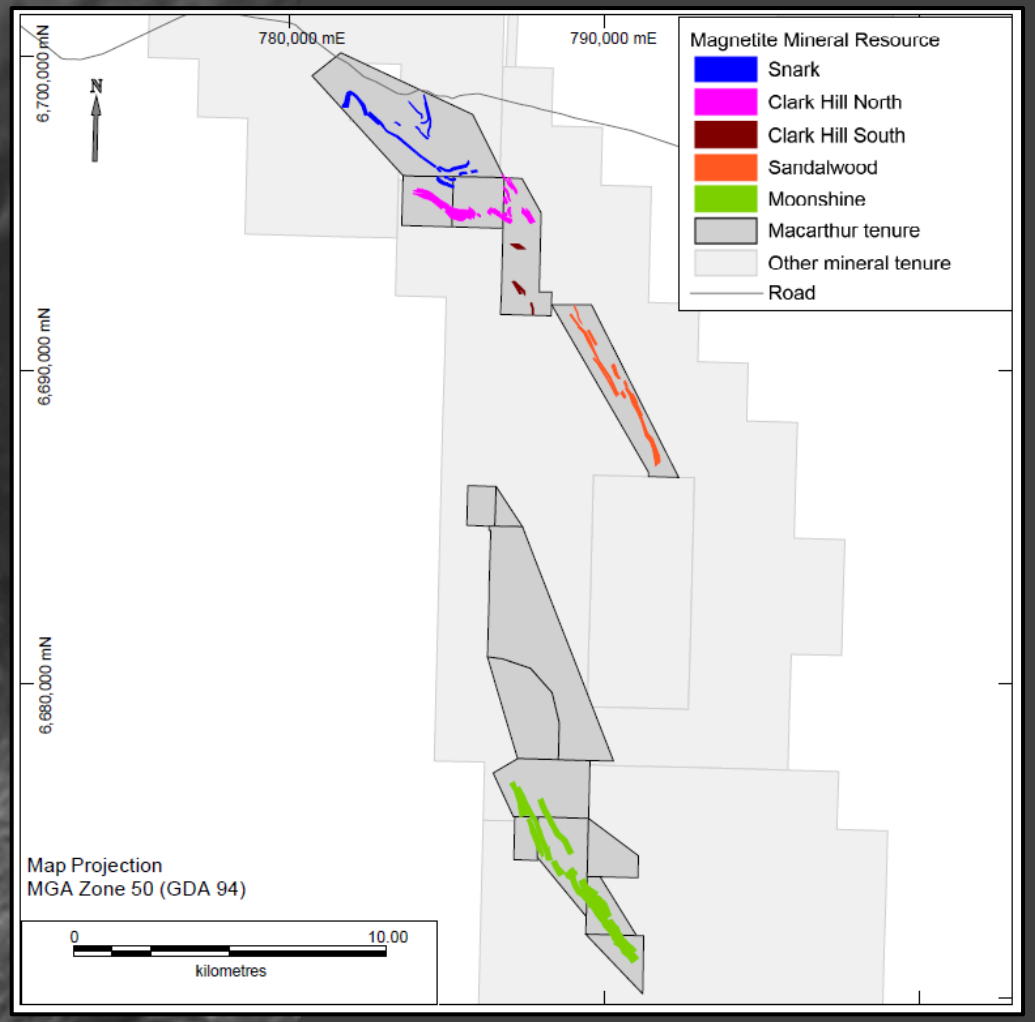
548 Mt

29.5% Fe head grade
64.3% Fe concentrate grade

Inferred Mineral Resource^
(Moonshine#)

449.1 Mt

28.4% Fe head grade
64.6% Fe concentrate grade



^ As reported in news release dated 12 August, 2020. Supporting NI43-101 Technical Report filed 1 October, 2020.
# "Moonshine" includes Moonshine and Moonshine North.
* "All Other Deposits" includes Sandalwood, Clark Hill North, Clark Hill South and Snark

Lake Giles Iron Project

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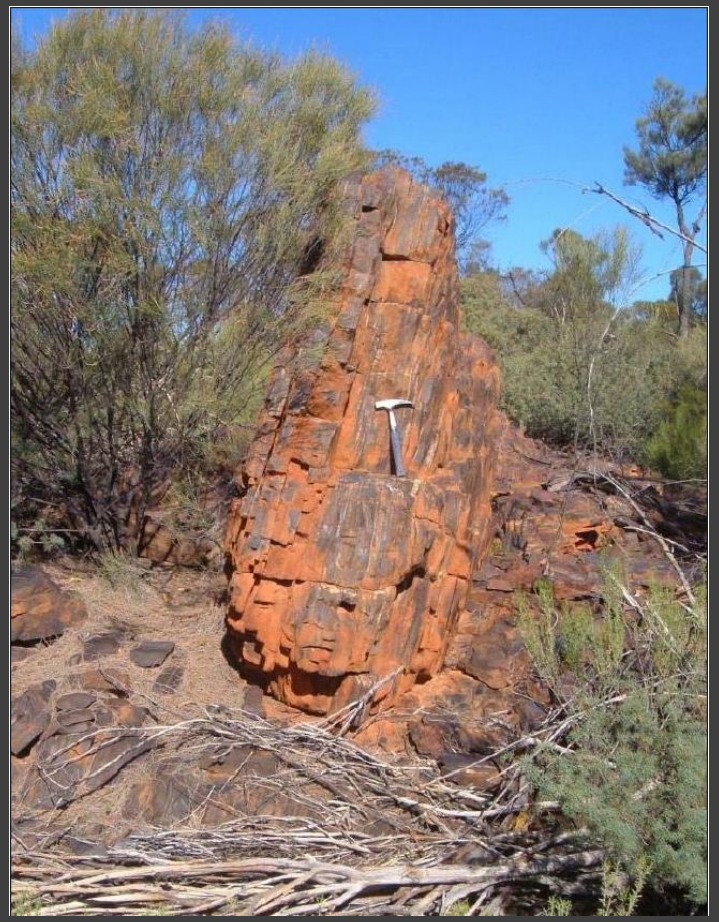
Mineral Resource

Mineral Resource estimate – Moonshine and Moonshine North, where DTR >15%^

Category	Tonnes (Mt)	Head Grade (%)						Concentrate Grade (%)				
		Fe	P	SiO_2	Al_2O_3	LOI	DTR	Fe	P	SiO_2	Al_2O_3	LOI
Measured	53.9	30.8	0.05	45.4	1.6	2.7	32.2	66.0	0.031	6.2	0.2	-0.7
Indicated	218.7	27.5	0.046	51.1	1.4	1.6	31.0	66.1	0.017	6.7	0.1	-0.1
Subtotal	**272.5**	**28.1**	**0.047**	**50.0**	**1.4**	**1.8**	**31.2**	**66.1**	**0.02**	**6.6**	**0.2**	**-0.2**
Inferred	449.1	27.1	0.047	52.6	1.0	1.4	29.2	65.0	0.026	8.4	0.1	0

Diamond core sample from drillhole LGDD-069, 98.29m to 101.56m. Note: Magnetite layers (dark) and chert (light) can be seen. Source: Macarthur Minerals (2020)



Outcrop of BIF containing magnetite mineralisation, Moonshine (geological hammer provides scale). Source: Macarthur Minerals (2020)

^Source: CSA Global Report No: R332.2020 – Lake Giles Magnetite Project Mineral Resource Estimate – NI43-101 Technical Report, dated 29 September 2020. Qualified Persons – David Williams (CSA Global), MAIG and Nikolay Karakashov, MAIG

*Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

Lake Giles Iron Project

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Maiden Ore Reserve

The Company announced its Maiden Ore Reserve to the market on 21 March 2022. The Ore Reserve estimate was prepared by Orelogy Consulting Pty Ltd based on a diluted resource block model. The Ore Reserve for the Lake Giles Iron Project is estimated at 237 Mt at an average grade of 28.2% Fe and DTR of 31.3%, as set out in the table below.

Ore Reserve – Moonshine and Moonshine North, where DTR >15%^

Category	Tonnes (Mt)	Head Grades (%)					Concentrate Grades (%)					
		Fe	SiO_2	Al_2O_3	P	LOI	DTR	Fe	SiO_2	Al_2O_3	P	LOI
Moonshine												
Proven	34.2	28.1	51.6	1.2	0.04	1.7	30.5	65.9	6.8	0.2	0.02	-0.6
Probable	166.4	27.2	51.9	1.4	0.05	1.4	30.7	66.6	6.2	0.1	0.02	0.0
Sub-total	**200.6**	**27.4**	**51.9**	**1.4**	**0.04**	**1.4**	**30.6**	**66.5**	**6.3**	**0.1**	**0.02**	**-0.1**
Moonshine Nth												
Proven	17.8	35.4	35.4	2.2	0.06	4.2	34.3	66.5	5.0	0.3	0.03	-0.9
Probable	18.2	30.4	44.7	1.3	0.05	2.9	35.9	63.2	9.4	0.2	0.04	-0.3
Sub-total	**36.0**	**32.9**	**40.1**	**1.7**	**0.05**	**3.5**	**35.1**	**64.8**	**7.3**	**0.3**	**0.05**	**-0.6**
Combined												
Proven	51.9	30.6	46.0	1.5	0.05	2.6	31.8	66.1	6.1	0.2	0.03	-0.7
Probable	184.7	27.6	51.2	1.4	0.05	1.5	31.2	66.2	6.6	0.1	0.02	-0.1
TOTAL	**236.6**	**28.2**	**50.1**	**1.4**	**0.05**	**1.8**	**31.3**	**66.2**	**6.5**	**0.1**	**0.02**	**-0.2**

Drill rig at Moonshine. Source: Macarthur Minerals (2021)

^Source: Orelogy Consulting Pty Ltd. The Ore Reserve has been reported in accordance with JORC Code 2012 and the Canadian Institute of Mining, Metallurgy and Petroleum "CIM Definition Standards for Mineral Resources and Ore Reserves" (CIM, 2014). The Ore Reserve was evaluated using a 62% Fe benchmark price of USD$100/dmt with a 20% premium for 65% Fe and concomitant Fe concentrate grade bonus. Ore Reserves are based on a Feasibility Study using Mineral Resources from Moonshine and Moonshine North deposits. Ore Reserves account for mining dilution and mining ore loss. A Davis Tube Mass Recovery (DTR MR) cut-off grade of 15% was applied prior to scheduling for 2022 reserves estimate. Proven Ore Reserves are based on Measured Mineral Resources only, and Probable Ore Reserves are based on Indicated Mineral Resources only. Ore Reserves are reported on a Dry Tonnage Basis. Ore Reserves are a part of Mineral Resources. The sum of individual amounts may not be equal due to rounding. The Ore Reserve estimates underpinning the production target of the Feasibility Study have been prepared by a competent person in accordance with the requirements of Appendix 5A (JORC Code).

Lake Giles Iron Project

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Mining

- The mining scenario is expected to involve a staged sequence of pit mining across multiple target pit shells commencing at the Moonshine North deposit and moving to the Moonshine deposit (to the south).
- The pits will be mined using conventional open pit methods using experienced mining contractors with Macarthur (the owner) maintaining orebody definition, quality control and medium to long-term mine planning functions and management.
- The final pits contain a total of 236.6 Mt at an average in-situ grade of 28.2% Fe and 31.3% DTR reported above a cut-off grade of 15%. The total tonnage to be mined is estimated at 861.5 Mt at a strip ratio of 2.6:1.

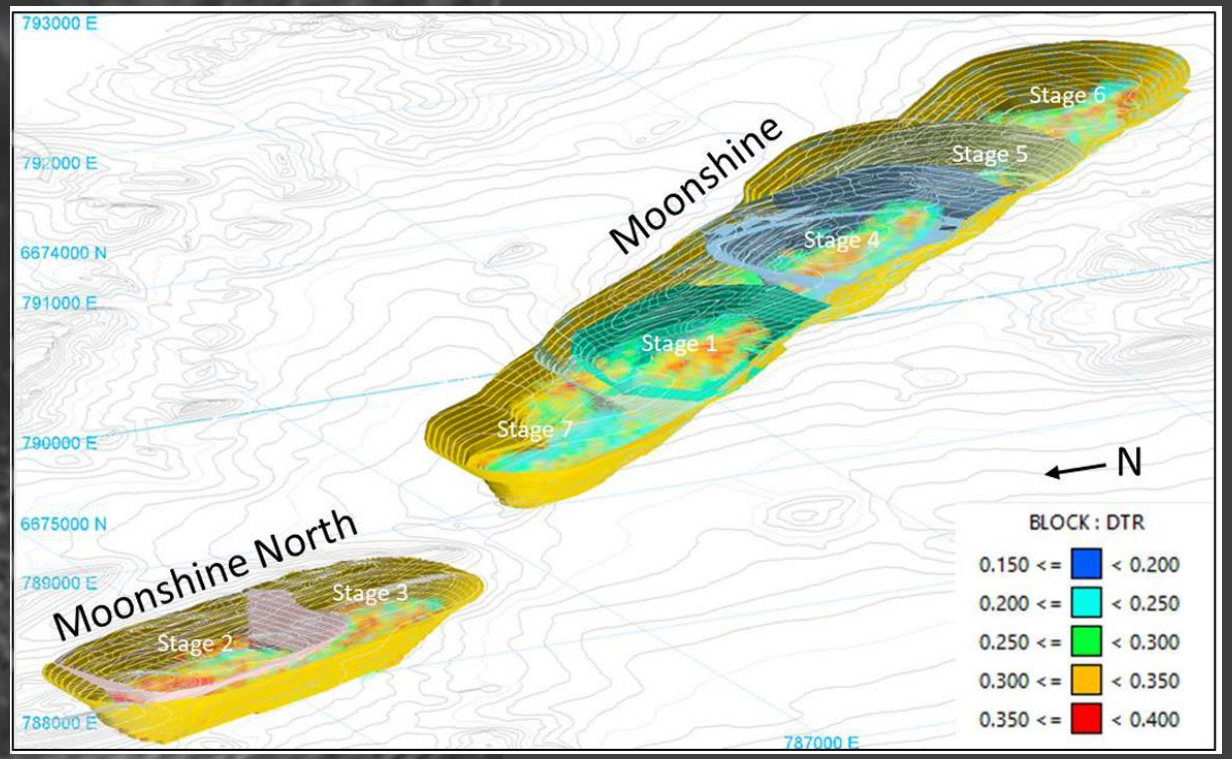
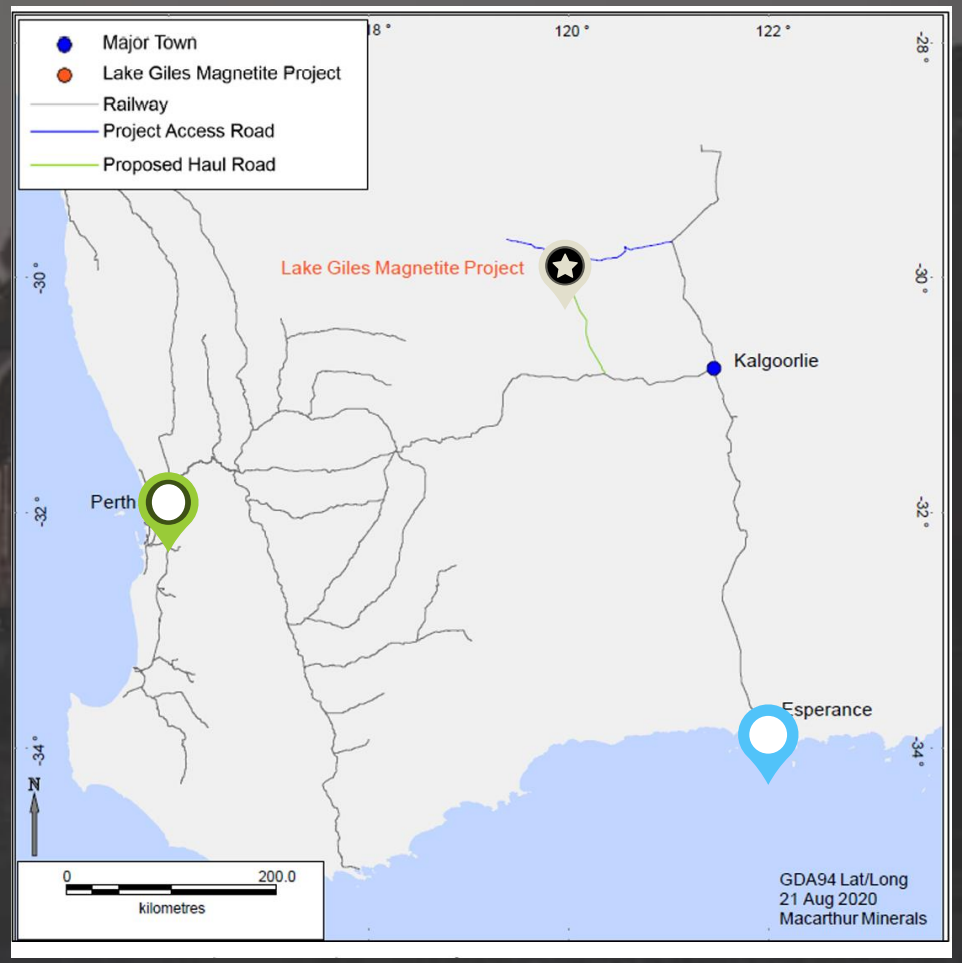


Figure: Moonshine and Moonshine North pits showing stages of mineralisation coloured by DTR. Source: Macarthur Minerals 2022

Route to Market

Existing Regional Rail and Port Infrastructure

- Macarthur's Lake Giles Iron Project is within reach of exiting rail and port assets, which means that its project costs do not need to include capital for the construction of new rail and port facilities.
- The cost to develop new road, rail and port facilities to support iron ore mining operations in Western Australia could could be significant. With some additional off-balance sheet investment on the existing rail and port assets, Macarthur's project has the potential to take advantage of these existing assets.
- Macarthur's Definitive Feasibility Study for the Lake Giles Iron Project includes a concept plan of operations for road, rail and port transport logistics to ensure that Macarthur can achieve the most efficient and lowest operating cost transport solution possible.



Key: Perth | Lake Giles Iron Project | Esperance Port

Route to Market

Above Rail Access

- **Rail Haulage Services:** RFP's have been issued to above rail providers for pricing of rail haulage services from the rail loop to Esperance Port, with firm pricing under a Rail Haulage Contract expected to be finalised in 2022.
- **Rolling Stock:** Rail haulage services include supply of locomotives and rail wagons.

Route to Market

Port of Esperance:

- Esperance Port is currently the deepest port in southern Australia, and is capable of handling Cape Class vessels up to 200,000 dead weight tonnes (DWT), plus fully loaded Panamax Class vessels up to 75,000 DWT.
- Existing bulk iron ore loader available 4,500 t/h.
- 1 Mt of existing iron ore storage sheds with proposal to build a 200-300 kt shed dedicated to Macarthur.
- The Port is licenced for 12Mtpa of bulk iron ore loading, but Southern Ports Authority is currently nearing completion of a new Master Plan which is examining an upgrade to Berth 3 (including ship loader load increase) and a significant reconfiguration of the rail system within the Port to support improved throughput capacity.

Energy

Net Zero Emissions Pathway for Lake Giles

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- Macarthur's anticipated load requirements for the Lake Giles Iron Project will be up to 38MW (inclusive of the magnetite process plant and ancillary mine infrastructure requirements).
- As part of the current Definitive Feasibility Study, VECKTA (a joint venture between Worley and XENDEE) has undertaken a techno-economic analysis of viable energy solutions to identify an optimized mix of conventional and renewable energy at site.
- Macarthur is also considering a solar and gas hybrid solution with an initial renewables penetration of 33% from commencement of operations.
- Macarthur plans to target a 'no upfront capital' solution to deploy the Lake Giles microgrid. The contract structure is expected to deliver energy to the project at a competitive project opex (c/kWh) over the life of the mine, with a **pathway** to achieving **Net Zero Emissions** over the life of mine.

Figure: Solar and wind energy solutions under examination as part of the renewable energy penetration strategy at Lake Giles in current Definitive Feasibility Study process.

Figure: LAVO 13 MWh 'HEOS' Hydrogen Energy Operation System (under development) and potentially delivering energy at a commercial scale. Macarthur has signed an MOU with LAVO. Subject to Hydrogen energy cost and technology risks being proven, hydrogen may be examined as an option for energy delivery over the life of mine.

Water

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Water requirements for Lake Giles Iron Project

- The magnetite processing operations at Lake Giles will require process water to produce a magnetite concentrate product.
- Macarthur has made tenure applications for Miscellaneous Licences that are required to support planned groundwater search activities.
- Recently completed Tempest AEM survey covered an extensive area of the Rebecca palaeovalley, which is in close proximity to the Lake Giles Iron Project where a large quantity of groundwater is expected to occur.
- AEM survey results are being interpreted and drill targets will be defined to do tests on the quality and quantity of water to support magnetite processing requirements.
- Macarthur is working with hydrogeologists to design a groundwater drilling exploration programme and production borefield across prospective zones identified from the AEM survey.

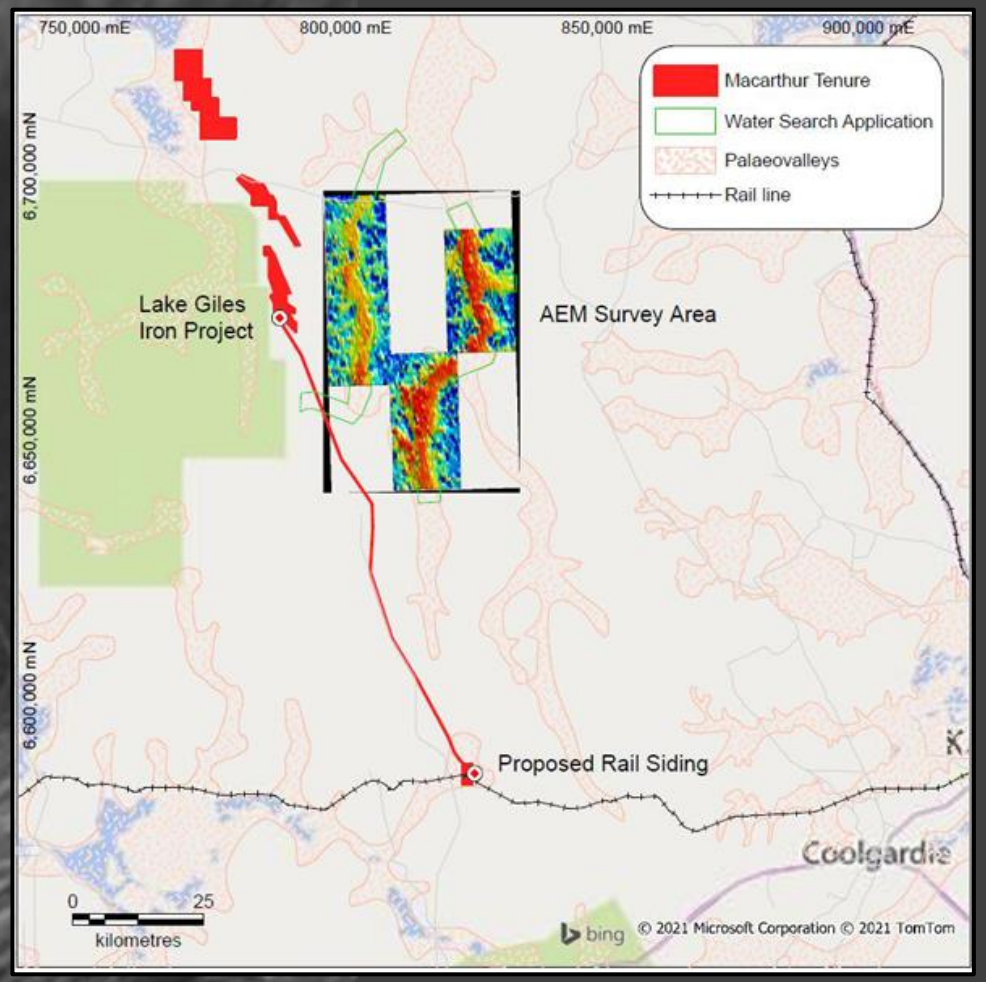

Figure: Tempest AEM Survey area over the Rebecca Paleovalley as mapped by the Kalgoorlie 1:1,000,000 Sheet. Project GDA94, Zone 50.

Feasibility Study

Lake Giles Iron Project Feasibility Study

- Feasibility Study has been completed.
- Leading consultants appointed to deliver key study outputs:

Study Consultant	Study Work Package
Optimize Group	Study Manager
Stantec (Engenium)	Metallurgical Process Non-process Infrastructure
Orelogy	Mine Planning and Design
PSM	Geotechnical analysis
Projectus	Rail and Port Logistics
VECKTA	Energy Optimisation
FTI Consulting	Financial Model

- Peer review process and additional value engineering phase planned for 2022 to ensure that Project fundamentals and economics are optimised ahead of financial close for project finance.

Figure: Drillers nearing the end of the geotechnical drilling campaign at Lake Giles in October 2021. (Source Macarthur Minerals).

Lake Giles Iron Project

Feasibility Study Complete

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- **Highlights:**
  - **Feasibility Study:** completed for 3 Mtpa magnetite mining and processing operation. Announced to market on 21 March 2022.
  - **Mineral Reserve:** 237 Mt for a 25 year mine life.
  - **Product:** Production of a high-grade magnetite concentrate targeting 66.1% Fe with minimal impurities suitable for pellet feedstock.
  - **Initial capital investment:** USD569m (AUD801m) with mine pre-production capital of USD43.8m (AUD 66.1m).
  - **C1 operating costs** of USD71.74/dmt (AUD 101.05/dmt)
  - **Positive project economics:**
    - **Pre-tax NPV** of USD 579m (AUD 816m)
    - **Post-tax NPV** of USD 314m (AUD 443m)
    - **IRR** of 13%

Figure: Drill rig at Moonshine, 2022. (Source Macarthur Minerals).

Why Magnetite products are a secure long-term bet

Why Magnetite Has The Potential To Deliver Sustainable, Long-term Returns

The Impact of Global De-carbonisation Policy Shifts on Demand for Magnetite

- The Chinese steel industry expects to reach peak carbon emissions by 2025 and aims to achieve a 30% reduction from the peak by 2030.
- Targets have been set in accordance with the country's overall plan to see carbon emissions peak by 2030 and achieve carbon neutrality by 2060.
- Demand for high-grade ore is anticipated to benefit from global decarbonization policy shifts due to its lower impurities and the higher productivity that it offers.
- Amid strong steel demand, pockets of steel production curbs helped to propel Chinese steel margins to historical highs in May 2021. This may have the effect of boosting demand for high-grade ore, including pellet, concentrate, lump and high-grade fines, resulting in potential for a widening price premium over coming decades.

Strong steel margins are driving a price divergence between different iron ore grades

Current 65% Fe price:

- 65% Fe iron ore price currently trading at **USD$147.70/t^**

Comparative Premium Gap Between Iron Ore Grades^^:

- **58% Fines** – $78.00
- **62% Fines** - $123.50
- **65% Fines** - $147.70

- **65% Fe concentrates premium** – $22.00
- **65% Fe pellets premium** – $69.20

^ As at 19 October 2021.
^^ Source: Custeel

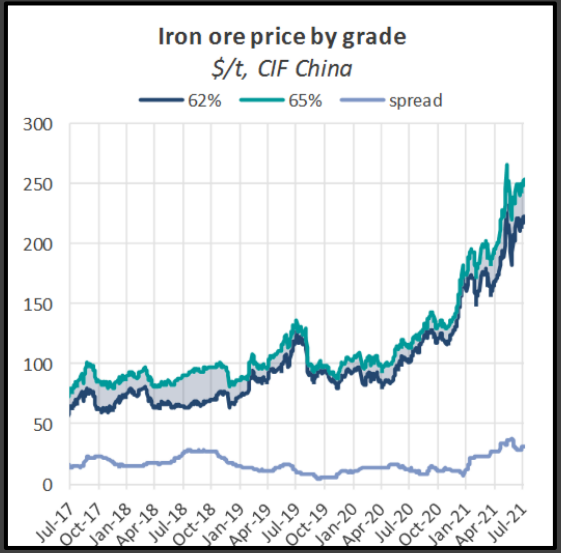

Figure: The spread between 62% and 65% Fe fines has been maintained and is generally widening. The spread increased to a peak of USD$38/t in April 2021, and in October 2021 was around USD$20 to 22/t.
Source: Refinitiv

Three Reasons for a Growing Premium Gap for Magnetite

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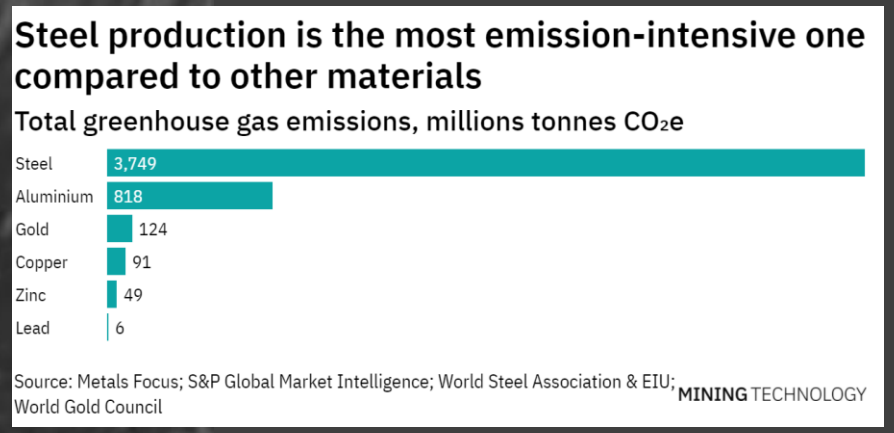
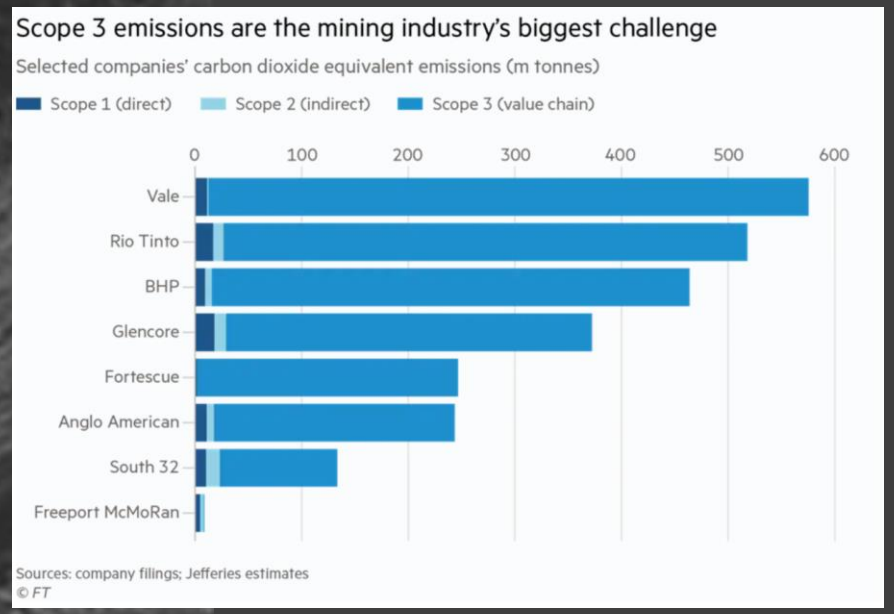
1. Magnetite's Major Role in Helping to Reduce 'Scope 3' Emissions

- 'Scope 3' emissions occur outside of direct mining operations at the end of the steel production chain. Curbing indirect 'scope 3' emissions is a challenge, and global resource companies are under pressure by investors to be more accountable for emissions beyond their immediate operations. (Influential investors like Norway's $1.3tn sovereign wealth fund is one example).
- The heavy industries that turn iron ore into iron and steel are largely located overseas, in Chinese state-owned steel mills. The steel sector is one of the biggest polluters in China, producing around 10%-20% of carbon emissions in the country.
- The lack of downstream control has resulted in spiralling scope 3 emissions for major miners. One of the biggest sources of carbon in the iron making value chain is the use of metallurgical coking coal in the blast furnace.
- The simplest way to influence a reduction in scope 3 emissions is to '**upgrade**' the iron ore before shipping it overseas.





Three Reasons for a Growing Premium Gap for Magnetite(cont.)

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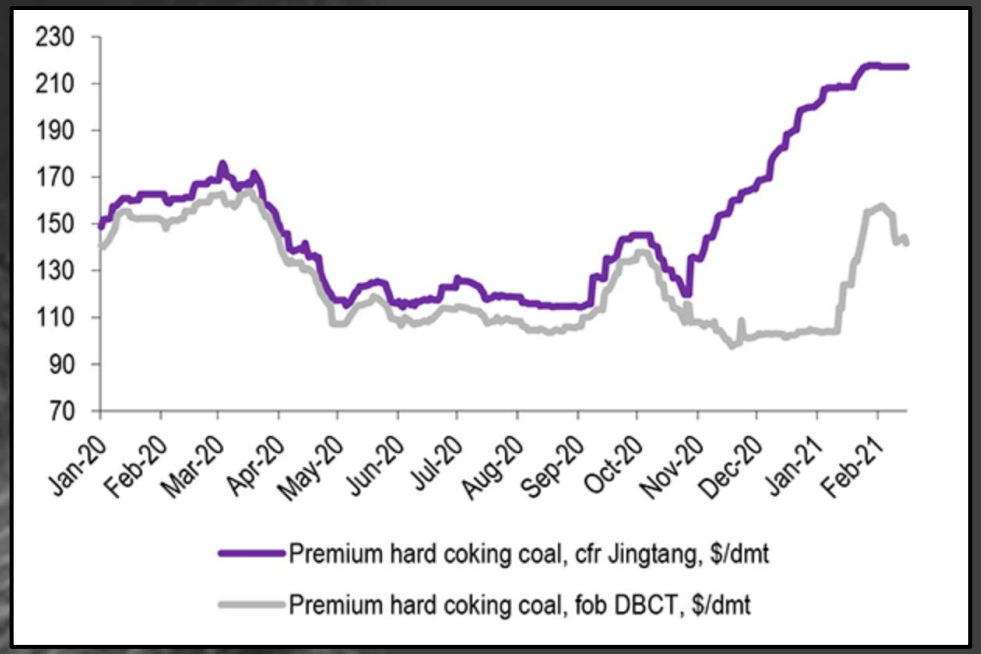
2. Higher coking coal prices could drive future demand for high grade iron ore even higher

- A significant tailwind for high-grade premiums is the high price of metallurgical coal and coke, both of which have been rising in China since the country banned imports of Australian coal in early 2021.
- At the beginning of 2021, the index for CFR China Premium Hard Coking Coal had surged to above $200 per tonne – more than $100 higher than the equivalent grade FOB Australia basis index. (See figure opposite).
- '**Upgraded**' higher-purity magnetite iron ore generates less slag when consumed in blast furnaces. This is favourable for steelmakers looking to hedge against rising coal prices and comply with anti-pollution policies from national and local authorities.
- **Magnetite** is capable of being upgraded to a higher purity iron ore feedstock than hematite. Using higher-grade iron ore feedstocks is therefore preferable for mills when coking coal prices are high.

Premium Hard Coking Coal Indices FOB Australia and CFR China



Source: Fastmarkets

Three Reasons for a Growing Premium Gap for Magnetite (cont.)

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3. The Convergence of Global 'Policy Shifts' and 'Procurement Strategy' will Change Buying Preferences

- The world is at the beginning of a convergence which is being pushed along at a rapid pace by global policy shifts and consumer-lead ESG driven demand.
- Consumer preferences will drive product demand will inform the production choices that raw materials manufacturers make, and ultimately what products the bulk minerals producers mine and process.
- There is a concerted move by big industrials to mandate green product procurement supply chains – the green audit trails are being pushed back as far as they can reach.
- Big European car manufacturers such as **Volvo** and **Mercedes Benz** have confirmed that their procurement strategies are going to include green steel and they are making the move to carbon-free value chains across their businesses.
- In August 2021, the world's first 'carbon-free' steel was delivered to truck-maker AB Volvo in Sweden, demonstrating that the global shift in steel manufacturing towards 'green steel' has already begun.

A piece of iron produced as part of the 'green steel' making process by Swedish joint venture Hybrit at its pilot plant in Lulea, northern Sweden in 2020. (*Source: Hybrit*)

'The world is at the beginning of a convergence which is being pushed along at a rapid pace by global policy shifts and consumer-lead ESG driven demand.'

‘Green Steel’ Has Arrived

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Major Car Manufacturers Are Already Moving

Mercedes-Benz AG is the first car manufacturer to take an equity stake in Swedish start-up H2 Green Steel (H2GS) as a way to introduce CO_2 free steel into series production. Together with its steel suppliers, the company is retooling its supply chain to focus on the prevention and reduction of CO_2 emissions rather than compensation. (*Source: Mercedes Benz*)

‘With an equity stake in H2 Green Steel, Mercedes-Benz is sending an important signal to accelerate change in the steel industry and increase the availability of carbon-free steel.’ *(Markus Shafer, Board Member, Daimler AG and Mercedes Benz AG)*

Figure: The world’s first vehicle made of ‘green steel’ sourced from SSAB and manufactured by Volvo in Sweden – 13 October 2021. It is a load carrier for use in mining and quarrying. (*Source: Volvo*)

‘Our ambition is to have fossil-free steel used across all our products, with a step-by-step approach’. *(Melker Jernberg, President of Volvo CE)*

The Value of High Grade Magnetite to Iron Ore Portfolios

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- Average Product grades are in decline: The average grades of iron ore being produced by the major iron ore producers has been slipping in recent years.
- High grade is key to profitability: As prices decline, product grades will be key to profitability because of the steep premiums high grade fines, lump and concentrate now garner.
- FMG is hedging with a $3.5bn magnetite play: FMG's decision to bring on-line its 22Mtpa Ironbridge magnetite mine in Western Australia provides clear market evidence of a shift in thinking. FMG has recognized that it needs to bring its average product grade in its portfolio above 60%Fe if it is going to be able to mitigate against price volatility at the lower end of the market.
- Mineral Resources Limited is examining a magnetite play: MRL's Q1 FY22 Quarterly Exploration and Mining Activities Report notes that their activities at Koolyanobbing in the Yilgarn region, near Macarthur's Lake Giles Iron Project, "*includes resource extension drilling at E-Pit and K-Pit, along with a series of holes testing the potential for economic magnetite*."
- Reduced ESG risks: Iron ore miners that can prove their product is "green" and reduce emissions in the mining process are also expected to become premium suppliers for steelmakers who want to reduce ESG risk in their supply chain.
- Glencore's 2050 commitment: Glencore has announced a commitment to reduce its total emissions footprint – Scope 1, 2 and 3 – by 40% by 2035 on 2019 levels and its ambition of achieving a net zero total emissions footprint by 2050. (*Source: Glencore Annual Report 2020, page 1*). Increasing the proportion of high-grade magnetite in its trading portfolio 'fits' with this commitment.

GLENCORE

"Future demand patterns are likely to favour the commodities that facilitate the decarbonisation of energy usage"

(Source: Glencore Annual Report 2020, p5)

Corporate Governance, Strategy and Philosophy

Corporate Governance

- Macarthur Minerals is committed to following the corporate governance guidelines and recommendations set out by the ASX Corporate Governance Principles and Recommendations (ASX Guidelines).

Ownership

- Behave and act as business owners.
- Be accountable for our decisions and actions - what we say is what we do.
- Share our journey to create value for all stakeholders.

Relationships

- Develop mutually beneficial partnerships and opportunities.
- Build strong commitment across our team and with stakeholders.
- Collaborative approach to build solid relationships.

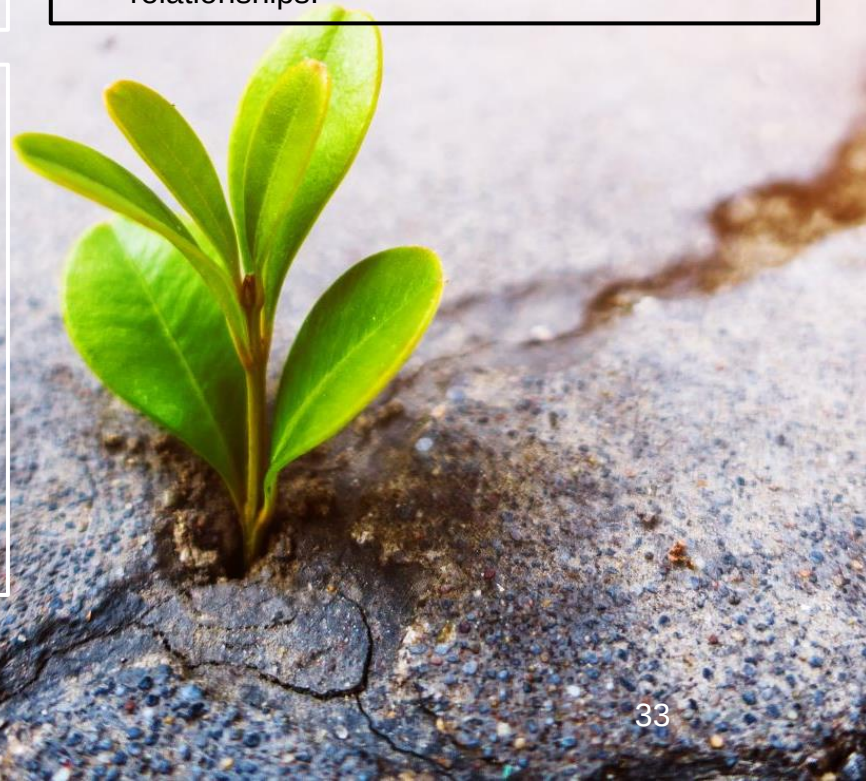
Health, Safety, Environment and Community

- The health and well-being of our people is central to our approach to business and we are committed to ensuring a safe workplace for our employees and contractors. We aim to comply with all environmental requirements and to minimise the impact of our activities in the areas in which we operate. We engage with all stakeholders to ensure our activities are in line with the expectations and requirements of the communities in which we operate.

Value Creation

We remain focused on:

- Maximising the core value of our assets
- Optimising the effectiveness and efficiency of money going into the ground to shorten the time frame to success.
- Value-add exploration and development activities.



Leadership and Technical Team

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Joe Phillips, Managing Director – Mr Phillips was previously the Company's CEO in 2015 and was responsible for the original funding and development of the Company's significant iron ore assets, having completed its 2012 Prefeasibility Study for the Ularring Hematite Project and obtaining environmental approvals. Mr Phillips was educated at the University of Queensland. He combines strong project management skills with a discipline in economics and a detailed understanding of the operation of public administrations and the elected governments in Australia.

Andrew Bruton, Chief Executive Officer – Mr Bruton has a background of over 20 years of top tier professional experience in corporate, mining, energy and infrastructure law. He has been recognised as a leading transactional and project lawyer in the mining and energy sectors in Australia. In senior leadership roles, Andrew has been responsible for large teams at both State and National levels. He is also an experienced company director. Having advised major Australian and international mining and energy companies on complex projects and transactions with multi-billion-dollar values, Andrew has a deep understanding of these markets. As a strategic thinker and leader with strong business acumen and a focus on delivering outcomes, he brings a wealth of expertise to Macarthur Minerals. Andrew holds both a Bachelor of Laws and a Bachelor of Business (Accountancy) from the Queensland University of Technology.

Dr Dean Carter, General Manager – Projects – Dr Carter has 19 years' experience in environmental research and managing the regulatory approval of mining and infrastructure projects across various commodities. He was previously involved in the approval and construction of Mount Gibson Mining's Extension Hill iron ore project and has been involved in projects from exploration through to construction and production. Dr Carter holds a Bachelor of Science (Hons1) and a Doctor of Philosophy (PhD).

Richard (Jonghyun) Moon, General Manager – International Sales and Marketing – Mr Moon has a career of over 20 years in the resources industry, including executive positions with Glencore International AG, POSCO, and as a senior executive with Hyundai Steel where he assumed the role of Chief Representative for Hyundai Steel Company of Australia between 2013 and 2017. Richard is highly experienced in international iron ore and commodities sales, marketing and mining investment. Mr Moon holds a Bachelor of Commerce, Yeungnam University, Korea and a Master of Arts in Asian Studies, University of Birmingham, United Kingdom.

Bernard Holtshousen, Senior Consulting Mine Engineer - Mr Holtshousen is a highly experienced professional mining engineer with an enviable international career history. He has served on the board of directors of many public listed and unlisted mining companies as a Director, Managing Director and Chairman in companies based in Australia, South Africa, USA, Venezuela, Botswana, Namibia and Chile. He has also held senior positions at Board level and in management at Sigma Minerals Limited, Equatorial Mining Limited, MIM Holdings Limited, Gencor Limited (where he was Senior Manager Strategy during a period which culminated in the acquisition of Billiton and finally BHP) and at Rand London Corporation Limited (where he was Executive Chairman for 3 years and Managing Director for 10 years, during which period that company acquired, built and managed 13 operating mines). Mr Holtshousen holds a Bachelor of Science, Engineering (Mining) from the University of Witwatersrand in the Republic of South Africa, a Master of Science (Management) from Stanford University in California (USA) and a Management Diploma from Utah State University (USA). He is a Fellow of the South African Institute of Mining and Metallurgy and a Member of the Australasian Institute of Mining and Metallurgy.

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Our value isn't just in the ground. It's in what we do.

We're not just another mining company. We exist to produce high quality, low impurity iron ore products that will help inspire and accelerate our planet's transition towards more sustainable development. That's the key to driving Macarthur's value far into the future.

Not just another mining company.

purpose. is. everything.

Macarthur Minerals Limited

Walk with us and discover something big