Jupiter Mines Limited

ACN 105 991 740

REPLACEMENT

PROSPECTUS

INITIAL PUBLIC OFFERING

OFFER

For the offer of up to 600 million Shares for sale at a price of $0.40 per Share to raise up to $240 million (before costs) for the Selling Shareholders and an offer by the Company for the issue of 10,000 New Shares for the purposes of enabling the Company to issue this Prospectus.

PROPOSED ASX CODE

JMS

LEAD MANAGER

Hartleys

Hartleys Limited
AFSL: 230052

CO-MANAGERS

FOSTER STOCKBROKING

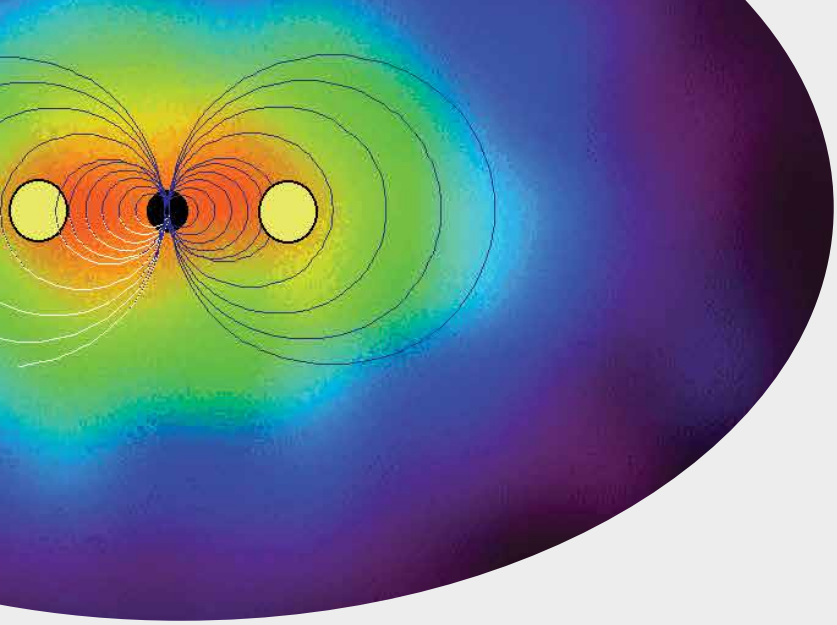
Foster Stockbroking Pty Limited
AFSL: 223687

Aitken Murray Capital Partners

Aitken Murray Capital Partners Pty Ltd
AFSAR: 000465249 (as representative of
AFSL: 238198 and AFSL: 246842)

IMPORTANT INFORMATION

This Prospectus and the accompanying Application Form contain important information and should be read in their entirety. If you have any questions about the Offer or this Prospectus, you should speak to your professional adviser.



CORPORATE DIRECTORY

DIRECTORS

Brian Gilbertson
Non-Executive Chairman

Priyank Thapliyal
Executive Director and Chief Executive Officer

Paul Murray
Non-Executive Director

Mr Sungwon Yoon
Non-Executive Director

Andrew Bell
Non-Executive Director

CHIEF FINANCIAL OFFICER & COMPANY SECRETARY

Melissa North

REGISTERED AND PRINCIPAL OFFICE

Level 10, 16 St Georges Terrace
Perth, Western Australia, 6000
Telephone: +61 8 9346 5500
Facsimile: +61 8 9481 5933

SHARE REGISTRY*

LINK MARKET SERVICES LIMITED
QV1 Building
Level 12, 250 St Georges Terrace
Perth, Western Australia, 6000
Telephone: +61 1300 554 474
Facsimile: +61 2 9287 0303
Website: www.linkmarketservices.com.au

INVESTIGATING ACCOUNTANT

GRANT THORNTON CORPORATE FINANCE PTY LTD
Level 17, 383 Kent Street
Sydney, New South Wales, 2000

AUDITOR

GRANT THORNTON AUDIT PTY LTD
Level 43, 152 -158 St Georges Terrace
Perth, Western Australia, 6000

LEAD MANAGER

HARTLEYS LIMITED
Level 6, 141 St Georges Terrace
Perth, Western Australia, 6000

CO-MANAGERS

FOSTER STOCKBROKING PTY LIMITED
Level 25, 52 Martin Place
Sydney, New South Wales, 2000

AITKEN MURRAY CAPITAL PARTNERS PTY LTD
52 Victoria Street
Paddington, New South Wales, 2021

SOLICITORS TO THE OFFER

JACKSON MCDONALD
Level 17, 225 St Georges Terrace
Perth, Western Australia, 6000

COMPETENT PERSONS

MINERAL CORPORATION CONSULTANCY (PTY LTD) TRADING AS THE MINERAL CORPORATION
Homestead Office Park
65 Homestead Avenue
Bryanston, Sandton, 2021, South Africa

SRK CONSULTING (AUSTRALASIA) PTY LTD
Level 1, 10 Richardson Street
West Perth, Western Australia, 6005

PROPOSED ASX CODE

JMS

WEBSITE

www.jupitermines.com

OFFER INFORMATION LINE

Within Australia
1800 653 805

Outside Australia
+ 61 1800 653 805

**Included for information purposes only. This entity has not been involved in the preparation of this Prospectus.*

***Cover photographs** | **Figures 1 and 2:** Tshipi é Ntle manganese mine pit | **Figures 3 and 4:** Tshipi é Ntle manganese mine processing facility*

IMPORTANT NOTICE

OFFER

The Offer contained in this Prospectus is an invitation to acquire fully paid ordinary shares (**Shares**) in Jupiter Mines Limited (ACN 105 991 740) (**Jupiter** or **Company**). This Prospectus is issued by the Company and Jupiter SaleCo Pty Ltd (ACN 624 156 387) (**Jupiter SaleCo**) as sales agent for the Selling Shareholders.

REPLACEMENT PROSPECTUS

This Replacement Prospectus replaces a prospectus dated and lodged with ASIC on 19 March 2018 (**Original Prospectus**). For the purposes of this document, this Replacement Prospectus will be referred to as either the "Replacement Prospectus" or "Prospectus".

A summary of the material differences that have been made to the Original Prospectus to produce this Replacement Prospectus is as follows: disclosure of certain key risk factors in the Chairman's letter; changes to the Offer timetable; additional disclosure regarding the backfilling of the Tshipi Mine in Section 1 and in Section 11.3(p), in addition to the disclosure in Section 11.3(o) of the Original Prospectus and the Tshipi Competent Person's Report; additional disclosure regarding broad-based black economic empowerment requirements in Section 1 and Section 8.11, in addition to the disclosure in Section 11.5(c) of the Original Prospectus and the Tshipi Competent Person's Report; additional disclosure regarding the impairment and revaluation of the Company's investments between FY2016 and FY2017 in Sections 1 and 4.5(d) in addition to the disclosure in Sections 4.3 and 4.4; additional disclosure about customers and sales of Tshipi manganese ore in Section 3.4; additional disclosure regarding the composition of the board of directors of Tshipi é Ntle in Section 3.4(g); additional disclosure in relation manganese prices and revenue in Section 3.5(a); additional disclosure of the specifications of Tshipi manganese in Section 3.5(d); additional disclosure concerning the nature and status of the Tshipi Competent Person's Report in Section 3.6; additional disclosure of matters stated in the Tshipi Competent Person's report concerning the mineral resources, exploration history and life of mine plan of the Tshipi Mine in Sections 8.1(c), 8.12 and 8.15; additional disclosure of the current status of the revised black economic empowerment charter for the South African mining industry in Section 8.11; disclosure of the decision of the Court of Appeal of the Cayman Islands in connection with Brian Gilbertson in Mr Gilbertson's biography in Section 6.1 (instead of the disclosure in Section 13.6 of the Original Prospectus); additional disclosure regarding the rights of directors and shareholders of Tshipi é Ntle in Section 12.5; disclosure of Priyank Thapliyal's intention to apply for 2,160,000 Shares under the Offer; and additional disclosure in section 1 of Appendix 5 of the protection afforded to minority shareholders in South African private companies under the Companies Act (South Africa).

This Replacement Prospectus also includes a revised Tshipi Competent Person's Report prepared by The Mineral Corporation which does not include a mineral asset valuation on the Tshipi Mine. On review of the Original Prospectus, ASIC raised concerns regarding the mineral asset valuation. The Company has elected to lodge the Replacement Prospectus with a revised Tshipi Competent Person's Report which does not include a mineral asset valuation to avoid any concern regarding the assumptions and valuation methodology stated in the original Tshipi Competent Person's Report in the Original Prospectus. The mineral asset valuation has not been removed at the request or instruction of ASIC. References in the Original Prospectus to The Mineral Corporation being "independent" have also not been included in this Replacement Prospectus on the basis that by reason of past engagements, ASIC was not satisfied that The Mineral Corporation was completely independent of the Company.

This Prospectus is dated 4 April 2018 and was lodged with ASIC on that date. Neither ASIC nor ASX take any responsibility for the contents of this Prospectus or the merits of the investment to which this Prospectus relates.

The Company has applied for the Shares offered by this Prospectus to be listed for quotation by ASX.

No Shares will be issued or transferred on the basis of this Prospectus later than 13 months after the date of the Original Prospectus (being 19 March 2018).

Before applying for Shares under this Prospectus, potential investors should carefully read this Prospectus so that they can make an informed assessment of:

- the rights and liabilities attaching to the Shares;
- the assets and liabilities of the Company; and
- the Company's financial position, performance and prospects.

It is important that you read this Prospectus in its entirety and seek professional advice where necessary.

The Company has not authorised any person to give any information or make any representation in connection with the Offer which is not contained in this Prospectus. Any information or representation not contained in this Prospectus should not be relied on as having been made or authorised by the Company or the Directors.

AUSTRALIAN RESIDENTS ONLY

The Offer is available to Australian residents having a registered address in either of those jurisdictions. The distribution of this Prospectus in jurisdictions outside Australia may be restricted by law. Seek advice on and observe any restrictions. Any failure to comply with the restrictions may constitute a violation of applicable securities law, and the Company disclaims any liability in relation to any such violation. Subject to any exemption available in the United Kingdom, New Zealand, Singapore and Hong Kong, this Prospectus does not contain an offer in any place where or to any person to whom, it would not be lawful to make the Offer.

EXPOSURE PERIOD

Pursuant to ASIC Corporations (Exposure Period) Instrument 2016/74, this Replacement Prospectus is not subject to an exposure period. The Original Prospectus was subject to an exposure period of 14 days which ended on 2 April 2018.

ELECTRONIC PROSPECTUS

This Prospectus may be viewed in electronic form at www.jupitermines.com by Australian investors only. If you receive the electronic form of this Prospectus you should ensure that you download and read the entire Prospectus. A paper copy of this Prospectus may be obtained free of charge on request during the Offer Period by calling the Share Registry. The information on the Company's website, www.jupitermines.com, does not form part of this Prospectus.

IMPORTANT NOTICE

APPLICATIONS

Applications for Shares may only be made on an Application Form attached to or accompanying this Prospectus. The Corporations Act prohibits any person from passing an Application Form to any other person unless it is attached to, or accompanied by, a hard copy of this Prospectus or a complete and unaltered electronic copy of this Prospectus.

The Application Form included in this Prospectus may only be distributed if it is included in, or accompanied by, a complete and unaltered copy of this Prospectus. Each Application Form contains a declaration that the investor has personally received the complete and unaltered Prospectus prior to completing the Application Form. The Company reserves the right not to accept a completed Application Form if it has reason to believe that the Applicant has not received a Prospectus or that the Application Form has been altered or tampered with in any way.

PRIVACY

If you apply for Shares you will provide personal information to the Company and the Share Registry. The Company and the Share Registry will collect, hold and use your personal information in order to assess your Application, service your needs as an investor, provide facilities and services that you request and carry out appropriate administration. Corporate and taxation laws require the Company to collect some personal information. If you do not provide the information requested, your Application may not be able to be processed efficiently, or at all.

COMPETENT PERSON'S STATEMENTS

The Tshipi Mine

The information in this Prospectus with respect to the Tshipi Mine that relates to mineral resources and ore reserves is based on information compiled by Mr Stewart Nupen and Mr Jonathan Buckley. Mr Jonathan Buckley is a Fellow of the Southern African Institute of Mining and Metallurgy. Mr Stewart Nupen is a member of the Southern African Institute of Mining and Metallurgy. Mr Nupen and Mr Buckley are employed by The Mineral Corporation. They have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which being undertaking to qualify as a 'Competent Person' as defined in the JORC Code. Jonathan Buckley and Stewart Nupen consent to the inclusion in this Prospectus of the statements based on his information in the form and context in which they appear.

The Central Yilgarn Iron Project

The information in this Prospectus with respect to the CYIP that relates to mineral resource estimates is based on information compiled by Dr Michael Cunningham and Mr Rodney Brown, who are each Members of the Australasian Institute of Mining and Metallurgy and the Australian Institute of Geoscientists. Dr Cunningham and Mr Brown are employed by SRK Consulting. They have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which being undertaking to qualify as a 'Competent Person' as defined in the JORC Code. Dr Cunningham and Mr Brown consent to the inclusion in this Prospectus of the statements based on their information in the form and context in which they appear.

FORWARD-LOOKING STATEMENTS

This Prospectus contains forward-looking statements which incorporate an element of uncertainty or risk, such as 'intends', 'may', 'could', 'believes', 'estimates', 'targets' or 'expects'. These statements have been prepared with all reasonable care and attention based on an evaluation of current economic and operating conditions, as well as assumptions regarding future events. These events are, as at the Prospectus Date, expected to take place, but there cannot be any guarantee that such events will occur as anticipated or at all given that many of the events are outside the Company's control.

The Company and the Directors cannot and do not give any assurance that the results, performance or achievements expressed or implied by the forward-looking statements contained in this Prospectus will actually occur. Further, other than by lodgement of a replacement or supplementary prospectus during the Offer Period if required by law, the Company may not update or revise any forward-looking statement if events subsequently occur or information subsequently becomes available that affects the original forward-looking statement.

NO PROSPECTIVE FINANCIAL FORECASTS

The Directors have considered the matters outlined in ASIC Regulatory Guide 170. The revenue of the Company is largely derived from its holding in Tshipi é Ntle, being a company it does not control. Consequently, the Company cannot prepare reliable forecasts of any possible revenue and expenses, and accordingly the Directors have not included forecasts in this Prospectus.

PHOTOGRAPHS AND DIAGRAMS

Photographs used in this Prospectus which do not have descriptions are for illustration purposes only and should not be interpreted to mean that any person shown endorses this Prospectus or its content. Diagrams are illustrative only and may not be drawn to scale. The people and assets depicted in photographs in this Prospectus are not employees or assets of the Company unless specifically stated.

MEANING OF TERMS

Capitalised terms and certain other terms used in this Prospectus are defined in the Glossary in Section 15.

References to "our", "us" and "we" are references to the Company.

References to "I", "you" and "your" are references to the Applicant.

References to "ore reserves" and "mineral resources" are references to 'Ore Reserves' and 'Mineral Resources' as defined in the JORC Code.

FINANCIAL YEAR REFERENCES

The financial years of the Company and Tshipi e Ntle end 28 or 29 February. All references to FY are to a financial year ending 28 or 29 February. All references to HY are to a half-financial year ending 31 August. For example, FY2017 refers to the financial year ended 28 February 2017 and HY2018 refers to the half-financial year ended 31 August 2017.

CURRENCY

References to "$", "A$", "AUD", or "dollar" are references to Australian currency, unless otherwise stated.

References to "US$" are references to United States currency.

References to "ZAR" and "Rand" are references to South African currency.

References to "£" are references to United Kingdom currency.

TIME

References to time relate to the time in Sydney, New South Wales, unless otherwise stated.

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Figure 5: Tshipi processing plant

KEY OFFER INFORMATION & FINANCIAL SUMMARY

INDICATIVE TIMETABLE

Event	Target Date
Lodgement of Original Prospectus with ASIC	19 March 2018
Expiry of Exposure Period	2 April 2018
Lodgement of Replacement Prospectus	4 April 2018
Opening Date of the Offer	5 April 2018
Closing Date of the Offer	10 April 2018
Sale and issue of Shares under the Offer	13 April 2018
Despatch of Holding Statements	13 April 2018
Shares commence trading on ASX	18 April 2018

Notes: These dates are indicative only and subject to change. The Company, acting in consultation with the Managers, may vary these dates without notice, including whether to close the Offer early, extend the Offer or accept late Applications, either generally or in particular cases, without notification. If you wish to submit an Application and subscribe for Shares under the Offer, you are encouraged to do so as soon as possible after the Offer opens as the Offer may close at any time without notice.

KEY OFFER STATISTICS

Description	Value / number[1]
Price per Share	$0.40
Total proceeds under the Offer (before costs)	$200 million – $240 million
Number of Existing Shares available under the Offer	500 million – 600 million Shares
Total number of Shares on issue at completion of the Offer (Existing Shares and New Shares)	1,948,350,503 Shares
Number of Shares to be held by Existing Shareholders at completion of the Offer	1,348,340,503 – 1,448,340,503 Shares
Indicative market capitalisation[2]	$779 million
Enterprise value[3]	$708 million

Notes:

1. Where a range of values has been provided for a particular item in the table above, those values represent the relevant item at both minimum and maximum subscription under the Offer.
2. Indicative market capitalisation determined by the number of Existing Shares on issue at the Prospectus Date (1,948,340,503 Shares) multiplied by the Offer Price.
3. Enterprise value calculated as indicative market capitalisation less approximate attributable cash on listing of approximately $71 million, comprising Jupiter's pro forma cash of approximately $13 million and Jupiter's estimated $58 million share of Tshipi cash at that time (refer to Section 4.7(b) for further details).

"We are all very proud of what those involved with Tshipi have delivered and returned to all stakeholders and Jupiter looks forward to an even brighter future."
Brian Gilbertson, Chairman - Jupiter Mines Limited

"The Tshipi Manganese Mine continues to deliver on many fronts. Production and sales have been growing and the team is confident stakeholders will continue to benefit from being part of a Company with a bright and sustainable future."
Priyank Thapliyal, CEO - Jupiter Mines Limited

CHAIRMAN'S LETTER

Dear Investor

It is with great pleasure that I invite you to become a shareholder in an ASX listed Jupiter.

Jupiter owns a beneficial interest of 49.9% in the world class Tshipi Borwa Manganese Mine (**Tshipi**) in the Kalahari manganese field of South Africa. That basin contains approximately 77% of the world's known economic manganese resources, an essential and irreplaceable raw material for steel-making. Tshipi, an open-pit mine is one of the largest, longest life and lowest cost manganese exporters globally. The outlook for manganese is strong and via its holding in Tshipi é Ntle, Jupiter remains well leveraged to the traditional steel markets and the growing clean energy and battery technology markets.

Tshipi has come a long way in a short time. Development commenced in 2011, with first production in 2012. Today it is one of the world's pre-eminent manganese exporters, with sales for the financial year ended 28 February 2018 of 3.3 million tonnes. During the financial half year ended 31 August 2017, Jupiter generated revenues and EBITDA of $4.4 million and $37.5 million respectively. For the same period, Tshipi é Ntle generated revenues and EBITDA of ZAR2.9 billion and ZAR1.1 billion respectively. That strong performance has enabled Jupiter to return in excess of $153 million to its shareholders over the last 2 years alone. That constitutes a return of 150% on Jupiter's investment of $100 million into the project. The mine has a very long life ahead.

The strong and experienced management team at Tshipi runs a "lean and mean" operation. Costs are low and tightly controlled. There are no allocated overheads, management fees or interest charges from a distant head office, because it does not exist, unlike elsewhere in the industry. A focus for the immediate future is to continue Tshipi's record of unit cost reductions, which has characterised the mine since start-up.

Given reasonable commodity markets in years to come, Jupiter expects to continue rewarding shareholders with healthy returns. It is the intention of the Board to target a payout ratio of 70% of the income and cash distributions received by Jupiter from Tshipi é Ntle. That could be in the form of dividends, buy-back offers or returns or distributions of capital to shareholders, subject to the Company maintaining an appropriate working capital balance.

An offer of a minimum of 500 million Shares, and a maximum of 600 million Shares for sale is being made through this Prospectus. The proceeds of the Offer will primarily be paid to those Existing Shareholders who are selling Shares through the Offer to ensure an adequate free float, shareholder spread and liquidity after the listing. Neither Jupiter nor Tshipi é Ntle are seeking to raise capital.

This Prospectus contains detailed information about Jupiter and, importantly, the risks of an investment of this type.

There are a number of specific and general risks associated with Jupiter, Tshipi é Ntle, mining in South Africa and mining in general. These risks include risks relating to Jupiter deriving almost all of its revenue from its interest in Tshipi é Ntle, the sole product of Tshipi é Ntle being manganese ore, the Tshipi mine being located in South Africa, fluctuations in exchange rates, fluctuations in the global price of manganese ore, reliance on certain key personnel, logistical constraints, operational disruptions and compliance with extensive mining, economic empowerment and environmental regulations.

I encourage you to read this Prospectus in full.

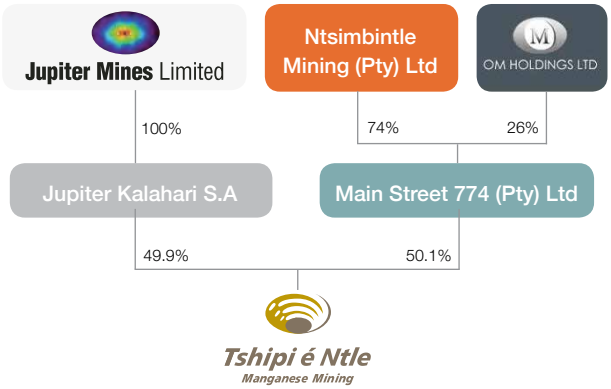
I thank our Existing Shareholders for their support in recent years, and I welcome our New Shareholders to a re-listed Jupiter, with its interest in this world class asset.

We look forward to a bright future.

Yours faithfully

Brian Gilbertson
Chairman

1. INVESTMENT OVERVIEW

Topic	Summary	Further information
Prospectus		
Who is the issuer of this Prospectus?	Jupiter Mines Limited (ACN 105 991 740), referred to as the "**Company**" or "**Jupiter**" in this Prospectus.	
What is the purpose of this Prospectus and the Offer?	The purpose of this Prospectus is to: ▪ make the Offer to existing and prospective new investors to broaden the Company's shareholder base and provide a liquid market for its Shares; ▪ provide an opportunity for a number of Existing Shareholders to realise a portion of their investment; ▪ provide the broader business with the benefits of increased profile, transparency and credibility that arises from being a listed entity; and ▪ satisfy the requirements for the admission of the Company to the Official List of ASX which will enable efficient trading of the Company's Securities, as well as to increase access to additional future funding after the Offer.	Section 2.5
Business and Mine Overview		
What does the Company do?	Jupiter has a beneficial interest of 49.9% in the Tshipi Borwa Manganese Mine (**Tshipi Mine**) through its 49.9% interest in Tshipi é Ntle Manganese Mining (Pty) Limited (**Tshipi é Ntle**). The Tshipi Mine is approaching a steady state of production that is currently exceeding 3 million tonnes of manganese ore per annum.	Section 3.3
What is the Tshipi Mine and where is it located?	The Tshipi Mine is located in the southern portion of the Kalahari manganese field (**KMF**) in South Africa, the largest manganese bearing geological formation in the world. The Tshipi Mine is a shallow open-cast mine located on a large and homogenous ore body. The current life of mine (**LoM**) plan is to 2047, based on total ore reserves of 86,410,000 tonnes as at 31 December 2017. The current total mineral resource estimate for the Tshipi Mine is 459,541,000 tonnes as at 31 December 2017. Production at the Tshipi Mine began in 2012 and is now estimated to be one of the five largest manganese exporters globally. 2.3 million tonnes of manganese was sold from Tshipi in the 2017 financial year. Tshipi is currently operating at a production run-rate of in excess of 3Mtpa and has secured a diversified infrastructure to operate flexibly at a processing capacity of between 3.0 and 3.6 million tonnes per year.	Sections 3.5 and 8 and Appendix 1
How is the Company's corporate group structured?	Jupiter's interest in Tshipi is held through its wholly owned subsidiary Jupiter Kalahari S.A., as shown in the diagram below. 	Section 3.3

Topic	Summary	Further information
What is the Company's business model and strategy?	Jupiter's primary business focus is on the production and export of manganese, via its 49.9% interest in Tshipi é Ntle and the Tshipi Mine. Tshipi é Ntle is the 100% owner of the Tshipi Mine and the operation is approaching a steady state of production that is currently exceeding 3 million tonnes of manganese ore per annum.	Sections 3.4, 3.5 and 8
	Manganese is a critical and irreplaceable element in carbon steel production and is mainly used as an alloying agent that increases both the strength and flexibility of steel.	Section 9
	The business model depends on the Tshipi Mine being able to continue production and transport the manganese ore product efficiently to market for a viable sales price. In order to achieve this, Tshipi é Ntle has contracts in place with its mining contractors and access agreements in place with Transnet for rail and port capacity.	Sections 8.2 and 8.17
	In order to continue aiming to pay a high level of dividends and/or returns of capital to Shareholders, the Company relies on income received from the entity Tshipi é Ntle.	
What are the Company's key dependencies?	The Company derives nearly all of its income from Tshipi é Ntle, which derives all of its income from the operations of the Tshipi Mine. As such, the Company is exposed to the risks that Tshipi é Ntle is exposed to.	Sections 11.2 and 11.3
	Tshipi é Ntle's mining and related activities (including the transportation of ore) are subject to operational risks that can reduce production and increase costs and adversely affect the Company's ability to meet future ramp-up mining and processing targets. The Company relies on the professionalism of its mining contractors to continue to ensure production milestones are met.	
	Tshipi é Ntle is also dependent on securing access to transportation networks to deliver product to market. Competition for use of transportation networks, such as rail lines, roads and ports, can cause financial consequences for Tshipi é Ntle's mining operations and the Company is not always able to negotiate the capacity it needs at reasonable prices.	
	Tshipi é Ntle is dependent on maintaining an adequate labour force to continue operations. Organised labour dynamics in the mining sector in South Africa are volatile and uncertain.	
	In addition, Tshipi é Ntle is dependent on establishing a buyer for its product in mainly overseas markets.	
What material contracts has the Company entered into?	The Company is party to the following material contracts: ▪ a Sale Agency Deed with each Selling Shareholder to facilitate the sale of the Sale Shares held by the Selling Shareholders, under the Offer; ▪ voluntary escrow deeds with the Escrowed Shareholders that will continue to hold Shares on completion of the Offer; ▪ a corporate advisory and capital raising mandate under which the Managers have been appointed to act as managers to the Offer; ▪ a shareholders agreement with respect to Tshipi é Ntle; and ▪ a take or pay off-take agreement with Tshipi é Ntle.	Section 12
	Tshipi é Ntle has entered into various contracts relevant to the mining, processing, transportation and sale of its manganese ore.	Section 8.17

Topic	Summary	Further information
Investment Highlights and Risks		
What are the perceived investment highlights and benefits?	▪ Tshipi é Ntle is one of the largest and lowest cost manganese exporters globally.	Sections 3.2 and 3.5(d)
	▪ The Tshipi Mine has an abundant and shallow mineral resource and a long life of mine.	Sections 3.2 and 3.5(d)
	▪ An investment in the Company offers the potential for strong returns to Shareholders, with a targeted 70% dividend and distribution payout ratio.	Sections 3.2 and 4.8
	▪ The Company has no debt on the balance sheet and minimal further capital investment is planned for the Tshipi Mine.	Sections 3.4(a) and 4.7
	▪ Tshipi has flexible onsite and offsite infrastructure capacity allowing for a rapid response to evolving manganese market conditions.	Section 3.5(d)
	▪ The manganese ore produced from the Tshipi mine is of recognised and established product quality.	Sections 3.2 and 3.5(d)
	▪ Tshipi é Ntle and Jupiter have experienced management teams.	Sections 3.5(d) and 6.2
	▪ Tshipi é Ntle has a strategy to enhance cash flow through optimisation initiatives.	Section 3.5(e)
	▪ Regional consolidation and co-development opportunities.	Section 3.5(e)
	▪ Tshipi é Ntle provides 100% exposure to pure manganese mining, allowing Tshipi é Ntle to maximise profitability during a market upturn, whilst its operating structure allows it to remain cash flow positive throughout the manganese price cycle.	Section 3.5(e)
What are the key investment risks?	The key risks of investing in the Company are set out below. These risks are not exhaustive. Refer to Section 11 for further details of specific risks and general investment risks. Prospective investors must make their own assessment of the likely risks and determine whether an investment in the Company is appropriate to their own circumstances.	Section 11
Risks of Tshipi é Ntle and manganese mining in South Africa	The Company's main asset is its 49.9% shareholding interest in Tshipi é Ntle and at present the Company derives nearly all of its income from Tshipi é Ntle, which derives all of its income from the operations of the Tshipi Mine. As such, the Company is exposed to the risks that Tshipi é Ntle is exposed to.	Section 11.2(a)
Dividends and distributions to Shareholders may fluctuate	The level of dividend and any distributions paid on Shares (if any) is not guaranteed and may fluctuate. The level of dividend and any distribution paid or made by the Company to its Shareholders will in particular depend on the income and other returns the Company receives from its investment in Tshipi é Ntle. Dividends or distributions received by the Company with respect to shares in Tshipi é Ntle have historically been paid in Rand. The Australian dollar or other currency equivalent of future dividends or distributions with respect to the Company's shares in Tshipi may be adversely affected by potential future fluctuations in the value of the Rand against the US dollar, the Australian dollar or other currencies.	Sections 11.2(b) and 11.2(c)
Risk of loss of key personnel	The Company has a small management team. The Company's success depends to a significant extent upon its key management team and its Chief Executive Officer, Priyank Thapliyal. The loss of the services of the Company's key personnel may result in the Company not being able to locate or employ qualified executives with the relevant experience or on acceptable terms.	Section 11.2(d)

Topic	Summary	Further information
Number of escrowed Shares could affect liquidity and the market for Shares	A number of Existing Shareholders have agreed to voluntary escrow restrictions which prevent the sale of Escrowed Shares for a period of time. Immediately after completion of the Offer, assuming that the Escrowed Shareholders and their associates do not subscribe for any Shares under the Offer, the Escrowed Shareholders will beneficially own up to 697,608,090 Shares, representing approximately 35.8% of the Company's issued share capital, which will be subject to escrow restrictions. The absence of any sale of Escrowed Shares by the Escrowed Shareholders during their Escrow Period may cause, or at least contribute to, limited liquidity in the market for the Shares. This could affect the prevailing market price at which Shareholders are able to sell their Shares. Following the end of the relevant Escrow Period, a significant sale of Shares by one or more of the Escrowed Shareholders or the perception that such sales might occur, could adversely affect the market price of the Shares at the time.	Section 11.2(e)
Manganese ore is the only product sold	Should the price of manganese ore significantly decrease, Tshipi é Ntle's business, financial condition, results of operations and/or prospects may be adversely affected.	Section 11.3(a)
Potential for exposure to escalating costs	Tshipi é Ntle conducts the majority of its mining and processing operations, including transportation of manganese ore to dispatch points, through third-party contractors. As a result, Tshipi é Ntle is exposed to fluctuations in contractor costs and risks relating to the quality and continuation of their services. It has been determined that contractor mining is currently cheaper than owner mining.	Section 11.3(b)
Potential slowdown in the growth of demand for steel	Slowdown in the growth of demand for steel from Asia, and China in particular, could have a material adverse effect on the manganese ore market and prices, impacting the sales price of Tshipi é Ntle only product manganese.	Section 11.3(c)
Operational disruptions could adversely affect the business	Operational disruptions could have a material adverse effect on Tshipi's business, financial condition and results of operations.	Section 11.3(d)
The Tshipi Mine could face logistical constraints which restrict the ability to export manganese ore to market	Tshipi é Ntle and its competitors in the Kalahari manganese field face logistical constraints due to the location of resource deposits, the physical design of transportation networks and competition for access to transportation networks.	Section 11.3(e)
Foreign exchange rate risk	Tshipi é Ntle's financial condition and results of operations could be adversely affected by currency exchange rate fluctuations and inflation.	Section 11.3(f)
Jupiter currently only has exposure to one producing mine (no operational diversification)	Tshipi é Ntle's mining operations are concentrated at one mine. This lack of diversification could result in concentrated risks impacting the overall financial performance of Jupiter.	Section 11.3(g)
Failure to convert mineral resources into ore reserves or maintain or enhance existing ore reserves could affect operations	Failure to convert mineral resources into ore reserves or maintain or enhance existing ore reserves could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and prospects.	Section 11.3(g)

Topic	Summary	Further information
Tshipi é Ntle is subject to extensive environmental regulation, including with respect to the backfilling of the Tshipi Mine	Tshipi é Ntle's current environmental management programme (EMP) requires that concurrent backfilling of the Tshipi Mine pit take place, and that at closure of the Tshipi Mine, the pit be completely backfilled. Tshipi é Ntle's current backfilling strategy does not comply with its EMP. Tshipi é Ntle intends to seek amendment of its EMP so that it accords with its strategy to allow for partial backfilling. Although Tshipi é Ntle expects the required amendments to be approved, if they are not, there is a risk that the cost of backfilling could rise significantly and have an adverse effect on the financial condition and operations of Tshipi é Ntle. Any failure to obtain the required EMP amendment could result in Tshipi being substantial claims, penalties, fees, expenses and/or operations, which could have a material adverse effect on Tshipi é Ntle's business, financial condition, operations and/or prospects.	Section 11.3(p) and sections 17.4, 17.5 and 24.6.6 of the Tshipi Competent Person's Report (Appendix 1)
Tshipi é Ntle's mineral rights are subject to certain broad-based black economic empowerment requirements	Tshipi é Ntle's mineral rights are subject to compliance with certain broad-based black economic empowerment requirements, which, if changed, could impose significant costs and compliance burdens.	Sections 8.11 and 11.5(c)
Competition within the manganese industry is considered high	The manganese ore mining industry is competitive and Tshipi é Ntle may not be able to compete successfully. However, Tshipi's position on the cost curve, large mineral resource base and secure logistics mitigates this risk.	Section 11.3(i)
Tshipi é Ntle's shareholders could potentially be required to contribute further capital	Low manganese prices may result in the Tshipi Mine becoming unprofitable. Tshipi é Ntle has contingency plans for such an occurrence, but if they are unsuccessful, then the Company of may be required to provide funding to Tshipi é Ntle in proportion to its shareholding interest.	Section 11.3(j)
Risks related to mining operations in South Africa	Economic, political or social instability in South Africa may have a material adverse effect on Tshipi é Ntle's operations and profits.	Section 11.4(a)
Amendments to taxes and royalty regimes may affect Jupiter and Tshipi	Amendments to taxes and royalties in the tax and regulatory environments in which Tshipi é Ntle operates may have a significant and adverse effect on Tshipi é Ntle's operations.	Section 11.4(d)
Financial Information		
What is the Company's historical financial performance?	The table below sets out the summarised historical consolidated statement of profit and loss and other comprehensive income for year ended 28 February 2016, year ended 28 February 2017, and half year ended 31 August 2017.	Section 4

$'000	Audited Year ended 28 February 2016	Audited Year ended 28 February 2017	Reviewed Half year ended 31 August 2017
Revenue	433	157,001	4,373
Gross margin	433	10,702	4,759
EBITDA	(8,885)	50,316	37,507
EBIT	(158,085)	193,937	37,845
NPBT	(172,392)	205,718	36,369
NPAT	(172,396)	200,099	32,739

A discussion of the historical financial performance of the Company is included in Section 4.

At each reporting date the Directors assess the carrying value of the Company's investment in Tshipi é Ntle. In the year ended 28 February 2016 the Company commissioned an independent valuation of its 49.9% interest in Tshipi é Ntle which resulted in an impairment to the carrying value of the investment amounting to $143.6 million recognised as an expense in the statement of profit and loss and other comprehensive income. In the year ended 28 February 2017 the Company again commissioned an independent valuation of its 49.9% interest in Tshipi é Ntle which concluded the investment to be valued at $889.1 million and consequently the impairment recorded in 2016 of $143.6 million was reversed in the statement of profit and loss and other comprehensive income. No adjustment to the carrying value of the investment was made in the half year ended 31 August 2017.

Section 4.5

<table>
<tr><th>Topic</th><th>Summary</th><th>Further information</th></tr>
<tr><td>What is the Company's financial position?</td><td>The table below sets out the summarised reviewed and pro forma statement of financial position as at 31 August 2017. Details of the pro forma statement of financial position, including the pro forma adjustments are set out in Section 4.

<table>
<tr><th>$'000</th><th>Reviewed as at 31 August 2017</th><th>Pro forma at Sale Date</th></tr>
<tr><td>Current assets</td><td>106,711</td><td>48,133</td></tr>
<tr><td>Non current assets</td><td>391,362</td><td>336,580</td></tr>
<tr><td>Total assets</td><td>498,073</td><td>384,713</td></tr>
<tr><td>Current liabilities</td><td>57,179</td><td>27,697</td></tr>
<tr><td>Non current liabilities</td><td>3,719</td><td>3,719</td></tr>
<tr><td>Total liabilities</td><td>60,898</td><td>31,398</td></tr>
<tr><td>Net assets</td><td>437,175</td><td>353,315</td></tr>
<tr><td>Total equity</td><td>437,175</td><td>353,315</td></tr>
</table></td><td>Section 4</td></tr>
<tr><td>How does the Company generate revenue?</td><td>The Company's revenue is directly related to the prices obtained for manganese ore. The Company generates revenues (via Tshipi é Ntle) through the sale of its manganese ore, the price of which is agreed upfront with customers at spot or a maximum 3 month forward sell window during good market conditions or in some instances, with reference to the Metal Bulletin ore index during poor market conditions, subject to delivery of ore meeting the agreed product specifications.

The Company (via Tshipi é Ntle) conducts its sales of manganese ore in US dollars, and receives the majority of the payment in US dollars within 14 days after the vessel has sailed based on the provisional analysis of weight and product quality determined by an independent surveyor at the load port under a letter of credit.</td><td>Section 3.4</td></tr>
<tr><td>Will the Company pay dividends?</td><td>It is the intention of the Board to target a dividend and distribution payout ratio of 70% of the income and cash distributions received by Jupiter from Tshipi é Ntle, to be paid or returned in the form of dividends, buy-back offers or returns or distributions of capital to Shareholders. This is subject to Jupiter maintaining an appropriate working capital balance at all times.

Payment of any dividend or distribution in the future will depend on the Company's future profitability and financial position.</td><td>Section 4.8</td></tr>
<tr><td colspan="3">Directors and Key Management</td></tr>
<tr><td>Who are the Directors and key management of the Company?</td><td>The Directors and key management of the Company are:

▪ Brian Gilbertson – Non-Executive Chairman;
▪ Priyank Thapliyal – Chief Executive Officer;
▪ Paul Murray – Non-Executive Director;
▪ Mr Sungwon Yoon – Non-Executive Director;
▪ Andrew Bell – Non-Executive Director; and
▪ Melissa North – Chief Financial Officer & Company Secretary.</td><td>Sections 6.1 and 6.2</td></tr>
</table>

Topic	Summary	Further information
What are the interests of Directors and their Related Parties in the Company?	**Interests in Securities** Various Directors have relevant shareholding interests in Existing Securities of the Company.	Section 13.4
	Participation in the Offer Directors are entitled to participate in the Offer by subscribing for Shares on the same terms and conditions as other Applicants. As at the Prospectus Date, no Director has determined whether or not he intends to participate in the Offer.	Section 13.6
	Interests in substantial Shareholders Various Directors have interests in Shareholders of the Company, including Selling Shareholders.	Section 13.5
What payments and benefits are to be made or given to Directors and their Related Parties?	**Non-Executive Director fees** The non-executive Directors are entitled to be paid fees for their services as Directors.	Section 13.3
	Chief Executive Officer The Company has entered into an executive employment agreement with its Chief Executive Officer, Priyank Thapliyal, under which the Chief Executive Officer is entitled to a salary, bonuses and other benefits.	Section 6.3
	Deeds of indemnity, insurance and access The Directors have the benefit of an indemnity from the Company in respect of certain liabilities they may incur in acting as directors and have liability insurance premiums paid for by the Company.	Section 6.5
The Offer		
What is the Offer?	Under this Prospectus, the Company and Jupiter SaleCo as agent for the Selling Shareholders invite: ▪ Institutional Investors and Sophisticated Investors to apply for up to 562.5 million Shares at a price of $0.40 per Share by arrangement with the Managers (under the Institutional and Sophisticated Investor Offer) to raise up to $225 million; and ▪ members of the public to apply for up to 37.5 million Shares at $0.40 per Share (under the Public Offer) to raise up to $15 million, for the Selling Shareholders. The Offer also includes an offer by the Company for the issue of a nominal number of New Shares (10,000 Shares) under the Public Offer for the purposes of enabling the Company to issue this Prospectus.	Sections 2.1, 2.2 and 2.3
Is the Offer underwritten?	The Offer is not underwritten.	Section 2.4
What Securities being are being offered?	The Offer is an offer of existing and new fully paid ordinary shares in the Company. A summary of the rights attaching to Shares is set out in Section 13.1.	Section 13.1
How will the Offer affect the capital structure of the Company?	The Offer will not have any significant effect on the capital structure of the Company. On completion of the Offer the Company will have on issue a maximum total of 1,948,350,503 Shares, comprising 1,948,340,503 Existing Shares and up to 10,000 New Shares issued by the Company.	Section 2.9

Topic	Summary	Further information
How will funds raised from the Offer be used?	The Offer is expected to raise up to $240 million for the Selling Shareholders before costs. This amount represents the proceeds from the sale of Shares by the Selling Shareholders and will be paid to a trust account operated by Jupiter SaleCo. This amount, less costs of up to 2% (plus GST) of the value of any Shares sold down by the Selling Shareholders pursuant to the Offer, will be passed on to each of the Selling Shareholders in proportion to the number of Shares they have sold. The funds received for the sale of Shares under the Offer will not be paid to Jupiter. Jupiter will not raise any amount under the Offer except for up to $4,000 by the issue of up to 10,000 New Shares.	Sections 2.7 and 2.12
Who are the Selling Shareholders?	The Selling Shareholders are the following Existing Shareholders, each being a substantial or significant Shareholder of the Company who is offering Shares for sale under the Offer, and who have entered into a Sale Agency Deed with the Company and Jupiter SaleCo: ▪ Pallinghurst Steel Feed (Dutch) B.V.; ▪ HJM Jupiter, L.P.; ▪ FRK Jupiter, L.P.; ▪ POSCO Australia Pty Ltd; ▪ POSCO Australia GP Pty Ltd; ▪ EMG Jupiter, L.P.; and ▪ Red Rock Resources plc.	Section 12.2
Will the Shares be quoted on ASX?	The Company will apply for quotation of all Shares under the ASX code "JMS".	Section 2.19
Is there a minimum subscription to the Offer?	The minimum subscription amount for the Offer is $200 million. Shares will not be sold unless and until Applications for the minimum subscription have been received.	Section 2.2
What are the expenses of the Offer?	The cash expenses of the Offer will be approximately: ▪ $5,037,266 if only the minimum subscription is met under the Offer; and ▪ $5,837,266 if full oversubscription is met under the Offer.	Section 13.8
Will any Shares be subject to escrow restrictions?	**Shares offered under this Prospectus** Shares sold, transferred and issued under the Offer will not be subject to any escrow restrictions. **Existing Shares** The Company does not anticipate that any Existing Shares will be subject to escrow restrictions as a condition of the Company being listed on ASX. A number of Existing Shareholders who have substantial or significant shareholding interests have agreed to be subject to voluntary escrow restrictions for the continued holding of some of their Shares for a period of time. The Company's Chief Executive Officer, Mr Priyank Thapliyal, has also agreed to voluntarily escrow the Shares he directly holds.	Section 2.11 Section 13.11 Section 12.3

Topic	Summary	Further information
Are there any taxation consequences?	The acquisition and disposal of Shares may have tax consequences for Applicants depending on their individual taxation circumstances and affairs. Each Applicant should consult their own taxation adviser for advice about any taxation consequences associated with subscribing for and disposing of Shares. None of the Company, the Directors and the Managers give any advice regarding the taxation consequences of subscribing for Shares. To the extent permitted by law, the Company, the Directors and the Company's advisers and officers, do not accept any responsibility or liability for any taxation consequences for persons subscribing for Shares.	Section 13.9
Applying for Shares		
Who can apply for Shares under the Offer?	Members of the public with an address in Australia may apply for Shares under the Public Offer. Institutional Investors and Sophisticated Investors who have received a firm allocation of Shares from the Managers, including certain eligible investors resident in Hong Kong, New Zealand, Singapore and the United Kingdom may apply for Shares under the Institutional and Sophisticated Investor Offer.	Sections 2.3, 2.13, 2.14 and 2.16
What is required to apply for Shares?	This Prospectus is accompanied by an Application Form. An Applicant under the Public Offer must complete either the Application Form accompanying this Prospectus or an online Application Form in accordance with the instructions of each particular Application Form. Applicants under the Public Offer may complete the online Application Form available on the website (www.jupitermines.com) and pay using BPAY®. Applicants must follow the additional payment instructions on the website. A cheque or money order for the relevant Application Money must accompany any completed paper Application Form when submitted to the Company or the Share Registry. Applicants under the Institutional and Sophisticated Investor Offer must lodge their Application Form and Application Money with the relevant Manager in accordance with the relevant Manager's directions in order to receive their firm allocation.	Section 2.13 Application Form Section 2.14
Can the Offer be withdrawn?	The Offer may be withdrawn at any time before the sale and transfer of Shares to Applicants. If the Offer is withdrawn, Application Money will be refunded to Applicants in full without interest.	Section 2.6
Further Information		
How can further information be obtained?	You should read this Prospectus in full. If after reading this Prospectus you have any questions or are unsure what do to, you should speak to your qualified investment adviser. Further information about the Company, including certain information referred to in this Prospectus, is available on the Company's website at www.jupitermines.com.	
Offer Information Line	For enquires regarding the Offer, prospective investors may use the Company's Offer Information Lines: Within Australia: 1800 653 805 Outside Australia: + 61 1800 653 805	

2. DETAILS OF THE OFFER

2.1 OFFER

Subject to Section 2.16, this Prospectus invites investors to participate in an offer of up to 600 million Shares for sale by the Selling Shareholders at $0.40 per Share to raise up to $240 million for the Selling Shareholders.

All Shares offered pursuant to this Prospectus are fully paid and rank equally in all respects with the Existing Shares. Further details of the rights attaching to Shares are set out in Section 13.1.

The Company, in consultation with the Managers, reserves the right to reject any Application or to allocate any Applicant fewer Shares than the number applied for.

The Offer may be withdrawn at any time before Shares are sold under this Prospectus.

Refer to Section 2.13 for details on how to apply for Shares under the Offer.

2.2 MINIMUM SUBSCRIPTION

The minimum subscription for the Offer is $200 million through the sale of 500 million Shares.

2.3 STRUCTURE OF THE OFFER

The Offer consists of:

(a) an offer to Institutional Investors and Sophisticated Investors who have participated in an institutional bookbuild arranged by the Managers of up to 562.5 million Existing Shares at $0.40 per Share, to raise up to $225 million for the Selling Shareholders (**Institutional and Sophisticated Investor Offer**); and

(b) an offer to the public of up to 37.5 million Existing Shares at $0.40 per Share, to raise up to $15 million for the Selling Shareholders and up to 10,000 New Shares that may be issued by the Company (**Public Offer**).

Only investors who have received a firm allocation of Shares under the Institutional and Sophisticated Offer by arrangement with the Managers may participate in the Institutional and Sophisticated Investor Offer.

The Company and Jupiter SaleCo in consultation with the Managers will consider applications for Shares under the Public Offer made pursuant to this Prospectus.

2.4 UNDERWRITING

The Offer is not underwritten.

2.5 PURPOSE OF THE OFFER

The purposes of the Offer are to:

(a) raise for the Selling Shareholders a minimum of $200 million (and a maximum of $240 million) before costs to:

  (i) provide an opportunity for a number of Existing Shareholders to realise a portion of their investment; and

  (ii) pay for the Managers' fees in respect of the Offer;

(b) make the Offer to existing and prospective new investors to broaden the Company's shareholder base and provide a liquid market for its Shares;

(c) provide the broader business with the benefits of increased profile, transparency and credibility that arises from being a listed entity; and

(d) satisfy the requirements for the admission of the Company to the official list of ASX which will enable efficient trading of the Company's Securities, as well as to provide Jupiter with ongoing access to the capital markets to improve capital management flexibility.

2.6 CONDITIONS OF OFFER

The Offer is conditional upon all of the following events occurring:

(a) **minimum subscription:** the minimum subscription requirement of $200 million being satisfied within 3 months after the Prospectus Date (refer to Section 2.2); and

(b) **ASX listing approval:** ASX approving the Company's application for admission to the Official List and the Company receiving conditional approval for quotation of its Shares on the ASX within 3 months after the Prospectus Date (refer to Section 2.19).

If any of the above conditions to the Offer are not satisfied, then the Company and Jupiter SaleCo will issue a supplementary or replacement prospectus to Applicants allowing them one month to withdraw their Applications and obtain a refund of their Application Money. Alternatively, the Company and Jupiter SaleCo may determine not to proceed with the Offer and will repay all Application Money received (without interest) in accordance with the Corporations Act.

2.7 APPLICATION OF OFFER FUNDS

The Offer is expected to raise up to $240 million for the Selling Shareholders. This amount represents the proceeds from the sale of Shares by the Selling Shareholders and will be paid to a trust account operated by Jupiter SaleCo.

The amount raised by the Offer, less the Managers' fees payable by the Selling Shareholders, will be passed on to each of the Selling Shareholders in proportion to the number of Shares they have sold.

The costs of the Offer are anticipated to be as follows:

(a) payment to Managers pursuant to the Managers Mandate of up to 2% (plus GST) of the value of any Shares sold down by the Selling Shareholders pursuant to the Offer, to be paid by the Selling Shareholders (refer to Section 2.12); and

(b) costs of the Offer to be paid by Jupiter and other costs identified in Section 13.8, being an aggregate of $1,037,266.

The Company has paid approximately $972,343 of the costs of the Offer at the Prospectus Date.

The funds received for the sale of Shares under the Offer will not be paid to Jupiter. Jupiter will not raise any amount under the Offer.

2.8 WORKING CAPITAL

As at the Prospectus Date, the Company has, and following completion of the Offer the Company will have, enough working capital to carry out its objectives as stated in this Prospectus.

2.9 CAPITAL STRUCTURE

The Company currently has 1,948,340,503 Shares on issue. The Company has no other Securities on issue.

On completion of the Offer the Company will have on issue a maximum total of 1,948,350,503 Shares, comprising 1,948,340,503 Existing Shares and up to 10,000 New Shares issued by the Company.

2.10 SUBSTANTIAL SHAREHOLDERS' INTERESTS AFTER COMPLETION OF THE OFFER

The Company anticipates that the parties in the table below will have a substantial holding (i.e. control 5% or more of the issued Shares) following the close of the Offer:

Shareholder	Before Offer		After completion of the Offer	
	Number	%	Number	%
Minimum subscription under the Offer				
Pallinghurst Steel Feed (Dutch) B.V.	357,873,384	18.37%	181,462,374	9.31%
Stichting Pensioenfonds ABP	289,075,945	14.84%	289,075,945	14.84%
POSCO Australia GP Pty Ltd	274,932,823	14.11%	139,406,742	7.16%
Investec Bank Limited	261,154,529	13.40%	261,154,529	13.40%
EMG Jupiter L.P.	209,666,381	10.76%	106,312,905	5.46%
HJM Jupiter L.P.	129,664,157	6.66%	103,538,203	5.31%
FRK Jupiter L.P.	124,807,182	6.41%	98,681,228	5.06%
POSCO Australia Pty Ltd	56,309,862	2.89%	28,552,336	1.47%
Total	**1,703,484,263**	**87.44%**	**1,208,184,263**	**62.01%**
Maximum subscription under the Offer				
Pallinghurst Steel Feed (Dutch) B.V.	357,873,384	18.37%	145,845,372	7.49%
Stichting Pensioenfonds ABP	289,075,945	14.84%	289,075,945	14.84%
POSCO Australia GP Pty Ltd	274,932,823	14.11%	112,044,320	5.75%
Investec Bank Limited	261,154,529	13.40%	261,154,529	13.40%
EMG Jupiter L.P.	209,666,381	10.76%	85,446,062	4.39%
HJM Jupiter L.P.	129,664,157	6.66%	98,263,429	5.04%
FRK Jupiter L.P.	124,807,182	6.41%	93,406,454	4.79%
POSCO Australia Pty Ltd	56,309,862	2.89%	22,948,152	1.18%
Total	**1,703,484,263**	**87.44%**	**1,108,184,263**	**56.88%**

Notes:

1. The 129,664,157 Shares in which HJM Jupiter L.P. currently has a relevant interest are held by Citicorp Nominees Pty Limited as nominee for HJM Jupiter L.P.

2. The 124,807,182 Shares in which FRK Jupiter L.P. currently has a relevant interest are held by Citicorp Nominees Pty Limited as nominee for FRK Jupiter L.P.

3. Of the 289,075,945 Shares in which Stichting Pensioenfonds ABP currently has a relevant interest, 252,648,637 Shares are held by HSBC Custody Nominees (Australia) Limited as nominee for Stichting Pensioenfonds ABP and 36,427,309 Shares are held by Pallinghurst EMG African Queen L.P., being a controlled entity of Stichting Pensioenfonds ABP.

4. Of the 261,154,529 Shares in which Investec Bank Limited currently has a relevant interest, 26,701,500 Shares are held by BNP Paribas Noms Pty Ltd as nominee for Investec Bank Limited.

2.11 ESCROW RESTRICTIONS AND "FREE FLOAT"

The Shares offered under this Prospectus will not be subject to escrow restrictions and will be freely transferable from the date of their transfer or issue.

The Company has been informed by ASX that none of the Existing Shares will be classified by ASX as "restricted securities" and no Existing Shares will be subject to escrow restrictions in accordance with the Listing Rules.

The Escrowed Shareholders have entered into voluntary escrow deeds with the Company, pursuant to which they have agreed not to dispose of the Escrowed Shares. Refer to Section 12.3 for further information.

On completion of the Offer, Jupiter expects that it will have a "free float" (within the meaning of the Listing Rules) between approximately 64% to 69% to satisfy an ASX condition for the admission of Jupiter to the official list of ASX.

The "free float" comprises those Shares which are:

(a) not subject to the voluntary escrow restrictions (refer to Section 12.3 for further information); and

(b) not held by persons who are related parties, or associates of related parties, of Jupiter (refer to Section 13.4 for further information).

2.12 MANAGERS

Hartleys, Foster Stockbroking and Aitken Murray Capital Partners (together, the **Managers**) have each been appointed by the Company pursuant to a mandate agreement, to manage the Offer (**Managers Mandate Agreement**).

Pursuant to the Managers Mandate Agreement, Hartleys has been appointed as Lead Manager to the Offer, and each of Foster Stockbroking and Aitken Murray Capital Partners have been appointed as Co-Managers.

The Managers are entitled to be paid a distribution fee equal to 1.5% (plus GST) of the value of any Shares sold down by the Selling Shareholders pursuant to the Offer, other than pursuant to Applications from Significant Investors.

In addition, the Company may pay to the Managers a discretionary fee equal to 0.5% (plus GST) of the value of any Shares sold down by the Selling Shareholders pursuant to the Offer, other than pursuant to Applications from Significant Investors. The Company intends to pay this discretionary fee, provided that the Managers perform their role as Managers of the Offer as reasonably expected.

The Managers will split the distribution fee and discretionary fee among themselves, such that Hartleys will receive 45% of the fees, Foster Stockbroking will receive 30% of the fees and Aitken Murray Capital Partners will receive 25% of the fees.

Refer to Section 12.4 for further details of the terms under which the Managers have been engaged by the Company.

2.13 APPLICATIONS FOR SHARES UNDER THE PUBLIC OFFER

(a) Process

Applications for Shares under the Public Offer can be made online using the online Application Form, or by using the Application Form which accompanies this Prospectus.

If you are an Australian resident seeking to apply online and to pay electronically by BPAY®, you will need to complete an online Application Form and make payment in accordance with the instructions on that Application Form.

Alternatively, you may pay by cheque and complete the Application Form accompanying this Prospectus.

As the Public Offer is only in respect of a limited number of Shares (up to 37.5 million Shares to raise up to $15 million) and as the Offer Period is short, investors who wish to apply for Shares are encouraged to apply online using an online Application Form.

Overseas residents applying online must complete the Application Form accompanying this Prospectus and follow the relevant instructions. Applications by overseas residents may not be accepted, as set out in Section 2.16.

Applications under the Public Offer must be for a minimum of 5,000 Shares at $0.40 totalling $2,000 and thereafter in increments of 1,000 Shares at $0.40 each totalling $400.

Brokerage or transfer/stamp duty is not payable in relation to the Public Offer.

Applicants who wish to apply under the Public Offer are urged to lodge their Application Form as soon as possible as the Offer may close early without notice.

The Company, in consultation with the Managers, reserves the right to accept a lesser amount to the total amount of Shares applied for by an Applicant under the Application Form at its complete discretion.

An original, completed and lodged Application Form together with a cheque, money order or Bpay® payment for the Application Money constitutes a binding and irrevocable offer to subscribe for the number of Shares specified in that Application Form. The Application Form does not need to be signed to be valid.

The Company reserves the right to refuse a completed Application Form if it has reason to believe that the Applicant has not received a Prospectus in paper or electronic form, or if it has reason to believe that this Prospectus or Application Form provided to the Applicant has been altered or tampered with in any way.

If the Application Form is not completed correctly, or if the accompanying payment is for an incorrect amount, it may be treated by the Company as valid at its discretion. The Directors' decision whether to treat such an application as valid and how to construe, amend or complete the Application Form is final. However, an Applicant will not be treated as having applied for more Shares than is indicated by the amount of the cheque for the Application Money.

(b) Payment using Bpay®

Any Applicants applying online must complete the Online Application Form available on the website (www.jupitermines.com) and pay their Application Monies via BPAY ® only. Applicants should follow the additional payment instructions on the website.

Payments must be made in Australian dollars for an amount equal to the number of Shares for which the Applicant wishes to apply, multiplied by the Offer Price of those Shares (i.e. $0.40 per Share).

Completed Online Application Forms and the associated Bpay® payments must be received before **5.00pm (AEST) on the Closing Date**.

(c) Payment by cheque or money order

Unless an Applicant pays using Bpay® as outlined above, the Application Form must be accompanied by a personal cheque or

money order, payable in Australian dollars, for an amount equal to the number of Shares for which the Applicant wishes to apply, multiplied by the Offer Price of those Shares (i.e. $0.40 per Share).

Cheques or money orders must be drawn on an Australian bank, made payable to "Jupiter Mines IPO Account" and should be marked "Not Negotiable".

Completed Application Forms and accompanying cheques must be received by the Company before **5.00pm (AEST) on the Closing Date**, with the Application Forms to be received at the address of the Company's Share Registry set out below:

Post	Delivery
Jupiter Mines Limited c/- Link Market Services Limited Locked Bag A14 Sydney South NSW 1235 AUSTRALIA	**Jupiter Mines Limited** c/- Link Market Services Limited 1A Homebush Bay Drive Rhodes NSW 2138 AUSTRALIA (do not use this address for mailing purposes)

2.14 APPLICATIONS FOR SHARES UNDER THE INSTITUTIONAL AND SOPHISTICATED INVESTOR OFFER

Applicants who are Institutional Investors or Sophisticated Investors who have received a 'firm allocation' of Shares from a Manager must lodge their Application Form and Application Money with the relevant Manager in accordance with the relevant Manager's directions in order to receive their firm allocation.

Completed Application Forms and Application Money must be delivered to the relevant Manager directly and not to the Company or the Share Registry.

2.15 APPLICATION MONEY TO BE HELD ON TRUST

Application Money will be held by Jupiter SaleCo on trust in accordance with the requirements of the Corporations Act until Shares sold, and transferred or issued under the Offer or a refund of Application Money occurs in the circumstances described in this Prospectus. Jupiter SaleCo will retain any interest earned on Application Money, including in the event of any refund of Application Money.

2.16 APPLICANTS OUTSIDE OF AUSTRALIA

This Prospectus does not constitute an offer of Shares in any jurisdiction where, or to any person to whom, it would not be lawful to issue this Prospectus or make the Offer.

The Company has not taken any action to register or qualify the Shares or the Offer, or otherwise to permit a public offering of the Shares, in any jurisdiction outside Australia.

It is the responsibility of any Applicant who is resident outside Australia to ensure compliance with all laws of any country relevant to their Application, and any such Applicant should consult their professional adviser as to whether any government or other consents are required, or whether any formalities need to be observed to enable them to apply for and be allotted Shares.

Return of a duly completed Application Form will constitute a representation and warranty by an Applicant that there has not been any breach of such regulations.

The distribution of this Prospectus (including in electronic form) in jurisdictions outside Australia may be restricted by law and therefore persons outside Australia who obtain this Prospectus should seek advice on, and observe, any such restrictions. Any failure to comply with these restrictions may constitute a violation of applicable securities laws. This Prospectus does not constitute an offer or invitation in any jurisdiction in which, or to any person to whom, it would be unlawful to make such an offer or invitation.

(a) Residents of New Zealand

This document has not been registered, filed with or approved by any New Zealand regulatory authority under the Financial Markets Conduct Act 2013 (**FMC Act**). The Shares are not being offered or sold in New Zealand (or allotted with a view to being offered for sale in New Zealand) other than to a person who:

(i) is an individual business within the meaning of clause 37 of Schedule 1 of the FMC Act;

(ii) meets the investment activity criteria specified in clause 38 of Schedule 1 of the FMC Act;

(iii) is large within the meaning of clause 39 of Schedule 1 of the FMC Act;

(iv) is a government agency within the meaning of clause 40 of Schedule 1 of the FMC Act;

(v) is an eligible investor within the meaning of clause 41 of Schedule 1 of the FMC Act; or

(vi) is otherwise a wholesale investor within the meaning of clause 3 of Schedule 1 of the FMC Act, and an offer of financial products to that person consequently does not require disclosure under Part 3 of the FMC Act.

(b) Residents of the United States of America

The Shares have not been, and will not be, registered under the US Securities Act of 1993 as amended (**US Securities Act**), and may not be offered, sold or resold:

(i) in the United States or to, or for the account or benefit of US Persons (as defined in Rule 902 under the US Securities Act) except in a transaction exempt from the registration requirements of the US Securities Act and applicable United States state securities laws; and

(ii) outside the United States, except to non-US persons in offshore transactions in compliance with Regulation S under the US Securities Act.

(c) Residents of the United Kingdom

If you have received this Prospectus and you are a resident in the United Kingdom, the content of this Prospectus has not been approved by an authorised person within the meaning of the Prospectus Directive (Directive 2003/71/EC) or as a financial promotion for the purposes of section 21 of the Financial Services and Markets Act 2000 of the UK. This Prospectus is not a prospectus for the purposes of the Prospectus Directive.

If you are considering engaging in any investment activity, you should seek appropriate independent financial advice and make your own assessment. It is emphasised that this Prospectus is being provided to you in reliance upon your acknowledgement and acceptance that this Prospectus is being made to and directed

solely at persons in the United Kingdom who are reasonably believed to be of a kind described in Article 19(5) (Persons having professional experience in matters relating to investment) or Article 49(2)(a)-(d) (High net worth companies, unincorporated associations, etc) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (as amended), and persons who are otherwise permitted by law to receive it (all such persons together being referred to as **Relevant Persons**). This Prospectus must not be acted upon or relied on by persons who are not Relevant Persons. Any investment or investment activity to which this Prospectus relates is available only to Relevant Persons and will only be engaged in with such persons. Any recipient of this Prospectus who is not a Relevant Person should return it to the Company immediately and not take any other action.

(d) Residents of Singapore

This Prospectus has not been registered with the Monetary Authority of Singapore. This Prospectus and any other materials in connection with the offer or sale, solicitation or invitation for subscription, or purchase of Offer Securities may not be circulated or distributed, nor may the Offer Securities be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore, other than to the following (each an **Exempt Investor**):

(i) to an 'institutional investor' under section 274 of the Securities and Futures Act, Chapter 289 of Singapore (**SFA**);

(ii) to a 'relevant person' pursuant to section 275(1) of the SFA, or any person pursuant to section 275(1A) of the SFA, and, in each case, in accordance with the conditions specified in section 275 of the SFA; or

(iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where Offer Securities are subscribed for or purchased, and if you are an Exempt Investor, you are subject to restrictions on transferability and re-sale. The Offer Securities may not be transferred or re-sold in Singapore, except as permitted under the SFA. By accepting this Prospectus, you agree to be bound by the disclaimers, limitations and restrictions described herein.

This Prospectus is distributed in connection with an offer of Offer Securities in Singapore that will not be issued to any person other than a person to whom this Prospectus is sent with the consent of the Company. A person receiving a copy of this document in Singapore may not treat the same as constituting an invitation to that person unless such an invitation could lawfully be made to them without compliance with any registration or legal requirements, or where such registration or legal requirements have been complied with.

(e) Residents of Hong Kong

WARNING: The contents of this Prospectus have not been reviewed by any regulatory authority in Hong Kong. You are advised to exercise caution in relation to the Offer. If you are in any doubt about any of the contents of this Prospectus, you should obtain independent professional advice.

This Prospectus has not been registered in Hong Kong and it has not been approved by the Securities and Futures Commission of Hong Kong under the Securities and Futures Ordinance (Chapter 571) of Hong Kong (**SFO**). This Prospectus and any other materials in connection with the offer or sale, solicitation or invitation for subscription, or purchase of Offer Securities may not be circulated or distributed, nor may the Offer Securities be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Hong Kong, other than to the following:

(i) to a 'professional investor' under the SFO;

(ii) in circumstances which will not result in this Prospectus constituting a 'prospectus' under the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Chapter 32) of Hong Kong or which do not constitute an offer to the public within the meaning of that Ordinance.

By accepting this Prospectus, you agree to be bound by the disclaimers, limitations and restrictions described herein.

2.17 SALE AND ISSUE OF SHARES

Subject to ASX granting approval for the Company to be admitted to the official list of ASX, the sale, transfer and issue of Shares to Applicants will occur as soon as practicable after the relevant Closing Date, following which Holding Statements will be despatched. It is the responsibility of Applicants to determine their allocation prior to trading Shares. Applicants who sell Shares before they receive their Holding Statements do so at their own risk.

2.18 ALLOCATION OF SHARES

Subject to the obligations set out in the Managers Mandate, the Directors have the right to allocate Shares at their discretion.

The Directors, in consultation with the Managers, may reject any Application or allocate to any Applicant fewer Shares than applied for.

The Directors, in consultation with the Manager, will generally allocate Shares at their discretion in the manner which they consider to be fair and reasonable, having regard to the requirements of the Listing Rules that the Company must have a prescribed minimum number of Shareholders that hold a marketable parcel of those Shares.

Persons who have not received a firm allocation of Shares from the Managers for Institutional and Sophisticated Investor Offer cannot participate in the Institutional and Sophisticated Investor Offer.

If your Application is not accepted, or is accepted in part only, the relevant part of the Application Money will be returned to you without any accrued interest.

The Directors of the Company are entitled to participate in the Offer by subscribing for Shares on the same terms and conditions as other Applicants. As at the Prospectus Date, Mr Priyank Thapliyal intends to apply for up to 2,160,000 Shares under the Offer and no other Director has determined whether or not he intends to participate in the Offer.

2.19 ASX LISTING AND QUOTATION

The Company has applied for ASX to admit the Company to the ASX and for quotation of the Shares offered under this Prospectus on the Official List of ASX.

If approval for quotation of the Shares offered pursuant to this Prospectus is not granted within 3 months after the Prospectus Date, no sale, transfer or issue of Shares will be made pursuant to the Offer and all Application Money will be repaid without interest as soon as practicable.

ASX does not take any responsibility for the contents of this Prospectus. The fact that ASX may admit the Company to its Official List of ASX is not to be taken in any way as an indication of the merits

of the Company or Shares offered pursuant to this Prospectus.

2.20 CHESS AND ISSUER SPONSORSHIP

The Company will apply to participate in CHESS, operated by ASX Settlement (a wholly owned subsidiary of ASX), in accordance with the Listing Rules and ASX Settlement Rules. The Company will operate an electronic issuer sponsored sub-register and an electronic CHESS sub-register. The two sub-registers together will make up the Company's principal register of its Securities.

Under CHESS, the Company will not issue certificates to the holders of Securities. Instead, the Company will provide holders with a Holding Statement (similar to a bank account statement) that sets out the number of Shares allotted and transferred (or issued) to them under this Prospectus.

This holding statement also advises investors of either their Holder Identification Number (**HIN**) in the case of a holding on the CHESS sub-register or Security Holder Reference Number (**SRN**) in the case of a holding on the issuer sponsored sub-register.

A statement will be routinely sent to holders at the end of any calendar month during which their holding changes. A holder may request a statement at any other time; however, a charge may be incurred for additional statements.

2.21 PRIVACY DISCLOSURE

The Company and the Share Registry collect information about each Applicant from the Application Forms for the purpose of processing the Application and, if the Applicant is successful, for the purposes of administering the Applicant's Share holding in the Company.

By submitting an Application Form, each Applicant agrees that the Company may use the information in the Application Form for the purposes set out in this privacy disclosure statement.

The Company and the Share Registry may disclose an Applicant's personal information for purposes related to the Applicant's investment to their agents and service providers including those listed below or as otherwise authorised under the *Privacy Act 1988* (Cth) (**Privacy Act**):

(a) the Share Registry for ongoing administration of the Company's register;

(b) the Managers in order to assess Applications;

(c) the printers and the mailing house for the purposes of preparing and distributing Holding Statements and for the handling of mail; and

(d) legal and accounting firms, auditors and other advisers for the purpose of administering, and advising on, the Shares and for associated actions.

If an Applicant becomes a Shareholder of the Company, the Corporations Act requires the Company to include information about the security holder (name, address and details of the Shares held) in its public register. This information must remain in the Company's register even if that person ceases to be a security holder of the Company. Information contained in the Company's register is also used to facilitate distribution payments and corporate communications (including the Company's financial results, annual reports and other information that the Company may wish to communicate to its Security holders) and compliance by the Company with legal and regulatory requirements.

If an Applicant does not provide the information required on the Application Form, the Company may not be able to accept or process their Application.

Under the Privacy Act, a person may request access to their personal information held by (or on behalf of) the Company or the Share Registry. An Applicant can request access to their personal information by writing to the Company through the Share Registry.

2.22 FORWARD-LOOKING STATEMENTS

The revenue of the Company is largely derived from its holding in Tshipi é Ntle, being a company it does not control. Consequently, the Directors, having considered ASIC regulatory guidance, do not believe that reliable forecasts of any possible revenue and expenses can be prepared and accordingly have not included forecasts in this Prospectus.

Refer to Section 3 for further information about the Company's business and activities.

Notwithstanding the above, this Prospectus includes, or may include, forward-looking statements including, without limitation, forward-looking statements regarding the Company's financial position, business strategy, plans and objectives and future operations (including development plans and objectives), which have been based on the Company's current expectations about future events. These forward-looking statements are subject to known and unknown risks, uncertainties and assumptions that could cause actual results, performance or achievements to differ materially from future results, performance or achievements expressed or implied by such forward-looking statements. Such forward-looking statements are based on numerous assumptions regarding the Company's present and future business strategies and the environment in which the Company will operate in the future.

Matters not yet known to the Company or not currently considered material to the Company may impact on these forward-looking statements. The forward-looking statements in this Prospectus reflect views held only as at the Prospectus Date. In light of these risks, uncertainties and assumptions, the forward-looking statements discussed in this Prospectus might not occur. Investors are therefore cautioned not to place undue reliance on these statements.

3. COMPANY OVERVIEW AND INVESTMENT HIGHLIGHTS

3.1 COMPANY BACKGROUND AND HISTORY

Jupiter is an unlisted Australian registered public company which has as its main asset a 49.9% beneficial interest in Tshipi é Ntle, an independently operated and managed, black empowered manganese mining company, currently operating the Tshipi Borwa Manganese Mine (**Tshipi** or **Tshipi Mine**).

Jupiter was registered as a company on 20 August 2003 and first listed on ASX on 21 December 2004, with a focus on exploring for gold, nickel and other base metal resources in Australia.

In 2008, Jupiter announced a transaction under which Pallinghurst Resources Australia Limited (**Pallinghurst**) and Red Rock Resources plc (**RRR**) vended a portfolio of Australian iron ore and manganese assets and financial investments into Jupiter in exchange for Jupiter shares, passing effective control of Jupiter to Pallinghurst and RRR (55.5% aggregate interest in Jupiter at the time).

This transaction was followed by a strategic investment in Jupiter by POSCO in 2009 (including placement and offtake rights) pursuant to a co-investment agreement with a consortium led by Pallinghurst and including the AMCI Group and Investec Bank Limited.

In March 2010, Jupiter announced a transformational transaction whereby it acquired its 49.9% interest in Tshipi é Ntle from a group of investors including Pallinghurst, known as the Pallinghurst Co-Investor Group, which collectively held 82.92% of Jupiter following the completion of the transaction.

Jupiter then proceeded to progress the development of Tshipi, partly funded by a capital raising of $150 million in January 2011 and a further $40 million placement and $36 million rights issue in July 2012. The development of Tshipi culminated in its maiden shipment of manganese ore in December 2012.

Jupiter de-listed from ASX on 10 January 2014 for various reasons, including that the Company did not consider that its transition from exploration to development and ultimately production had been appropriately reflected in its share price.

In the four years since the Company's de-listing, Tshipi has matured into the largest single South African manganese mine, and the third largest manganese exporter globally. The plant and infrastructure at Tshipi has been developed for an annual production capacity of up to 3.6 million tonnes per year, which can be increased to 5 million tonnes per year using mobile equipment.

During the FY2018, Tshipi é Ntle has sold 3.3 million tonnes of manganese ore, and is targeting production of in excess of 3 million tonnes in FY2019.

Further information regarding the Tshipi Mine is set out in Sections 3.2, 3.5 and 8 and information regarding the Company's Central Yilgarn Iron Project in Western Australia is set out in Section 3.7.

The Company is focussed on distributing profits to its Shareholders, as demonstrated by returns of capital of over $150 million across three buy-backs, completed in March 2017, December 2017 and March 2018.

3.2 INVESTMENT HIGHLIGHTS

The Tshipi Mine (Jupiter's interest is 49.9%) is located in the manganese rich Kalahari manganese field and is the single largest manganese mine in South Africa.

Approximately 80% of the world's known economic manganese resources are contained in the Kalahari manganese field in South Africa.

The open-cut mining operation is located just north of Sishen and is adjacent to South 32's large open-cut Mamatwan mine that has been operating for decades.

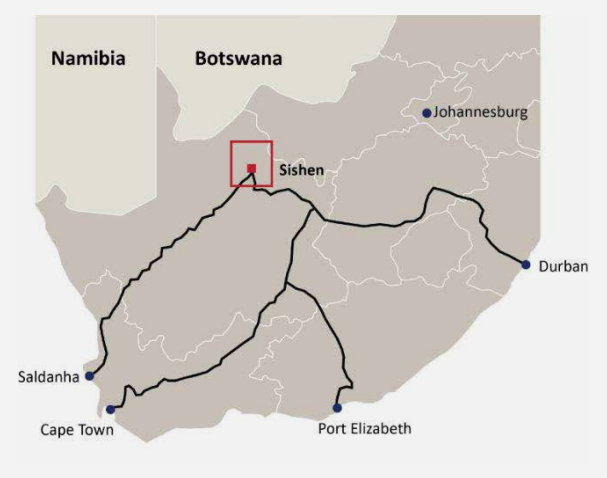


Figure 6: The location of the Tshipi mine

Jupiter's Tshipi manganese ore is shipped to multiple customers around the world and based on Jupiter's sales experience has been a highly sought-after product in the market place.

Figure 7: Export of Tshipi manganese ore at Port Elizabeth

The Tshipi Mine exported 3.34 million tonnes of manganese ore in FY2018 and production has been steadily growing over recent years.

Flexibility to scale production between 3.0 – 3.6Mtpa.

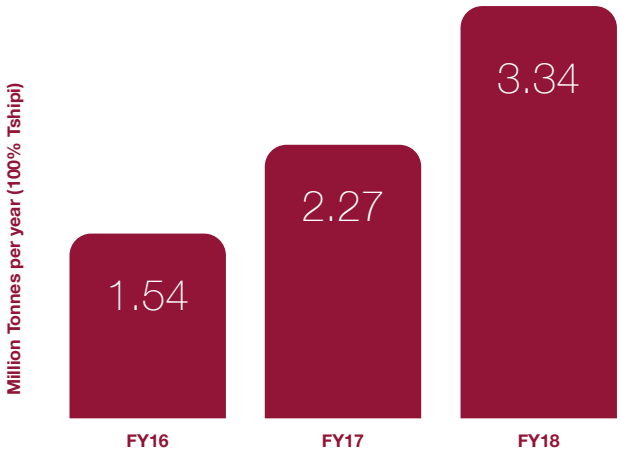


Figure 8: Millions of tonnes of manganese ore exported from the Tshipi Mine in FY2016, FY2017 and FY2018.

Tshipi é Ntle's recent strong financial performance has enabled Jupiter to return cash in excess of $153 million to Shareholders via buy-backs of Shares over the last 2 years.

Jupiter intends to target a 70% payout ratio to Shareholders. Refer to Section 4.8 for further details.

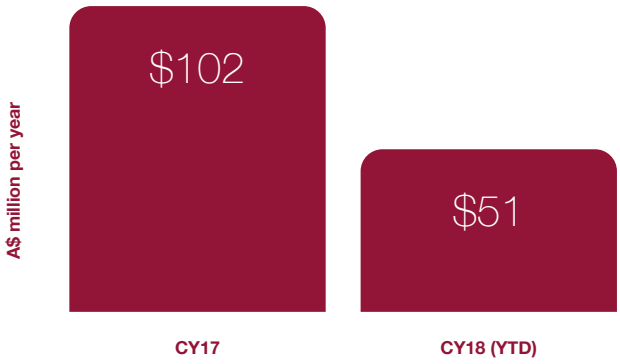
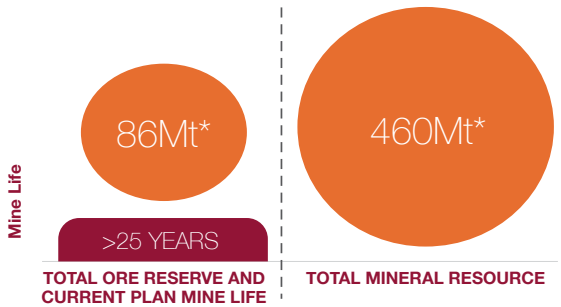


Figure 9: Cash returned to Shareholders by the Company in CY2017 and CY2018 via buy-backs of Shares.

Tshipi has a long mine life and a large JORC Mineral Resource position.



** Total JORC Ore Reserves and Mineral Resources - see Section 8.14 and Competent Person's Report (Appendix 1) for further details.*

Figure 10: Tshipi Borwa mine life and JORC Mineral Resource position

Tshipi is one of the largest and lowest cost manganese exporters globally. It has strong cash margins and further cost reductions are being targeted.

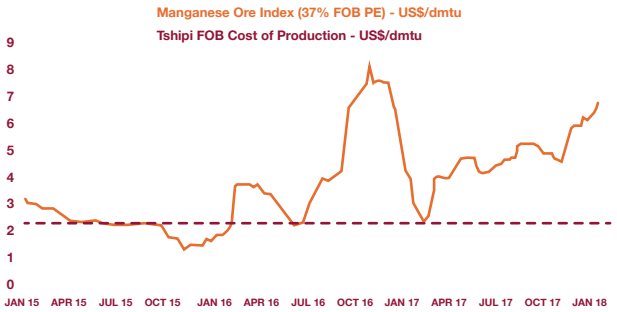


Figure 11: FY2017 FOB cost of production for the Tshipi Mine compared to the manganese ore price index.

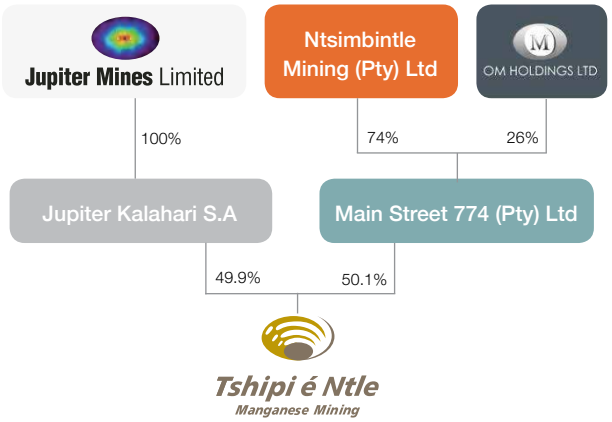
Tshipi's transport infrastructure is considered one of the best in the entire Kalahari manganese field. Tshipi has the potential to load trains faster than any other manganese operation in South Africa.

Figure 12: Tshipi mine rapid loud out facility

Figure 13: Tshipi rail loop

3.3 CORPORATE STRUCTURE

Jupiter's 49.9% beneficial interest in Tshipi is held through its wholly owned subsidiary Jupiter Kalahari S.A., which holds a 49.9% shareholding in Tshipi é Ntle (the owner of Tshipi), as shown in the diagram below:



Main Street 774 (Pty) Ltd (**Main Street**), is a broad-based black economic empowerment (**B-BBEE**) special purpose vehicle, with its major shareholder being Ntsimbintle Mining (Pty) Ltd (**Ntsimbintle**).

Ntsimbintle, a B-BBEE company, was formed in 2003 to pursue exploration and mining opportunities emerging in the South African manganese sector and was awarded prospecting rights over portions of the Mamatwan permit in which the Tshipi Mine is located.

In 2006, Ntsimbintle commenced prospecting on the Mamatwan permit and in 2007, Ntsimbintle formed a joint venture with the Pallinghurst Co-Investors, pursuant to which, the Pallinghurst Co-Investors acquired a 49.9% interest in Tshipi é Ntle.

In 2010, Ntsimbintle concluded an agreement with OM Holdings Ltd (**OM Holdings**), which resulted in OM Holdings acquiring a direct 26% shareholding in Main Street (with a 74% shareholding retained by Ntsimbintle), which in turn owns 50.1% of Tshipi é Ntle.

Jupiter acquired the Pallinghurst Co-Investors' 49.9% interest in Tshipi é Ntle in 2010 in consideration for the issue of Shares to the Pallinghurst Co-Investors, a number of whom remain as Shareholders of Jupiter.

Jupiter Kalahari and Main Street are party to a shareholders agreement with respect to their interests in Tshipi é Ntle, which is summarised in Section 12.5.

Jupiter's subsidiaries comprise:

- Jupiter Kalahari S.A. (registered with the Luxembourg Trade and Companies Register under number B 195288) (100% controlled, holding company for interest in Tshipi é Ntle);
- Jupiter SaleCo Pty Ltd ACN 624 156 387 (100% controlled, special purpose company established for facilitating the sale of Shares under the Offer);
- Broadgold Corporation Pty Ltd ACN 131 731 961 (100% controlled, inactive);
- Central Yilgarn Iron Pty Ltd ACN 123 016 731 (100% controlled, inactive); and
- Future Resources Australia Pty Ltd ACN 103 006 159 (100% controlled, inactive).

Jupiter's 49.9% interest in Tshipi é Ntle, held through Jupiter Kalahari S.A., is equity accounted.

Jupiter, its subsidiaries and Tshipi é Ntle have been duly incorporated, and are not subject to any material litigation or regulatory action.

3.4 BUSINESS MODEL

(a) Introduction

Jupiter's primary business model is the production and export of manganese, via its 49.9% interest in Tshipi é Ntle.

Whilst Jupiter does not have any debt on its balance sheet (refer to the Company Financial Information at Section 4) and as there is expected to be minimal capital investment required by Tshipi or CYIP in the short to medium term, the Company's ability to achieve its targeted dividend and distribution payout ratio of 70% is initially reliant on the income that the Company receives from the Tshipi Mine (through the entity Tshipi é Ntle).

Tshipi é Ntle made its first distribution to shareholders in February 2017 of ZAR1 billion, representing a return of approximately half of the original capital invested to develop the Tshipi Mine. Additional distributions of ZAR500 million and ZAR1.1 billion were made in September 2017 and February 2018.

A summary of the Tshipi Mine is outlined below, with further details included in Sections 3.5 and 8.

(b) Tshipi é Ntle's competitive position

Manganese is a critical and irreplaceable element in carbon steel production and is mainly used as an alloying agent that increases both the strength and flexibility of steel.

Amongst its listed competitors, Tshipi é Ntle is the only manganese producer which provides 100% exposure to the manganese mining, allowing Tshipi é Ntle to maximise profitability during a market upturn, whilst its operating structure allows it to predominately remain cash flow positive throughout the manganese price cycle.

Tshipi é Ntle began production in 2012 and is currently operating at a production run-rate of 3.3 million tonnes per year, making it one of the five largest manganese operations globally and the largest single manganese mine in South Africa. Tshipi é Ntle's mining plan currently focuses on simple drill-and-blast and load-and-haul mining of the open cast pit to deliver between 3.0 million tonnes and potentially up to 3.6 million tonnes, of manganese ore into the market each year over its life.

Tshipi é Ntle inhabits a favourable position on the global manganese cost curve with operating costs (including costs attributable to mining, crushing, transport, general marketing and logistics) of US$2.20 per dry metric tonne unit for FY2017, positioning Tshipi é Ntle as one of the lowest cost manganese producers globally.

(c) Tshipi Mine's business model

Jupiter's business model depends on Tshipi é Ntle:

(i) continuing stable and efficient production of manganese;

(ii) maintaining good control of operating costs;

(iii) efficiently transporting manganese ore to market; and

(iv) achieving a viable sales price for its manganese ore.

(d) Tshipi Mine production and transportation overview

The Tshipi Mine's large, shallow homogenous mineral resource base provides operational, safety and cost benefits, with its

contractor-operator model enabling it to be one of the lowest cost manganese producers globally, whilst still being able to flexibly scale production in response to manganese price volatilities and market conditions.

The Tshipi Mine's infrastructure includes:

(i) an integrated processing plant with annual production capacity of 3.6 million tonnes;

(ii) an 8km private rail siding that can accommodate up to two trains at once, with those two trains being able to be loaded in under 4 hours; and

(iii) access to road and rail logistics infrastructure (including a Transnet rail allocation of 2.1Mtpa) to transport its manganese ore to four separate ports, utilising up to seven terminals before being sold and exported to international customers.

Tshipi é Ntle has contracts in place with its mining contractors and access agreements in place with Transnet for rail capacity. The purpose of those contracts and agreements is to minimise the operational risks that could reduce production, increase costs and restrict Tshipi from delivering product to market (refer to Section 8.17 for further information in respect of these agreements). The majority of Tshipi é Ntle's mining, processing and transportation providers have been providing contracting services to Tshipi.

Tshipi é Ntle generates its own power and is independent of the national grid.

Tshipi é Ntle has also secured reliable water supplies to support its operations, which are with a long-standing, dependable supplier.

(e) Sale of Tshipi manganese ore

The Company's and Tshipi é Ntle's earnings are directly related to the prices obtained for Tshipi é Ntle's manganese ore, for which the buyers are predominantly located in East Asia. There is a well-established customer base for Tshipi é Ntle's manganese ore and no manganese shipments have been rejected since operations commenced, which can be attributed to its consistent grade and adherence to product specifications.

Jupiter has been registered as an external company in South Africa ("Jupiter S.A.") and Jupiter S.A. has been carrying out the sale of Jupiter's share of the Tshipi Mine's manganese ore production, with those sales in part being facilitated by Tshipi é Ntle.

At present there are 10 to 15 primary customers for the Company's manganese ore, situated mainly in Asia, and a limited number of smaller customers. The Company supplies the product to its customers in similar volumes and without any substantial customer concentration.

The price of manganese ore is agreed:

(i) upfront with customers at spot;

(ii) during a maximum 3 month forward sell window during good market conditions; or

(iii) in some instances with reference to the Metal Bulletin or index during poor market conditions,

subject to delivery of ore meeting the agreed product specifications.

In practice, most trades are agreed on a spot basis using the Metal Bulletin as a price reference and negotiation based on factors such as when the shipment is due and views on where the market price for manganese could be at the time of shipment.

The majority of the sales value is typically paid within 14 days after the vessel has sailed based on the provisional analysis of weight and product quality determined by an independent surveyor at load port under a letter of credit. The balance of the sales value, typically not covered by a letter of credit, is paid within 90 days from when the vessel sails based on the final analysis of weight and product quality at the discharge port.

The standard terms of the Company's sale agreements include the quantity of the lumpy or fines product to be supplied, which is a percentage of the manganese and other mineral components of the volume of the product delivered. If the product does not meet the agreed specifications, the buyer is entitled to renegotiate the purchase price, but not to reject the shipment. The sale agreements typically specify whether delivery is made on a cost, insurance and freight or free on board basis in accordance with the applicable Incoterms.

Sales of manganese ore are conducted in US dollars, with the Company converting US dollar proceeds to South African Rand, thereby subjecting the Company to the impact of fluctuations in foreign currency exchange rates.

Jupiter considers there to be significant value attributable to the marketing business undertaken by Jupiter S.A. as agent to the sales of manganese ore. Jupiter through Jupiter S.A. earns a marketing fee commission based on the total value sold by Jupiter S.A. The 3% marketing fee is calculated off Tshipi's free-on- board revenue and is considered a strong and stable revenue stream by Jupiter.

(f) Tshipi's strategic and organic growth opportunities

Jupiter understands that there is some scope for further production expansion and cost optimisation through planned organic initiatives, such as consolidation of processing facilities, renegotiation of rail transport allocations and growth through regional consolidation and co-development opportunities.

(g) Tshipi é Ntle's directors

The board of directors of Tshipi é Ntle presently comprises:

- Brian Patrick Gilbertson (a nominee of Jupiter Kalahari);
- Sakumzi Justice Macozoma;
- Priyank Thapliyal (a nominee of Jupiter Kalahari);
- Johannes Gumede;
- Cynthia Omphemetse Mogodi;
- Brendan Eric Robinson;
- Ngee Tong Low; and
- Rudulph Johannes Stephanus van Jaarsveld (alternate director).

Refer to Section 12.5 for further information about the composition of the board of directors of Tshipi é Ntle and the rights of shareholders and directors of Tshipi é Ntle.

3.5 TSHIPI MINE

This Section contains an overview of the Tshipi Mine. Refer to Section 8 (Tshipi Mine) and to the Tshipi Competent Person's Report (Appendix 1) for the further details of the Tshipi Mine.

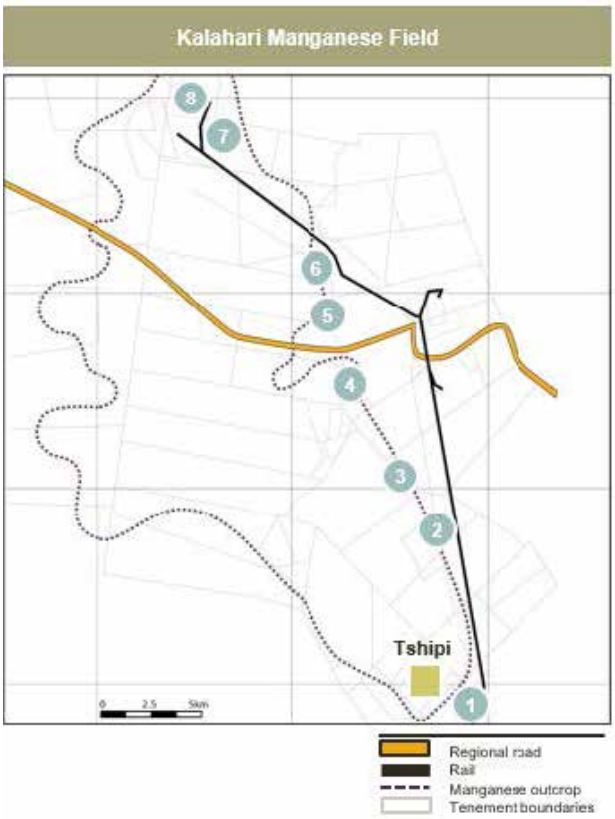
(a) Overview

Tshipi is a shallow open-cast mine located on a large and homogenous ore body which is located in the Southern portion of the Kalahari manganese field (**KMF**), the largest manganese bearing geological formation in the world. A number of manganese mines are currently operating in the KMF as shown.

Tshipi began production in 2012 and in the 2018 financial year produced 3.64Mt and sold 3.34Mt of manganese ore. It is currently operating at a production run-rate of approximately 3.3Mtpa of manganese ore, which is estimated to make it the largest single manganese mine in South Africa and one of the five largest manganese exporters globally.

Tshipi produces lumpy and fines manganese ore product with average grades of around 36.5% and 35.5% respectively.

Tshipi's large, shallow mineral resource base provides operational, safety and cost benefits, with the contractor-operator model enabling Tshipi é Ntle to become one of the lowest cost manganese exporters globally whilst its infrastructure allows it to scale production between 3.0 and 3.6 million tonnes per year in response to market conditions, enabling it to deliver strong cash margins.



	Mine	Major Shareholder	CY 2017E Production (Mt)	Method
1	Mamatwan	Samancor	2,7	OC
2	UMK	Renova / Majestic Silver	2,0	OC
3	Perth	Sebilo Resources	n.a.	n.a.
4	Kudumane	Kudumane Res. / Asia Minerals	1,5	OC
5	Kalagadi	Kalagadi Manganese	0,0	UG
6	Gloria	Assmang	0,7	UG
7	Nchwaning	Assmang	2,9	UG
8	Wessels	Samancor	0,9	UG

UG: Underground
OC: Opencast

Figure 14: Operating manganese mines in the Kalahari Manganese Field

The table below sets out the historical production, sales and costs for Tshipi (100% basis).

	FY2015	FY2016	FY2017	FY2018
Total sales (Mt)	2.11	1.54	2.27	3.34
Total production	2.43	1.39	2.33	3.64
Average cost/tonne (ZAR / dmtu)[1]	22.21	26.25	31.43	27.34
Average cost/tonne (US$ / dmtu)[1]	2.03	1.94	2.20	2.09

[1]. Costs include mining, processing, logistics, environmental and indirect costs.

Despite price volatility in the manganese market, Tshipi é Ntle has remained net cash positive from operating activities throughout the last three financial years. The table below represents 100% of Tshipi é Ntle and is provided in South African Rand.

	FY2015	FY2016	FY2017
South African Rand (ZAR/US$)	10.95	13.51	14.27
Average benchmark 37% Mn price (US$/dmtu)	3.22	2.06	4.31
Revenue (ZAR m)	2,701	1,613	3,777
Average Mn price (US/dmtu) implied by revenue	3.16	2.10	3.15
EBITDA (ZAR m)	527	(127)	1,354
EBITDA (%)	19.5%	(7.9%)	35.8%
Operating cash flow (ZAR m)	823	311	1,499

Notes:

1. As at the Prospectus Date, AUD:ZAR exchange rate is 1:9.07.

2. The average Mn prices stated in the table above are provided for reference purposes only. The 37% benchmark manganese price is the 37% Manganese Ore Index (FOB, Port Elizabeth) benchmark price reported by Metal Bulletin. The implied average Mn price achieved by Tshipi é Ntle is calculated by dividing the actual revenues of Tshipi é Ntle from sales of product by the total volumes of product sold.

3. Actual revenues are determined by different sales prices (taking into account necessary grade and fines adjustments) and volumes for each ore product (refer to Section 3.5(d) for further details on product specifications). Tshipi is targeting two manganese ore products in its LOM plan being, 36.5% Mn Lumpy (85% of production) and 35.5% Mn Fines (15% of production).

4. The implied average manganese ore price achieved by Tshipi é Ntle in FY2017 was substantially lower than the 37% Manganese Ore Index due to approximately 600,000 tonnes of low grade material being sold which attracted a price discount. This low-grade material (which is classified as waste) was sold to take advantage of the increased manganese price at the time.

Jupiter expects Tshipi é Ntle's EBITDA for FY2018 to be approximately US$250 million and net income for FY2018 to be approximately US$160 million. These amounts are based on Tshipi é Ntle's unaudited management accounts for FY2018.

(b) Tshipi é Ntle historical financial information

(i) Historical income statement summary for Tshipi é Ntle

Set out below is the audited and reviewed income statement for Tshipi é Ntle.

ZAR'000	Year ended 29 Feb 2016 Audited	Year ended 28 Feb 2017 Audited	Half year ended 31 Aug 2017 Reviewed
Revenue	1,612,975	3,777,213	2,977,658
Cost of goods sold	(1,828,604)	(2,350,432)	(1,868,501)
Gross margin	**(215,629)**	**1,426,781**	**1,109,157**
Other income	2,778	3,013	3,014
Administrative expenses	(5,279)	(5,280)	(8,392)
Impairment of PPE	(65,747)	-	-
Other operating expenses	(26,794)	(93,549)	(168,763)
Operating profit / (loss)	**(310,671)**	**1,330,965**	**935,016**
Finance income	82,322	19,484	12,129
Finance expenses	(32,679)	(111,771)	(146)
Profit / (Loss) before taxation	**(261,028)**	**1,238,678**	**946,999**
Taxation	64,572	(347,641)	(267,492)
Profit / (Loss) for the year	**(196,456)**	**891,037**	**679,507**

(ii) Tshipi é Ntle historical statement of cash flows

Set out below is the audited and reviewed statement of cash flows for Tshipi é Ntle.

ZAR'000	Year ended 29 Feb 2016 Audited	Year ended 28 Feb 2017 Audited	Half year ended 31 Aug 2017 Reviewed
Cash flows from operating activities			
Profit / (Loss) before taxation	(261,028)	1,238,678	946,999
Adjustments for:			
Finance and exchange	(35,689)	92,287	1,669
Depreciation and PPE	408,044	267,315	67,319
Other adjustments	52,218	(47,873)	(111,114)
Operating cash flows before working capital changes	**163,545**	**1,550,407**	**904,873**
Changes in:			
Inventories	(35,087)	31,220	(15,855)
Trade and other receivables	218,882	(340,840)	(452,344)
Trade and other payables	(23,017)	276,403	71,246
Non-cash movements in trade and other receivables	(16,592)	(19,327)	(58,271)
Cash generated by operating activities	**307,731**	**1,497,863**	**449,648**
Interest	4,019	6,068	-
Tax expense paid	(878)	(4,481)	(219,564)
Net cash from operating activities	**310,872**	**1,499,450**	**230,084**
Cash flows from investing activities			
Acquisition of property, plant and equipment	(463,658)	(130,023)	(55,274)
Acquisition of other financial asset	(739)	(3,656)	(775)
Net cash used in investing activities	**(464,397)**	**(133,679)**	**(56,049)**
Cash flows from financing activities			
Funds repaid to shareholders	-	(988,790)	(125)
Funds repaid to financial institutions	(73,706)	(40,147)	-
Net cash from financing activities	**(73,706)**	**(1,028,937)**	**(125)**
Net cash movement for the year	**(227,231)**	**336,834**	**173,910**
Effect on Movements in exchange rates on cash held	54,961	(80,841)	-
Cash and cash equivalents at the beginning of the year	385,495	213,225	469,218
Cash and cash equivalents at the end of the year	**213,225**	**469,218**	**643,129**

(iii) Tshipi é Ntle historical balance sheet summary

Set out below is the audited and reviewed statement of financial position for Tshipi é Ntle.

ZAR'000	As at 29 Feb 2016 Audited	As at 28 Feb 2017 Audited	As at 31 Aug 2017 Reviewed
Non current assets			
Property, Plant and Equipment	1,783,588	1,777,861	1,768,704
Mineral rights	196,955	194,792	191,904
Other financial assets	16,904	21,742	22,517
Deferred stripping activity assets	419,864	290,420	348,691
Total non-current assets	**2,417,311**	**2,284,815**	**2,331,816**
Current assets			
Tax receivable	2,738	2,129	-
Inventory	296,474	316,117	331,972
Trade and other receivables	131,605	472,445	924,001
Cash and cash equivalents	213,225	469,218	643,129
Total current assets	**644,042**	**1,259,909**	**1,899,102**
Total assets	**3,061,353**	**3,544,724**	**4,230,918**
Equity			
Share capital and share premium	321,359	321,359	321,359
Retained earnings	307,625	1,198,662	1,878,168
Contributed assets reserve	116,961	116,961	116,961
Total equity	**745,945**	**1,636,982**	**2,316,488**
Non-current liabilities			
Decommissioning and rehabilitation provision	29,892	32,209	33,621
Deferred tax	128,871	471,422	556,474
Total current liability	**158,763**	**503,631**	**590,095**
Current liabilities			
Loan from related parties	1,918,189	929,399	929,399
Loan from third parties	40,147	-	
Trade and other payables	198,309	474,712	394,935
Total liability	**2,315,408**	**1,907,742**	**1,914,429**
Total Equity and Liabilities	**3,061,353**	**3,544,724**	**4,230,918**

(c) Pure-play manganese business

Manganese is a critical and irreplaceable element in carbon steel production and is mainly used as an alloying agent that increases both the strength and flexibility of steel. Jupiter expects the steel industry to provide a steady source of demand for manganese. Tshipi é Ntle provides 100% exposure to pure manganese mining, allowing Tshipi é Ntle to maximise profitability during a market upturn, whilst its operating structure allows it to remain cash flow positive throughout the manganese price cycle.

(d) Competitive strengths

Abundant and shallow mineral resource

Tshipi's 460 million tonne mineral esource base is located in the well-established KMF. The KMF contains manganese mineralisation of approximately 4.2 billion tonnes or 77% of the world's known inventory of land-based manganese metal.

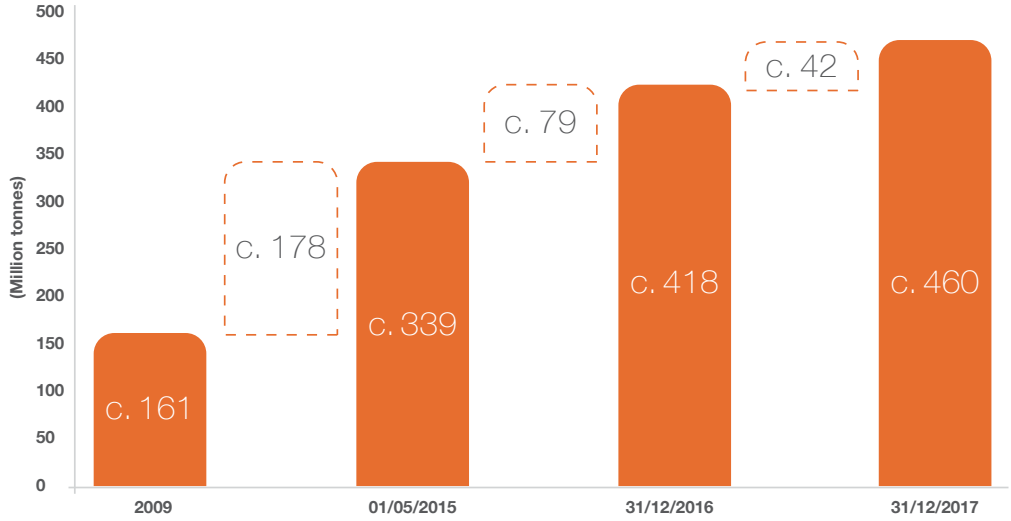
The below table shows the estimated ore reserves and mineral resources (inclusive of ore reserves) of the Tshipi Mine as at 31 December 2017:

	2017 Ore Reserves			2017 Mineral Resources	
	Tonnes (Mt)	Grade (% Mn)		Tonnes (Mt)	Grade (% Mn)
Proved	48	36.3	Measured	103	34.1
Probable	39	36.4	Indicated	120	33.5
			Inferred	237	32.5
Total	**86**	**36.3**	**Total**	**460**	**33.1**

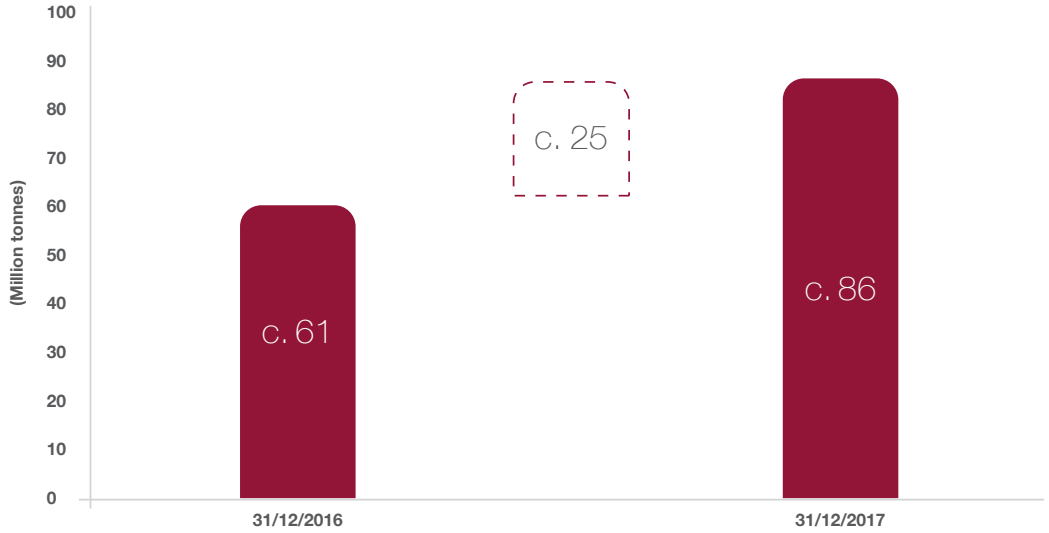
Refer to Section 8.14 and the Tshipi Competent Person's Report (Appendix 1) for further information about Tshipi's estimated ore reserves and mineral resources in accordance with the JORC Code (2012).

Tshipi has a demonstrated track record of mineral resource growth and mineral resource to ore reserve conversion.

The graph below shows the growth in Tshipi's mineral resources (inclusive of ore reserves):

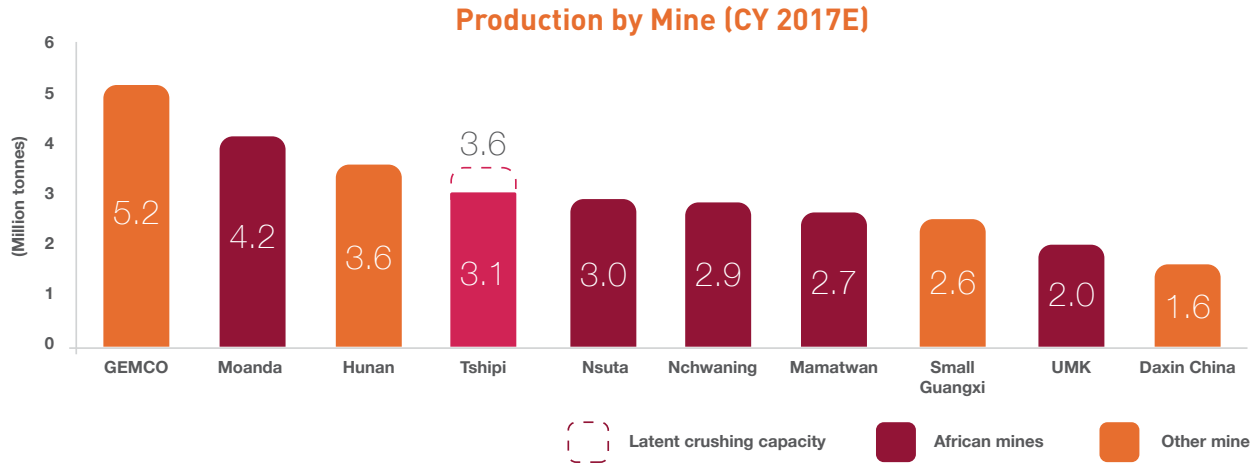


The graph below shows the growth in Tshipi's ore reserves:

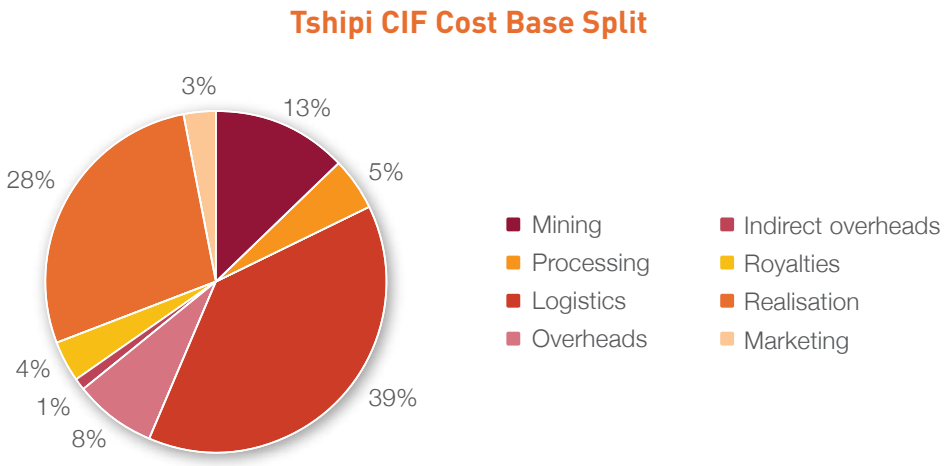


One of the largest and lowest cost manganese exporters globally

Tshipi é Ntle is a large-scale producer of manganese ore, currently producing at an annual run-rate of approximately 3.3Mt. Tshipi é Ntle's homogenous manganese ore body and shallow, open-pit mine allows for simple drill-and-blast and load-and-haul mining, with its infrastructure including an integrated processing plant that allows it to operate at relatively low operating costs compared to competitors.



Tshipi é Ntle' inhabits a favourable position on the global manganese cost curve with operating costs (including costs attributable to mining, crushing, transport, general marketing and logistics) of US$2.20 per dry metric tonne unit for FY2017 positioning Tshipi é Ntle as one of the lowest cost manganese producers globally.



Tshipi é Ntle anticipates scope for further production expansion and cost optimisation through planned organic initiatives targeted over time (short and medium term), such as in-pit backfilling, plant optimisation, power infrastructure and renegotiation of rail transport allocation, which are expected to generate approximately US$0.23/dmtu - US$0.31/dmtu (ZAR1.89/dmtu – ZAR2.56/dmtu) in annual cost savings. Refer to Section 3.5(e) below for further details.

Flexible onsite and offsite infrastructure capacity allowing for a response to evolving market conditions

Tshipi é Ntle's production facilities and logistics arrangements allow for efficient ramp-up of production and exports to take advantage of favourable market conditions. Further, as a low-cost producer, Tshipi é Ntle's operational structure allows it to maintain production through moderate price changes and scale down production during longer term depressed markets.

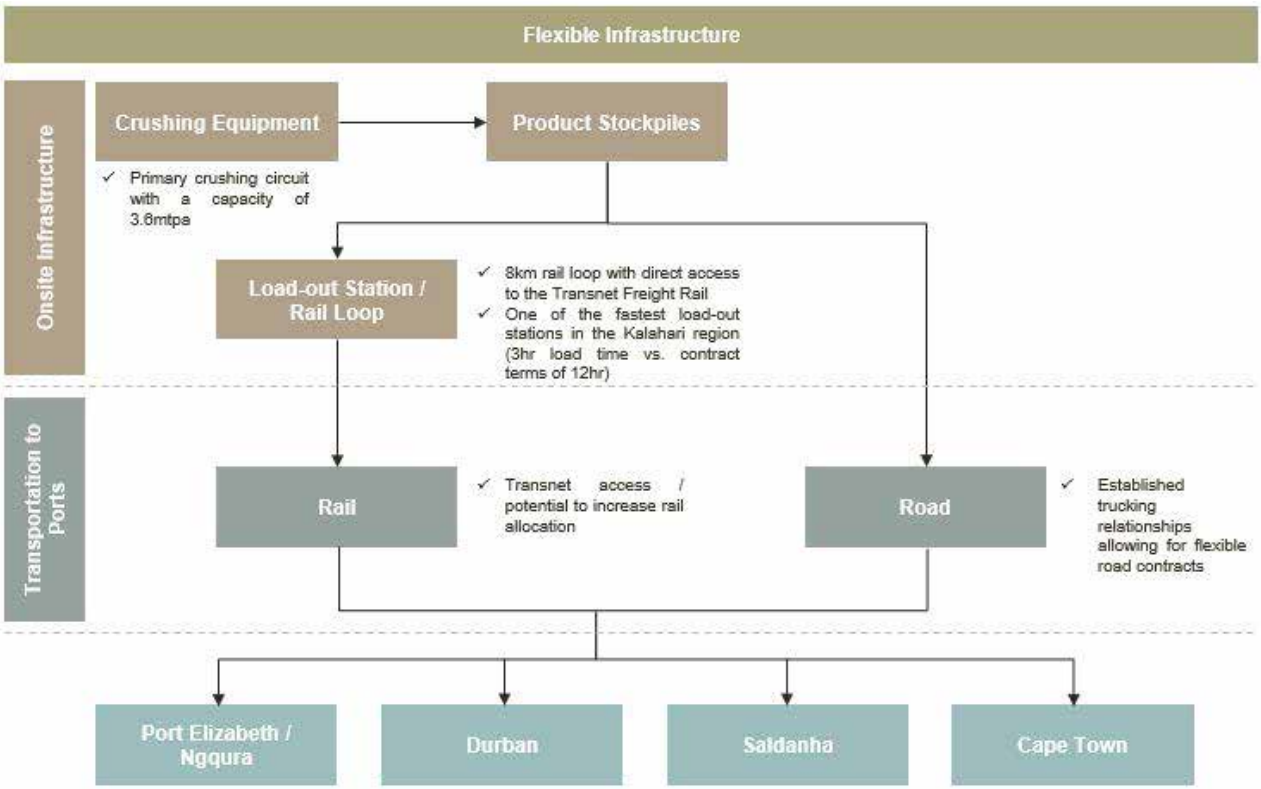


Figure 15: Flowchart of ore processing and infrastructure at the Tshipi Mine

The operations at Tshipi é Ntle are conducted on a contractor-operated model, which allows the level of production and mining activities to be adjusted within certain production limits in the event of sustained price decreases. For example, in response to challenging market conditions during the 2016 financial year, Tshipi é Ntle implemented a mine optimisation plan that succeeded in maintaining positive operating cashflows and was then able to utilise its flexible operating model and infrastructure capacity during 2017 to rapidly increase production when manganese prices increased.

The majority of Tshipi é Ntle's mining, processing and transportation providers have been providing contracting services to Tshipi since commencement of production in 2012. Operations are supported by water and power resources supply contracts with long-standing, dependable suppliers and Tshipi operates independent of the national grid.

Tshipi é Ntle has established an efficient export infrastructure, including an 8-kilometre private rail siding loop, and one of the fastest load-out stations in the Kalahari region with direct access to the Transnet rail link. Tshipi é Ntle has the flexibility to delivery product to four ports via both rail and road, with Tshipi maximising, and in some cases exceeding, its rail allocation . Tshipi é Ntle has recently concluded in discussions with Transnet to increase its rail transport allocation. Transport of production in excess of rail capacity is completed by Tshipi é Ntle via road on an as-needed basis under flexible contracts with trucking companies. Tshipi é Ntle accesses and ships it manganese ore product from seven terminals across four ports in South Africa.

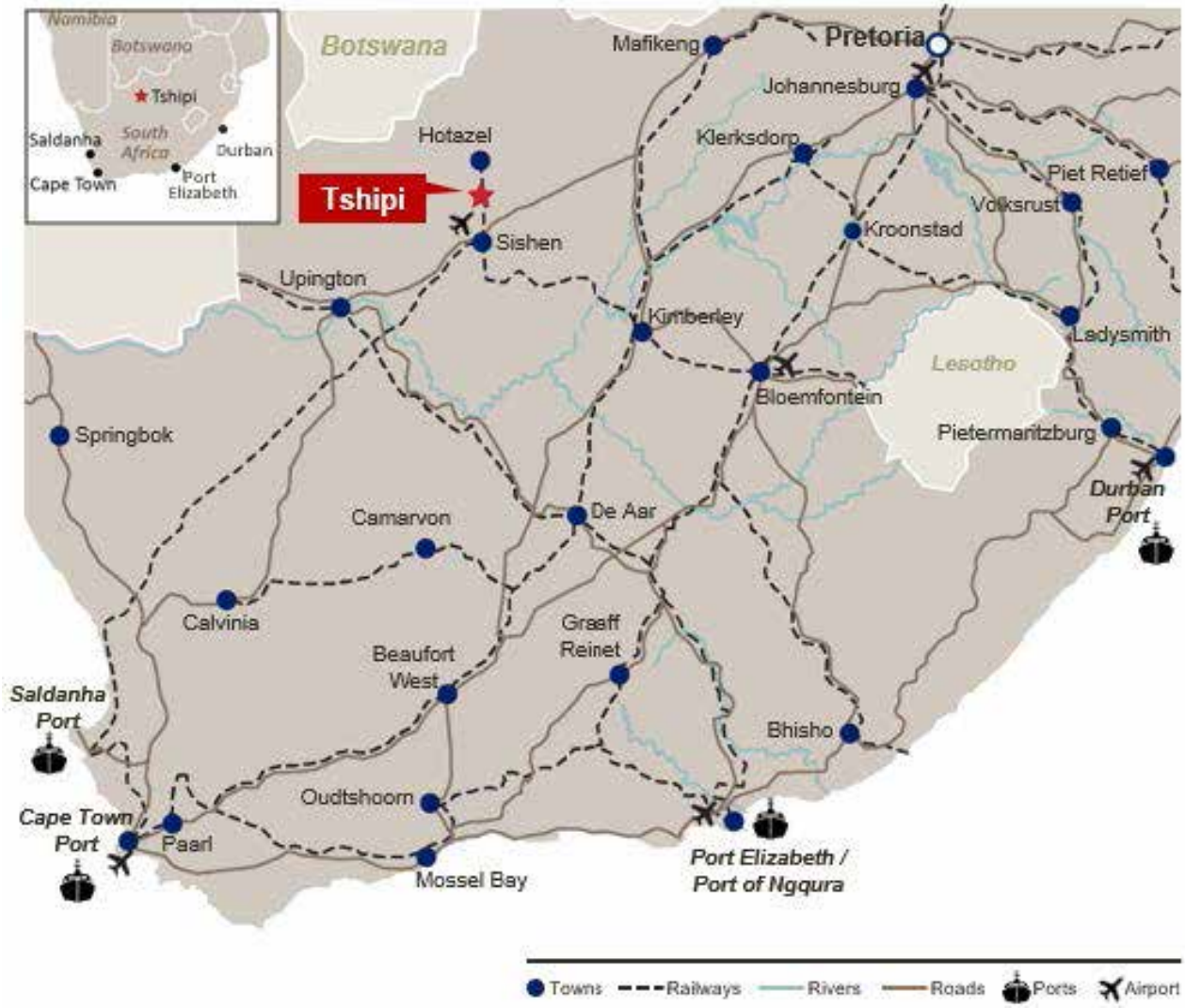


Figure 16: The location of the Tshipi Mine and means of transport in South Africa

Recognised and established product quality

Tshipi é Ntle is well-known for its consistent grade manganese ore product with little deviation from product specifications. Tshipi é Ntle's products include high grade lumpy (typical grade 36.5% manganese content) and high grade fines (typical grade 35.5% manganese content). There is a well-established customer base for Tshipi é Ntle's manganese ore and, due to the consistent grade, no customer complaints have been received since operations commenced.

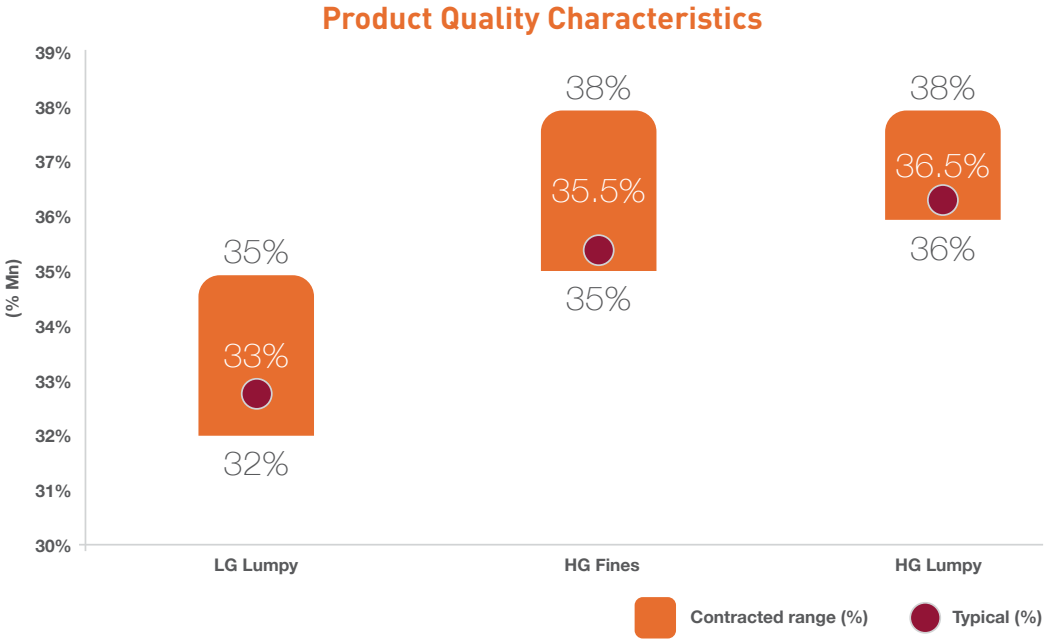


Figure 17: Product quality characteristics

A summary of the product specifications of the manganese ore produced from the Tshipi Mine is contained in Table 37 in section 14.3 of the Tshipi Competent Person's Report (Appendix 1).

The summary of product specifications contains the chemical and physical specifications and typical analyses of the low grade lumpy ore, high grade fines and high grade lumpy ore produced from the Tshipi Mine.

Strong and experienced management team

Tshipi é Ntle has a team of experienced executives with complementary skills, including strategic and commercial expertise, who have been instrumental in the development and expansion of Tshipi to be South Africa's largest single manganese mine.

Ezekiel Lotlhare, Tshipi é Ntle's CEO, joined in 2011 prior to the commencement of production at Tshipi. Through his roles as Operations Manager, General Manager and, most recently, CEO, Ezekiel has developed a deep understanding of the Tshipi asset, implemented a flexible operating structure responsive to wider manganese market fundamentals and built solid relationships with Tshipi é Ntle's shareholders, Tshipi é Ntle's contractors and other stakeholders. In addition to Ezekiel, Carel Malan and Natasha Chengapar, CFO and Chief Corporate Services Officer respectively, each have at least five years of service with Tshipi é Ntle and undertake essential strategic and operational roles.

(e) Strategy

Tshipi é Ntle is well positioned to take advantage of current and future market opportunities to maximise value through two main strategic objectives:

Enhance cash flow through optimisation initiatives

Tshipi é Ntle has undertaken and intends to undertake a number of initiatives in the short and medium term to optimise costs and processes associated with its operations, including:

(i) in-pit backfilling: implementation of a current life of mine plan design that incorporates an in-pit back filling strategy to reduce the trucking of waste material thereby significantly reducing annual costs associated with hauling of around ZAR71 million;

(ii) plant optimisation: construction of a conveyor structure to connect the GP500 secondary crushing and screening plant to the finished product stockpile, expected to achieve annual cost savings of ZAR50 million with an estimated incremental capital cost of ZAR85 million;

(iii) Eskom connection: Tshipi é Ntle intends to upgrade its power infrastructure by connecting to the Eskom-operated power grid during the 2020 financial year, which is expected to provide greater certainty of supply and an estimated ZAR16 million benefit to operating costs after an incremental capital cost of ZAR60 million; and

(iv) Rail allocation: Tshipi é Ntle anticipates that by continuing current levels of production it will be able to negotiate higher rail allocations, thereby lowering transport costs by up to between ZAR73 million and ZAR146 million annually.

Jupiter estimates that, at a production rate of 3 million tonnes per year, in excess of ZAR200 million per year of cost savings are achievable through the implementation of the above optimisation initiatives. These cost savings are expected to position Tshipi é Ntle firmly as one of the lowest cost producers globally.

Tshipi é Ntle has a strong historical track record for implementing cost saving initiatives that have reduced its operating cost base, with examples including:

(i) replacing existing mobile secondary crushing and screening plants with a permanent GP500 plant in January 2018, which increased on-site permanent infrastructure capacity to 3.6Mtpa and realised cost savings of ZAR73 million per annum;

(ii) following negotiations with Transnet, Tshipi increased its Transnet rail allocation by 300,000 tonnes (from 1.8Mtpa to 2.1Mtpa) allowing it to reduce its use of road transport, achieving an annual benefit of ZAR68 million; and

(iii) increasing utilisation of the Durban rail channel by 280,000 tonnes, allowing a further reduction in road transport volumes, achieving an annual benefit of ZAR55 million.

Capitalise on Regional Consolidation and Co-Development Opportunities

The KMF is a premium manganese basin where a number of manganese mines are currently operating.

The Mamatwan mine, operated by Samancor, is the immediate neighbour of Tshipi and separated by an approximately 18 metre wide boundary pillar. In May 2017, the South African Department of Mineral Resources (**DMR**) approved the joint application of Tshipi é Ntle and Samancor to mine the boundary pillar, thereby giving both companies access to previously sterilised ore, at low mining cost. Given the boundary pillar is an artificial divide of the same orebody, the deposits in each of Tshipi and the Mamatwan mine share the same geology, morphology and structure.

In addition to Mamatwan, there are several other mines that are currently producing manganese ore in the KMF. While Tshipi é Ntle is not currently pursuing any specific acquisition or transaction, given the close proximity of various active sites, potential opportunities exist for consolidation.

Given Tshipi é Ntle's low cost operations, efficient and effective infrastructure and Tshipi é Ntle's strong balance sheet, Tshipi é Ntle is well positioned to pursue any consolidation opportunities as and when they arise, to supplement its organic growth and optimisation initiatives. Any opportunity would be evaluated with appropriate consideration given to a range of criteria including, but not limited to, synergy potential, return on capital and cash generation.

(f) Social responsibility

Tshipi é Ntle maintains social responsibility policies and sustainable development strategies to ensure a long-term balance between Tshipi é Ntle's interests and those of its immediate communities and environment. Tshipi é Ntle strives to engage all of its stakeholders, including shareholders, employees, customers and suppliers, regulators and the local municipality and communities in which it operates, examples of this include:

(i) engaging local businesses to provide certain support services, such as waste management services; and

(ii) supporting local projects, including a rural bulk water supply project, a foundation phase teacher development project, and construction of a community clinic, as well as provided financial support for educational, business and technical training programs and community learning centres.

3.6 TSHIPI COMPETENT PERSON'S REPORT

The Mineral Corporation has prepared a competent person's report with respect to the Tshipi Mine, which is set out in Appendix 1 to this Prospectus (**Tshipi Competent Person's Report**).

The Tshipi Competent Person's Report includes mineral resource and ore reserve estimates of the Tshipi Mine prepared by The Mineral Corporation. Refer to pages 103 to 107 of this Prospectus for an executive summary of the Tshipi Competent Person's Report.

The Mineral Corporation's expertise, interests and status

The mineral resource estimates contained in the Tshipi Competent Person's Report were prepared under the supervision of and are signed-off by Mr Stewart Nupen (BSc. Hons, MBA, FGSSA, Pr.Sci.Nat), and the ore reserve estimates for the Tshipi Mine were prepared under the supervision of and signed-off by Mr Jonathan Buckley (BSc. Hons. MSc. FSAIMM, Pr. Eng.), being persons employed or engaged by The Mineral Corporation.

The Mineral Corporation and its officers, consultants and employees have no interest in the Company, Tshipi é Ntle or the Offer.

However The Mineral Corporation is not necessarily considered to be "independent" of the Company by reason of its previous engagements noted below.

The Tshipi Competent Person's Report contains a risk assessment which is summarised in the Executive Summary of the Tshipi Competent Person's Report (Appendix 1) at page 103 of this Prospectus with the material risks being identified as follows:

Material risk	Further information in Tshipi Competent Person's Report (Appendix 1)
Potential financial provisions on closure should Tshipi é Ntle be unable to procure amendments to the environmental management plan (EMP) to reflect only partial backfilling of the void.	Sections 17.3 to 17.6, section 23.4
Manganese price volatility.	Section 23.4
Potential logistics costs increases.	Section 23.4

Previous engagements

The Mineral Corporation has previously been engaged to provide services in respect of the Tshipi Mine, including prior to the acquisition by the Company of its interest in Tshipi é Ntle in November 2010, as follows:

- May 2008 – scoping study and mineral resource model;
- April 2009 – mineral resource component of feasibility study;
- July 2009 – mineral resource model update;
- 2016/2017 – updated mineral resource and ore reserve estimate; and
- 2017/2018 – the Tshipi Competent Person's Report (Appendix 1).

3.7 CENTRAL YILGARN IRON ORE PROJECT

The Central Yilgarn Iron Ore Project (**CYIP**), located approximately 110km northwest of Menzies, provides Jupiter with exposure to several 100% Company owned iron ore exploration prospects in close proximity to established road and railway infrastructure. The CYIP covers approximately 490 square kilometres and consists of two project areas; Mount Ida (magnetite) and Mount Mason (hematite).

Scoping Studies completed in 2011 on the Mount Ida Magnetite Project and the Mount Mason DSO Hematite Project indicated that the projects were financially robust. Both projects are planned around existing infrastructure in the region, including the Leonora to Esperance railway line, and the Port of Esperance.

Jupiter completed the Mount Mason Feasibility Study in Q1 2012, with further optimisation work undertaken in 2014, until the project was suspended due to economic conditions and infrastructure access, and placed into care and maintenance. The Mount Ida Feasibility Study commenced in Q2 2012 and was based on annual production of 10 million tonnes a year of beneficiated magnetite grading +68% Fe. Work on the Mount Ida Feasibility Study was suspended in 2012 also due to economic conditions and infrastructure access, and remains under care and maintenance.

Refer to the CYIP Independent Geologist's Report (Appendix 2) for the further information about the CYIP.

4. COMPANY FINANCIAL INFORMATION

4.1 INTRODUCTION

The financial information set out in this Section 4 contains the following financial information in relation to Jupiter, prepared by the directors:

- summary historical consolidated statement of profit or loss and other comprehensive income for the year ended 28 February 2016 (**FY2016**), year ended 28 February 2017 (**FY2017**), and the half year ended 31 August 2017 (**HY2018**) (together with the comparative for the half year ended 31 August 2016 (**HY2017**));
- summary historical consolidated statement of cash flows for FY2016, FY2017 and HY2018 and the HY2017 comparative; and
- historical and pro forma consolidated statements of financial position as at 31 August 2017 and the associated details of the pro forma adjustments,

(together, the **Historical Financial Information**).

The Historical Financial Information has been prepared in accordance with Australian Equivalents to International Financial Reporting Standards (**AIFRS**).

The Historical Financial Information (other than the pro forma adjustments to the historical consolidated statement of financial position as at 31 August 2017 and the results of those adjustments) has been derived from the audited Consolidated General Purpose Financial Report of Jupiter for FY2015 and FY2016 and reviewed Consolidated General Purpose Financial Report for HY2018. The Consolidated General Purpose Financial Report of Jupiter was audited and reviewed by Grant Thornton Audit Pty Ltd in accordance with the Australian Auditing Standards. The audit and review opinions issued to the Directors for FY2016, FY2017 and HY2018 were unmodified.

The Historical Financial Information has been reviewed by Grant Thornton Corporate Finance Pty Ltd, whose Independent Limited Assurance Report is contained in Section 5. The Directors are however responsible for the inclusion of all financial information in this Prospectus.

Jupiter's primary asset is its interest in Tshipi é Ntle, a joint venture entity. A joint venture is an arrangement that Jupiter controls jointly with one or more other investors, and over which Jupiter has rights to a share of the arrangement's net assets rather than direct rights to underlying assets and obligations for underlying liabilities. The investment in Tshipi é Ntle is accounted for using the equity method. Any goodwill or fair value adjustment attributable to Jupiter's share in the Tshipi é Ntle is not recognised separately in Jupiter's profit or loss and other comprehensive income but is included in the amount recognised as an investment. The carrying amount of Tshipi é Ntle is increased or decreased to recognise Jupiter's share (49.9%) of the profit or loss and other comprehensive income of Tshipi é Ntle.

Historically all sales and marketing was performed by OM Tshipi Pte Ltd, a joint venture which was 33.3% owned by Jupiter. As a result of the restructure (discussed in section 4.5(a) below), the substance of the contractual revenue arrangements changed over the period of the Historical Financial Information. Historically all sales and marketing fees were recognised in OM Tshipi Pte Ltd, with Jupiter recognising its share of the profit and loss and other comprehensive income, in accordance with the principles of equity accounting. Following the restructure, Jupiter recognised revenue directly. Due to a change in the pricing mechanism of the customer contract terms, Jupiter was deemed to bear the price risk for the sale of manganese ore between the periods May 2016 and February 2017. From February 2016 to April 2016 and from March 2017 onwards, the price risk in the customer arrangements of the manganese ore is borne by Tshipi é Ntle. As a result of this fundamental change in price risk, the substance of the revenue transactions changed. In the period from May 2016 to February 2017 (when the price risk is borne by Jupiter), Jupiter recognised revenue for the sale of manganese ore, along with an associated cost of sale. In the period directly before and after this period (when the price risk is borne by Tshipi é Ntle), Jupiter recognises a marketing fee being 3% of the sales value of Jupiter Mines S.A. This arrangement has been further discussed in Section 4.5(a) below.

The Historical Financial Information should be read together with the other information contained in this Prospectus, including:

- management's discussion and analysis set out in this Section 4;
- the risk factors described in Section 11;
- the description of the use of the proceeds of the Offer described in Section 2.7;
- the Independent Limited Assurance Report, set out in Section 5; and
- the indicative capital structure described in Section 2.9.

Investors should note that past performance is not an indication of future performance.

4.2 NON AIFRS FINANCIAL MEASURES

Jupiter uses certain measures to manage and report on its business that are not recognised under AIFRS. These measures are collectively referred to as "non AIFRS financial measures". These non AIFRS financial measures do not have a prescribed definition under AIFRS and therefore may not be directly comparable to similarly titled measures presented by other entities.

These should not be construed as an indication of, or an alternative to, corresponding financial measures determined in accordance with the AIFRS. Although Jupiter believes these non AIFRS financial measures provide useful information to users in measuring the financial performance and condition of the business, investors are cautioned not to place undue reliance on any non AIFRS financial measures included in this Prospectus.

In particular the following non AIFRS financial data is included:

- gross margin which means total revenue less cost of sales;
- EBITDA which means earnings before interest, taxation depreciation and amortisation;
- EBIT which means earnings before interest and taxation;
- NPBT which is net profit before tax; and
- NPAT which is net profit after tax.

Refer to Section 4.4 for a description of the key financial terms set out in Section 4.4.

4.3 HISTORICAL CONSOLIDATED STATEMENT OF PROFIT AND LOSS AND OTHER COMPREHENSIVE INCOME

The table below presents the summary historical consolidated statement of profit and loss and other comprehensive income for FY2016, FY2017 and HY2018 with the comparative for HY2017.

$'000	Audited Year ended 28 February 2016	Audited Year ended 28 February 2017	Reviewed Half Year ended 31 August 2017	Reviewed Half year ended 31 August 2016
Revenue	433	157,001	4,373	1,405
Cost of sales	-	(146,299)	386	-
Gross margin	433	10,702	4,759	1,405
Operating expenses	(2,382)	(1,860)	(1,047)	(867)
Share of profit/(loss) from equity accounted investments	(6,936)	41,474	33,795	8,937
EBITDA	(8,885)	50,316	37,507	9,475
Depreciation	(28)	(21)	(7)	(8)
Profit on exit of joint venture	-	-	345	-
Impairment	(149,172)	143,642	-	(561)
EBIT	**(158,085)**	**193,937**	**37,845**	**8,906**
Finance costs	1,504	776	(33)	742
FX Gains/(losses)	(15,811)	11,005	(1,443)	4,167
NPBT	**(172,392)**	**205,718**	**36,369**	**13,815**
Income tax expense	(4)	(5,619)	(3,630)	(5)
NPAT	**(172,396)**	**200,099**	**32,739**	**13,810**

4.4 DESCRIPTION OF KEY FINANCIAL TERMS

Set out below is a description of the key financial terms used in the presentation of the Historical Financial Information:

(a) **Revenue:** The two main sources of revenue over the Historical Period has been sale of manganese ore to third parties (for 10 months in FY2017) and marketing fee commission earned from the sale of manganese ore, for the remainder of FY2017 and HY2018. Revenue in FY2016 was in relation to recoupment of costs with no revenue generated from the Group's core activities (refer to Section 4.6(b) for details in relation to Jupiter's operating segments).

(b) **Costs of sales:** Costs incurred as a direct consequence of generating revenue, including the costs of manganese and direct labour costs. These costs were only incurred in FY2017 when the Group was recognising revenue for the sale of manganese ore. A small negative cost of sale was recorded in HY2018 due to timing differences in relation to the agreed contract manganese ore price.

(c) **Operating expenses:** These expenses include professional services costs, employee benefit costs, administration costs, travel and entertainment costs, director fees and occupancy costs.

(d) **Share of profit/(loss) from equity accounted investments:** refers to the Company's share of the profit and loss of its joint venture investments which are accounted for using the equity method. The movements in this account over the Historical Period is mainly in relation to Tshipi é Ntle.

(e) **Depreciation:** refers to the depreciation of office equipment.

(f) **Profit on exit of joint venture:** On 16 February 2017, the Group exited the joint venture arrangement with OM Tshipi Pte Ltd, which lead to a profit of $0.3 million being recognised in the statement of profit and loss and other comprehensive income for this period.

(g) **Impairment:** Impairment refers to the impairment recognised on both of the Group's exploration and evaluation assets or investments accounted for under the equity method. The reversal of impairment in FY2017 was in relation to the previous years recorded impairment for Tshipi é Ntle.

(h) **Finance costs:** refers to the interest received from loan receivable to Tshipi é Ntle and other interest expenses.

(i) **FX gains/losses:** refers to the foreign exchange gains and loss which arise due to the repatriation of funds arising from the various intergroup financing arrangements.

(j) **Income tax expense:** refers to the historical statutory income tax expense recorded by the Group.

4.5 GENERAL FACTORS AFFECTING THE HISTORICAL OPERATING RESULTS OF JUPITER

Below is a discussion of the main factors which affected Jupiter's operations and relative financial performance in FY2016, FY2017, and HY2018, which Jupiter expects may continue to affect it in the future. The discussion of these general factors is intended to provide a summary only and does not detail all factors that affected Jupiter's historical operating and financial performance, nor everything which may affect Jupiter's operations and financial performance in the future.

(a) Revenue

Revenue has fluctuated over the Historical Period due somewhat to the manganese ore price but mostly in relation to the changes in the transaction flows resulting from the restructure discussed below.

FY2016

Revenue in FY2016 amounted to $0.4 million which was the reimbursement of costs in relation to rent recoupment for shared office space.

In FY2016, OM Tshipi Pte Ltd was responsible for the marketing and selling of Jupiter's portion of manganese ore produced by Tshipi é Ntle. On 16 February 2017, Jupiter established Jupiter Mines S.A. to be responsible for the marketing of the Jupiter's portion of manganese ore. A take or pay off take agreement was signed between Tshipi é Ntle and Jupiter Mines Limited which resulted in Jupiter recognising the marketing commission and sale of manganese ore.

FY2017

With the re-structure that occurred on 16 February 2017, whereby Jupiter Mines S.A entered into customer contracts for the sale of manganese ore under the following arrangements:

- Between February 2016 and May 2016, the price charged by Jupiter Mines S.A was the same as the purchase price from Tshipi é Ntle (exclusive of marketing discount).
- From May 2016 to February 2017, the price charged by Jupiter Mines S.A. to customers may be different to the purchase price from Tshipi é Ntle.
- From February 2017 onwards, the sales price reverted back to the purchase price.

Given that Jupiter did not bear any price risks between February 2016 and May 2016 and also from February 2017 to August 2017, Jupiter was deemed to be an agent only for the sale of manganese ore. Therefore, no revenue was recorded for the sale of manganese, instead, Jupiter earned a marketing fee commission based on the total value sold by Jupiter Mines S.A. However between May 2016 and February 2017 Jupiter was deemed to bear the price risk of the sale of manganese ore and therefore deemed to be a principal resulting in Jupiter recognising revenue gross as well as cost of goods sold recognised for the purchase and selling costs of the ore.

The above accounting treatment resulted in Jupiter Mines S.A. recording all revenues in FY2017, either through the sale of manganese ore or through the marketing commission.

HY2018

In HY2018 marketing fee commission being earned by Jupiter Mines S.A was recognised as revenue consistent with the period from February 2017 onwards.

(b) Operating expenses

A summary of the operating expenses has been set out below:

$'000	FY2016	FY2017	HY2018	HY2017
Professional Services Costs	419	511	403	171
Employee Benefit Costs	245	530	326	180
Administration costs	181	171	104	89
Travel and Entertainment Costs	3	74	103	4
Director Costs	420	259	83	128
Occupancy Costs	1,114	315	28	295
Total	**2,382**	**1,860**	**1,047**	**867**

Jupiter's operating expenses mainly relate to professional service costs and staff costs. Professional service costs are included consultancy fees, management fees, accounting and audit fees, and legal fees. Professional service fees have increased in HY2018 as the Group has started to be charged a recharge fee for the use of other Group staff and office space. Included in employee benefit costs are the costs associated with employees within management, marketing, accounting and site administrative functions.

The historical operating expense summary does not include any salary for the CEO which will be incurred going forward. The salary of the CEO is estimated to be $0.7 million per annum (refer to Section 6.3 for a summary of this arrangement). It is expected that total director fees will be $0.3 million per annum (refer to Section 13.3).

(c) Depreciation

Depreciation is mostly incurred in relation to depreciating the office equipment.

(d) Impairment

At each reporting date, the Directors assess the carrying value of the Company's investment in both Tshipi é Ntle and CYIP. In FY2016, due to the low manganese ore price, the Company commissioned an independent valuation of its 49.9% interest in Tshipi é Ntle which resulted in an adjustment to the carrying value of the investment to $178.8 million and an impairment of $143.6 million recognised in the statement of profit and loss and other comprehensive income. In addition, due to the depressed iron ore prices in FY2016, the Company's investment in CYIP was also impaired by $5.5 million. In FY2017, following an increase in the manganese ore price, the Company again commissioned an independent valuation of its 49.9% interest in Tshipi é Ntle which concluded the investment to be valued at $889.1 million. As the investment in Tshipi é Ntle is accounted for using the equity method, the valuation is not permitted to be recognised at a value higher than previously recognised, therefore the Directors resolved to reverse the impairment recorded in FY2016 of $143.6 million which was recognised in the statement of profit and loss and other comprehensive income. No adjustment to the carrying value of CYIP was made in FY2017.

(e) Finance costs and FX gains/losses

The finance costs and FX gains/losses both predominantly arise from loans due from Tshipi é Ntle. The principal is in South African Rand. The loan receivable has been reducing over the historical period, and was fully repaid in February 2018 (refer to Section 4.7(b)(iv)).

4.6 HISTORICAL STATEMENT OF CASH FLOWS

The table below presents the summary historical statement of cash flows for FY2016, FY2017, HY2018 and HY2017.

$'000s	Audited Year ended 28 February 2016	Audited Year ended 28 February 2017	Reviewed Half Year ended 31 August 2017	Reviewed Half Year ended 31 August 2016
Operating cash flow				
EBITDA	(8,885)	50,316	37,507	9,475
Non-cash movement-equity accounting	6,936	(41,474)	(33,794)	(8,937)
Change in trade and other receivables	(16)	(9,716)	(24,751)	139
Change in other asset and liability	144	61	20	(752)
Change in trade and other payables	183	(173)	50,418	(180)
Net operating cash flows	**(1,638)**	**(986)**	**29,400**	**(255)**
Investing activities				
Purchase of plant and equipment	-	-	(2)	(12)
Purchase of intangibles	(14)	(12)	-	-
Sale of motor vehicles	-	40	-	-
Payments for exploration and evaluation	(1,160)	(874)	(571)	(534)
Sale of held for sale assets	390	-	-	-
Net investing cash flows	**(784)**	**(846)**	**(573)**	**(546)**
Financing activities				
Proceeds from sale of shares in OM Tshipi (S) Pte Ltd	-	-	3,072	-
Proceeds paid to shareholders on share buy-back	-	-	(70,636)	-
Interest received	1,018	720	104	498
Proceeds from loan repayments	-	48,452	-	-
Net financing cash flows	**1,018**	**49,172**	**(67,460)**	**498**
Net change in cash and cash equivalents held	(1,404)	47,340	(38,633)	(303)
Cash and cash equivalents at the beginning of the financial period	**38,773**	**37,369**	**84,709**	**37,369**
Effects of exchange rates on translation	-	-	-	1
Cash and cash equivalents at the end of the financial period	**37,369**	**84,709**	**46,076**	**37,067**

(a) Operating cash flows

In FY2016, Jupiter generated negative cash flows from operations as no significant revenues were recorded. This changed in FY2017 as a result of Jupiter Mines S.A. taking on the role of selling manganese ore on behalf of the Group. The increase in EBITDA was offset by an increase in investment in working capital, which led to operating cash outflows in FY2017 of $1.0 million. In HY2018, favourable movements in working capital led to operating cash inflows of $29.4 million.

(b) Investing cash flows

The majority of investing cash flows relate to payments made for exploration and evaluation assets which have been incurred in relation to the Central Yilgarn Iron Project.

(c) Financing cash flows

Financing activities in FY2017 included proceeds from the Tshipi loan repayment of $48.5 million. HY2018 included $70.1 million paid to shareholders in relation to the share buy-back (134,190,158 shares), as well as $3.1 million of funds received for the exit of OM Tshipi Pte Ltd joint venture.

4.7 HISTORICAL AND PRO FORMA CONSOLIDATED STATEMENT OF FINANCIAL POSITION

(a) Consolidated statement of financial position

The table below sets out the reviewed historical consolidated statement of financial position as at 31 August 2017, the pro forma adjustments that have been made to the reviewed statement of financial position (further described in Section 4.7(b)), and the pro forma statement of financial position as at 31 August 2017.

The pro forma statement of financial position is provided for illustrative purposes only and is not represented as being necessarily indicative of Jupiter's view of its future financial position.

As at 31 August 2017	Ref	Reviewed $'000	Pro forma adjustments $'000	Pro forma $'000
Cash and cash equivalents	4.7(c)	46,076	(33,276)	12,800
Trade and other receivables		34,707	-	34,707
Current loan receivable	4.7(b)(iv)	25,302	(25,302)	-
Other current assets		626	-	626
Total current assets		**106,711**	**(58,578)**	**48,133**
Available for sale financial assets		363	-	363
Property, Plant and Equipment		161	-	161
Investments in equity method	4.7(d)	378,378	(54,782)	323,596
Exploration and evaluation assets		12,336	-	12,336
Deferred tax asset		124	-	124
Total non current assets		**391,362**	**(54,782)**	**336,580**
Total assets		**498,073**	**(113,360)**	**384,713**
Trade and Other Payables	4.7(b)(i)	57,140	(29,500)	27,640
Short-term provisions		39	-	39
Total current liability		**57,179**	**(29,500)**	**27,679**
Deferred tax liability		3,719	-	3,719
Total non current liabilities		**3,719**	**-**	**3,719**
Total liability		**60,898**	**(29,500)**	**31,398**
Net assets		**437,175**	**(83,860)**	**353,315**
Share capital	4.7(e)	456,004	(45,462)	410,542
Reserves		(172)	-	(172)
Accumulated losses	4.7(e)	(18,657)	(38,398)	(57,055)
Total equity		**437,175**	**(83,860)**	**353,315**

(b) Description of pro forma adjustments

The following transactions and events had not occurred prior to 31 August 2017, but have taken place or will take place on or before the Sale Date. The pro forma financial information in this Section 4.7(b) assumes that they occurred on or before 31 August 2017:

(i) an adjustment to reduce the cash balance and the trade creditor balance by $29.5 million as the trade creditor balance was abnormally high as at 31 August 2017 which is not considered indicative of the normal operating conditions of the business;

(ii) distribution received from Tshipi é Ntle in December 2017 for a total of $23.4 million. $11.2 million was allocated to the repayment of the loan receivable owed from Tshipi é Ntle with the remainder offsetting the carrying value of the investment;

(iii) completion of the share buy-back on 5 December 2017 which resulted in a total of 83,122,507 shares being bought back at $0.3821 per share. The buy-back comprised a return on capital of $0.2767 per share and a dividend of $0.1054 per share for a total return to shareholders of $31.7 million;

(iv) a distribution received from Tshipi é Ntle in February 2018, for a total of $56.7 million which will be allocated to the remaining loan owing from Tshipi é Ntle ($14.1 million) with the remainder being the return on the equity investment ($42.6 million);

(v) the completion of a share buy-back in March 2018 of 116,182,215 shares at $0.44 each. The buy-back comprised a return on capital of $0.23 per share and a dividend of $0.21 per share for a total return to shareholders of $51.1 million; and

(vi) the issue of 10,650,530 Shares amounting to $4,260,212 in relation to the IPO Bonus which will be expensed and is payable to the Company's Chief Executive Officer following Shareholder approval as described in Section 6.3(a).

In addition, the following transactions and events will take place on or before the Sale Date:

(vii) costs of the offer totalling $1.032 million. As no capital of a material amount will be raised, all the costs of the Offer will be expensed.

The effect of any issue of New Shares is not included in the pro forma adjustments as the New Shares offered under this Prospectus is only a nominal number (10,000 Shares) and may not in any event be issued.

At the Sale Date the expected cash balance at Tshipi é Ntle is estimated to be ZAR1.1 billion ($118 million) based on committed sales of manganese ore up to 31 March 2018. As the distribution to Tshipi é Ntle shareholders at the date of the Prospectus has not been approved by the board of Tshipi é Ntle, no adjustment has been included in the pro forma statement of financial position. If the cash balance were to be distributed, Jupiter's share of this amount, being 49.9% of the total, would be approximately $58 million.

(c) Calculation of pro forma cash position

The pro forma cash and cash equivalents shown in Section 4.7(a) are based on the following adjustments:

	Pro forma adjustments	Pro forma
Cash and cash equivalents at 31 August 2017		46,076
Subsequent events:		
Trade creditors adjustment	4.7(b)(i)	(29,500)
Distribution from Tshipi é Ntle – loan repayment (December 2017)	4.7(b)(ii)	23,366
Share buy-back (December 2017)	4.7(b)(iii)	(31,708)
Distribution received from Tshipi é Ntle (February 2018)	4.7(b)(iv)	56,718
Share buy-back (March 2018)	4.7(b)(v)	(51,120)
		13,832
Pro forma transactions:		
Costs of the Offer	4.7(b)(vii)	(1,032)
Pro forma cash and cash equivalents		**12,800**

(d) Calculation of pro forma investments using the equity method

The pro forma investments shown in Section 4.7(a) are based on the following adjustments:

	Pro forma adjustments	Pro forma
Investments using the equity method at 31 August 2017		378,378
Subsequent events:		
Distribution received from Tshipi é Ntle (December 2017)	4.7(b)(ii)	(12,138)
Distribution received from Tshipi é Ntle (January 2018)	4.7(b)(iv)	(42,644)
Pro forma investments using the equity method		**323,596**

(e) Calculation of pro forma capital structure

The pro forma capital structure shown in Section 4.7(a) is based on the following adjustments:

	Pro forma adjustments	Shares No.	Share capital $'000	Reserves $'000	Accumulated losses $'000	Net assets $'000
As at 31 August 2017		2,147,645,225	456,004	(172)	(18,657)	437,175
Subsequent events						
Share buy-back (December 2017)	4.7(b)(iii)	(83,122,507)	(23,000)	-	(8,708)	(31,708)
Share buy-back (March 2018)	4.7(b)(v)	(116,182,215)	(26,722)	-	(24,398)	(51,120)
Pre offer capital structure		**1,948,340,503**	**406,282**	**(172)**	**(51,763)**	**354,347**
Offer						
Offer costs	4.7(b)(vii)	-	-	-	(1,032)	(1,302)
Total at the date of Prospectus		**1,948,340,503**	**406,282**	**(172)**	**(52,795)**	**353,315**
CEO IPO bonus	4.7(b)(vi)	10,650,530	4,260	-	(4,260)	-
Total		**1,958,991,033**	**410,542**	**(172)**	**(57,055)**	**353,315**

4.8 DIVIDEND POLICY

It is the intention of the Board to target a dividend and distribution payout ratio in the order of 70% of the income and cash distributions received by Jupiter from Tshipi é Ntle, to be paid or returned in the form of dividends, buy-back offers or returns or distributions of capital to Shareholders. This is subject to Jupiter maintaining an appropriate working capital balance at all times.

No assurance can be given by the Company or its Directors about the payment of any dividend or distribution, or the level of franking on any such dividend.

The Directors anticipate that the majority or all of any dividends paid by the Company will not be franked.

The Directors also anticipate that the majority of all of any dividends paid by the Company to non-resident Shareholders will be conduit foreign income and will not be subject to withholding tax.

Please read the Company Financial Information in conjunction with the assumptions underlying its preparation as set out in Section 4 and the risk factors set out in Section 11 concerning dividends.

4.9 NEW ACCOUNTING STANDARDS

(a) AASB 16 Leases

This standard is effective for reporting periods beginning on or after 1 January 2019. The full impacts of AASB 16 on the Company has not yet been assessed and it is expected that the Company will adopt AASB 16 for the year ended 28 February 2019. In applying the new standard for the first time, AASB 16 provides a number of transition options, which may involve an adjustment to opening retained earnings at 1 March 2018 or the restatement of comparatives. The full impacts of the transition provisions have not yet been fully assessed by the Company. If AASB 16 was operative at 31 August 2017 the impact on the statement of financial position would be to recognise an asset and a corresponding liability for the amounts outstanding on all property leases amounting to $0.039 million. The impact on the profit and loss and other comprehensive income in FY2016, FY2017 and HY2017 would be to reduce property expenses and increase depreciation and finance costs.

(b) AASB 15 Revenue from Contracts with Customers

This standard is effective for reporting periods beginning on or after 1 January 2018. The full impacts of AASB 15 on the Company has not yet been assessed and it is expected that the Company will adopt AASB 15 for the year ended 28 February 2019. The standard provides a single standard for revenue recognition. The core principle of the standard is that an entity will recognise revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The standard will require: contracts (either written, verbal or implied) to be identified, together with the separate performance obligations within the contract; determine the transaction price, adjusted for the time value of money excluding credit risk; allocation of the transaction price to the separate performance obligations on a basis of relative stand-alone selling price of each distinct good or service, or estimation approach if no distinct observable prices exist; and recognition of revenue when each performance obligation is satisfied. Credit risk will be presented separately as an expense rather than adjusted to revenue. For goods, the performance obligation would be satisfied when the customer obtains control of the goods. For services, the performance obligation is satisfied when the service has been provided, typically for promises to transfer services to customers. For performance obligations satisfied over time, an entity would select an appropriate measure of progress to determine how much revenue should be recognised as the performance obligation is satisfied. Contracts with customers will be presented in an entity's statement of financial position as a contract liability, a contract asset, or a receivable, depending on the relationship between the entity's performance and the customer's payment. Sufficient quantitative and qualitative disclosure is required to enable users to understand the contracts with customers; the significant judgments made in applying the guidance to those contracts; and any assets recognised from the costs to obtain or fulfil a contract with a customer. The Company will adopt this standard from 1 January 2018. The Company is yet to undertake a detailed assessment of the impact of AASB 15. However, based on the entity's preliminary assessment, the Standard is not expected to have a material impact on the transactions and balances recognised in the financial statements when it is first adopted for the year ending 28 February 2019.

4.10 SIGNIFICANT ACCOUNTING POLICIES

A summary of the significant accounting policies used in the preparation of the Historical Financial Information in this Prospectus is set out in Appendix 3.

5. INVESTIGATING ACCOUNTANT'S REPORT

Grant Thornton
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3 April 2018

Dear Directors

INDEPENDENT LIMITED ASSURANCE REPORT AND FINANCIAL SERVICES GUIDE

Introduction

This report has been prepared at the request of the directors of Jupiter Mines Limited ("Jupiter Mines" or the "Company") for inclusion in the replacement prospectus (the "Prospectus") to be issued by the Company on or about 3 April 2018 in respect of the initial public offering of fully paid ordinary shares in the Company (the "Offer") and admission to the Australian Securities Exchange.

Grant Thornton Corporate Finance Pty Ltd ("Grant Thornton Corporate Finance") holds an Australian Financial Services Licence (AFS Licence Number 247140). This report is both an Independent Limited Assurance Report, the scope of which is set out below, and a Financial Services Guide, as attached at **Appendix A**.

Expressions defined in the Prospectus have the same meaning in this report, unless otherwise specified.

Scope

You have requested Grant Thornton Corporate Finance to perform a limited assurance engagement in relation to the historical and pro forma historical financial information included in Section 4 of the Prospectus.

The historical and pro forma financial Information is presented in an abbreviated form insofar as it does not include all of the presentation and disclosures required and other mandatory professional reporting requirements applicable to general purpose financial reports prepared in Australia in accordance with the Corporations Act 2001.

Our limited assurance engagement has not been carried out in accordance with auditing or other standards and practices generally accepted in any jurisdiction outside of Australia and accordingly should not be relied upon as if it had been carried out in accordance with those standards and practices.

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Historical and Pro Forma Historical Financial Information

The historical and pro forma historical financial information of the Company, as set out in the Prospectus comprises:

- The historical consolidated statement of profit or loss and other comprehensive income for the year ended 29 February 2016 ("FY2016"), the year ended 28 February 2017 ("FY2017") and six months ended 31 August 2017 ("HY2018") with the comparative for the six months ended 31 August 2016 ("HY2017");
- The historical consolidated statement of cash flows for FY2016, FY2017 and HY2018 with the HY2017 comparative;
- The historical consolidated statement of financial position as at 31 August 2017; and
- The pro forma consolidated statement of financial position as at 31 August 2017, which assumes completion of the transactions outlined in Section 4.8.2 of the Prospectus as though they had occurred at that date.

(collectively referred to as the "Historical Financial Information")

The Historical Financial Information has been prepared for inclusion in the Prospectus and has been derived from the audited financial statements of the Company for FY2016 and FY2017 and the reviewed financial statements for HY2017. The financial statements for FY2016 and FY2017 were audited by Grant Thornton Audit Pty Ltd in accordance with Australian auditing standards. The audit opinions issued to the Directors' of the Company in respect of FY2016 and FY2017 were unqualified. The financial statements for HY2018 were reviewed by Grant Thornton Audit Pty Ltd in accordance with Australian auditing standards. The review conclusion issued to the Directors' of the Company in respect of HY2018 was unqualified.

As stated in Section 4.1 of the Prospectus the basis of preparation is the recognition and measurement principles contained in Australian equivalents to International Financial Reporting Standards ("AIFRS") and the Company's adopted accounting policies set out in Appendix 3 of the Prospectus.

Directors' Responsibility

The Directors are responsible for the preparation and presentation of the Historical Financial Information. The Directors are also responsible for the determination of the pro forma transactions and the basis of preparation of the Historical Financial Information.

This responsibility also includes compliance with applicable laws and regulations and for such internal controls as the Directors determine necessary to enable the preparation of the Historical Financial Information that are free from material misstatement.

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Our Responsibility

Our responsibility is to express a limited assurance conclusion on the Historical Financial Information based on the procedures performed and evidence we have obtained. We have conducted our engagement in accordance with the Standard on Assurance Engagements ASAE 3450: "*Assurance Engagements involving Corporate Fundraisings and/ or Prospective Financial Information*".

Our procedures consisted of making enquiries, primarily of persons responsible for financial and accounting matters, and applying analytical and review procedures applied to the accounting records in support of the Historical Financial Information. Our procedures are substantially less in scope than an audit conducted in accordance with Australian Auditing Standards and consequently does not enable us to obtain reasonable assurance that we would become aware of all significant matters that might be identified in an audit. We have not performed an audit and, accordingly, we do not express an audit opinion on the Historical Financial Information.

Our engagement did not involve updating or reissuing any previously issued audit or review reports on any historical financial information used as a source of the Historical Financial Information.

Conclusion

Historical and Pro Forma Historical Financial Information

Based on our independent limited assurance procedures, which is not an audit, nothing has come to our attention which causes us to believe that:

- The Historical Financial Information as set out in the Prospectus does not present fairly:
  - The historical consolidated statement of consolidated profit or loss and other comprehensive income for FY2016, FY2017 and HY2018 (including the HY2017 comparative);
  - The historical consolidated statement of cash flows for FY2016, FY2017 and HY2018 (including the HY2017 comparative);
  - The historical consolidated statement of financial position as at 31 August 2017;
  - The pro forma consolidated statement of financial position as at 31 August 2017; or
- the pro forma transactions set out in Section 4.8.2 of the Prospectus are not a reasonable basis for the pro forma consolidated statement of financial position as at 31 August 2017;

in accordance with the stated basis of preparation described in Section 4.1 of the Prospectus.

We have assumed, and relied on representations from certain members of management of Jupiter Mines, that all material information concerning the historical operations of Jupiter Mines has been disclosed to us and that the information provided to us for the purpose of our work is true, complete and accurate in all respects. We have no reason to believe that those representations are false.

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Restriction on Use

Without modifying our conclusion, we draw your attention to Section 4.1 of the Prospectus which describes the purpose of the Historical Financial Information, being for inclusion in the Prospectus. As a result, the Historical Financial Information may not be suitable for use for another purpose.

Consent

Grant Thornton Corporate Finance consents to the inclusion of this Independent Limited Assurance Report in the Prospectus in the form and context in which it is included.

Liability

The liability of Grant Thornton Corporate Finance is limited to the inclusion of this report in the Prospectus. Grant Thornton Corporate Finance makes no representation regarding, and has no liability, for any other statements or other material in, or omissions from the Prospectus.

Independence or Disclosure of Interest

Grant Thornton Corporate Finance does not have any pecuniary interests that could reasonably be regarded as being capable of affecting its ability to give an unbiased conclusion in this matter. Grant Thornton Corporate Finance will receive a professional fee for the preparation of this Independent Limited Assurance Report.

Yours faithfully
GRANT THORNTON CORPORATE FINANCE PTY LTD

Neil Cooke
Partner

Appendix A (Financial Services Guide)

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This Financial Services Guide is dated 3 April 2018.

1 About us

Grant Thornton Corporate Finance Pty Ltd (ABN 59 003 265 987 and Australian Financial Services Licence no 247140) ("Grant Thornton Corporate Finance") has been engaged by Jupiter Mines Limited (the "Company") to provide general financial product advice in the form of an Independent Limited Assurance Report (the "Report") in relation to the offer of shares in the Company (the "Offer"). This report is included in the replacement prospectus dated on or about 3 April 2018 (the "Prospectus"). You have not engaged us directly but have been provided with a copy of the Report as a retail client because of your connection to the matters set out in the Report.

2 This Financial Services Guide

This Financial Services Guide ("FSG") is designed to assist retail clients in their use of any general financial product advice contained in the Report. This FSG contains information about Grant Thornton Corporate Finance generally, the financial services we are licensed to provide, the remuneration we may receive in connection with the preparation of the Report, and how complaints against us will be dealt with.

3 Financial services we are licensed to provide

Our Australian financial services licence allows us to provide a broad range of services, including providing financial product advice in relation to various financial products such as securities and superannuation products and deal in a financial product by applying for, acquiring, varying or disposing of a financial product on behalf of another person in respect of securities and superannuation products.

4 General financial product advice

The Report contains only general financial product advice. It was prepared without taking into account your personal objectives, financial situation or needs. You should consider your own objectives, financial situation and needs when assessing the suitability of the Report to your situation. You may wish to obtain personal financial product advice from the holder of an Australian Financial Services Licence to assist you in this assessment.

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Grant Thornton Corporate Finance does not accept instructions from retail clients. Grant Thornton Corporate Finance provides no financial services directly to retail clients and receives no remuneration from retail clients for financial services. Grant Thornton Corporate Finance does not provide any personal retail finance product advice directly to retail investors nor does it provide market-related advice directly to retail investors.

5 Fees, commissions and other benefits we may receive

Grant Thornton Corporate Finance charges fees to produce reports, including the Report. These fees are negotiated and agreed with the entity who engages Grant Thornton Corporate Finance to provide a report. Fees are charged on an hourly basis or as a fixed amount depending on the terms of the agreement with the person who engages us. In the preparation of the Report, Grant Thornton Corporate Finance will receive from the Company a fee of $60,000 excluding GST which is based on commercial rates plus reimbursement of out-of-pocket expenses.

Partners, Directors, employees or associates of Grant Thornton Corporate Finance, and related bodies corporate, may receive dividends, salary or wages from Grant Thornton Australia Ltd. None of those persons or entities receives non-monetary benefits in respect of, or that is attributable to the provision of the services described in this FSG.

6 Referrals

Grant Thornton Corporate Finance including its Partners, Directors, employees or associates and related bodies corporate, does not pay commissions or provide any other benefits to any person for referring customers to us in connection with the reports that we are licenced to provide.

7 Associations with issuers of financial products

Grant Thornton Corporate Finance and its Partners, Directors, employees or associates and related bodies corporate may from time to time have associations or relationships with the issuers of financial products. For example, Grant Thornton Australia Ltd may be the auditor of, or provide financial services to the issuer of a financial product and Grant Thornton Corporate Finance may provide financial services to the issuer of a financial product in the ordinary course of its business.

In the context of the Report, Grant Thornton Corporate Finance considers that there are no such associations or relationships which influence in any way the services described in this FSG.

8 Complaints

Grant Thornton Corporate Finance has an internal complaint handling mechanism and is a member of the Financial Ombudsman Service (membership no. 11800). All complaints must be in writing and addressed to the National Head of Corporate Finance at Grant Thornton Corporate Finance. We will endeavour to resolve all complaints within 30 days of receiving the complaint.

If the complaint has not been satisfactorily dealt with, the complaint can be referred to the Financial Ombudsman Service who can be contacted at:

GPO Box 3
Melbourne, VIC 3001
Telephone: 1800 367 287

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Grant Thornton Corporate Finance is only responsible for the Report and FSG. Grant Thornton Corporate Finance will not respond in any way that might involve any provision of financial product advice to any retail investor.

9 Compensation arrangements

Grant Thornton Corporate Finance has professional indemnity insurance cover under its professional indemnity insurance policy. This policy meets the compensation arrangement requirements of section 912B of the Corporations Act, 2001.

10 Contact Details

Grant Thornton Corporate Finance can be contacted by sending a letter to the following address:

National Head of Corporate Finance
Grant Thornton Corporate Finance Pty Ltd
Level 17, 383 Kent Street
Sydney, NSW, 2000

6. BOARD AND MANAGEMENT

6.1 BOARD

The Company is managed by the Board of Directors.

The Board presently comprises 5 Directors, including four non-executive Directors, and Priyank Thapliyal as the Company's Executive Director & Chief Executive Officer.

Biographies of the Company's four non-executive Directors are set out below:

Brian Gilbertson

Chairman; Non-Executive Director
MSc, MBL
Member of Remuneration and Nomination Committee

Mr Gilbertson was appointed as a Director of the Company on 22 June 2010.

Mr Gilbertson has extensive experience in the global natural resources industry. He was Managing Director of Rustenburg Platinum Mines Limited in the 1980's, a period during which the company gained recognition as the world's foremost producer of platinum. In the 1990's, as Executive Chairman of Gencor Limited, he led the restructuring of the South African mining industry into the post-Apartheid era, transforming Gencor Limited into a focused mineral and mining group. During this period he held ultimate responsibility for Impala Platinum Holdings, for Samancor Limited (the world's largest producer of manganese and chrome ore and alloys) and for Trans-Natal Coal Corporation (a major coal producer and exporter). Important new initiatives included the Hillside and Mozal aluminium smelters, the Columbus stainless steel plant, and the purchase of the international mining assets (Billiton plc) of the Royal Dutch Shell Group.

In 1997, Gencor Limited restructured its non-precious metals interests as Billiton plc. With Mr Gilbertson as Executive Chairman, Billiton plc raised US$1.5 billion in an initial public offering on the LSE, taking the company into the FTSE 100. Separately, Mr Gilbertson worked to merge the gold operations of Gencor and Gold Fields of South Africa, creating Gold Fields Limited, a leader in the world gold mining industry. He served as its first Chairman until October 1998. In 2001, Billiton plc merged with BHP Limited to create what is widely regarded as the world's premier resources company, BHP Billiton plc. Mr Gilbertson was appointed its second Chief Executive on 1 July 2002.

In late 2003, Mr Gilbertson led mining group Vedanta Resources plc (Vedanta) to the first primary listing of an Indian company on the London Stock Exchange in the second largest IPO of the year (US$876 million). He served as Chairman of Vedanta until July 2004.

He was appointed President of Sibirsko-Uralskaya Aluminium Company (SUAL), the smaller aluminium producer in Russia and led that company into the US$30 billion merger with RUSAL and the alumina assets of Glencore International A.G., creating the largest aluminium company in the world.

Mr Gilbertson established Pallinghurst Advisors LLP and Pallinghurst (Cayman) GP L.P. during 2005 and 2007 respectively, to develop opportunities on behalf of a group of natural resource investors, which currently own 86% of Jupiter.

On 12 September 2017, Brian Gilbertson was found by the Court of Appeal of the Cayman Islands to have acted in breach of his fiduciary duties as a director of a Cayman Islands limited company held by Renova Resources Private Equity Limited (Bahamas) ("Renova") and a trustee of certain Gilbertson family trusts. The breach concerned the acquisition of certain intellectual property rights relating to Fabergé. Significantly, the Court also found that the company to whom fiduciary duties were owed suffered no loss from the breach and it consequently denied Renova's claim for damages.

Mr Gilbertson is the non-executive chairman of Pallinghurst Resources Limited, a company listed on the Johannesburg Stock Exchange (JSE: PRL), and is a director of various companies controlled by PRL.

Mr Gilbertson is a British and South African citizen. He has not been a Director of any other ASX listed company in the past three years.

Paul Murray

Independent Non-Executive Director
FFin, C.P.A.
Chairman of Audit Committee and Remuneration and Nomination Committee

Paul is a founding director of Jupiter Mines Limited and was Chairman at the time of formation in August 2003. Paul was appointed as a Director of the Company on 20 August 2003. He has served continuously since that time as Chairman of both the Audit Committee and the Remuneration and Nomination Committee.

In addition to attending to various statutory duties as required, Paul has a strong record of attendance at Company board and shareholder meetings and contributes to consideration and discussions in respect of matters on the Company's business papers.

Apart from academic qualifications which are relevant to his roles, Paul has held positions on boards of a number of ASX listed companies. Mining experience includes exploration for and mining of tin in the New England district of NSW and service on the boards of successful Australian oil and gas companies, Basin Oil NL and Reef Oil NL.

Mr Sungwon Yoon

Non-Executive Director
Certified Purchasing Manager (ISM), MBA (Vanderbilt University)
Member of Audit Committee

Mr Yoon was appointed as a Director of the Company on 31 March 2016.

Mr Yoon is the Managing Director of POSCO Australia Pty Ltd, a significant shareholder of the Company.

After joining POSCO in 1992, Mr Yoon has focused on steel making raw materials during his career. He has over 25 years' experience in various roles and responsibilities across POSCO's raw materials procurement, investment, strategy and transportation. Before assuming the Managing Director role of POSCO Australia in March 2016, Mr Yoon was the General Manager of the POSCO coal procurement group.

Andrew Bell

Independent Non-Executive Director
B.A. (Hons), M.A., LLB (Hons)
Member of Audit Committee and Remuneration and Nomination Committee

Mr Bell was appointed as a Director of the Company on 4 June 2008.

Mr Bell is Chairman of Red Rock Resources plc, and Regency Mines plc, being companies listed on the AIM market of the London Stock Exchange Ltd. He was a natural resources analyst in London in the 1970s, then specialised in investment and investment banking covering the Asia region.

He has been involved in the resource and mining sectors in Asia since the 1990s, and has served on the Boards of a number of listed resource companies.

Mr Gilbertson is the non-executive chairman of, and a shareholder in, Pallinghurst Resources Limited, the ultimate parent company of Pallinghurst Steel Feed (Dutch) B.V., being a substantial Shareholder of the Company, and is not considered an independent Director.

Mr Sungwon Yoon is the Managing Director of POSCO Australia Pty Ltd, a significant Shareholder of the Company, and is not considered to be an independent Director.

The Board considers that Paul Murray and Andrew Bell are independent Directors because they are free from any business or other relationship with the Company that could materially interfere with, or reasonably be perceived to materially interfere with, the independent exercise of their judgement as Directors.

Refer to Sections 6.4, 6.5, 13.3, 13.4, 13.5 and 13.6 for further information about the remuneration, interests, relationships and background of Directors.

6.2 MANAGEMENT

A biography of each of the Company's two key management personnel is set out below.

Priyank Thapliyal

Executive Director & Chief Executive Officer
Metallurgical Engineer, B Tech, M Eng, MBA (Western Ontario, Canada)

Priyank Thapliyal was appointed as a Director of the Company on 4 June 2008.

Priyank joined Sterlite Industries in 2000 and worked alongside Mr Anil Agarwal (owner) to implement the strategies that led to the creation of Vedanta Resources plc, a FTSE 100 company. Vedanta floated on the London Stock Exchange (LSE) in December 2003 and raised USD 870 million in its IPO, in what was the largest mining IPO on the LSE that year, and also the first primary listing of an Indian company on the LSE. The success of the Vedanta IPO was instrumental in other emerging market mining companies seeking LSE listings.

Subsequent to the LSE listing, he led Vedanta's first major overseas acquisition via the USD 50 million controlling investment in Konkola Copper Mines (KCM) in Zambia in 2004. At the time of his departure in October 2005 to co-found Pallinghurst Advisors LLP, the KCM stake was valued at USD 1 billion and Vedanta had a market capitalisation of USD 7.5 billion.

Priyank has been instrumental in delivering Pallinghurst Advisors LLP's steel feed strategy via Jupiter. That has led to the creation of the flagship Tshipi Mine, from what was a greenfield project, into one of the largest, long-life and low-cost assets of strategic importance.

Prior to Vedanta, Priyank was a mining and metals investment banker with CIBC World Markets in Toronto Canada, is a qualified Metallurgical Engineer, MBA and former Falconbridge employee.

Melissa North

Chief Financial Officer and Company Secretary
B.Com; Chartered Accountant

Ms Melissa North joined Jupiter Mines in May 2012 as Group Financial Controller and was subsequently appointed CFO and Company Secretary on 15 November 2012.

Prior to joining Jupiter, Ms North held various roles in finance management and business advisory services over almost a decade, including Group Financial Controller positions within the Chime Communications Group (London) and other large media agencies in the United Kingdom. Ms North qualified as a Chartered Accountant in 2004 after extensive work experience at Grant Thornton Perth (now Crowe Horwath).

6.3 EXECUTIVE SERVICE AGREEMENTS

(a) Chief Executive Officer – Priyank Thapliyal

The Company has entered into an executive service agreement with Priyank Thapliyal, the Company's Chief Executive Officer, who is engaged on a full time basis.

The material terms of the executive service agreement with Mr Thapliyal (the **Executive**) are as follows:

Subject	Provision
Base salary	The Executive is entitled to receive an annual salary of £400,000 (with no pension fund or superannuation contributions).
IPO Bonus	The Executive is entitled to receive a bonus (**IPO Bonus**) equal to 1% of the amount by which the indicative market capitalisation of Jupiter determined by the number of Shares on issue at the Prospectus Date (1,948,340,503 Shares) multiplied by the Offer Price, exceeds $353,315,000 (being the pro forma total equity of the Company shown in the Company's pro forma consolidated statement of financial position at Section 4.7 of this Prospectus). The IPO Bonus shall be satisfied by the issue of Shares at the deemed issue price equal to the Offer Price, subject to and conditional upon Shareholder approval of the issue of bonus Shares in accordance with the requirements of the Listing Rules. It is anticipated that Shareholder approval for the issue of Shares to satisfy the IPO Bonus will be sought at the Company's next annual general meeting (anticipated to be held in July 2018). If approval of Shareholders is not obtained for the issue of Shares to satisfy the IPO Bonus, the IPO Bonus is payable in cash.
Annual Bonus	The Executive will be entitled to receive a bonus (**Annual Bonus**) equal to 1% of the value of amounts paid by way of: (i) a dividend; (ii) a distribution, payment or return of capital; or (iii) the acceptance of equal access buy-back offers made to all Shareholders, paid or made by the Company to its Shareholders at any time after the Listing Date until the date of termination of the Executive's employment. The Annual Bonus is payable in cash.
Confidentiality	The Executive must keep the Company's confidential information confidential, except in certain circumstances, including where the disclosure is required by law or the Company provides prior written consent.
Termination	The Company may terminate the Executive's employment by giving 6 months' written notice and payment of an amount equal to 6 months' salary and the amount of Annual Bonus paid in the 12 months prior to termination. The Company may make payment in lieu of notice, comprising an amount of up to 12 months' salary and the amount of Annual Bonus paid in the 12 months prior to termination. The Company may otherwise terminate the employment immediately for misconduct or other matters that are usual grounds for summary dismissal. The Executive may terminate the Executive's employment by giving 6 months' written notice. In the event of a change of control (within the meaning of section 50AA of the Corporations Act) and diminution in the duties and responsibilities of the Executive as a chief executive officer of a public listed company, the Executive may elect to terminate the employment and become entitled to receive a payment equal to 12 months salary and the amount of Annual Bonus paid in the 12 months prior to termination.
Restrictive covenants	The Executive is subject to post-employment restraints on engaging in a business for the production, purchase, sale or marketing of manganese ore, and soliciting the employees, suppliers or clients of the Company or Tshipi é Ntle. The restraint has potential effect globally for up to 6 months following termination of employment.

The agreement otherwise contains terms and conditions considered standard for executive employment contracts of this nature.

(b) Chief Financial Officer and Company Secretary – Melissa North

The Company has entered into an executive service agreement with Melissa North, the Company's Chief Financial Officer and Company Secretary (the **Executive**), who is engaged on a full time basis.

The material terms of the executive service agreement are as follows:

Subject	Provision
Base salary	The Executive is entitled to receive an annual salary of $200,000 and superannuation at a rate of 12% of the annual salary.
Bonus arrangements	If the Company is admitted to the official list of ASX, the Executive will become entitled to the payment of a one off cash bonus of an amount to be determined by the Board in its absolute discretion. Following the end of each financial year commencing after 28 February 2018, and the Executive being employed at the date of release of the Company's financial statements for the financial year to which the bonus relates, the Executive may be entitled to an annual bonus of an amount to be determined by the Board in its absolute discretion. The amounts payable by way of bonus per annum will not exceed Ms North's annual salary.
Other entitlements	The Executive is entitled to a computer and mobile phone allowance, and reimbursement of all out of pocket expenses necessarily incurred by the Chief Financial Officer in the performance of her duties, including expenses relating to entertainment, meals and travelling.
Confidentiality	The Executive must keep the Company's confidential information confidential, except in certain circumstances, including where the disclosure is required by law or the Company provides prior written consent.
Termination	The Executive or the Company may terminate the contract by giving 3 months' written notice. The Company may make payment in lieu of notice. The Company may otherwise terminate the employment immediately for misconduct or other matters that are usual grounds for summary dismissal.
Restrictive covenants	The Executive is subject to post-employment restraints on soliciting the Company's employees, suppliers or clients. The restraint has potential effect globally for up to 6 months following termination of employment.

The agreement otherwise contains terms and conditions considered standard for executive employment contracts of this nature.

6.4 NON-EXECUTIVE DIRECTOR ENGAGEMENT LETTERS

The Company has entered into letters of engagement with each of its Directors (other than Mr Priyank Thapliyal, the Company's Chief Executive Officer) confirming their appointment and terms of engagement.

The material terms of the letters of engagement are as follows:

Subject	Provision
Engagement	Each Director is engaged as a non-executive Director by the Company.
Directors' fees	The Chairman is currently entitled to be paid an annual director's fee for his services of $60,000 inclusive of superannuation. Subject to the Company obtaining shareholder approval, which it intends to seek after completion of the Offer, the Chairman will be entitled to be paid an annual director's fee of $130,000 inclusive of superannuation, commencing and accruing on and from 1 January 2018. Each other Non-Executive Director is entitled to be paid an annual director's fee for their services of $55,000 inclusive of superannuation. In addition to their director's fees, subject to the Company obtaining shareholder approval, which it intends to seek after completion of the Offer, Mr Paul Murray will be entitled to be paid in consideration of his services as a chairman of each of the Audit Committee and the Remuneration and Nomination Committee, the aggregate amount of $11,000 per annum, Mr Andrew Bell will be entitled to be paid in consideration of his services as a member of each of the Audit Committee and the Remuneration and Nomination Committee, the aggregate amount of $5,000 per annum, Mr Sungwon Yoon will be entitled to be paid in consideration of his services as a member of the Audit Committee the amount of $2,500 per annum, and Mr Brian Gilbertson will be entitled to be paid in consideration of his services as a member of Remuneration and Nomination Committee the amount of $2,500 per annum.
Performance of duties	Each Director is expected to discharge his duties in accordance with the Constitution of the Company, the Corporations Act, the Listing Rules and the corporate governance policies of the Company (as applicable).
D&O insurance	Each Director will be covered by a directors' and officers' liability insurance taken out by the Company in accordance with the terms of the deeds of insurance, indemnity and access that the Company has executed with each Director.
Disclosure of interests	Each Director must make all necessary disclosures to the Company in relation to all interests and matters which impact their independence and any matters which may give rise to a conflict of interest.
Confidentiality	Each Director must keep information regarding the Company confidential, except if disclosure is required by law or the Company provides prior written consent.

The letters of engagement otherwise contain terms and conditions considered standard for engagement letters of this nature.

6.5 DIRECTORS' DEEDS OF INDEMNITY, INSURANCE AND ACCESS

The Company has entered into deeds of indemnity, insurance and access with each of its Directors and the Company Secretary.

The material terms of these deeds are as follows:

Subject	Provision
Indemnity	The Company agrees to indemnify each Director and the Company Secretary (**Officer**) from certain liabilities incurred from acting in that position under specified circumstances.
Insurance	The Company agrees to maintain directors' and officers' insurance cover (if available in the market at reasonable cost) in favour of each Officer whilst that person maintains such office and for 7 years after the Officer has ceased to be an officer.
Access	The Company will provide access to any Company records which are relevant to the Officer's holding of office with the Company, for a period of 7 years after the Officer has ceased to be an officer of the Company.
Conditions	The indemnity and insurance obligations of the Company are subject to any restrictions on the same under the Corporations Act.

The deeds otherwise contain terms and conditions considered standard for deeds of this nature.

7. CORPORATE GOVERNANCE

7.1 OVERVIEW

The Company's corporate governance policies and procedures have been designed to be consistent with the ASX Corporate Governance Council's Corporate Governance Principles and Recommendations (3rd edition) (**ASX Recommendations**).

7.2 THE BOARD

The Board is responsible for the adoption, oversight and administration of the Company's corporate governance program and recognises the need for the highest standards of ethical behaviour and accountability. The Board is committed to administering corporate governance structures to promote integrity and responsible decision-making.

To assist the Company in carrying out its responsibilities, the Board has established an Audit Committee and a Remuneration and Nomination Committee.

Composition

The Constitution requires the Company to have a minimum of three Directors. The maximum number of Directors is fixed by the Board but may not be more than nine, unless otherwise approved by the members of the Company in a general meeting.

The relevant provisions in the Constitution, the Corporations Act and the Listing Rules determine the terms and conditions relating to the appointment and termination of Directors. All Directors, other than the managing Director (being the Chief Executive Officer, Priyank Thapliyal), are subject to re-election by rotation every three years.

The identification of potential Board members includes consideration of the skills, experience, and expertise that will best complement the Board, and the capability of candidates to devote the necessary time and commitment to the role. The Board is also aware of the importance of independent judgement and considers independence when new appointments to the Board are made.

Of the Company's five Directors, two are independent, being Mr Paul Murray and Mr Andrew Bell. The Company does not consider Mr Sungwon Yoon to be independent because of his association with POSCO Australia Pty Ltd which is a significant shareholder of Jupiter. The Company does not consider Mr Brian Gilbertson to be independent because he is a director of Pallinghurst Resources Limited, being the parent company of Pallinghurst Steel Feed (Dutch) B.V., which is a substantial shareholder of Jupiter. The Company does not consider Mr Priyank Thapliyal to be independent because Jupiter employs him as its Chief Executive Officer.

The Board considers that its current composition is the most appropriate blend of skills and expertise relevant to the Company's business, size and operations.

7.3 CORPORATE GOVERNANCE COMMITTEES

The Board has established the following committees:

Committee	Purpose and composition
Audit Committee	**Purpose** The role of the Audit Committee is to assist the Board in fulfilling its corporate governance responsibilities with respect to: (a) the reliability and integrity of financial information for inclusion in Jupiter's financial statements; (b) audit, accounting and financial reporting obligations of Jupiter; (c) safeguarding the independence of the external auditor; and (d) financial risk management. In particular, the Audit Committee is to undertake the functions of the audit committee referred to in the ASX Recommendations. **Composition** The Audit Committee Charter provides that the Audit Committee is to consist of at least three financially literate non-executive Directors, a majority of whom should be independent. The Board appoints the members of the committee and its chairman. The Audit Committee presently consists of three members, being Paul Murray, Andrew Bell and Sungwon Yoon. Mr Murray and Mr Bell are the Company's only Directors who are both independent and non-executive. Mr Murray acts as the chairman of the Audit Committee.
Remuneration & Nomination Committee	**Purpose** The role of the Remuneration & Nomination Committee is to assist the Board in fulfilling its corporate governance responsibilities with respect to: (a) remuneration policies for Non–Executive Directors; (b) remuneration policies for Executive Directors; (c) remuneration policies for executive management; (d) equity participation; (e) human resources policies; and (f) other matters referred to the committee by the Board. In particular, the Committee is to undertake the functions of the Remuneration Committee and Nomination Committee referred to in the ASX Recommendations. **Composition** The ASX Recommendations provide that the Remuneration & Nomination Committee should comprise at least three members, all of whom should be non-executive directors, and a majority of whom must be independent. The Committee presently consists of three non-executive Directors, being Paul Murray, Andrew Bell and Brian Gilbertson. Mr Murray and Mr Bell are the Company's only Directors who are both independent and non-executive. Mr Murray acts as the chairman of the Remuneration & Nomination Committee.

7.4 POLICIES AND PROCEDURES

Set out in the table below is a list of the Company's corporate governance charters and policies and a brief description of the purpose of each. Copies of the charters and policies are in the Corporate Governance section of the Company's website at www.jupitermines.com.

Charter / policy	Purpose
Board Charter	The Board Charter sets out the various responsibilities of the Board with regard to the overall operation and stewardship of the Company and its subsidiaries.
Code of Conduct & Ethics	The Company has a Code of Conduct & Ethics that aims to develop a consistent understanding of, and approach to, the desired standards of conduct and behaviour of the Directors, officers, employees, and consultants in carrying out their roles.
Continuous Disclosure Policy	The purpose of the Continuous Disclosure Policy is to: (a) ensure that the Company, as a minimum, complies with its continuous disclosure obligations under the Corporations Act and the Listing Rules and, as much as possible, seeks to achieve best practice; (b) provide Shareholders and the market with timely, direct and equal access to information issued by the Company; and (c) promote investor confidence in the integrity of the Company and its Securities.
Share Trading Policy	The Share Trading Policy states the requirements for all Directors, executive officers, employees, contractors and consultants of the Company dealing in the Company's Securities.
Shareholder Communications Policy	The Shareholder Communications Policy states the processes through which the Company will endeavour to ensure timely and accurate information is provided to all Shareholders and the broader market.
Audit Committee Charter	The Audit Committee Charter states the roles and responsibilities of the Audit Committee in performing its function to oversee the Company's internal and external audit matters. The primary role of the Audit Committee is stated in Section 7.3.
Remuneration & Nomination Committee Charter	The Remuneration & Nomination Committee Charter sets out the policy and procedures for nomination and remuneration of officers and senior management, including in relation to the Chief Executive Officer, to ensure that they are fair and reflect market conditions.
Risk Management	The Board as a whole is broadly responsible for risk management, including the review of any risk management system or series of systems that may be implemented by management. The Company has not adopted a stand-alone risk management policy. The Audit Committee is responsible for the management of financial risk.
Diversity Policy	Given the Company's main asset is its interest in the Tshipi Mine, which it holds through its indirect 49.9% interest in Tshipi é Ntle, and Jupiter itself has few employees, Jupiter has not adopted a formal diversity policy at this stage. Jupiter has a policy to select the best available officers and staff for each relevant position in a non-discriminatory manner, based on merit.

7.5 CORPORATE GOVERNANCE COMPLIANCE WITH ASX RECOMMENDATIONS

The Company has prepared and lodged with ASIC a statement of its compliance with the ASX Recommendations, prepared on an "if not, why not" basis in relation to those matters of corporate governance where the Company's practice adheres to or departs from the ASX Recommendations (**Jupiter Mines' Corporate Governance Statement**).

A copy of the Jupiter Mines' Corporate Governance Statement is available on the Company's website www.jupitermines.com (refer to "Corporate Governance" in the "About Us" tab on the website) and is taken to be included in this Prospectus by reference.

8. TSHIPI MINE

8.1 OVERVIEW

(a) Location

Tshipi Mine is an open-pit manganese mine with an integrated ore processing plant located in the Kalahari Manganese Fields (**KMF**) which is a 400 square kilometres deposit in the Northern Cape Province of South Africa. Tshipi Mine is located on the southern extremity of the KMF approximately 35 kilometres north of Sishen and 30 kilometres south of Hotazel, as indicated in the map in Section 3.5(d).

(b) The Kalahari Manganese Field

The KMF extends continuously in a north-westerly direction from Tshipi Mine and is 35 kilometres long and 5 to 20 kilometres wide, covering an area of approximately 23,000 hectares. The KMF is dominated by the Hotazel geological formation which is comprised of three sedimentary manganese layers interbedded with banded iron formation. The banded iron formation hosted manganese deposits of the KMF are estimated to contain approximately 4.2 billion tonnes or 77% of the world's known inventory of land-based manganese metal.

Of the three sedimentary manganese layers in the Hotazel geological formation hosted in the main Kalahari deposit, the lower manganese orebody is the best developed and laterally continuous, with thicknesses of up to 45 metres in the southeast near Tshipi Mine, compared to thicknesses of 5 to 8 metres along the north limit of the main Kalahari deposit. The other sedimentary manganese layers in the Hotazel geological formation are the middle manganese orebody, which is up to three metres thick (but often absent in the southern portion of the KMF) and of low manganese content, and the upper manganese orebody, which displays variable thickness from several metres to several tens of metres with minor increases in manganese content.

There are three main manganese ore types in the Main Kalahari deposit:

- low-grade primary sedimentary Mamatwan-type ore that contains 30 to 38.5 weight percent (wt%) manganese metal;
- high-grade Wessels-type ore containing 42 to 60 wt% manganese metal; and
- high-grade supergene ore with a manganese metal content of 40 to 42 wt%.

Mamatwan-type ore forms the bulk of the mineralisation in the KMF and is the principle mining target at the Tshipi Mine.

(c) Geology and mineralisation of Tshipi

At the Tshipi Project, there are three sedimentary manganese layers as follows and described below:

(i) Lower Manganese "ore bed" (**LMO**);

(ii) Middle Manganese "ore bed" (**MMO**); and

(iii) Upper Manganese "ore bed" (**UMO**).

Mineralisation in the lower manganese orebodies consists of banded, very fine-grained braunite-kutnahorite lutite, containing concretionary ovoids, laminae and lenticeles of Mn-calcite with which hausmanite is commonly associated. Subordinate amounts of hematite, jacobsite and rhodochrosite are also present. The LMO is 37.5m thick on average, and is subdivided on the basis of geological features and metal content, into six sub-zones termed "N, C, M, Z, Y, X" from the base to the top. The grouped N, C and M zones average 19.5m thickness, with a 37.5% Mn grade and Mn/Fe ratio of 8.5. This constitutes the graded ore mined by Tshipi é Ntle.

The overlying Z, Y and X zones contain 31% Mn and have a Mn/Fe ratio of 5. This constitutes the Tshipi Mine's low grade ore mined and blended with graded ore, or sold as low grade product as the market may demand from time to time.

Supergene mineralisation has been encountered at the Tshipi Mine, and is related to weathering effects along the unconformity between Kalahari Supergroup and the LMO. This manganese enrichment effect is confined to a narrow zone along the sub-outcrop of the LMO, and appears to be limited to the Z, Y, X and M zones.

At the Tshipi Mine, the middle manganese orebodies and upper manganese orebodies constitute stratigraphic markers rather than potential mining targets by virtue of their relatively low manganese content.

The figure below summarises the stratigraphic profile of the local geology at the Tshipi Mine:

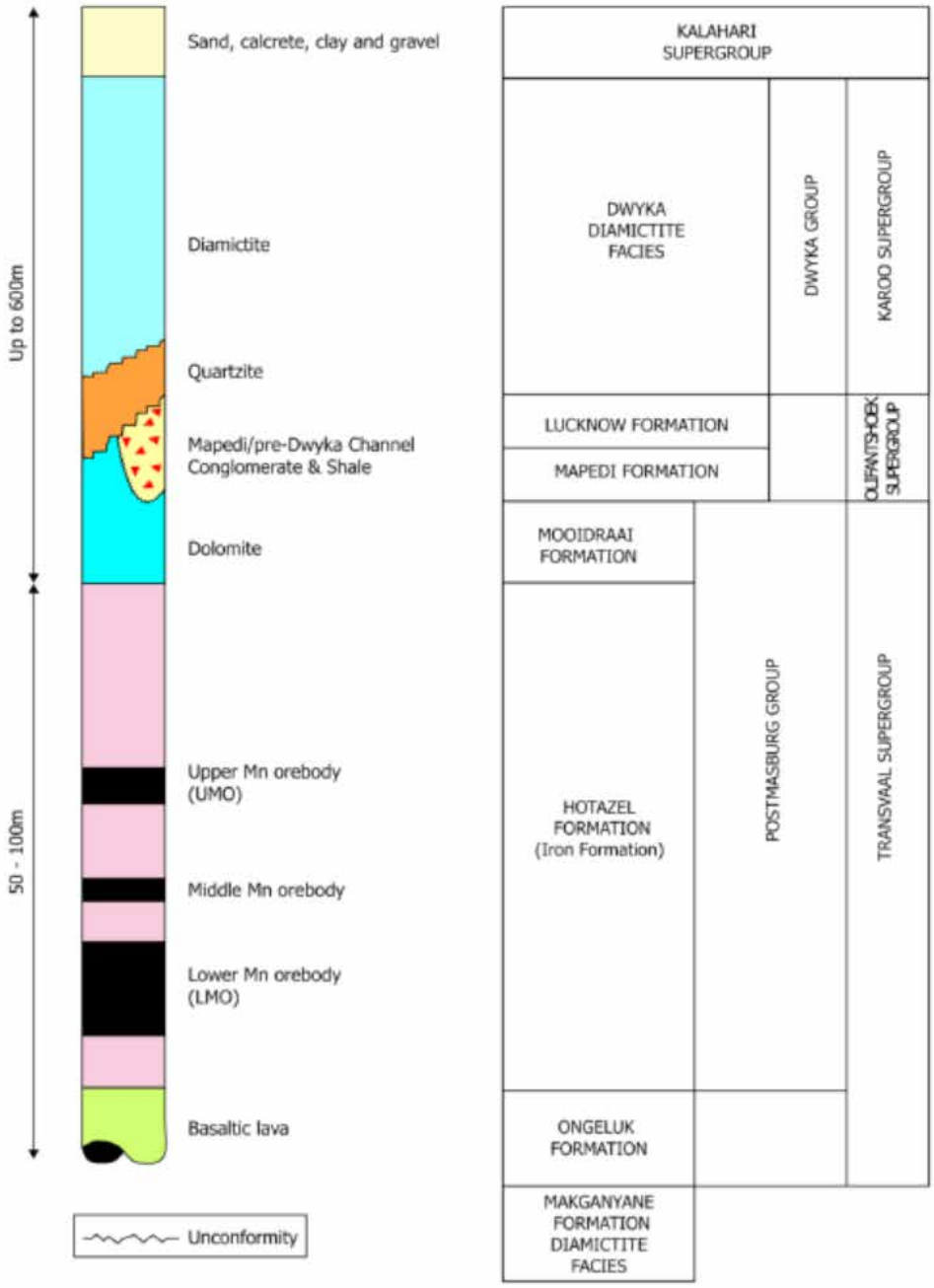

Figure 18: Summarised stratigraphic profile of the local geology at Tshipi Borwa Mine

Source: Tshipi Competent Person's Report (Appendix 1).

The graded ore mined by Tshipi é Ntle is grouped in the M, C and N zones and the Z zone (if the ore mined in Z zone falls at or above the typical grade of 36.5%), which collectively have an average thickness of 19.5 metres, average grade of 37.5% without the Z zone and average manganese to iron ratio of 8.5 to 1. The average thickness of the M, C, N zones increases towards the north and Tshipi é Ntle blends these zones with Z manganese ore as and when required. The low grade ore mined by Tshipi é Ntle is grouped in the overlaying X, Y and Z zones and has an average grade of 31% and average manganese to iron ratio of 5 to 1. In rare cases, the low grade ore from the Z zone is blended with the graded ore to bring the product to Tshipi é Ntle's typical grade of 36.5%.

Mineral resource estimates have been undertaken for the six zones which make the LMO, as well as a zone of manganese enrichment (the supergene zone).

Refer to Section 8.14 for the mineral resource estimates and section 7 of the Tshipi Competent Person's Report (Appendix 1) for further details of how the mineral resource estimates have been determined.

The Y zone is not thick enough to be mined selectively in the current pit. However, the Y zone thickness increases downdip and The Mineral Corporation has excluded the Y zone from the mineral resource estimate for the Tshipi Mine where it has a thickness of more than 5 metres.

The cut-off applied is a lithological cut-off rather than a grade cut-off, as the manganese grade at the lithological boundaries drops sharply and is not economically viable. Waste is defined as those areas where total manganese grade is lower than 16%.

After the exclusion of the Y zone above a thickness cut-off, all of the remaining parts of the mineral resources are considered by The Mineral Corporation to have reasonable prospects of eventual economic extraction. Refer to section 7.4 of the Tshipi Competent Person's Report (Appendix 1) for further information about reasonable prospects for eventual economic extraction of the Tshipi Mine's mineral resources.

8.2 MANGANESE ORE MINING AND PRODUCTION

(a) Mining

The Tshipi Mine is an open-cast mine that operates through drill-and-blast and load-and-haul mining techniques. At the start of the mining process, the top soil is removed and stockpiled in a separate area for later use during the rehabilitation phase. The various layers above the Hotazel Formation are removed, followed by the harder banded ironstone, dolomite and manganese layers which are part of the Hotazel formation. Once exposed, the manganese ore is drilled, blasted and loaded onto a truck and hauled to Tshipi é Ntle's processing facilities.

Tshipi é Ntle contracts with Aveng Moolmans, one of the largest earth moving contractors in Africa, to carry out all mining operations on a contractor-operator basis. Pursuant to the contract, Aveng Moolmans and its labour force undertake all mining activities at the Tshipi Mine, including but not limited to mining ore, loading, hauling and dumping of ore into the primary crusher or onto the stockpiles; mining, loading, hauling and dumping of waste material and forming designated waste dumps; re-handling ore from the stockpiles to the primary crusher; constructing and maintaining access and haul roads and ramps; and rehabilitating activities. Refer to paragraph 1 of Appendix 4 for a summary of Tshipi é Ntle's contract with Aveng Moolmans.

(b) Processing

The Run of Mine ore (**RoM ore**) is processed in primary and secondary crushers and screened to produce lumpy and fines product. Tshipi é Ntle has a current total onsite processing capacity of approximately 3.6 million tonnes per year, which can be increased to 5 million tonnes per year using mobile equipment.

The processing facility is a mature operation and has been producing saleable manganese ore for a number of years.

The figure below depicts the crushing and screening process of the RoM ore:

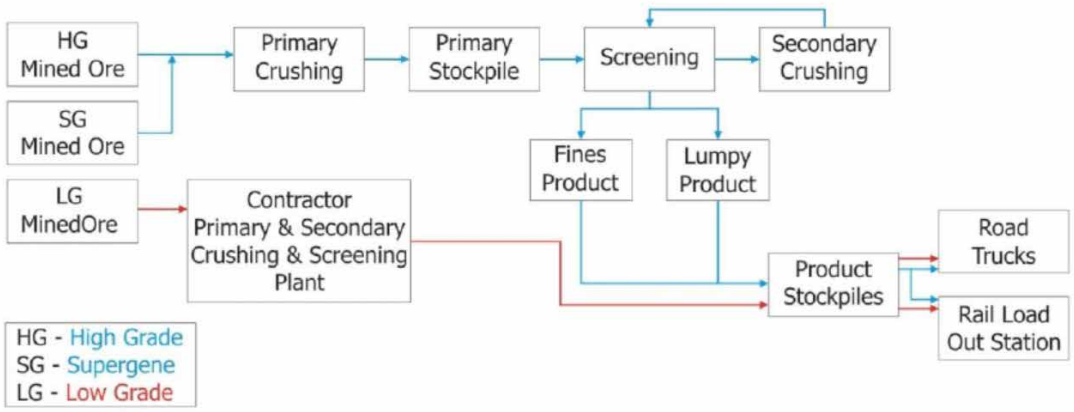

Figure 19: Process flowsheet

Source: Tshipi Competent Person's Report (Appendix 1).

The RoM ore is delivered to the RoM stockpile area via dump trucks from the mining operations and is stockpiled based on the grade of the RoM, specifically as High Grade (HG), supergene (SG) or Low Grade (LG). The ore is reclaimed from the RoM stockpile via front end loader and deposited onto an 800mm square aperture "grizzly" (a type of screen). A fixed pecker is mounted adjacent to the grizzly to break oversize rocks. A recent major overhaul to the primary crushing section was completed on budget and ahead of schedule. The ore is transported via an apron feeder to a vibrating grizzly and thereafter deposited into the primary jaw crusher.

The crushed ore is transported via conveyors to the secondary stockpile area, from where it is reclaimed via front end loader and discharged into a feed bin at a nominal rate of 800 tph. The material is delivered into the plant via an apron feeder from where it is conveyed to a double deck screen. The screen final undersize (-75mm) is conveyed to the crushed ore stockpile.

The combined oversize from the two screen decks is conveyed to the Metso GP500s cone crusher via a stop belt metal detector (to protect the crusher from tramp steel), the cone crusher is set to an open side setting of 77mm, and the crushed product is returned in closed circuit to the screen.

The secondary screening plants are duplicate installations, operating at 400-600 tph capacity, and comprise a vibrating screen and product delivery conveyors. The crushed ore is withdrawn from the stockpile to each plant via two pan feeders onto the tunnel conveyor under the stockpile. A belt weightometer is installed on each stockpile discharge conveyor, these deliver the crushed ore onto a double deck vibrating screen. The final screen undersize (-6mm) reports to the fines product conveyors, whilst the combined oversize (+6-75mm) reports to the lumpy product stockpiles.

The installation and final commissioning of the GP500s plant was completed in January 2018, this configuration deposits sized fines and lumpy products on the ground, which requires double handling to transport to final product stockpiles.

Low grade material will be processed in an AMC owned and operated primary and secondary crushing and screening plant, operating on a contract basis to provide tonnage as required by Tshipi, this plant is due for delivery to site during the course of January and will replace the current separate LG primary and secondary mobile plants. The LG lumpy and fines products will be treated similarly to the HG streams but will be stockpiled separately.

For further information, refer to section 14 of the Tshipi Competent Person's Report (Appendix 1).

The site layout of the plant structures is shown in the figure below:

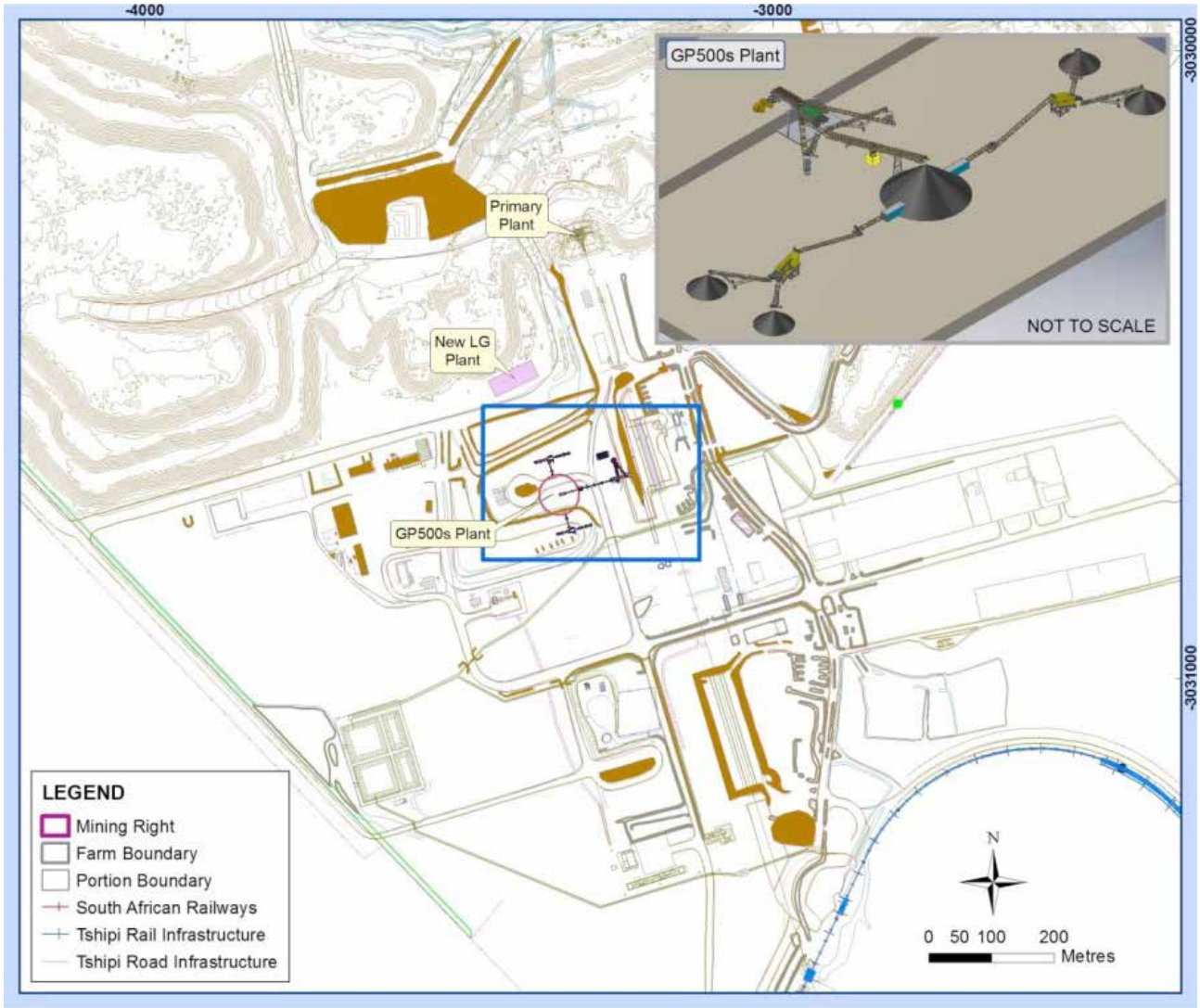

Figure 20: Location of plant

Source: Tshipi Competent Person's Report (Appendix 1).

Planned process upgrades

Phase 3 of the GP500s plant installation will include conveyors to feed the plant from the primary crushed stockpile area and conveyors to transport the fines and lumpy products to the final product stockpile areas in order to eliminate double handling of the ore. These conveyors will connect with the existing stockpile feed conveyors. This project is anticipated to be completed in 2019.

Refer to section 14.2 of the Tshipi Competent Person's Report (Appendix 1) for further details of the further planned upgrades of the processing facility.

(c) Product

Tshipi é Ntle produces two product varieties, (i) high grade lumpy product, which is between 6 and 75 millimetres and typically 36.5% manganese, and (ii) high grade fines product, which is less than 6 millimetres and typically 35.5% manganese. Tshipi é Ntle's mining operations also produce limited amounts of low grade lumpy product, which is between 6 and 75 millimetres and typically 33% manganese, which is stockpiled and either blended with the higher-grade product when necessary or sold when the market demands it.

Manganese is primarily indirectly used in steel production through upgrading the ore to ferroalloys, as well as in the manufacture of additional materials including aluminium alloys and batteries. In particular, manganese is a critical and irreplaceable element in carbon steel production and is mainly used as an alloying agent that increases both the strength and flexibility of steel. The end users of manganese include the construction, transportation, and machinery industries. There is no satisfactory substitute for the major applications of manganese.

Other applications of manganese include aluminium alloys, clean energy (used in oxide form in dry cell batteries), electronic components and chemicals (potassium permanganate) such as fertilisers, animal feed, pigments and fungicides. Clean energy applications, including the growing use of nickel-metal hydride and lithium-ion batteries, as well as the introduction of the lithiated manganese dioxide battery, for electric vehicles, are expected to be a significant driver for future manganese consumption.

(d) Power, fuel and water

Tshipi é Ntle's mining operations are supported by contracts for power and fuel supply and water resources.

Power and fuel supply

Tshipi é Ntle operates independently of the national grid by generating its own power using five synchronised diesel generators and a single standby generator that collectively have a generating capacity of 10 mega volt amps. Tshipi é Ntle typically only uses two generators to produce 480 kilowatt of power per day. Since the inception of the mine, diesel has been supplied by Chevron and transported to the site by a third party contractor, each of which has a long-standing relationship with Tshipi é Ntle. Refer to Section 7 of Appendix 4 for a summary of Tshipi é Ntle's fuel supply agreement with Chevron. Tshipi é Ntle stores diesel in on-site diesel storage facilities.

An electrical utility grid backbone capacity assessment was conducted in 2011 identifying that a 10MVA step down substation would be required from South Africa's public electricity utility, Eksom. The connection to the Eksom has not been finalised, so the mine is operated on diesel generated power as mentioned as described above. The regional 132kV overhead Eksom line is now available for connection when the step down substation is established. Tshipi é Ntle has engaged with Eksom, and completed the required EIA for the overhead connection and sub-station, but awaits final approval and budget estimate.

Water

As per the approved EIA and EMP, both process and potable water is sourced from the Sedibeng Vaal Gamagara pipeline.

A pipeline connection has been established to the Sedibeng Vaal Gamagara reservoir to supply the mine with potable water. Secondary pipelines are installed to move water between the return water dams, water treatment and the mining areas.

Process water required for dust suppression along access roads and conveyors, the crushing and screening plant and open pit mining activities is currently sourced from the pit. Potable water is required for domestic use in offices and change rooms.

Refer to paragraph 6 of Appendix 4 for a description of Tshipi é Ntle's contract with Sedibeng Water Board.

8.3 TRANSPORT AND LOGISTICS

Tshipi é Ntle's flexible and scalable logistics operations allow it to swiftly adapt export quantities to market conditions. Tshipi é Ntle uses a combination of rail and road transport to transport processed manganese ore from the mine to four ports: the Port of Saldanha and the Port of Cape Town to the southwest, Port Elizabeth to the south, and the Port of Durban to the southeast.

In FY2018, Tshipi é Ntle transported 68% of its product volumes by train and 32% by road, as compared to 86% by train and 14% by road in FY2017, and 94% by train and 6% by road in FY2016, and 81% by train and 19% by road in FY2015.

Rail

Tshipi é Ntle constructed an eight kilometre private rail siding loop connecting the Transnet Freight Rail regional railway to the Tshipi Mine's rapid load terminal (**RLT**). The rail loop is designed to accommodate two 208 wagon trains and withstand the weight of filled wagons weighing 63 tonnes each. The loop is fully electrified but is only switched on when loading is in progress. The RLT is able to fill a complete train within approximately four to six hours, which compares positively to the 12 hours in standard Transnet contract terms. The RLT is capable of loading 5 million tonnes of product per year.

Tshipi é Ntle's rail transport is primarily done via a 2.1 million tonne per year rail allocation under a services agreement with Transnet ("rail agreement"). The rail agreement expires on the earlier of 31 March 2023 or upon full commissioning of the manganese terminal at the Port of Ngqura. Tshipi é Ntle has therefore budgeted to transport 2.1 million tonnes of ore per year via the rail agreement. Manganese ore produced in excess of the 2.1 million tonnes per the rail agreement is transported by a combination of rail and road haul to the port. Refer to section 5 of Appendix 4 for further information about the rail agreement.

Road

Tshipi é Ntle does not have any long-term road haul transport agreements. While agreements are negotiated on an ad hoc basis as and when required, Tshipi é Ntle partners with road haulage/ logistics companies on a month-to-month basis in connection

with the current level of production and utilises a fleet of over 100 trucks per day to transport the product volume by road.

Ports

Tshipi é Ntle transports its ore to the Port of Saldanha, the Port of Cape Town, Port Elizabeth and the Port of Durban, all of which are operated by Transnet.

The Port of Saldanha, located approximately 900 kilometres south-west from the Tshipi Mine, has one terminal but is Africa's largest exporter of iron ore.

The Port of Cape Town, located 1,100 kilometres south-west from the Tshipi Mine, has a single terminal and trades commodities.

Port Elizabeth, located approximately 1,000 kilometres south from the Tshipi Mine, has three terminals and is Africa's largest exporter of manganese. It operates a manganese bulk handling facility which was recently upgraded to enhance capacity.

The Port of Durban, located approximately 1,200 kilometres south-east from the Tshipi Mine, has two terminals and is becoming increasingly important in the manganese industry due to the gateway it provides to Asia. Transnet are currently improving the rail service to Durban by granting manganese ore priority status and running longer and more efficient trains to the port.

8.4 SALES

There are numerous customers for Tshipi é Ntle's manganese ore, situated mainly in Asia. Tshipi é Ntle supplies the product to its customers in similar volumes and without any substantial customer concentration.

Tshipi é Ntle has offtake arrangements in place with its two shareholders whereby Jupiter buys and exports its 49.9% share of Tshipi ore and Main Street buys and exports its 50.1% share.

Refer to Section 3.4(e) for further information on the sale by the Company of Tshipi Manganese ore.

8.5 COMPETITIVE LANDSCAPE

Tshipi é Ntle primarily competes with South African manganese producers as well international producers in Australia and China. In South Africa, the KMF is a premium manganese basin where 8 manganese mines are currently operating. Given the close proximity of various active sites, potential opportunities exist for consolidation.

Of the operating mines in South Africa, Tshipi é Ntle's primary competitors are Assmang's Nchwaning mine, Renova and Majestic Silver's UMK mine and Samancor's Mamatwan mines, The UMK and Mamatwan mines are both open cast mines and Nchwaning is an underground mine. Based on its current monthly production volumes, Jupiter estimates that Tshipi é Ntle is the leading exporter of manganese by volume in South Africa in its 2018 financial year.

Internationally, Tshipi é Ntle competes with manganese exporters in Australia, Gabon and China. Based on its current run-rate, Jupiter estimates that Tshipi é Ntle is amongst the top five exporters of manganese by volume globally for its 2017 and 2018 financial years.

The Mamatwan (South Africa) and Groote Eylandt (Australia) mines, which produce in excess of 7 million tonnes of manganese ore annually have LoMs of approximately 16 years and 7 years respectively based on its published ore reserves which in the medium to long term will decrease the overall supply of manganese ore. Tshipi é Ntle will be able to absorb some of this loss in supply by expanding its production using its latent capacity and additional mobile equipment as required in short order. This flexibility together with Tshipi é Ntle's ongoing initiatives to convert more road tonnes to rail positions Tshipi é Ntle in a relatively strong position in relation to its competitors.

For further information on the manganese market refer to Section 9 of this Prospectus and section 20 of the Tshipi Competent Person's Report (Appendix 1).

8.6 PRODUCTION HISTORY

Tshipi é Ntle shipped its first manganese ore within 13 months of breaking ground at the Tshipi Mine. The first ore was mined in October 2012 and a ramp-up period followed until February 2014. Steady-state production began in March 2014.

Tshipi é Ntle produced 2.43 million tonnes in FY2015, 1.39 million tonnes in FY2016, and 2.33 million tonnes in FY2017 (including approximately 600,000 tonnes of low grade ore). The decrease in mined and sold tonnages during FY2016 was due to a ramp down in production in response to the decrease in the price of manganese ore during the financial year. Production was suspended from November 2015 to February 2016 in response to depressed market conditions at the time, during which time Tshipi é Ntle completed the processing plant upgrades discussed elsewhere herein and sold existing stockpiles. Tshipi é Ntle can swiftly react to changes in the manganese price and prevailing market conditions, scaling back operations when prices are low, such as was experienced in FY2016, and ramping up operations when prices recover, as occurred during the latter half of FY2017.

The Tshipi Mine production profile reflects the steady increase in production over FY2018 to a run-rate of 3.3 million tonnes per year as shown in the figure below:

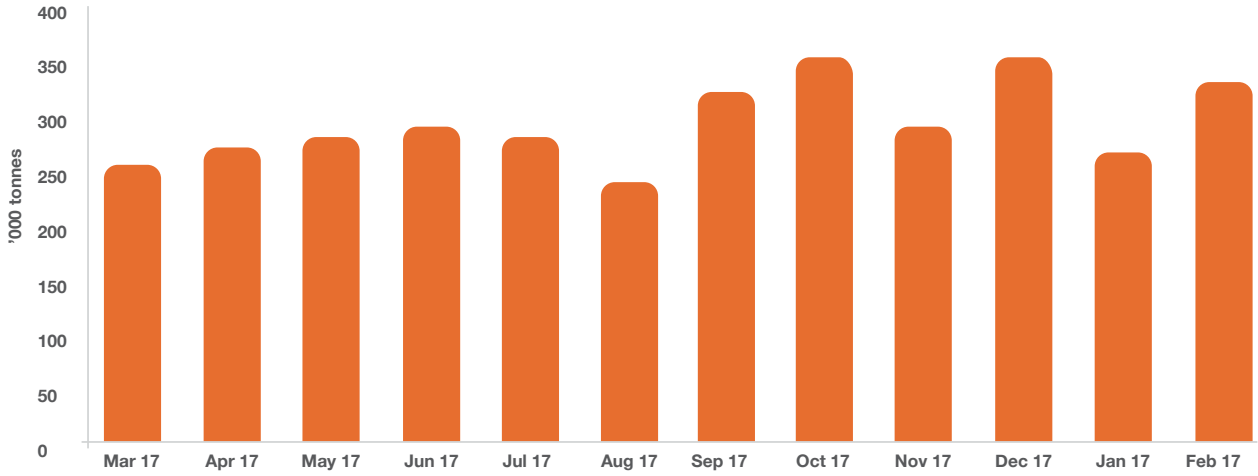

Figure 21: Production profile FY2018

Tshipi Mine is currently producing at a run-rate of 3.3 million tonnes per year. Tshipi é Ntle expects to maintain production at that level if the pricing environment remains at current levels.

The average LoM strip ratio at Tshipi Mine is approximately 10.4 bank cubic metres to 1 bank cubic metres as indicated in the table below:

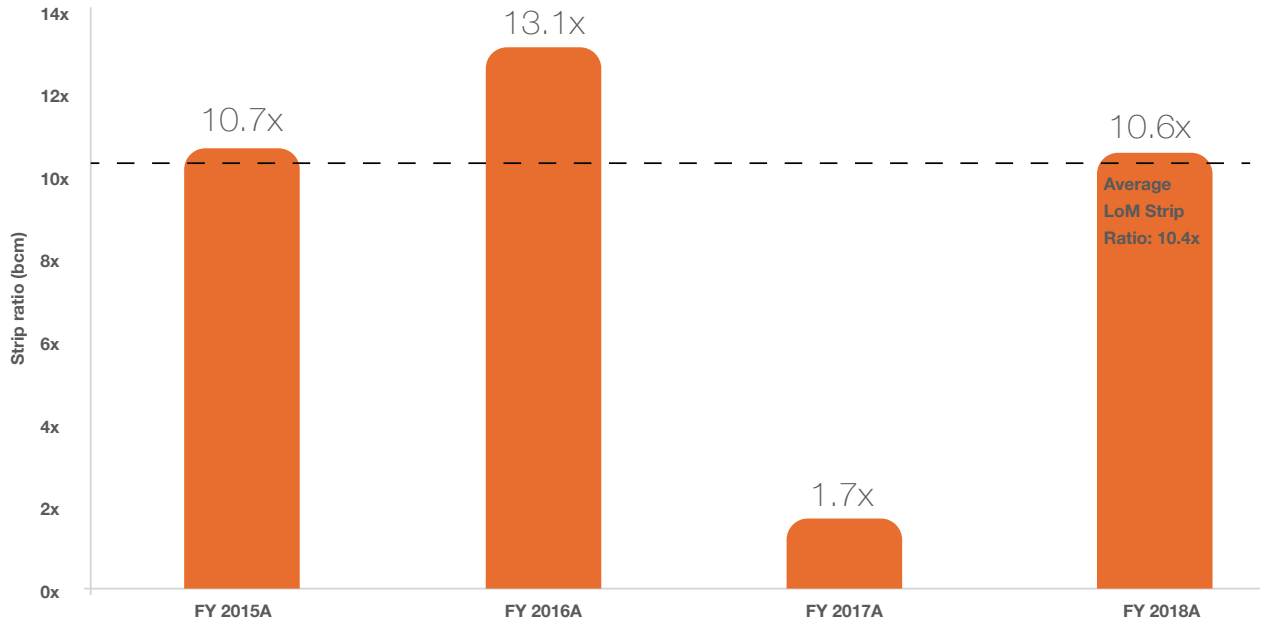

Figure 22: Tshipi Mine LoM strip ratio FY2015 to FY2018

The high stripping ratio in FY2016 and subsequent low stripping ratio in FY2017 was due to Tshipi é Ntle ceasing mining operations in late 2015 due to the low pricing environment. Tshipi é Ntle was required to give three months' notice to the mining contractors to cease mining and used this period to do waste stripping (hence the higher strip ratio in FY2016). In FY2017 Tshipi mined this exposed ore and utilised stockpiles which resulted in the lower stripping ratio in FY2017.

A stripping ratio of 10.35 bank cubic metres to 1 bank cubic metres has been determined by mining consultant VBKOM as the optimal pit shell design for the LOM plan (refer to section 10.6.2 of the Tshipi Competent Person's Report (Appendix 1) for further information).

8.7 MINING RIGHTS AND SURFACE RIGHTS

Tshipi é Ntle has a valid mining right for the Tshipi Mine that expires in 2040 and which can be renewed at the end of the current period. The mining right for manganese ore under which Tshipi é Ntle operates the Tshipi Mine was originally granted to Ntsimbintle in terms of Section 23 of the MPRDA under DMR reference NC 30/5/1/1/2/206 MR. This right was granted on 7 April 2010 and, unless suspended or cancelled, shall continue to be in force for a period of 30 years expiring on 6 April 2040. The mining right was transferred to Tshipi é Ntle from Ntsimbintle pursuant to Section 11 of the MPRDA effective 26 July 2010 and the notarial cession of the mining right was registered at the Mineral and Petroleum Titles Registration Office on the 17 March 2011 (MPT 8/2011).

Under the *Mineral and Petroleum Resources Development Act, 2002* (**MPRDA**), the holder of a prospecting right granted under the MPRDA has the exclusive right to apply for and, subject to compliance with the requirements of the MPRDA, to be granted, a mining right in respect of the mineral and prospecting area in question. A mining right may be granted for a period not exceeding 30 years and can be renewed, upon application by the holder of the mining right, for an unlimited number of further periods each not exceeding 30 years.

Tshipi é Ntle owns the property comprising the mining rights area and holds servitude over the area to the south and southwest of the mining rights. All of the mine infrastructure, including the pit, waste dump, metallurgical plant, load-out facility and rail-loop, are within these rights.

The surface rights of Tshipi é Ntle comprise properties both within and adjacent to the boundaries of Tshipi é Ntle's mining right. Further details of the surface rights of Tshipi é Ntle, including the property name, title deed number and area are described in Table 3 in section 3.2 in the Tshipi Competent Person's Report (Appendix 1).

The figure below shows the mining and surface rights of Tshipi é Ntle in the Tshipi Mine:

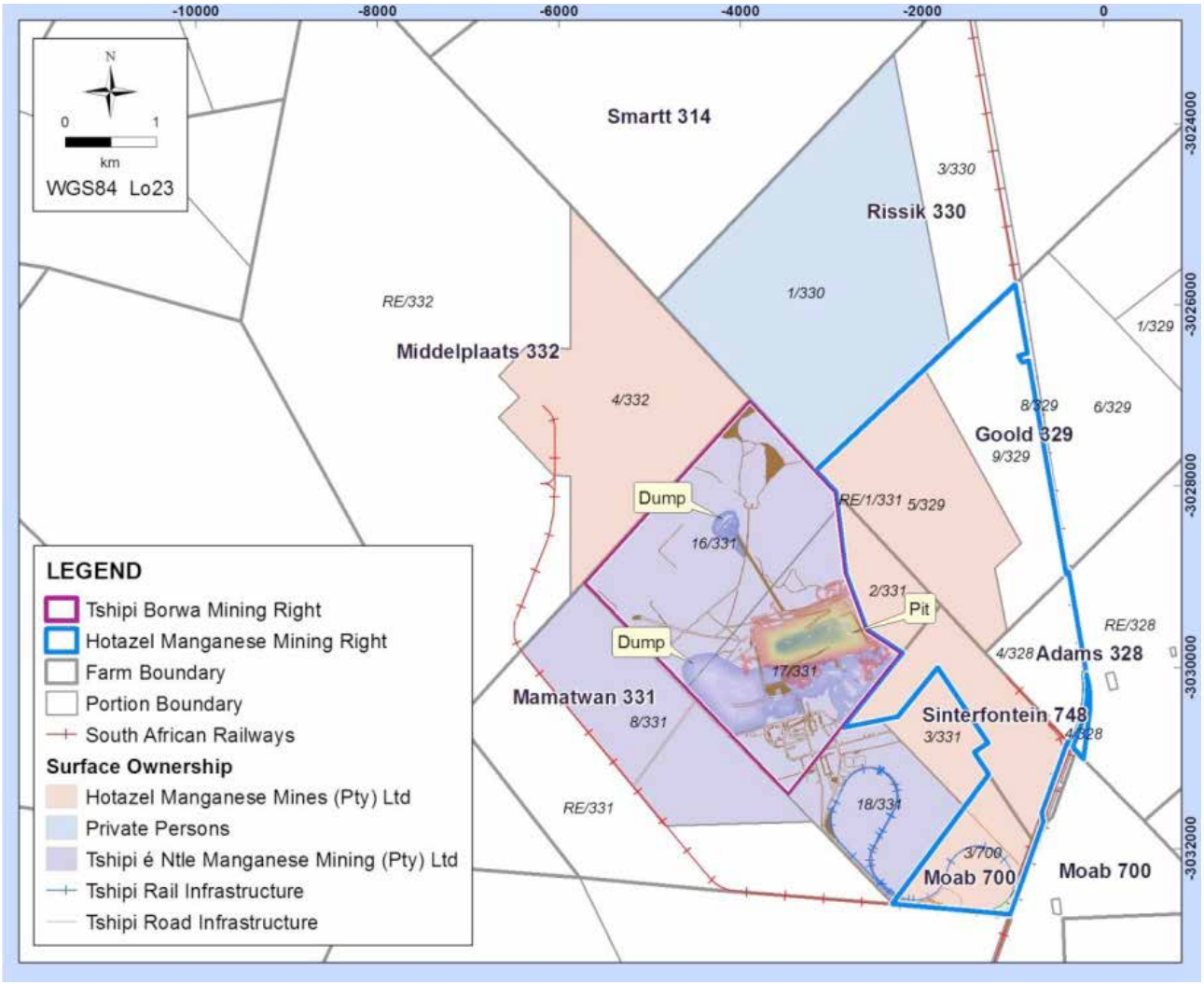

Figure 23: Surface rights for Tshipi Borwa Mine

Source: Tshipi Competent Person's Report (Appendix 1).

Refer to Section 10.1 for further information on Tshipi é Ntle's project tenure and Section 8.16 and Appendix 5 for further information on the MPRDA and the regulation of mining in South Africa.

8.8 LABOUR

Tshipi é Ntle has a split labour force comprised of mining contractors and Company employees. Tshipi é Ntle's strategy is to maintain an appropriate balance between contract workers and employees in order to effectively meet changing production targets.

The Association of Mineworkers and Construction Union (**AMCU**) was declared the majority union at Tshipi in 2015. Tshipi é Ntle's management and the unions meet monthly. To date Tshipi é Ntle has not experienced any strikes, go-slows, or other union activity that have affected operations.

8.9 HEALTH, SAFETY AND SOCIAL RESPONSIBILITY

Tshipi é Ntle is committed to sustainable development and continual improvement to minimise its impacts on the environment and benefit the community. This vision applies to all sites and is promoted by Tshipi é Ntle among all employees and contractors working on its behalf.

The Tshipi Mine is a surface, open-pit mine, which typically is one of the safest types of mining operations. Tshipi é Ntle adds to this structural advantage with its strong emphasis on worker safety programmes and procedures and a comprehensive framework to mitigate risks, including risk assessments, a 'stop and fix' policy and 'near miss' reporting. A total of 7 lost time injuries occurred in the 2015 to 2018 financial years. To date, no fatality has occurred at the Tshipi Mine.

There have been no DMR stoppages since July 2013.

Tshipi é Ntle provides free onsite health screening and medical surveillance to employees and HIV/AIDS testing and counselling and monitoring of other chronic diseases.

Human resource development is viewed as key to the long term success of Tshipi é Ntle. Tshipi é Ntle has established several human resource programmes to address the skills and personal development of its workforce. Tshipi é Ntle sponsors adult basic training in the local community and supports education in local communities by sponsoring scholarships and awarding bursaries for students to complete trade tests and tertiary education.

Tshipi é Ntle has undertaken several initiatives to improve local communities driven by compliance with the Mining Charter and Social Labour Plan. For example, Tshipi é Ntle has funded a water infrastructure project which provides the local Maphiniki Community with a sustainable water supply and a health care clinic in the Heuningvlei area within the Joe Morolong Local Municipality.

8.10 ENVIRONMENT

In common with other mineral processing companies, Tshipi é Ntle's operations affect the surrounding environment. Consequently, there are numerous environmental laws and regulations that apply to Tshipi é Ntle's operations. Refer to Section 8.16 and Appendix 5 for further information on these laws and regulations.

Tshipi é Ntle is committed to sound environmental management of its operations in a manner that will result in compliance with such regulatory requirements, including by adopting a comprehensive framework for managing air quality and hydrocarbons, and for monitoring noise and water.

Various authorisations have been obtained by Tshipi é Ntle from various South African government departments for operation of Tshipi, including:

- an environmental management plan (**EMP**) which governs the overall environmental plan in relation to the Tshipi Mine;
- environmental authorisations for the storage and distribution of diesel;
- an integrated water use licence (**IWUL**) for the extraction of groundwater used in mining and processing activities;
- permits for the removal of trees;
- approvals for the construction and upgrading go roads;
- permissions for the storage, handling and disposal of explosives; and
- approval for the licensing of hazardous substances (including electronic products).

The current EMP requires Tshipi é Ntle to completely fill the void left after mining activities. Tshipi é Ntle is currently seeking to have the EMP amended in order to incorporate Tshipi é Ntle's mining backfilling strategy that will result in partial filling of the void and not complete, as is required under the current EMP.

8.11 BLACK ECONOMIC EMPOWERMENT

South African legislation for the regulation of mining seeks to facilitate participation by historically disadvantaged South Africans (**HDSAs**) in South African mining ventures.

Complying with the South African Government's Broad-Based Black Economic Empowerment (**B-BBEE**) requirements and HDSA regime is a prerequisite for the grant of prospecting and mining rights, and non-compliance with this, or any other material terms of conditions of a right, may result in termination or suspension of those rights.

A number of the B-BBEE requirements associated with the participation of HDSAs in mining ventures are subject to possible amendment, review and interpretation disputes.

Pursuant to the MPRDA, the South African Minister of Mineral Resources (**Minister**) has developed a charter for the mining industry, requiring minimum targets for HDSA ownership. The original charter was introduced in 2010 and a revised charter was introduced in 2014.

In June 2017 the Minister published a revised B-BBEE charter for the South African mining and minerals Industry (**2017 Mining Charter**). The 2017 Mining Charter was the subject of a court application by the South African Chamber of Mines (**CoM**) to have it set aside, however by agreement between the CoM and the Minister in February 2018, the revised charter introduced in 2010 remains in force, pending a review of the 2017 Mining Charter. It is anticipated the 2017 Mining Charter will be finalised in June 2018.

The B-BBEE requirements include participation in the ownership and management of mining ventures, as well as human resources development, procurement, employment equity and rural and local community development requirements. These requirements are more fully described in section 4 of Appendix 5.

The current level of B-BBEE empowerment ownership of the Tshipi Mine satisfies both the current and proposed new minimum HDSA ownership requirements.

Refer to Section 11.5(c) for further information about the risks of any change to the B-BBEE requirements.

8.12 EXPLORATION HISTORY

Several phases of drilling have been undertaken at the Tshipi Mine. The exploration history within the area comprising mining right and surface rights held by Tshipi é Ntle includes series of drilling conducted by Samancor Manganese (Pty) Limited and Orex Exploration during the period 2008 to 2011 and by Tshipi é Ntle during the period 2013 to 2017.

Refer to section 6 of the Tshipi Competent Person's Report (Appendix 1) for information on the exploration data relevant to the Tshipi Mine, including:

(a) the drilling exploration history;

(b) the drillhole locations;

(c) the drilling techniques used;

(d) drilling sample preparation and analysis; and

(e) the "Quality Assurance and Quality Control" (**QAQC**) measures used for analysis of drilling samples.

The Mineral Corporation has reviewed the QAQC results and has concluded the database can be used for the estimation of the Tshipi Mine mineral resources (refer section 6.5.6 of the Tshipi Competent Person's Report at Appendix 1).

8.13 INFORMATION TECHNOLOGY

The operational systems and information technology infrastructure components as well as communications installed at Tshipi Mine are based on user requirements. The major components of the information systems and communications infrastructure are wide area networks, internet access, access control, CCTV systems, a fire system, two-way radio communication and an IP PBX telephone system.

8.14 MINERAL RESOURCES AND ORE RESERVES

The following tables show the mineral resources and ore reserves of the Tshipi Mine in accordance with the JORC Code (2012) as at 31 December 2017. Refer to the Tshipi Competent Person's Report (Appendix 1) for further information about Tshipi's estimated ore reserves and mineral resources.

Tshipi mineral resources (inclusive of ore reserves)

Classification	Zone	Tonnes	Mn (%)	Fe (%)	SG (t/m^3)
Measured	X	19 305 000	31.87	4.81	3.55
	Y	9 532 000	22.24	5.74	3.32
	Z	9 104 000	32.52	5.78	3.60
	M	16 945 000	38.15	4.63	3.76
	C	31 982 000	36.40	3.74	3.66
	N	13 733 000	35.62	4.87	3.65
	Supergene	1 999 000	36.44	4.70	3.49
	Total	**102 602 000**	**34.07**	**4.63**	**3.61**
Indicated	X	37 272 000	31.20	4.91	3.50
	Y	6 237 000	23.10	5.45	3.28
	Z	16 712 000	31.39	6.33	3.54
	M	15 417 000	37.79	5.27	3.74
	C	32 957 000	36.69	3.74	3.68
	N	10 858 000	34.95	5.46	3.66
	Total	**119 455 000**	**33.51**	**4.91**	**3.58**
Inferred	X	67 955 000	30.92	5.22	3.52
	Y	22 730 000	25.41	5.35	3.35
	Z	22 802 000	31.39	5.73	3.57
	M	43 817 000	34.67	5.10	3.68
	C	53 450 000	35.35	4.13	3.66
	N	26 726 000	34.43	5.41	3.66
	Total	**237 483 000**	**32.52**	**5.04**	**3.58**
Total Resource		**459 541 000**	**33.13**	**4.91**	**3.59**

Tonnes are rounded down to 1 000t

Source: Tshipi Competent Person's Report (Appendix 1).

Tshipi ore reserves

	Zone	Tonne	Mn (%)	SG
Proved	Z	2 913 000	31.62	3.59
	M	12 181 000	38.01	3.77
	C	24 379 000	36.47	3.68
	N	7 410 000	34.36	3.65
	SUPER	766 000	37.03	3.51
	Sub-total	**47 649 000**	**36.25**	**3.69**
Probable	Z	3 265 000	32.12	3.56
	M	9 230 000	38.20	3.75
	C	21 749 000	36.83	3.68
	N	4 517 000	33.86	3.65
	Sub-total	**38 761 000**	**36.41**	**3.68**
Total		**86 410 000**	**36.32**	**3.69**

Tonnes are rounded down to 1 000t

Figure 24: Mineral resources and ore reserves of Tshipi Mine in accordance with JORC Code (2012) as at 31 December 2017

Source: Tshipi Competent Person's Report (Appendix 1).

8.15 LIFE OF MINE FORECAST AND STRATEGY

The preliminary ore and waste mining schedule was utilised by Tshipi é Ntle to develop the optimised three year budget (FY2019 to FY2021) which was then rolled out into a life of mine (**LoM**) plan, which extended to FY2047. The current expected LoM is 29 years and is based on Tshipi é Ntle's current total estimated ore reserves of 86.4 million tonnes.

The figure below summarises the production schedule from mining to shipping, developed out of the LoM plan. The variance between the tonnes mined and delivered to the RoM is as a result of mining losses (lumpy and fines loss etc.) which currently averages 9%.

Figure 25: Production schedule for the LoM plan

Source: Tshipi Competent Person's Report (Appendix 1).

The boundary pillar mining is currently included in the LoM plan for Tshipi with the first mining (waste) commencing in FY2019, with the first ore production (supergene only) produced in that same year. The main ore production will only commence in FY2020 and will cease at the end of FY2032.

A number of different optimisation scenarios exist, depending on whether the Mamatwan Mine boundary pillar is included or excluded from the scenario, and if the scenario takes into account the backfilling of waste material into the pit. For the purpose of the LoM Plan which supports this ore reserve statement, the optimisation scenario sought the best relative value pit, including the mining of the Mamatwan boundary pillar, with backfilling. This scenario assumes that Tshipi is able to mine waste on the Mamatwan side of the boundary between the two mines, in order to access the pillar.

A preliminary ore and waste mining schedule developed by VBKOM Engineering Consultants has been subsequently utilised to develop an optimised three year budget (FY2019 to FY2021) which has then been rolled out into a LoM Plan which extends to FY2047.

The optimised LoM Plan, amongst other key parameters, takes into account:

- current ore shipping requirements (tonnes and grade);
- current mine performance;
- mining fleet capacity;
- processing plant capacity; and
- waste dump capacities and location.

The LoM Plan focuses on the remaining production life of the mine post depletion. The initial three years (FY2019 to FY2021) of the LoM Plan are scheduled on a monthly basis. The remaining LoM is then scheduled on an annual basis (FY2022 to FY2047) up to mine closure.

The Mineral Corporation considers the process adopted to develop the LoM Plan aligns with typical industry practice and the outcomes in terms of planned ore to be shipped appear reasonable and align with the projected FY2018 achievements. As with any mining operation, the LoM Plan will be subject to continuous review as the operation is sensitive to prevailing market conditions.

Refer to section 12 of the Tshipi Competent Person's Report (Appendix 1) for further information on Tshipi Mine budget and LoM planning.

The operating costs utilised in the development of the optimisation process and the LoM plan have been largely based on the actual costs for the year to November 2017. The Mineral Corporation considers that the various operating costs have been developed in sufficient detail and accuracy to be utilised in an assessment of the economic viability of the ore reserves of the Tshipi Mine.

The budgeted capital costs for the LoM plan consist of three specific types of capital; expansionary, primary for FY2019 and sustaining capital for the remainder of the LoM. As the mining operation is primarily driven by contractors, the quantum of mining capital is minimal, with the principal areas of spend budgeted for processing and infrastructure maintenance.

For the first 20 years of LoM, the capital is scheduled on an annual basis providing for replacement and refurbishment capital. Thereafter the FY2039 capital estimate is projected forward for the remaining LoM. The capital estimate is revisited on an annual basis, during the budgeting process, and is adjusted as required.

The Mineral Corporation considers that the various capital items and costs budgeted for are sufficient to ensure the sustainability of the Tshipi Mine in the longer term and have been developed in sufficient detail and accuracy to demonstrate the economic viability of the ore reserves.

Refer to sections 21 and 22 of the Tshipi Competent Person's Report (Appendix 1) for further information about the operating and capital costs of the Tshipi Mine.

8.16 SUMMARY OF MINING LAWS AND REGULATIONS

Prior to 2004, the mineral and mining rights regime in South Africa was associated with land ownership rights. The legislation has since been revised and now the State exercises sovereignty over all mineral and petroleum resources within the country as they are considered the common heritage of all South Africans.

The current legislation, the Mineral and Petroleum Resources Development Act, No.28 of 2002, endeavours to promote economic growth, equitable access, employment and social and economic advancement for all citizens. Under the custodianship of the State, the Minister of Mineral Resources may grant or refuse any application for prospecting and mining rights.

The application process is strict and reflects the South African Government's current policy to enforce black economic empowerment requiring at least 26% ownership by historically disadvantaged South Africans. Tshipi exceeds this requirement by having 37% ownership by historically disadvantaged South Africans.

Applicants must comply with environmental and rehabilitation legislation and adhere to various health and safety regulations. It is also imperative that the applicant gives due consideration to the rights, interests and socio-economic development of the area in which it expects to operate. Occupational health and safety on mines is governed by the Mine Health and Safety Act, No. 29 of 1996, which requires that employers ensure that persons on mines are able to work safely and without risk to their health.

Once granted, a prospecting and mining right may be suspended or cancelled if the holder of the right is not in compliance with the requirements of the MPRDA or the material terms and conditions of the right, including the relevant black economic empowerment and HDSA requirements.

Current legislation allows for the renewal of prospecting and mining rights. In the case of prospecting rights, they may not extend beyond five years and may be renewed once for up to three years, and in the case of mining rights, they may not extend beyond 30 years and may be renewed for further periods of up to 30 years each. As a prerequisite to renewal, the holder of a prospecting or mining right must fulfil several obligations. Failure to comply with a variety of obligations could result in cancellation or suspension of the right.

There is currently proposed legislation to amend the MPRDA and the requirements relating to the ownership and management of mining assets by HDSA's. As such, a holder of a prospecting and mining right may, in the future, be required to incur significant costs to implement changes to its management and shareholding structure in order to comply with any amended requirements as a result of changes in law and any black economic empowerment and HDSA requirements, and the interpretation of such new laws

and requirements, which may have a material adverse effect on a mining company's business, financial condition, results of operations and/or prospects.

Refer to Appendix 5 (Regulation of the Mining Industry in South Africa) for further details of the regulations applicable to Tshipi é Ntle with respect to the Tshipi Mine.

8.17 MATERIAL CONTRACTS RELEVANT TO TSHIPI'S OPERATIONS

Tshipi é Ntle has entered into various contracts for the conduct of its operations, which are summarised below:

Contract description	Contractor / supplier	Purpose or nature of contract	Further information
Mining services agreement	Aveng Moolmans Proprietary Limited	Conduct of various mining operations, including mining, loading hauling ore and stockpiling of ore on site, handling, waste material, constructing and maintaining site roads and ramps, supplying water and rehabilitation.	Appendix 4, section 1
New semi-fixed ore processing plant agreement	African Mining and Crushing SA Proprietary Limited	Construction of new semi-fixed ore processing plant.	Appendix 4, section 2
Train loading and stockpile management service agreement	Motsi Civils and Plant Hire Proprietary Limited	Stockpiling and loading of ore on trains.	Appendix 4, section 3
Dedicated locomotive hire and service agreement	GPR Leasing Proprietary Limited	Provision of a dedicated locomotive and operator for rail haulage of ore.	Appendix 4, section 4
Transnet services agreement	Transnet	Provision of freight rail services, port terminal stockpiling and loading services and port terminal marine services. The agreement defines Tshipi é Ntle's capacity to export manganese.	Appendix 4, section 5
Water supply agreement	Sedibeng Water Board	Bulk water supply.	Appendix 4, section 6
Supply of petroleum products agreement	Chevron South Africa Proprietary Limited	Diesel fuel supply, diesel tanks and pumps.	Appendix 4, section 7
Management fee agreement	Jupiter	Services provided to Tshipi é Ntle by Jupiter's appointed director to Tshipi é Ntle (Priyank Thapliyal)	Appendix 4, section 8
Jupiter off-take agreement	Jupiter	Take or pay off-take agreement with the Company for the supply and delivery to the Company (as nominee of Jupiter Kalahari) of 49.9% of all manganese ore produced by Tshipi é Ntle over the life of the Tshipi Mine	Section 12.6

9. INDUSTRY OVERVIEW

9.1 INTRODUCTION AND CONTEXT

The principal end-use for manganese ore, after conversion to either silico-manganese or ferro-manganese alloys, is as a critical input to the global steel manufacturing industry. Every tonne of steel requires approximately 10-12 kilograms of manganese ore.

Manganese is also used in the manufacturing of aluminium alloys and other non-metallurgical products such as soft ferrites used in electronics, micronutrients found in fertilisers and animal feed, water treatment chemicals and battery cathodes. Additional demand for manganese going forward is likely to be driven by its applications in new battery technologies in electric and hybrid vehicles, and in the clean energy industry. In particular, the growing use of nickel-metal hydride (NiMH) and lithium-ion (Li-ion) batteries, as well as the introduction of the lithiated manganese dioxide (LMD) batteries, are expected to be important catalysts for manganese demand.

The global steel industry produced approximately l.6Bt of raw steel in 2017. China (848Mt), Japan (104Mt), India (100Mt) and the United States (82Mt) represent the top four steel producing countries in 2017, contributing some 61% to current global steel production, (World Steel Association, 2017). It is noteworthy that this level of steel production represents only 70% utilisation of the installed 2.3Bt global steel production capacity, arising from a decade of unprecedented steel production capacity expansion largely in Asia.

While the bulk of the world's manganese alloy is produced in China and India, in support of their domestic steel production capacity, China's diminishing primary manganese ore supply is typically of low grade and is insufficient to meet domestic demand, while India relies on imported manganese ore feedstock to augment constrained domestic ore sources. Japan and the United states have no domestic manganese ore sources.

Manganese ore is not exchange traded, and prices are largely determined by supply and demand dynamics linked to the global steel industry production levels. Manganese ore is priced in US dollars per metric tonne unit (US$/dmtu), and consequently ore grade is directly reflected in the price per tonne of ore.

South Africa is host to the largest repository of in situ manganese mineralisation and accounts for nearly 30% of annual global mined production from open pit and underground mining operations, as illustrated in the figure below.

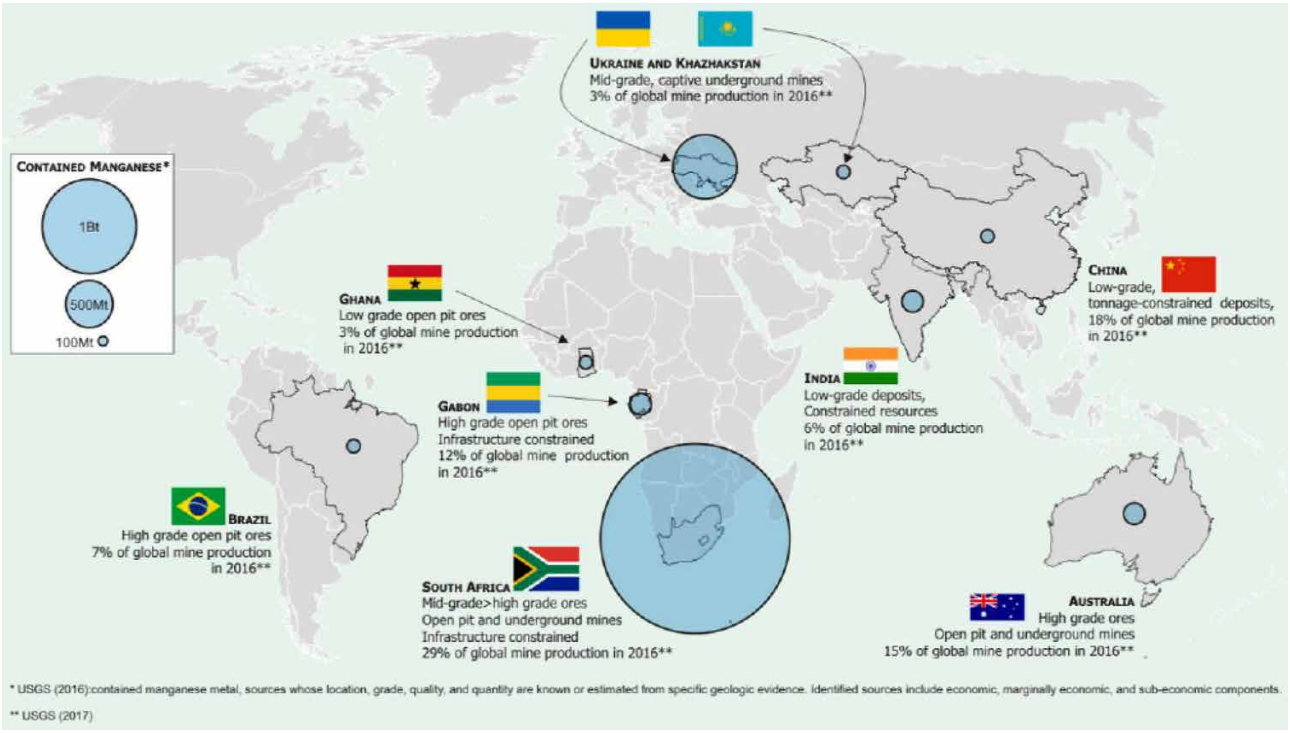

Figure 26: Global manganese mineralisation endowment and mine production

Source: Tshipi Competent Person's Report (Appendix 1).

9.2 DEMAND

The 18 months to January 2018 have seen an extraordinary increase in demand and price for manganese ores. The pace of this change may be attributable to the production-cut induced tightened supply environment of 2015 and Chinese restocking and some degree of Chinese port-stock trading arbitrage, which is perhaps reflecting the progressive shortening of ore sales quotation periods since 2009, as spot pricing and index-based ore sales contracts have become more common. The short-term demand for manganese ore is likely to continue to be linked to the pace of Chinese restocking, underpinned in the longer term by sustained Chinese crude steel output. China's significance in this ore demand resurgence is illustrated in the figure below.

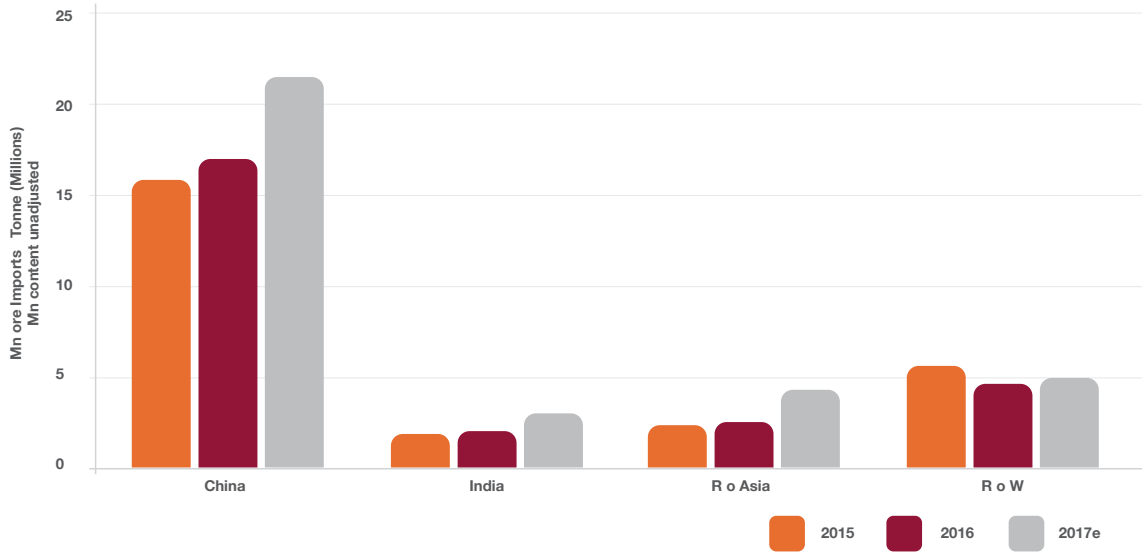

Figure 27: Manganese ore imports by jurisdiction, 2015-2017

Source: Tshipi Competent Person's Report (Appendix 1).

In the long term, manganese ore demand will continue to track the development of world steel production, with the observation that while manganese intensity of use in steel is expected to decline due to the increasing proportion of consumer driven flat products in Asian steel production, manganese remains a primary input to steel manufacture which cannot be substituted. Furthermore, increased steel recycling has little impact on primary manganese demand due to its loss in the recycling process. The consistency of grade and quality established by South African manganese ores should continue to consolidate South Africa's role as the primary manganese ore supplier to the global steel industry.

9.3 SUPPLY

In the face of an unprecedented ore demand and price collapse during 2015, global manganese ore producers throttled or idled considerable mining capacity. Production restarts during the second half of 2016 in response to resurgent market demand and volatile price recovery on the back of Chinese restocking, continued in 2017. Due to sustained high ore prices in 2017, ore production in South Africa is likely to eclipse its previous 2014 peak by as much as 10%. Elsewhere, ore production has also increased in 2017 due to the restart of the Woodie Woodie and Bootu Creek mines in Australia, and additional production expansions from jurisdictions such as Gabon and Ghana. Manganese ore export trends over the last three years are illustrated in the figure below.

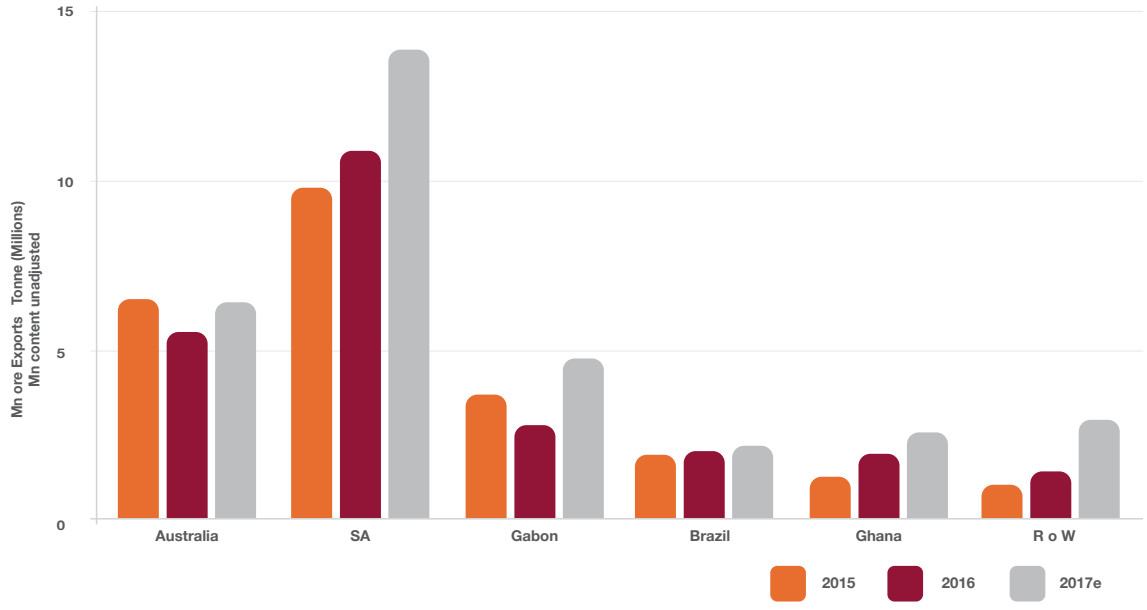

Figure 28: Manganese ore exports by jurisdiction, 2015-2017

Source: Tshipi Competent Person's Report for Tshipi (Appendix 1).

In South Africa notwithstanding mining production headroom, mine-to-port product logistics and constraints thereon remain a key factor limiting national output. Incumbent producers with established logistics channels are well placed to respond to improved market demand as the consistency of South African manganese ore grade and quality is globally recognised.

9.4 PRICE HISTORY AND OUTLOOK

In mid-2016, manganese ore prices surged in response to a sharp drawdown of industry stock levels. These reflected substantial production cutbacks brought about by low prices over the previous year, in combination with logistical problems in South Africa and a resurgence of demand from China. In 2017, ore prices have remained high which has, in turn, supported elevated manganese alloy prices. While companies were, at first, reluctant to bring high-cost production back on line, sustained high price levels have boosted confidence and supply has increased substantially.

Record prices in Rand terms were achieved in late 2016. This was followed by a relatively sharp correction in the first quarter of 2017, with prices increasing again in the successive quarters of 2017. The figure below illustrates the US$ denominated Free on Board (FOB) price trends for 37% manganese ore over the last 3 years.

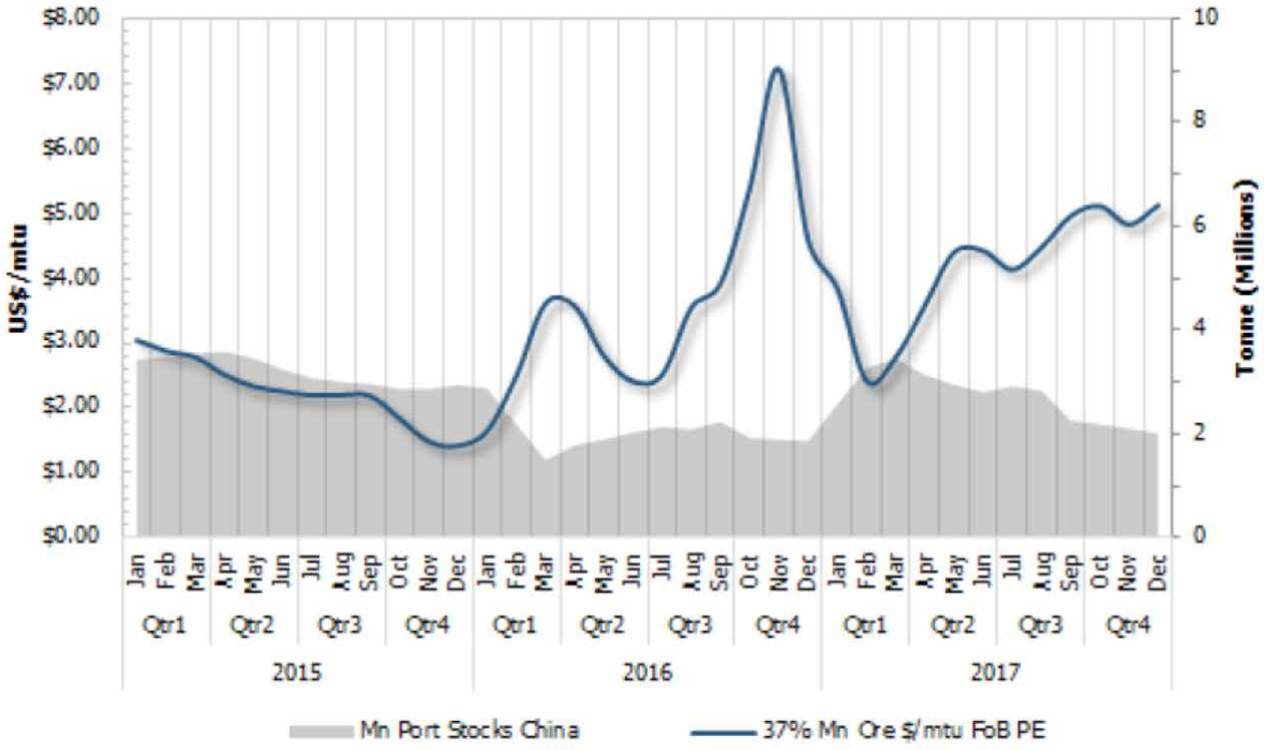

Figure 29: 37% manganese ore prices and port stocks, 2015-2017 (FOB, Port Elizabeth)

Source: Tshipi Competent Person's Report (Appendix 1).

It is understood that the rapid ore price recovery commencing during Q1 2016 was led by Chinese port-stock depletion which prompted some alloy producers to seek ore stock feedstock directly from mines. In a South African context, logistics disruptions during Q3 2016 exacerbated perceived ore scarcity and supported further ore price increases as South African miners re-engaged idled mining capacity and procured (more expensive) alternative transport and shipping options. Increased South African production during 2017 has yet to alleviate this perceived ore scarcity and ore prices have continued to be buoyant into 2018.

10. MINING PROJECT TENURE

10.1 TSHIPI MINE TENURE

Tshipi é Ntle is the registered holder of a valid mining right for the Tshipi Mine that expires on 6 April 2040 (Mining Right).

Refer to Section 8.7 for a description of the Mining Right and the surface rights of Tshipi é Ntle.

Webber Wentzel has prepared a title opinion with respect to the Tshipi Mine (**Tshipi Title Opinion**). The Tshipi Title Opinion:

(a) confirms Tshipi is registered holder of the Mining Right;

(b) outlines the material terms and conditions of the Mining Right; and

(c) confirms Tshipi é Ntle is the registered owner of certain properties that comprise the surface rights at the location of the Tshipi Mine (as shown in Section 8.7).

A copy of the Tshipi Title Opinion is available free of charge on the Company's website, www.jupitermines.com (refer to "Reports" in the "Investor Relations" tab on the website), and is taken to be included in this Prospectus by reference.

10.2 CENTRAL YILGARN IRON PROJECT TENURE

Jupiter is the registered holder in absolute share of 29 tenements (**Tenements**) granted under the *Mining Act 1978 (WA)*. The Tenements comprise of two mining leases, four general purpose leases and 23 miscellaneous licences. There are no pending applications for additional tenements.

Details of the Tenements are as follows:

LEASE	NAME	STATUS	APPLIED DATE	GRANT DATE	EXPIRY DATE	CURRENT AREA (Ha)	CURRENT COMMITMENT	CURRENT RENT	REGISTERED HOLDER
G29/21	Mt Mason	Granted	22/05/2009	23/03/2010	22/03/2031	95.00	N/A	$1,482.00	Jupiter (100%)
G29/23	Mt Mason	Granted	5/05/2012	7/02/2013	6/02/2034	1,255.50	N/A	$19,593.60	Jupiter (100%)
G37/36	Mt Mason	Granted	3/04/2009	17/01/2011	16/01/2032	358.62	N/A	$5,600.40	Jupiter (100%)
L29/116	Mt Mason	Granted	7/06/2012	3/01/2013	2/01/2034	25.48	N/A	$405.60	Jupiter (100%)
L29/117	Mt Mason	Granted	7/06/2012	7/12/2012	6/12/2033	90.14	N/A	$1,419.60	Jupiter (100%)
L29/118	Mt Mason	Granted	7/06/2012	9/11/2012	8/11/2033	11.67	N/A	$187.20	Jupiter (100%)
L29/119	Mt Mason	Granted	28/08/2012	30/07/2013	29/07/2034	52.76	N/A	$826.80	Jupiter (100%)
L29/120	Mt Mason	Granted	30/09/2012	7/02/2013	6/02/2034	21,720.05	N/A	$10,860.50	Jupiter (100%)
L29/121	Mt Mason	Granted	30/09/2012	30/07/2013	29/07/2034	64.31	N/A	$1,014.00	Jupiter (100%)
L29/123	Mt Mason	Granted	25/11/2012	26/03/2013	25/03/2034	23.13	N/A	$374.40	Jupiter (100%)
L29/132	Mt Mason	Granted	17/06/2016	08/11/2016	27/11/2028	300.52	N/A	$4,695.60	Jupiter (100%)
G29/22	Mt Ida	Granted	11/01/2011	6/09/2012	5/09/2033	9,631.00	N/A	$150,243.60	Jupiter (100%)
L29/100	Mt Ida	Granted	11/01/2011	11/11/2011	10/11/2032	775.00	N/A	$12,090.00	Jupiter (100%)
L29/106	Mt Ida	Granted	18/03/2011	20/06/2012	19/06/2033	119.44	N/A	$1,872.00	Jupiter (100%)
L29/122	Mt Ida	Granted	30/09/2012	03/04/2014	2/04/2035	6,590.72	N/A	$3,295.50	Jupiter (100%)

LEASE	NAME	STATUS	APPLIED DATE	GRANT DATE	EXPIRY DATE	CURRENT AREA (Ha)	CURRENT COMMITMENT	CURRENT RENT	REGISTERED HOLDER
L29/131	Mt Ida	Granted	12/02/2015	17/12/2015	16/12/2036	542.00	N/A	$8,455.20	Jupiter (100%)
L29/78	Mt Ida	Granted	1/09/2009	24/06/2010	23/06/2031	6,341.00	N/A	$3,170.50	Jupiter (100%)
L29/79	Mt Ida	Granted	12/01/2010	24/08/2010	23/08/2031	6,886.00	N/A	$3,443.00	Jupiter (100%)
L29/81	Mt Ida	Granted	13/05/2010	12/09/2011	11/09/2032	26,020.34	N/A	$13,010.50	Jupiter (100%)
L29/99	Mt Ida	Granted	12/11/2010	24/02/2012	23/02/2033	64,550.49	N/A	$32,275.50	Jupiter (100%)
L36/214	Mt Ida	Granted	5/09/2012	17/06/2013	16/06/2034	19,703.86	N/A	$9,852.00	Jupiter (100%)
L36/215	Mt Ida	Granted	20/10/2012	1/08/2013	31/07/2034	29,849.54	N/A	$14,925.00	Jupiter (100%)
L36/216	Mt Ida	Granted	20/10/2012	1/08/2013	31/07/2034	17,632.43	N/A	$8,816.50	Jupiter (100%)
L36/217	Mt Ida	Granted	20/10/2012	1/08/2013	31/07/2034	5882.25	N/A	$2,941.50	Jupiter (100%)
L37/203	Mt Ida	Granted	3/05/2010	27/06/2011	26/06/2032	68,952.89	N/A	$34,476.50	Jupiter (100%)
L57/45	Mt Ida	Granted	5/09/2012	19/08/2013	18/08/2034	8,703.48	N/A	$4,352.00	Jupiter (100%)
L57/46	Mt Ida	Granted	05/09/2012	05/12/2014	04/12/2035	31,741.86	N/A	$15,871.00	Jupiter (100%)
M29/408	Mt Ida	Granted	6/02/2006	28/11/2007	27/11/2028	300.65	$30,100	$5,297.60	Jupiter (100%)
M29/414	Mt Ida	Granted	11/01/2011	25/11/2011	24/11/2032	6,459.50	$646,000.00	$113,696.00	Jupiter (100%)

Notes:

[1] Key to the table above:

L = miscellaneous licence

G = general purpose lease

M = mining lease

[2] All rent and area figures are rounded to two decimal places.

[3] The "Current Rent" column shows the rent payable for the year 2019. The rent payable on each tenement for the year 2018 has been paid in full.

[4] General purpose leases and miscellaneous licences are not subject to minimum expenditure conditions.

Jackson McDonald has prepared a tenure report with respect to the CYIP for inclusion in this Prospectus, which contains further information about the status of the Tenements and the terms and conditions on which the Tenements have been granted and are held (**CYIP Tenure Report**).

A copy of the CYIP Tenure Report is available free of charge on the Company's website, www.jupitermines.com (refer to "Reports" in the "Investor Relations" tab on the website), and is taken to be included in this Prospectus by reference.

11. RISK FACTORS

11.1 INTRODUCTION

Investors wishing to subscribe for Shares should read this Prospectus in its entirety in order to make an informed assessment of the Offer and the rights attaching to Shares offered by this Prospectus.

Investors should carefully consider whether Shares in the Company are an appropriate investment for them and should appreciate that the price of the Company's Shares can fall as well as rise.

Whilst the Directors commend the Offer, investors should be aware of, and take into account, the risk factors involved.

This Section is not intended to be an exhaustive list of the considerations to be taken into account by investors in deciding whether to subscribe for Shares, nor all of the risk factors to which the Company is exposed. Some of these risks can be mitigated by the use of safeguards and appropriate systems and actions but many are outside the control of the Company and cannot be mitigated.

There are risks associated with investing in any form of business and with investing in the share market generally. All investors should consult their professional advisers if they are in any doubt as to any aspect of this Prospectus, the Offer or any other matter relating to an investment in the Company.

The following risks have been identified as being key risks specific to an investment in the Company. These risks have the potential to have a significant adverse impact on the Company and may affect the Company's financial position, prospects and price of its listed securities.

11.2 COMPANY SPECIFIC RISKS

(a) Risks of Tshipi é Ntle and manganese mining in South Africa

The Company's main asset is its 49.9% shareholding interest in Tshipi é Ntle and at present the Company derives nearly all of its income from Tshipi é Ntle, which derives all of its income from the operations of the Tshipi Mine.

As such, the Company is exposed to the risks that Tshipi é Ntle is exposed to.

These risks include risks relating to the fact that Tshipi é Ntle owns and operates only one mine in South Africa, producing only one commodity, being manganese ore.

The specific risks associated with Tshipi é Ntle, the Tshipi Mine and manganese mining in South Africa are set out in Section 11.3.

(b) The level of dividends and distributions from Tshipi é Ntle to the Company and from the Company to Shareholders may fluctuate

The level of dividend and any distributions paid on Shares (if any) is not guaranteed and may fluctuate.

The level of dividend and any distribution paid or made by the Company to its Shareholders will in particular depend on the income and other returns the Company receives from its investment in Tshipi é Ntle.

Under South African law, Tshipi é Ntle is entitled to pay a dividend or similar payment to its shareholders (including the Company) only if it meets the solvency and liquidity tests set out in the Companies Act (South Africa), and is permitted to do so in terms of its Memorandum of Incorporation. Given these factors and the board of Tshipi é Ntle's discretion to declare cash dividends or other similar payments, dividends and other payments received by the Company from Tshipi é Ntle may fluctuate in the future and may not always be received.

South Africa currently has a tax treaty in place with Luxembourg which reduces the 20% withholding tax to 5%, provided that the Luxembourg company has a minimum holding of 25% of capital in the relevant South African company. Jupiter Kalahari S.A (a 100% subsidiary of the Company) qualifies for this reduction by virtue of holding 49.9% of the capital in Tshipi é Ntle. Further, any dividends paid from Luxembourg to Australia are subject to withholding tax at a rate of 15%. The Company is currently engaged with tax advisors to optimise the holding structure of the Company in Tshipi é Ntle.

If under South African law there were to be a change to the basis on which dividends could be paid by Tshipi é Ntle to the Company, or if there were to be changes to accounting standards or the interpretation of accounting standards, this could have a negative effect on the Company's ability to pay dividends.

(c) Risk of currency exchange rate fluctuations on Tshipi é Ntle dividends received by the Company in Rand

Dividends or distributions received by the Company with respect to shares in Tshipi é Ntle have historically been paid in Rand. The Australian dollar or other currency equivalent of future dividends or distributions with respect to the Company's shares in Tshipi may be adversely affected by potential future fluctuations in the value of the Rand against the US dollar, the Australian dollar or other currencies.

(d) Risk of loss of key personnel

The Company has a small management team. The Company's success depends to a significant extent upon its key management team and its Chief Executive Officer, Priyank Thapliyal. The loss of the services of the Company's key personnel may result in the Company not being able to locate or employ qualified executives with the relevant experience or on acceptable terms.

(e) Significant retained holding by certain Existing Shareholders and Escrowed Shareholders

Certain of the Existing Shareholders, being the Escrowed Shareholders, have entered into voluntary escrow deeds in relation to their Escrowed Shares as described in Section 12.3. Immediately after completion of the Offer, assuming that the Existing Shareholders and their associates do not subscribe for any Shares under the Offer, collectively the Escrowed Shareholders will beneficially own or control approximately 30.67% of the Company's issued Shares, assuming maximum subscription of the Offer, and 35.81% of the Company's issued Shares, assuming minimum subscription to the Offer.

The absence of any sale of Escrowed Shares by the Escrowed Shareholders during their Escrow Period may cause, or at least contribute to, limited liquidity in the market for the Shares. This could affect the prevailing market price at which Shareholders are able to sell their Shares. Following the end of the relevant Escrow Period, a significant sale of Shares by one or more of the Escrowed Shareholders or the perception that such sales might occur, could adversely affect the market price of the Shares at the time.

The interests of the Escrowed Shareholders may differ from the interests of the Company and the interests of other Shareholders.

While they hold a large stake in the Company, the Escrowed Shareholders may be able to determine or influence whether a takeover bid or similar offer for Shares is successful.

(f) The market price of Shares may be subject to fluctuations, including possible decreases

The market price of Shares could be volatile and subject to significant fluctuations due to a variety of factors, some of which do not relate to the Company's financial performance, including changes in general market conditions, the general performance of the ASX, changes in sentiment in the market regarding the Shares (or securities similar to them), regulatory changes affecting the Company's and Tshipi é Ntle's operations, variations in the Company's or Tshipi é Ntle's operating results, the Company's or Tshipi é Ntle's business developments or those of Tshipi é Ntle's competitors, the operating and share price performance of other companies in the mining industry, speculation about the Company's or Tshipi é Ntle's business in the press, media or the investment community or changes in the political, social or economic conditions in South Africa or the surrounding region.

Furthermore, the Company's operating results and prospects from time to time may be below the expectations of market analysts and investors.

Any of these events could result in a decline in the market price of the Shares.

(g) Insurance risks

The Company intends to adequately insure its operations in accordance with industry practice. However, in certain circumstances, the Company's insurance may not be of a nature or level to provide adequate insurance cover. The occurrence of an event that is not covered or only partially covered by insurance could have a material adverse effect on the business, financial condition and results of the Company.

11.3 RISKS RELATING TO TSHIPI É NTLE'S BUSINESS AND THE MANGANESE MINING INDUSTRY IN SOUTH AFRICA

(a) Tshipi é Ntle's only product is manganese ore. Should the price of manganese ore significantly decrease, Tshipi é Ntle's business, financial condition, results of operations and/or prospects may be adversely affected.

Tshipi é Ntle's revenue is directly related to the prices obtained for manganese ore. For example, while Tshipi é Ntle remained net cash positive from operating activities over the last three financial years, the decrease in manganese prices in FY2016 led to both a scaling back of production and decreased revenue, which are reflected in the year–on-year decrease in net cash from operating activities, among other financial and operational key performance indicators between the 2015 and 2016 financial years.

In addition, in the event that the price of manganese ore is reduced, Tshipi é Ntle will not be able to avoid continuing to incur certain operating costs and must continue to sell a minimum amount of ore even in low price environments.

Furthermore, manganese prices are influenced by the demand for, and supply of, manganese ore, production cost levels in other major manganese producing regions and other factors beyond Tshipi é Ntle's control such as general market, political and economic conditions and changes in the market valuations of listed stocks, particularly of mining and exploration companies. As a result of the factors described above, it is difficult to estimate future prices that Tshipi é Ntle may be able to achieve for its manganese ore. In addition, due to a lack of appropriate financial instruments, Tshipi é Ntle is unable to hedge its exposure to the risk of price fluctuations.

Should the price of manganese ore significantly decrease, Tshipi é Ntle's business, financial condition, results of operations and/or prospects may be adversely affected.

(b) Tshipi é Ntle conducts the majority of its mining and processing operations, including transportation of manganese ore to dispatch points, through third-party contractors. As a result, Tshipi é Ntle is exposed to fluctuations in contractor costs and risks relating to the quality and continuation of their services.

Tshipi é Ntle conducts a large part of its operations through third-party contractors. Currently, Tshipi é Ntle outsources its mining operations and waste development to Aveng Moolmans, and its crushing and screening operations to Africa Mining and Crushing. Tshipi é Ntle also engages third party contractors for a range of activities ancillary to its mining and processing operations, including but not limited to transportation of its manganese ore from its mine to loading points, loading of manganese ore on wagons and transportation of the manganese ore to port via rail or road.

Specifically, Tshipi é Ntle's rail transport is undertaken by Transnet primarily pursuant to its contract for a 2.1Mtpa rail allocation. Ore production that exceeds what can be transported via the rail agreement is transported pursuant to a combination of other rail sources outside of its current 2.1Mtpa Transnet rail allocation and road haul agreements negotiated on an ad hoc basis. Tshipi é Ntle is required to pay the contractors for their services according to specified rates agreed to by Tshipi é Ntle.

The operations at the Tshipi Mine may be interrupted for an extended period in the event that Tshipi é Ntle's loses any of its key contractors and is required to replace them. There can be no assurance that skilled third parties or contractors will continue to be available at reasonable rates.

Tshipi é Ntle is also exposed to risks related to the quality or continuation of the services of, and the equipment and supplies used by its contractors as well as risks related to the compliance of its contractors with environmental and health and safety legislation. The timing and quality of Tshipi é Ntle's projects is somewhat dependent on the availability and skill of these parties, as well as contingencies affecting them, including labour and raw material shortages. Any failure by Tshipi é Ntle's contractors to comply with their obligations under their operating agreements (whether as a result of financial or operational difficulties or otherwise), any termination or breach of Tshipi é Ntle's operating agreements by Tshipi é Ntle's contractors, any protracted dispute with a contractor, any material labour dispute between Tshipi é Ntle's contractors and their employees or any major labour action by those employees against Tshipi é Ntle's contractors, could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations. Furthermore, Tshipi é Ntle may not be able to recover from a contractor any losses that may be suffered due to any performance shortfalls of its contractors.

(c) Slowdown in the growth of demand for steel from Asia, and China in particular, could have a material adverse effect on the manganese ore market and prices.

The Chinese market has become a significant source of global demand for commodities. Steel is the key metallurgical application for manganese ore. China's demand for commodities in its steel industry has been an important factor driving global demand for raw materials, such as manganese ore. Refer to sections 9.1 and 20 of the Tshipi Competent Person's Report (Appendix 1) for further information on the global steel industry.

If the Chinese steel industry weakens, or if the government maintains policies that result in reduced levels of economic activity in aggregate, this could result in lower Chinese demand for manganese ore, including Tshipi's products. As a result, along with the rest of the manganese market, Tshipi é Ntle may see lower sales volumes and lower prices, which in turn could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

(d) Tshipi é Ntle's business, financial condition and results of operations could be affected by operational disruptions at the Tshipi Mine.

Tshipi é Ntle's mining and related activities (including the transportation of ore) are subject to operational risks that can reduce production and increase costs and adversely affect Tshipi é Ntle's ability to meet future ramp-up mining and processing targets. Operational risks include, but are not limited to, material changes in the cost, or interruptions in the supply, of energy, water, fuel or other key inputs, abnormal or severe weather conditions and natural disasters, unexpected maintenance or technical problems, accidents, fire incidents, mechanical failures and variations in geological conditions.

Operational disruptions and delays, such as those described above, could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

(e) Tshipi é Ntle faces logistical constraints due to the location of resource deposits, the physical design of transportation networks and competition for access to transportation networks.

Tshipi é Ntle's ability to transport, and therefore sell its production, may be constrained by logistical difficulties resulting from the location of the Tshipi Mine. Like its key competitors, the Tshipi Mine is situated inland, therefore, Tshipi é Ntle depends on railroads, roads and ports to transport its products from the Tshipi Mine to its end-users. Tshipi é Ntle ships the majority of ore produced by the Tshipi Mine from four ports: the Port of Saldanha, Port Elizabeth, the Port of Durban and the Port of Cape Town. All four ports are accessible by public roads, and by railway lines. Generally, local infrastructure is well-established, having been developed to serve the needs of the manganese and iron ore mining operations in the region.

To the extent Tshipi é Ntle is constrained by logistical difficulties in transporting manganese ore, the availability of road and rail transport to the ports, Tshipi é Ntle's sales and profitability may be limited. This would have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

(f) Tshipi é Ntle's financial condition and results of operations could be adversely affected by currency exchange rate fluctuations and inflation.

Manganese is sold throughout the world based primarily on a US dollar price. Tshipi é Ntle generates revenues through the sale of its manganese ore in US dollars and subsequently converts this to South African Rand.

The majority of Tshipi é Ntle's expenses (including mining, processing, drilling, salaries and other exploration costs) are incurred in South African Rand.

A weak US dollar would have the effect of Tshipi é Ntle obtaining less South African Rand through its sales and consequently having less Rand with which to pay its expenses.

(g) Tshipi é Ntle's mining operations are concentrated at one mine.

Tshipi é Ntle's manganese ore mining operations are currently based entirely at the Tshipi Mine in South Africa. Tshipi é Ntle has focused its cash resources and capacity on bringing the Tshipi Mine into full production and is therefore dependent upon the operation of the Tshipi Mine for its revenue and future profits, if any. If for any reason production at the Tshipi Mine were reduced, disrupted or stopped, this would have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

(h) Failure to convert mineral resources into ore reserves or maintain or enhance existing reserves could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and prospects.

Tshipi é Ntle's principal activities include exploration, infrastructure development, mining and logistics to port related to manganese ore in South Africa.

The success of Tshipi é Ntle's operations and exploration plans depends on many factors including, but not limited to, the delineation of commercially mineable ore reserves and obtaining all consents, licences and approvals necessary for the conduct of Tshipi é Ntle's exploration activities. Such exploration and development activities can be impaired by factors such as geological conditions, mineralisation, consistency and reliability of ore grades, commodity prices, adverse weather conditions over a prolonged period, natural disasters, environmental legislation, industrial disputes, infrastructure and logistical issues, cost overruns, land claims and compensation, political risk and other unforeseen contingencies. A failure in Tshipi é Ntle's ability to convert mineral resources into ore reserves or maintain or enhance existing ore reserves could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

Any material inaccuracy in the estimates and assumptions related to Tshipi é Ntle's mineral resources and ore reserves would reduce the life of mine estimate and could result in decreased profitability from lower than expected production amounts, which could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

(i) The manganese ore mining industry is competitive and Tshipi é Ntle may not be able to compete successfully.

The manganese ore mining industry and the wider mining industry are competitive. There is a high degree of concentration of producers in the manganese ore mining industry, both in South Africa and world-wide. Certain of Tshipi's competitors, by virtue of their production volume, have the potential to move the market price of manganese ore by building up and subsequently releasing stockpiles of ore onto the market. Further, through consolidation, strategic investments and industrial partnerships, mining companies have the opportunity to expand the scope of their exploration activities and operations, increase available ore reserves for production, reduce logistical transportation barriers, achieve cost reductions by eliminating redundancy in their management structures and achieve greater efficiencies and economies of scale.

Many of Tshipi é Ntle's competitors have greater mineral and geographical diversification and greater financial resources than Tshipi é Ntle. Tshipi é Ntle also faces competition in its ability to develop and improve mining technologies and methodologies. Increased competition in any of the abovementioned areas could result in more competitive pricing, which could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

(j) Tshipi é Ntle's shareholders may be required to contribute further funds to Tshipi é Ntle

Should the Tshipi Mine cease being profitable due to low manganese prices, there is a possibility that the Company may be required to contribute further funds to Tshipi é Ntle.

Tshipi é Ntle has measures in place to manage periods of low manganese ore prices, including the maintenance of an approximate ZAR300 million (being approximately $32,950,000) minimum cash balance at all times and the ability to reduce its costs by reducing the use of road transport and increasing the use of rail transport of manganese ore. Further, should the manganese price fall, global production of higher cost manganese product may reduce, which may have the effect of restoring manganese prices over time.

Notwithstanding these factors, it is possible that in times of low manganese ore prices, Tshipi é Ntle may require additional funding. It is possible that the shareholders of Tshipi e Ntle, which include Jupiter's wholly owned subsidiary, Jupiter Kalahari in the amount of 49.9%, may be required to contribute that funding to Tshipi é Ntle in proportion to their shareholding pursuant to the Shareholders Agreement (refer to Section 12.5 for further information).

(k) Tshipi é Ntle's production and revenues may be affected by geological factors inherent in a pit development cycle.

In open pit mining operations like those at the Tshipi Mine, it is necessary to remove overburden and other waste in order to access ore. Typically, as a result, the ratio of waste removed to ore extracted – the stripping ratio – may vary during the life cycle of a mine. The stripping ratio will be higher during periods when more waste must be removed in order to access the ore compared to periods when less waste is required to be removed. The geological characteristics of the pit will determine the amount of waste required to be removed in order to access ore during a period, with the removal of more waste requiring increased production.

Jupiter anticipates that the Tshipi Mine's stripping ratio will be consistent over the life of mine on a year-on-year basis. However, there can be no assurance that Tshipi é Ntle's geological calculations are correct, or that the Tshipi Mine's stripping ratios will not be higher than Tshipi é Ntle predicts. As such, if Tshipi é Ntle's geological calculations are incorrect and the Tshipi Mine proves to have particularly high stripping ratios, minimising the volatility of Tshipi é Ntle's production profile may not be possible, which could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

(l) Tshipi é Ntle is dependent on its senior management team.

Tshipi é Ntle's business depends in significant part upon the contributions of a number of key personnel, in particular Tshipi é Ntle's senior management team, including engineers and geologists.

The loss of any of Tshipi é Ntle's key management could have an adverse effect on Tshipi é Ntle's business unless and until a suitable replacement is found. A limited number of persons exist with the requisite experience and skills to serve in Tshipi é Ntle's senior management positions. Tshipi é Ntle may not be able to locate or employ qualified executives on acceptable terms.

(m) Tshipi é Ntle's manganese ore reserve and mineral resource estimates are estimates only and are subject to uncertainties and may not be recoverable in full.

Tshipi é Ntle's future performance depends on, among other things, the accuracy of its estimates of its ore reserve and mineral resource base. Tshipi é Ntle bases estimates of its ore reserve and mineral resource base on geological, engineering and economic data collected. In connection with the Offer, The Mineral Corporation has reviewed Tshipi é Ntle's mineral resources and ore reserves in accordance with the JORC Code (refer to Appendix 1).

While Tshipi é Ntle's ore reserves and mineral resources statements are prepared in accordance with the JORC Code, and constitute estimates that comply with standard evaluation methods generally used in the international mining industry, no assurance can be given that the ore reserves presented in this Prospectus will be recovered at the quality or yield presented, that the anticipated revenue, tonnage and grades will be achieved, or that the mineral resources can be mined or processed profitably. Reserve estimation is a subjective process of estimating deposits of a mineral that cannot be measured in an exact manner, and the accuracy of any ore reserve estimate is a function of the quality of available data and engineering and geological interpretation and judgment.

The volume and grade of the manganese ore that Tshipi é Ntle recovers may not conform to current expectations and may be below estimated levels. Production estimates are dependent on, among other things, the accuracy of ore reserve and mineral resource estimates, the accuracy of assumptions regarding ore grades and recovery rates, ground conditions (including hydrogeology), physical characteristics of ores, the presence or absence of particular metallurgical characteristics, the assumed effects of regulation, including the issuance of required permits, taxes, including royalties and other payments to governmental agencies, assumptions concerning equipment and productivity, future manganese ore prices and the accuracy of estimated rates and costs of mining, ore haulage and processing. However, ore reserve and mineral resource estimates are based on sampling that may change over time as new information becomes available, particularly actual production and cost data, further drilling and market factors.

In addition, market fluctuations in the price of Tshipi é Ntle's products, as well as increased production costs or reduced recovery rates, may render certain ore reserves and mineral resources uneconomical to mine. If this occurs, Tshipi é Ntle may need to revise its manganese ore reserves downwards, which may adversely affect the life of mine plans and consequently the aggregate value of its mining asset base. Failure to achieve production estimates could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

Any material inaccuracy in, or future variations from, estimates related to Tshipi é Ntle's ore reserves and mineral resources could result in decreased profitability from lower than expected revenues and/or higher than expected costs, which could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

(n) Tshipi é Ntle's insurance coverage does not cover all potential losses, liabilities and damage related to Tshipi é Ntle's business and certain risks are uninsured or uninsurable.

Exploration, development and production operations on mineral properties involve numerous risks. It is not always possible to obtain insurance against all such risks and Tshipi é Ntle may decide not to insure against certain risks because of high premiums associated with insuring against those risks or other reasons. Moreover, insurance against risks such as environmental pollution or other hazards is often not available on acceptable terms. Although Tshipi é Ntle has undertaken a detailed risk assessment and maintains insurance to protect against certain risks in such amounts as it considers reasonable in light of the circumstances surrounding such risks, Tshipi é Ntle's insurance will not cover all potential risks associated with Tshipi é Ntle's operations and insurance coverage may not continue to be available or may not be adequate to cover any resulting liability. In particular, Tshipi é Ntle is not insured in respect of certain types of environmental hazards, such as pollution or other hazards arising from disposal of waste products. The occurrence of a significant adverse event, the risks of which are not fully covered by insurance, could have a material adverse effect on Tshipi é Ntle's financial condition or results of operations and/or prospects.

(o) Tshipi é Ntle may be involved in various litigation matters and any final judgments against Tshipi é Ntle could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

Tshipi é Ntle is and may become subject to litigation, arbitration and other legal proceedings arising in the normal course of business and may be involved in disputes that may result in litigation. As of the Prospectus Date, Tshipi é Ntle is the defendant in a small number of employment-related litigation claims, none of which are considered material. The causes of potential future litigation cannot be known and may arise from, among other things, business activities and environmental and health and safety concerns. The results of litigation cannot be predicted with certainty but could include damages, fines, and the loss of licences, concessions, or rights, among other things.

A final judgment against Tshipi é Ntle in any significant dispute could result in damages or injunctions being awarded against Tshipi é Ntle that could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

(p) Tshipi é Ntle's operations are subject to extensive environmental regulation which is currently subject to legislative reform and change, the non-compliance with which could involve substantial costs and could lead to the termination or suspension of its mineral rights.

Tshipi é Ntle's operations are subject to compliance with extensive environmental legislation and regulations, which is currently subject to legislative reform and change, in particular with respect to financial provisioning for rehabilitation and closure, as more fully described at section 6 of Appendix 5.

Non-compliance with its approved environmental management programme (**EMP**) and any environmental authorisations or licences could result in significant fines, penalties or other civil or criminal sanctions, and costs for Tshipi é Ntle, and could lead to the suspension to all or part of, or significant delays to Tshipi é Ntle's mining operations, and the termination of its mineral rights. Any of the above would have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

The Department of Mineral Resources of South Africa (**DMR**) issued Tshipi é Ntle with an environmental authorisation on 31 January 2018 which has rectified various non-compliances with its EMP and with NEMA, including the expansion of a gravel haul road and the establishment of a diesel farm with a total capacity of 996 000 litres.

This environmental authorisation was issued following the approval of an EMP amendment application and a section 24G rectification application that Tshipi é Ntle submitted to the DMR. The appeal period within which it is possible for interested and affected parties to appeal the DMR's decision to issue the environmental authorisation is currently pending. No appeals have been received to date. If an appeal is lodged, then this will suspend the operation of the environmental authorisation until the appeal has been finalised.

Tshipi é Ntle has not implemented all the requirements of its EMP relating to its backfilling liability (the current EMP has required since 2009 that concurrent backfilling take place and that at closure, the pit be completely backfilled to achieve the closure objective of returning the land back to its pre-mining use, being grazing land). Tshipi é Ntle is undertaking some concurrent backfilling and it is developing a backfill strategy as complete backfilling, as a final closure option, is no longer considered to be financially feasible. Tshipi é Ntle intends to seek a further EMP amendment as part of the backfilling strategy to allow for partial backfilling. While Tshipi é Ntle has in place a guarantee for certain limited backfilling liability, Tshipi é Ntle has not financially provided for complete backfilling of the pit. To do so would require Tshipi é Ntle to make a financial provision of up to ZAR835,690,168 based on the estimate of the current liability (premature closure) or up to ZAR4,504,538,400 based on the estimate of the future liability in 28 years' time (at the end of the current planned mine life). Should the DMR require partial or full backfilling, upon review of Tshipi é Ntle's future EMP amendment application in this regard or otherwise, the cost of the guarantee and the associated liability may rise significantly, so the remaining mineral resource may be sterilised, which could have an adverse effect on the financial condition and results of operation of Tshipi é Ntle.

Any failure by Tshipi é Ntle to obtain the required additional EMP amendment could result in Tshipi é Ntle being subject to substantial claims, penalties, fees, expenses and/or significant delays in operations, which could curtail or halt production at the Tshipi Mine. Any of the above would have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

Tshipi é Ntle is in the process of exploring the various options on how best to amend the EMP, which will consider the community, environment and financial impacts. This is a long process in order to perform detailed option analysis work. The DMR is aware that Tshipi é Ntle does not provide for backfilling, based on the annual reports submitted by Tshipi é Ntle to the DMR, which specifically state that no back fill of the void has been provided for. To date, Tshipi é Ntle has not received any response from the DMR in this regard.

Refer to sections 17.4 and 17.5 of the Tshipi Competent Person's Report (Appendix 1) for further information about mine closure and rehabilitation scenarios, key environmental risks and sterilisation of mineral resources in the event complete backfilling is required.

Recent changes to legislation, as well as further changes to financial provisioning laws which are currently in draft form, may increase the quantity of financial provisioning which Tshipi é Ntle will need to put-up to meet its legal obligations. Tshipi é Ntle is currently compiling a rehabilitation and closure plan in accordance with the financial provisioning regulations published under the National Environmental Management Act No 107 of 1998 in November 2015. Environmental laws and regulations change frequently and are generally becoming more stringent. If Tshipi é Ntle's environmental compliance obligations in South Africa were to vary as a result of changes to the legislation, or if certain assumptions Tshipi é Ntle makes to estimate liabilities are incorrect, or if unanticipated conditions were to arise in Tshipi é Ntle's operations, Tshipi é Ntle's expenses and provisions may increase, which could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

Tshipi é Ntle's operations are also subject to compliance with health and safety laws and regulations, as further described in section 7 of Appendix 5. If Tshipi fails to comply with these requirements it could face significant fines, penalties, and civil and criminal sanctions, or its operations could be suspended and its mine closed, which could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

(q) Tshipi é Ntle's operations are dependent on access to water use rights and subject to water use regulation, which could impose significant costs and burdens.

South Africa is a water-scarce country. Accordingly, Tshipi é Ntle's operations are subject to regulatory controls on their usage and disposal of water and waste. Water scarcity may lead to increased regulatory scrutiny with regard to sustainable use and water-related discharges. Therefore, Tshipi é Ntle may face increasing competition for water uses both in respect of surface and groundwater, which may have operating cost implications from a tariff perspective, as water use charges may increase. Increasing water scarcity is a risk in relation to the sustainability of supply and there is a need for Tshipi é Ntle to implement new measures and technology in order to use water more efficiently.

Tshipi é Ntle has concluded an agreement with Sedibeng Water Board (**Sedibeng**) for the bulk supply of potable water to its site. A significant rise in the price of potable water supply could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

Tshipi é Ntle is currently investigating alternative sources of water to ensure security of potable and process water supply to the site, including pit dewatering, additional groundwater abstraction. Tshipi é Ntle is likely to be required to obtain various additional approvals depending on what alternative sources of water are available to supply the Tshipi Mine.

Further, although Tshipi é Ntle has access to a limited supply of recycled pit water at the Tshipi Mine, a loss of the Sedibeng water supply due to the malfunctioning of the water pipeline or drought would impact negatively on the ability of Tshipi é Ntle to obtain and use potable water and ultimately, to sustain its operations.

(r) A major health and safety incident could lead to work stoppage, reputational damage and increase potential liabilities.

Due to the nature of its operations and services, Tshipi é Ntle's employees and contractors are exposed to varying degrees of risk in the workplace. These risks may include exposure to dangerous situations or materials and have the potential to result in personal injury or death. Tshipi é Ntle is responsible for the safety and security of its employees and of third-party personnel while they are working at sites under the management of Tshipi é Ntle and, accordingly, must implement adequate health and safety procedures.

Health and safety incidents can result in losses and liability, work stoppage, serious damage to equipment or property or environmental damage, which singly or in combination could have a material effect on Tshipi é Ntle's results of operations and overall financial condition. Furthermore, such incidents can result in violations of various health and safety laws and regulations to which Tshipi é Ntle is subject that could have a material adverse effect on its business, results of operations and financial condition. In addition, historically, Tshipi é Ntle has had a strong safety record. The occurrence of safety incidents involving personal injuries or other on-site accidents may impact Tshipi é Ntle's reputation, which could have an adverse effect on the business, financial condition and results of operations.

(s) The operations of Tshipi é Ntle may be adversely affected by interruptions in its electricity supply.

While Tshipi é Ntle currently generates electricity through five diesel generators, it plans to construct a substation with the intention of connecting to the Eskom-operated electricity grid during FY2020.

In South Africa, ageing electricity distribution infrastructure combined with under-investment in power generation capacity and rising demand has contributed to periodic managed electricity supply interruptions, referred to locally as "load-shedding". In recent years, Eskom has declared power emergencies from time to time and has requested that large industrial users voluntarily reduce their electricity usage to ease the pressure on the national electricity grid and avoid load-shedding. Although new power generation capacity has been and is being developed, Eskom has warned that power constraints will continue for some time.

There can be no assurance that new power generation capacity will provide sufficient supply for Tshipi é Ntle to run its operations at full or efficient levels of capacity after it has connected to the electricity grid. If Tshipi é Ntle is subject to load shedding this could have a material negative impact on its financial condition, business and results of operations.

11.4 RISKS RELATED TO SOUTH AFRICA

(a) Economic, political or social instability in South Africa may have a material adverse effect on Tshipi é Ntle's operations and profits.

Tshipi é Ntle is a South African domiciled company with all of its operations located within South Africa. As a result, Tshipi é Ntle is subject to the risks associated with conducting business in South Africa, including the risks of changes in the country's laws and policies, including those relating to taxation, royalties, divestment, imports, exports, currency, repatriation of capital, environmental protection, ownership and management of natural resources, use of hazardous substances and explosives, exploration, development of mines, production and post-closure reclamation and rehabilitation, labour standards and occupational health and safety, and historic and cultural preservation. The costs associated with compliance with these laws and regulations are substantial and possible future laws and regulations and changes to existing laws and regulations could cause additional expense, capital expenditures, restrictions on or suspensions of Tshipi é Ntle's operations and delays in the development of Tshipi é Ntle's mining assets.

High levels of unemployment and a shortage of critical skills in South Africa, despite increased government expenditure on education and training, remain issues and deterrents to foreign investment. The volatile and uncertain labour environment, which severely impacts on the local economy and investor confidence, has led and may lead to further downgrades in national credit ratings, making investment more expensive and difficult to secure. This may restrict Tshipi é Ntle's future access to international financing and could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

Community unrest may also arise from socio-political challenges. There is currently a high degree of political uncertainty and factionalism which may cause social unrest within the communities surrounding the Tshipi Mine. Community disruptions could result in access to the mine being obstructed, Tshipi é Ntle's property being damaged and production being interrupted.

In addition, while the South African government has stated that it does not intend to nationalise mining assets or mining companies, certain new smaller political parties have stated publicly and in the media that the government should embark on a programme of nationalisation. Any threats, or actual proceedings, to nationalise any of Tshipi é Ntle's assets, could halt or curtail operations, resulting in a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects, and could cause the value of Tshipi é Ntle's securities to decline rapidly and dramatically, possibly causing investors to lose the entirety of their respective investments.

Tshipi é Ntle is also subject to the risk of resource nationalism, which encompasses a range of measures, such as expropriation, exportation bans or taxation, whereby governments increase their economic interest in natural resources, with or without compensation. There can be no assurance that increased state involvement in the mining sector (possibly going so far as the expropriation and/or nationalisation of assets) or increased taxation will not occur at some time in the future. This could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

Emerging markets, such as South Africa, are generally subject to greater risks than more developed markets. Accordingly, investors should exercise particular care in evaluating the risks involved and should consider whether, in light of these risks, investing in the shares of Tshipi é Ntle, whose assets and operations are based in an emerging market is appropriate.

(b) A further downgrade of South Africa's credit rating may have an adverse effect on Tshipi é Ntle's ability to secure financing.

Further downgrading of South Africa's sovereign credit rating status by Moody's, S&P or Fitch Ratings may adversely affect the South African mining industry, and may affect Tshipi é Ntle's operations, by making it more difficult for Tshipi é Ntle or, more likely, its key suppliers and contractors, to obtain external financing. While Tshipi é Ntle currently has no debt, other than trade creditors in the ordinary course, should it seek debt financing, such financing may be available only at greater cost or on more restrictive terms than might otherwise be available. A downgrade may have a material adverse effect on the South African economy as many pension funds and other large investors are required by internal rules to sell bonds once two separate agencies rate them as non-investment grade. Both S&P and Fitch Ratings currently rate South Africa's sovereign credit as non-investment grade. Any such negative impact on the South African economy may adversely affect the South African mining industry and could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

(c) Recent changes to labour legislation in South Africa could result in increased labour and other costs.

Recent amendments to the labour legislation in South Africa have introduced more stringent requirements in respect of labour relations between employers and employees. Refer to section 9 of Appendix 5 for more information about labour legislation.

These recent amendments to South African labour legislation may result in increased labour costs and increased administrative, regulatory and other obligations, any of which could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

(d) Amendments to taxes and royalties in the tax and regulatory environments in which Tshipi é Ntle operates may have a significant and adverse impact on Tshipi é Ntle's operations.

Changes to the tax regime in South Africa could result in higher levels of taxation, or new forms of taxation or royalty payments on mining companies and therefore could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects. Energy is a significant input to mining and processing operations, with the principal energy sources being electricity, purchased petroleum products, natural gas and coal and it is likely that the proposed tax will affect Tshipi é Ntle's business in South Africa.

The South African government's interpretation or implementation of tax laws may, in some instances, be unclear and subject to change and may in some instances appear to apply retrospectively. Accordingly, it is possible that Tshipi é Ntle could become subject to taxation that is not currently anticipated, which could have a materially adverse effect on Tshipi é Ntle's business, financial condition and results of operations.

Material changes to the royalty legislations in South Africa could have a material adverse effect on Tshipi é Ntle's business, operating results and financial condition.

11.5 GENERAL MINING INDUSTRY RISKS APPLICABLE TO TSHIPI É NTLE AND THE CYIP

(a) Tshipi é Ntle's business, financial condition and results of operations could be adversely affected by labour disruptions.

Organised labour dynamics in the mining sector in South Africa are volatile and uncertain.

Tshipi é Ntle continues to have a functional relationship with its labour, with outcome based engagements and, as at the Prospectus Date, Tshipi é Ntle has no strike history.

In general, there has been a history of union activity and labour unrest in South Africa, which has resulted in more frequent industrial disputes and extended negotiations. Wage negotiations may be characterised by high levels of aggressiveness and a trend of unrealistic wage demands, which adversely affects industrial relations and puts pressure on the wage bill and production processes. With regard to the manganese mining industry, Renova and Majestic Silver's UMK and Samancor's Mamatwan mines have experienced significant strike action in the last five years. Further, the South African platinum industry was subject to a five-month strike in 2014 that began at the three largest platinum producers and inflicted losses on operations that produce a significant portion of global platinum group metals, and The Association of Mineworkers and Construction Union (**AMCU**) called a brief strike at Sibanye Gold Limited's Kroondal operations during May 2016. Furthermore, rivalry between unions, such as the AMCU and the National Union of Mineworkers, may destabilise overall labour relations in the mining sector.

In the event that industrial relations interruptions occur at the Tshipi Mine or there are increased employment-related costs due to union or employee activity, there may be a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

(b) Tshipi é Ntle's business, financial condition and results of operations could be adversely affected by community unrest.

Notwithstanding Tshipi é Ntle's contributions to the communities in which the Tshipi Mine is located and operates, local communities may become dissatisfied with the impact of Tshipi é Ntle's operations or oppose new development projects, including through litigation, which may affect the costs, production, and, in extreme cases, viability of such operations.

Community-related risks may include community protests or civil unrest causing disruptions such as road blocks, delays to proposed developments and/or destruction of assets and equipment on a modest scale, among other things.

There are also security risks that may impact Tshipi é Ntle's operations and mining staff. Security risks include the prospect of unpredictable actions, such as violence, that may be taken by illegal miners discovered at the Tshipi Mine or violence or other mistreatment of Tshipi é Ntle's employees or contractors by local communities. Any such community opposition or incidents which disrupt the operation of the Tshipi Mine or the safety of the mining staff, could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

(c) Tshipi é Ntle's mineral rights are subject to compliance with certain Black Economic Empowerment requirements, which, if changed, could impose significant costs and compliance burdens.

The Mineral and Petroleum Resources Development Act, No. 28 of 2002 (**MPRDA**), which regulates the right to prospect and mine for minerals, and the Mining Charter and scorecard promulgated under it, seeks to facilitate participation by historically disadvantaged South Africans (**HDSAs**) in South African mining ventures.

Complying with the South African Government's Broad-Based Black Economic Empowerment (**B-BBEE**) requirements and HDSA regime is a prerequisite for the grant of prospecting and mining rights, and non-compliance with this, or any other material terms of conditions of a right, may result in termination or suspension of those rights.

A number of the B-BBEE requirements associated with the participation of HDSAs in mining ventures are subject to possible amendment, review, and interpretation disputes.

The B-BBEE requirements include participation in the ownership and management of mining ventures, as well as human resources development, procurement, employment equity and rural and local community development requirements. These requirements are more fully described in section 4 of Appendix 5.

If Tshipi é Ntle, as the holder of mineral rights, is not in compliance with the requirements of the MPRDA or the material terms and conditions of those rights, including the relevant B-BBEE and HDSA requirements, its mineral rights may be terminated or suspended.

Further, Tshipi é Ntle may, in the future, be required to incur significant costs to implement changes to its management and shareholding structure in order to comply with any amended requirements as a result of changes in law and any B-BBEE and HDSA requirements, and the interpretation of such new laws and requirements, which may have a material adverse effect on its business, financial condition, results of operations and/or prospects.

As Tshipi é Ntle's current HDSA shareholding is above the current and proposed new requirements, Jupiter considers it unlikely that Tshipi é Ntle will be required to implement significant new measures in the near future. However, given the general legislative uncertainty and risk of political interference Tshipi é Ntle may still be exposed to a number of these risks and uncertainties in the future, which may have a material adverse effect on a its business, financial condition, results of operations and/or prospects if they materialise.

(d) Deliberate, malicious or criminal acts, including theft, fraud, bribery and corruption, may materially adversely affect Tshipi é Ntle's business and reputation despite any internal controls Tshipi é Ntle may have in place.

Tshipi é Ntle operates and conducts its business in South Africa. Tshipi é Ntle therefore faces a number of risks from deliberate, malicious or criminal acts, including theft, fraud, bribery and corruption. Although Tshipi é Ntle's internal policies and procedures mandate strict compliance with applicable laws prohibiting corrupt payments to other businesses, officials or employees or other persons, there is no assurance that such internal policies and procedures have been or will be adhered to by Tshipi é Ntle's officers, directors or employees.

Findings against Tshipi é Ntle, its directors, officers or employees, or involvement in bribery, corruption or other illegal activity could result in criminal or civil penalties, including substantial monetary fines and imprisonment.

Any government investigations or other allegations against Tshipi é Ntle, its directors, officers or employees, or findings of involvement in bribery, corruption or other illegal activity by such persons, could significantly damage Tshipi é Ntle's reputation, and could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

(e) Tshipi é Ntle's current and future mining operations are, and will be, subject to hazards inherent in the mining industry.

Tshipi é Ntle's current and future mining operations are, and will continue to be, subject to risks and hazards inherent in the mining industry.

Hazards associated with mining include (but are not limited to):

(i) rock bursts and/or high wall failures;

(ii) discharges of gases and toxic chemicals;

(iii) flooding;

(iv) accidents and injuries;

(v) over-exposure to airborne pollutants (including manganese dust);

(vi) over-exposure to noise;

(vii) other human health hazards associated with operating in extreme climatic conditions, such as heat-exhaustion; and

(viii) other conditions resulting from drilling, blasting and removal and processing of material associated with hard rock mining.

To the Prospectus Date, there have been no significant injuries or incidents at the Tshipi Mine. However, occurrence of one or more of these events may result in the death of, or personal injury to, personnel, the loss of mining equipment, damage to or destruction of mineral properties or production facilities, reduction in available resources, monetary losses, a work stoppage order from the DMR or other delays in production, environmental damage, potential legal liabilities and damage to Tshipi é Ntle's reputation, any of which could have a material adverse effect on Tshipi é Ntle's business, financial condition, results of operations and/or prospects.

(f) General exploration, development and mining risks

Mineral exploration, development and mining activities are high-risk undertakings and there can be no assurance that any exploration or development activity in regard to the Company's current properties, or any properties that may be acquired in the future, will result in the discovery or exploitation of an economic resource.

Mineral exploration, development and mining may be hampered by circumstances beyond the control of the Company and are speculative operations which, by their nature, are subject to a number of inherent risks, including the following:

(i) Mineral exploration and development is a speculative and high-risk activity that requires large amounts of expenditure over extended periods of time and may be impeded by circumstances and factors beyond the Company's control. The Company's ability to succeed in this process involves (amongst other things):

(A) access to adequate capital throughout the acquisition/ discovery and project development phases of a mineral exploration project;

(B) obtaining required development consents and approvals necessary for the development and production phases of the project; and

(C) accessing the necessary experienced operational staff, the applicable financial management and recruiting skilled contractors, consultants and employees.

(ii) The Company's CYIP is subject to all the hazards and risks normally encountered in the exploration of minerals, including but not limited to:

(A) geological and climatic conditions;

(B) operational and technical risks;

(C) changes in laws, regulations and government policy; and

(D) risks associated with operating in remote areas and other similar considerations.

Further, whether positive income-flows result from the CYIP on which the Company will expend exploration and development capital is dependent on many factors including successful exploration, establishment of production facilities, cost control, commodity price movements, successful contract negotiations for production, access to appropriate infrastructure and stability in the local political environment.

In addition, significant expenditure may be required to establish necessary metallurgical and mining processes to develop and exploit any ore reserves identified on any other project area operated by the Company in the future. There can be no assurance that the Company will have sufficient working capital or resources available to do this.

(iii) The operations of the Company and Tshipi é Ntle may be affected by various factors, including but not limited to:

(A) failure to achieve predicted grades in exploration and mining;

(B) operational and technical difficulties encountered in mining;

(C) insufficient or unreliable infrastructure, such as power, water and transport;

(D) difficulties in commissioning and operating plant and equipment;

(E) mechanical failure or plant breakdown;

(F) unanticipated metallurgical problems which may affect extraction costs;

(G) adverse weather conditions;

(H) industrial and environmental accidents;

(I) industrial disputes and labour shortages; and

(J) unexpected shortages or increases in the costs of consumables, spare parts, plant and equipment.

11.6 GENERAL INVESTMENT RISKS

The business activities of the Company are subject to various general economic and investment risks that may impact on the future performance of the Company. Some of these risks can be mitigated by the use of safeguards and appropriate systems and controls, but some are outside the control of the Company and cannot be mitigated. There are a number of general economic and investment risk factors that apply to companies generally and may include economic, financial, market or regulatory conditions. These risk factors include, but are not limited to, the following:

(a) General economic conditions

Economic conditions, both domestic and global, may affect the performance of the Company. Factors such as fluctuations in currencies, commodity prices, inflation, interest rates, supply and demand and industrial disruption may have an impact on operating costs and share market prices. The Company's future possible revenues and Share price can be affected by these factors, all of which are beyond the control of the Company and its Directors.

(b) Equity market conditions

Shares listed on the securities market, and in particular securities of small companies at any early stage of commercial development, can experience extreme price and volume fluctuations that are often unrelated to the operating performances of such companies. The market price of securities may fall as well as rise and may be subject to varied and unpredictable influences on the market for equities in general. These security market conditions may affect the value of the Company's quoted Shares regardless of the Company's operating performance.

General factors that may affect the market price of securities include economic conditions in both Australia and internationally, investor sentiment, local and international share market conditions, changes in interest rates and the rate of inflation, variations in commodity prices, the global security situation and the possibility of terrorist disturbances, changes to government regulation, policy or legislation, changes which may occur to the taxation of companies as a result of changes in Australian and foreign taxation laws, changes to the system of dividend imputation in Australia, and changes in exchange rates.

(c) Changes in government policy and legislation

Any material adverse changes in relevant government policies or legislation of Australia, South Africa or internationally may affect the viability and profitability of Tshipi é Ntle and the Company and, consequently, returns to Shareholders.

12. COMPANY MATERIAL CONTRACTS

12.1 INTRODUCTION

Set out below are summaries of various contracts entered into by the Company, each of which is legally binding and are (or may) be material to the Offer or the operation of the business of the Company or otherwise are (or may) be relevant to a potential investor in the Company.

12.2 SALE AGENCY DEEDS

The Company and Jupiter SaleCo have entered into a Sale Agency Deed with each Selling Shareholder to facilitate the sale of the Sale Shares held by the Selling Shareholders, which are offered at the Offer Price under this Prospectus and which form part of the Offer.

Under the terms of the Sale Agency Deeds, Jupiter SaleCo is appointed as the Selling Shareholders' agent to facilitate and manage the sale of the Sale Shares under the Offer.

The Selling Shareholders and the number of Shares in respect of which each of those Shareholders has agreed to offer for sale under the Offer are set out in the table below:

Selling Shareholder	Maximum subscription		Minimum subscription	
	Number of Sale Shares	Percentage of total Sale Shares	Number of Sale Shares	Percentage of total Sale Shares
Pallinghurst Steel Feed (Dutch) B.V.	212,028,012	35.34%	176,411,010	35.28%
POSCO Australia GP Pty Ltd	162,888,503	27.15%	135,526,081	27.11%
EMG Jupiter L.P.	124,220,319	20.70%	103,353,476	20.67%
HJM Jupiter L.P.	31,400,728	5.23%	26,125,954	5.23%
FRK Jupiter L.P.	31,400,728	5.23%	26,125,954	5.23%
POSCO Australia Pty Ltd	33,361,710	5.56%	27,757,526	5.55%
Red Rock Resources plc	4,700,000	0.78%	4,700,000	0.94%
Total	**600,000,000**	**100%**	**500,000,000**	**100%**

Each Selling Shareholder has an obligation under its deed to cooperate with Jupiter and Jupiter SaleCo to effect the Offer.

The deeds contain warranties from the Selling Shareholders in relation to various matters, including the ownership of the Sale Shares by the Selling Shareholders and their entitlement to transfer the Sale Shares under the Offer. The Selling Shareholders each provide an indemnity in favour of Jupiter and Jupiter SaleCo for any losses suffered as a result of a breach of any of the warranties under the deed.

The Selling Shareholders must reimburse Jupiter and Jupiter SaleCo (as applicable) for the fees payable to the Managers by Jupiter, which fees may be deducted by Jupiter SaleCo or Jupiter from any Application Money received by them on behalf of the relevant Selling Shareholder. The Selling Shareholders are responsible for any income tax, capital gains tax, withholding tax and other taxation liabilities, including any interest, fines and penalties arising from the sell down of the Sale Shares under the Offer.

Jupiter SaleCo has no material assets, liabilities or operations other than its interests in and obligations under the Sale Agency Deeds.

12.3 VOLUNTARY ESCROW DEEDS

ASX has informed the Company that none of the Shares that will be held by the Existing Shareholders following completion of the Offer will be classified as restricted securities by ASX and accordingly they will not be subject to mandatory escrow.

However, certain Escrowed Shareholders have entered into voluntary escrow deeds under which they have undertaken to the Company not to dispose of any interest in, or to grant any security over, certain Shares held by them on completion of the Offer.

These restrictions will align the interests of the Escrowed Shareholders with those of recipients of Shares under the Offer, and will promote an orderly market for the Shares by reducing any further sell-down of Shares by Existing Shareholders for a period of time after completion of the Offer.

The Escrowed Shareholders and the number of Shares in respect of which each of those Shareholders has agreed to be subject to voluntary escrow are set out in the table below:

Escrowed Shareholder	Number of Shares escrowed (assuming maximum subscription to Offer)	Number of Shares escrowed (assuming minimum subscription to Offer)
Pallinghurst Steel Feed (Dutch) B.V.	145,845,372	181,462,374
POSCO Australia GP Pty Ltd	112,044,320	139,406,742
EMG Jupiter L.P.	85,446,062	106,312,905
HJM Jupiter L.P.	98,263,429	103,538,203
FRK Jupiter L.P.	93,406,454	98,681,228
POSCO Australia Pty Ltd	22,948,152	28,552,336
Red Rock Resources plc	18,524,914	18,524,914
Priyank Thapliyal	21,129,387	21,129,387
Total	**597,608,090**	**697,608,090**

The Voluntary Escrow Deeds will promote an orderly market for Shares by preventing any sale of Shares by the Escrowed Shareholders as follows:

(a) for 50% of the Escrowed Shares, until the date that the Company releases to ASX its audited financial statements for the financial year ending 28 February 2019; and

(b) for the remaining 50% of the Escrowed Shares:

  (i) if the following occurs (**Escrow Release Condition**):

    (A) the Company releases to ASX its reviewed financial statements for the half financial year ending 31 August 2018; and

    (B) the VWAP of Shares traded on ASX for any 20 consecutive trading days is 20% or more above the Offer Price following release to ASX of the Company's reviewed financial statements for the half financial year ending 31 August 2018,

  until the date that the Escrow Release Condition is satisfied; and

  (ii) if the Escrow Release Condition is not satisfied, until the date that the Company announces to ASX its reviewed financial statements for the half financial year ending 31 August 2019.

However, these restrictions do not apply to the sale, transfer, disposal or cancellation (as applicable) of the relevant Escrowed Shares in the following circumstances:

(a) where an Escrowed Shareholder accepts an offer under a takeover bid (as defined in the Corporations Act) in relation to their Shares, provided holders of not less than 50% of the Shares not subject to restrictions then on issue have accepted the takeover bid;

(b) where the Shares of an Escrowed Shareholder are to be transferred or cancelled as part of a merger by way of a scheme of arrangement under Part 5.1 of the Corporations Act; or

(c) where an Escrowed Shareholder elects to dispose of any Escrowed Shares pursuant to a buy-back of Shares or a reduction of capital conducted by the Company.

The Voluntary Escrow Deeds in any event terminate no later than 2 years after the date they were entered into.

The undertakings given by the Escrowed Shareholders under the Voluntary Escrow Deeds may give the Company a "relevant interest" in the Escrowed Shares for the purposes of the Corporations Act. However, the Company has obtained relief from ASIC so that the takeovers provisions of the Corporations Act will not apply to these relevant interests. Refer to Section 13.11 for further details.

12.4 MANAGERS MANDATE AGREEMENT

The Company and the Managers have entered into a corporate advisory and capital raising mandate under which the Managers were appointed to act as managers to the Offer.

The material terms of the Managers Mandate Agreement are as follows:

Subject	Provision
Management of Offer	The Lead Manager will act as the sole lead manager and sole bookrunner to the Offer, with the Co-Managers appointed as co-managers with respect to the Offer for all jurisdictions.
Conditions precedent	The Managers Mandate is conditional on conditions precedent which are of the type and form that is usual in an agreement of this nature, and which have been met as at the date of this Prospectus.
Fees and reimbursement	The Company will pay to the Managers a distribution fee equal to 1.5% (plus GST) of the value of any Shares sold down by the Selling Shareholders pursuant to the Offer, other than pursuant to Applications from Significant Investors. In addition, the Company may pay to the Managers a discretionary fee equal to 0.5% (plus GST) of the value of any Shares sold down by the Selling Shareholders pursuant to the Offer, other than pursuant to Applications from Significant Investors. The Company intends to pay this discretionary fee, provided that the Managers perform their role as Manager of the Offer as reasonably expected. The Managers will split the distribution fee and discretionary fee among themselves, such that Hartleys will receive 45% of the fees, Foster Stockbroking will receive 30% of the fees, and Aitken Murray Capital Partners will receive 25% of the fees. As set out in Section 12.2, pursuant to the Sale Agency Deed, the Selling Shareholders must reimburse the Company for the fees payable to the Managers by the Company, which fees may be deducted by Jupiter SaleCo or Jupiter from any Application Money received by them on behalf of the relevant Selling Shareholder. The Company will reimburse the Lead Managers' reasonable costs, professional fees and expenses in relation, and incidental, to the Offer.
Term	The Managers Mandate expires on the date that is 12 months after completion of the Offer.
Indemnity	The Company agrees to indemnify the Managers and to hold them harmless from and against: ▪ all actions, claims, demands or proceedings which may be instituted against any of the Managers; and ▪ all liabilities, losses, damages, costs and expenses including reasonable legal costs and expenses which may be suffered or incurred by any of the Managers in connection with the Managers Mandate.
Secondary market capital raising fees	If the Company undertakes any capital raising within 12 months of completion of the Offer, then with respect to that capital raising, the Company will offer the Lead Manager first right to act as lead broker, and will offer the Co-Managers first right to act as co-managers on equivalent terms to those under the Managers Mandate. If the Managers act in respect of any such capital raising, the Company will pay the Managers a fee to be agreed between the parties, in accordance with standard market rates.

The mandate otherwise contains terms and conditions considered standard for agreements of this nature.

12.5 TSHIPI É NTLE SHAREHOLDERS AGREEMENT & ARTICLES OF ASSOCIATION

The shareholders of Tshipi é Ntle, being Jupiter Kalahari (as to 49.9%), and Main Street (as to 50.1%), and their holding companies, being Jupiter, OM Holdings and Ntsimbintle respectively, have entered into a shareholders agreement (**Tshipi é Ntle Shareholders Agreement**).

The Tshipi é Ntle Shareholders Agreement regulates and determines the rights and obligations of the parties with respect to Tshipi é Ntle. To the extent that the Tshipi é Ntle Shareholders Agreement conflicts with the memorandum and articles of association of Tshipi é Ntle, the provisions of the latter prevail, and Jupiter Kalahari and Main Street will procure the amendment of the memorandum and articles of association, or the Tshipi é Ntle Shareholders Agreement (as may be appropriate) to remove any such inconsistency.

Tshipi é Ntle's memorandum and articles of association provide that each share in Tshipi é Ntle has one vote, that each shareholder has the right to exercise voting rights in accordance with the voting rights of the shares held by that shareholder and dividends are to be paid in proportion to the number of shares held. Consequently, the voting and dividend rights of Jupiter Kalahari (Jupiter's subsidiary) in Tshipi é Ntle are commensurate with its interest of 49.9% in Tshipi é Ntle.

Jupiter Kalahari may pay dividends to Jupiter by a resolution of the directors of Jupiter Kalahari. The directors of Jupiter Kalahari are persons employed or engaged by Jupiter.

The Tshipi é Ntle Shareholders Agreement includes the following material terms:

Subject	Provision
Future expansion of business	The parties must carry on all manganese related activities in the Northern Cape Province of South Africa, including mining, smelting, rail logistics and the production of manganese ore through Tshipi é Ntle (with the exception of designated activities that may be conducted by Ntsimbintle).
Exclusive Purchasing Rights	Tshipi é Ntle grants Main Street and Jupiter Kalahari (or their nominees) the exclusive right to purchase 50.1% and 49.9% respectively, of all manganese ore produced by Tshipi é Ntle over the life of Tshipi, on such arm's length terms as may be agreed between Tshipi é Ntle, Main Street and Jupiter Kalahari from time to time.
Board representation	The board of directors of Tshipi é Ntle comprises up to eight directors, with Main Street and Jupiter Kalahari having the right to appoint four directors each. The board presently consists of eight directors, with two appointed by Jupiter Kalahari. However, the Shareholders Agreement provides that the directors nominated by Jupiter Kalahari are entitled, collectively, to a vote equal to the number of directors Jupiter Kalahari is entitled to appoint (ie. four directors). The chairman of the board is selected by Main Street and the chairman's appointment must be approved by Jupiter Kalahari. The chairman has a casting vote on non-operational matters; in the event of an equality of votes with respect to an operational matter, the matter must be decided by a vote of at least 75% of Tshipi é Ntle's shareholders (a **Special Majority**).
Restricted matters	The following matters, among others, must be decided by a Special Majority: (a) the disposal, transfer or abandonment or any business, share, prospecting right, mining right or other asset, or other investment (in the case of an asset, otherwise than in the ordinary course of business); (b) the establishment, acquisition or purchase of any business, share, asset or other investment (in the case of an asset, otherwise than in the ordinary course of business); (c) approval of the annual budget or other similar operating plans; (d) the pledging, mortgaging, hypothecating or encumbering of any asset of Tshipi é Ntle; (e) the determination of the scope of the directors' authority and the delegation to any of them of any power; (f) any increase, alteration, reduction or conversion of the authorised or issued share capital of Tshipi é Ntle; (g) any variation of rights attaching to any shares in Tshipi é Ntle; (h) any restructuring of Tshipi é Ntle; (i) any material change in the nature of the business of Tshipi é Ntle; (j) the liquidation or winding up, de-registration or discontinuance of the business activities of Tshipi é Ntle; (k) the entering of any off-take, marketing, or long-term agreement having a value of at least ZAR1 million in any financial year; and (l) the payment of any dividend, other than as set out below.
Shareholder loans	If Tshipi é Ntle requires funding, and its directors have resolved that it not be raised from outside sources, the funds must be advanced to Tshipi é Ntle by Main Street and Jupiter Kalahari in proportion to their shareholding in Tshipi é Ntle and all repayments must be made by Tshipi é Ntle, such that the amounts owing to each of Main Street and Jupiter Kalahari is in proportion to their shareholdings in Tshipi é Ntle.
Dividends	Dividends payable are determined by the board of Tshipi é Ntle. If the repayment by Tshipi é Ntle of any loan by Main Street and Jupiter Kalahari is outstanding, dividends must exceed 25% of Tshipi é Ntle's free cash flow after allowing for any future capital expenditure of the company, and must be applied to the reduction of the loan amount, and if no such loan is outstanding, dividends must exceed 40% of Tshipi é Ntle's free cash flow.
Transfer of shares in Tshipi é Ntle	Shares in Tshipi é Ntle may not be pledged, hypothecated or otherwise encumbered. Shares may only be transferred subject to the right of first refusal held by the other shareholder of Tshipi é Ntle. A shareholder in Tshipi é Ntle may not accept an offer to sell its shares in Tshipi é Ntle unless an offer on the same terms is made to the other shareholder of Tshipi é Ntle.
Term	The Tshipi é Ntle Shareholders Agreement remains in full force and effect for so long as the shareholders or their permitted assigns continue to hold shares in Tshipi é Ntle.

12.6 JUPITER OFF-TAKE AGREEMENT

On 22 December 2016, Jupiter entered into a take or pay off-take agreement with Tshipi é Ntle (**Jupiter Off-take Agreement**) pursuant to which Tshipi é Ntle agreed to supply and deliver to Jupiter as the nominee of Jupiter Kalahari, the 49.9% of all manganese ore produced by Tshipi é Ntle over the life of Tshipi to which Jupiter Kalahari is entitled pursuant to the Tshipi é Ntle Shareholders Agreement (refer to Section 12.5 above) (**Contractual Tonnage**). The amount of the Contractual Tonnage may be varied by the parties for any period of 12 months commencing on 1 March of the relevant year.

The parties are required to enter into separate sale agreements in respect of each shipment, the terms of which must accord with the terms of the Jupiter Off-take Agreement. The manganese ore supplied must be within tolerances set out in the relevant specifications set out in the Jupiter Off-take Agreement. Refer to Table 5 in section 4.2.2 of the Tshipi Competent Person's Report (Appendix 1) for details of the agreed product specifications.

Tshipi é Ntle must supply all of the Contractual Tonnage, and Jupiter must take delivery of the Contractual Tonnage, or pay for it.

Jupiter may, by written notice to Tshipi é Ntle, suspend its obligation to take delivery of the Contractual Tonnage for a period of up to 3 consecutive months, during which period take or pay obligations apply. These take or pay obligations entitle Tshipi é Ntle to, among other things, sell the relevant portion of the Contractual Tonnage to a third party buyer to mitigate any penalties or charges, while Jupiter is required to purchase all manganese ore that would have been delivered during the relevant period.

If Jupiter cannot take delivery of the Contractual Tonnage for a period exceeding 3 consecutive months then Tshipi é Ntle is entitled to immediately terminate the Jupiter Off-take Agreement on written notice.

If Tshipi é Ntle cannot supply the Contractual Tonnage (whether quality or quantity related) the parties shall negotiate in good faith to either extend the period for delivery or that portion of the Contractual Tonnage which Tshipi é Ntle is not able to supply, or reduce the Contractual Tonnage by that portion unable to be supplied.

The purchase price of the manganese ore is at market price, including adjustments for quality, and is subject to an agreed discount on a shipment-by-shipment basis, being 3%. This discount of 3% represents the fee paid by Tshipi é Ntle to Jupiter for marketing of the Contractual Tonnage.

Jupiter has the exclusive right to market and on-sell the Contractual Tonnage. Pursuant to an employment agreement between the Company and Mr Johan Kriek dated 22 December 2016, Mr Kriek is responsible for the on-sale to third parties of the Contractual Tonnage. Mr Kreik sources customers from a well-established customer base, comprising numerous customers. Pursuant to a back office agreement dated 22 December 2016, Jupiter has engaged Tshipi é Ntle to provide administrative support services to Jupiter.

Each of Jupiter and Tshipi é Ntle warrant their compliance with standards, laws and regulations relating to the performance of their obligations under the Jupiter Off-take Agreement and their ability and power to perform those obligations.

The initial term of the Jupiter Off-take Agreement was for 24 months from 5 February 2016 and it is automatically extended annually on the same terms, until terminated by either party in accordance with its terms, or by agreement between the parties. The Jupiter Off-take Agreement may be terminated by either party if the other party suffers an insolvency event, breaches the Jupiter Off-take Agreement and does not remedy that breach within 14 days of receiving notice of the same, and where a force majeure event prevents, hinders or delays performance of any material part of the agreement for a period of 3 consecutive months.

13. ADDITIONAL INFORMATION

13.1 RIGHTS AND LIABILITIES ATTACHING TO SHARES

The Shares offered under this Prospectus are fully paid ordinary shares in the capital of the Company and rank equally with the Existing Shares.

Full details of the rights and liabilities attaching to the Shares are contained in the Constitution of the Company and, in certain circumstances, are regulated by the Corporations Act, the Listing Rules, the ASX Settlement Rules and the common law. The Constitution is available for inspection free of charge at the Company's registered office.

The following is a broad summary (though not necessarily an exhaustive or definitive statement) of the rights and liabilities attaching to the Shares:

(a) **Share capital:** All issued Shares rank equally in all respects.

(b) **Voting rights:** At a general meeting of the Company, every holder of Shares present in person, by an attorney, representative or proxy has one vote on a show of hands and on a poll, one vote for each Share held, and for every contributing share (i.e. partly paid) held, a fraction of a vote equal to the proportion which the amount paid up bears to the total issue price of the contributing share.

(c) **Dividend rights:** Subject to any rights of persons entitled to shares with special rights to dividends (at present there are none), all dividends as declared by the Directors are to be payable on all such Shares in proportion to the amount of capital paid or credited as paid on the Shares.

(d) **Payment of dividends:** Dividends are payable out of the profits of the Company. A final dividend may only be paid on the recommendation of the Directors, with the approval of Shareholders at a general meeting of the Company. The Directors may pay interim dividends as appear to the Directors to be justified by the profits of the Company. The Directors may direct that payment of a dividend be made wholly or in part by the distribution of specific assets or other Securities of the Company.

(e) **Rights on winding-up:** On the winding-up of the Company, the assets of the Company after payment of the debts and liabilities of the Company and the costs of the winding-up, must be distributed first in repayment of paid-up capital in accordance with the rights of Shareholders, and secondly, among Shareholders in proportion to the capital paid-up or which ought to have been paid-up at the commencement of the winding-up, other than amounts paid in advance of calls. The liquidator may on winding-up of the Company, with the authority of a special resolution, divide among the Shareholders in kind the whole or any part of the property of the Company, and vest any part of the surplus assets of the Company on trust for the benefit of Shareholders.

(f) **Transfer of Shares:** Subject to the Constitution, Shares in the Company may be transferred by:

  (i) a proper ASX Settlement transfer or any other method of transferring or dealing in Shares introduced by ASX or operated in accordance with the ASX Settlement Rules or the Listing Rules as recognised under the Corporations Act; or

  (ii) an instrument in writing in any usual or common form or in any other form that the Directors, in their absolute discretion, approve from time to time.

(g) **Refusal to transfer Shares:** The Directors may refuse to register a transfer of Shares (other than a proper ASX Settlement Rules transfer) only where:

  (i) the law permits it

  (ii) the law requires it; or

  (iii) the Listing Rules allow it.

(h) **Further increases in capital:** Shares in the Company are under the control of the Directors, who may allot or dispose of all or any of the Shares to such persons, and on such terms, as the Directors determine. The Directors have the right to grant options to subscribe for Shares, to any person, for any consideration.

(i) **Variation of rights attaching to shares:** The rights attaching to the shares of a class (unless otherwise provided by their terms of issue) may only be varied by a special resolution passed at a separate general meeting of the holders of those shares of that class, or in certain circumstances, with the written consent of the holders of at least seventy-five percent (75%) of the issued shares of that class.

(j) **General meeting:** Each holder of Shares will be entitled to receive notice of, and to attend and vote at, general meetings of the Company and to receive notices, accounts and other documents required to be furnished to Shareholders under the Constitution, the Corporations Act and the Listing Rules.

13.2 PROPOSED NEW CONSTITUTION

After completion of the Offer, the Company intends to seek Shareholder approval for the adoption of a new constitution, which will reflect changes in the law that have occurred since the current Constitution was adopted by the Company in 2003.

The Company proposes that the new constitution will, among other things, permit dividends to be paid in the discretion of the Directors and pursuant to the "assets test" set out in section 245T of the Corporations Act rather than solely out of profits as is the case pursuant to the current Constitution, and will not require final dividends to be both recommended by the Directors and approved by Shareholders in general meeting.

13.3 REMUNERATION OF DIRECTORS

The Constitution of the Company provides that the Directors are entitled to be paid for their services as Directors.

The Constitution provides that both the maximum collective amount that may be paid to the Non-Executive Directors, and the amount paid to each individual Non-Executive Director be approved by Shareholders in general meeting. As at the Prospectus Date, the aggregate maximum has been set at $400,000, the amount payable to the Chairman has been set at $60,000 and the amount payable to each other Non-Executive Director has been set at $55,000.

It is anticipated by the Board that the new constitution for which the Company proposes to seek Shareholder approval, will provide that the Non-Executive Directors may collectively be paid, as remuneration for their services, a fixed sum not exceeding the aggregate maximum set by Shareholders in general meeting. This will enable the Directors to review and adjust the pay of individual Non-Executive Directors, provided their aggregate pay remains within the maximum set by Shareholders.

Further details of the remuneration payable to, and entitlement of, the Company's Chief Executive Officer, Priyank Thapliyal, are set out in Section 6.3.

A Director may also be reimbursed for out-of-pocket expenses incurred as a result of their directorship or any special duties.

The table below sets out the current cash and non-cash remuneration of each Director.

Director	Cash remuneration	Non-cash remuneration
Brian Gilbertson	$60,000 per annum (inclusive of superannuation)	Nil
Priyank Thapliyal[1]	£400,000 per annum (and no pension fund contributions)	Nil
Paul Murray	$55,000 per annum (inclusive of superannuation)	Nil
Sungwon Yoon	$55,000 per annum (inclusive of superannuation)	Nil
Andrew Bell	$55,000 per annum (inclusive of superannuation)	Nil

[1] Further details of the remuneration payable to, and entitlement of, the Company's Chief Executive Officer, Priyank Thapliyal, are set out in Section 6.3.

Subject to the approval of the Company's shareholders being obtained pursuant to the Constitution, which the Company intends to seek after completion of the Offer, Mr Brian Gilbertson will be entitled to a director's fee of $130,000 per annum inclusive of applicable statutory superannuation, commencing and accruing on and from 1 January 2018, Mr Paul Murray will be entitled to be paid in consideration of his services as a chairman of each of the Audit Committee and the Remuneration and Nomination Committee, the aggregate amount of $11,000 per annum, Mr Andrew Bell will be entitled to be paid in consideration of his services as a member of each of the Audit Committee and the Remuneration and Nomination Committee, the aggregate amount of $5,000 per annum, Mr Sungwon Yoon will be entitled to be paid in consideration of his services as a member of the Audit Committee the amount of $2,500 per annum, and Mr Brian Gilbertson will be entitled to be paid in consideration of his services as a member of Remuneration and Nomination Committee the amount of $2,500 per annum.

None of the Directors have a future entitlement to any non-cash remuneration as at the Prospectus Date.

13.4 SHARE HOLDING INTERESTS OF DIRECTORS

The following table sets out the relevant interest of each Director in the Securities of the Company as at the Prospectus Date.

Director	Shares held directly	Shares held indirectly
Brian Gilbertson	Nil	Nil
Priyank Thapliyal	21,129,387	Nil
Paul Murray	1,129,715	Nil
Mr Sungwon Yoon	Nil	Nil
Andrew Bell	Nil	Nil
TOTAL	**22,259,102**	**Nil**

Note: Directors may acquire Shares offered pursuant to this Prospectus. This table does not include the 2,160,000 Shares that Priyank Thapliyal may apply for under the Offer, as set out in Section 13.7.

As at the Prospectus Date, none of the Directors hold any options or other right to acquire any Shares in the Company.

13.5 INTERESTS OF THE DIRECTORS IN THE SELLING SHAREHOLDERS

As at the Prospectus Date, some of the Directors have interests in some of the Selling Shareholders as noted in the table below:

Director	Interest in Selling Shareholder
Brian Gilbertson	Mr Gilbertson is the non-executive chairman of PRL, the ultimate parent company of Pallinghurst Steel Feed (Dutch) B.V., which is a Selling Shareholder. Mr Gilbertson holds directly 26,148,899 shares in PRL (being 1.83% of PRL), indirectly has interests in a further 757,663 shares in PRL and holds 5,578,042 options to acquire shares in PRL. In conjunction with Priyank Thapliyal and other persons, Mr Gilbertson has an indirect interest in Pallinghurst (Cayman) Founder L.P., which holds 10,296,964 PRL shares. PRL controls Pallinghurst Steel Feed (Dutch) B.V., which holds a total of 357,873,384 Shares in Jupiter, being 18.37% of Jupiter's issued share capital.
Priyank Thapliyal	Mr Thapliyal has a direct interest in 4,175,536 shares in PRL (being 0.29% of PRL). In conjunction with Brian Gilbertson and other persons, Mr Thapliyal has an indirect interest in Pallinghurst (Cayman) Founder L.P., which holds 10,296,964 PRL shares. PRL controls Pallinghurst Steel Feed (Dutch) B.V., which holds a total of 357,873,384 Shares in Jupiter, being 18.37% of Jupiter's issued share capital.
Sungwon Yoon	Mr Sungwon Yoon is a director of POSCO Australia Pty Ltd, which is a Selling Shareholder.
Andrew Bell	Mr Bell is the chairman of RRR, and holds an interest in RRR of 7.46% of its issued share capital, and options and warrants to acquire the equivalent of a further 5.14% of its issued share capital. RRR holds a beneficial interest in 23,224,914 Shares in the Company and a royalty interest in the Company's Mount Ida Magnetite Project (which is currently under care and maintenance) under an agreement dated 23 May 2006.

13.6 DISCLOSURE OF OTHER INTERESTS, RELATIONSHIPS AND BACKGROUND OF DIRECTORS

Paul Murray is the father of John Murray, a principal of Aitken Murray Capital Partners, one of the Managers entitled to receive a fee in respect of the Offer (refer to Section 12.4 for details of the Managers' fee entitlement). Paul Murray has no ownership, equity or financial interest in, and is not a director, manager, principal or partner of, Aitken Murray Capital Partners. Paul Murray is not entitled to receive and will not receive, any financial benefit from any fees payable to Aitken Murray Capital Partners in respect of the Offer.

Brian Gilbertson and Priyank Thapliyal co-founded Pallinghurst Advisors LLP, an advisor to a private equity fund whose investors included the Pallinghurst Co-Investors, some of whom are, or have interests in, Shareholders of the Company. As is typical in the private equity industry, Mr Gilbertson and Mr Thapliyal may be entitled to share in gains made by the Pallinghurst Co-Investors on their investments, including any investment they may have in Jupiter. The quantum of any benefit or payment that may accrue to Mr Gilbertson or Mr Thapliyal is dependent upon the performance of the relevant investments and the quantum of any gains made thereon, and as at the Prospectus Date, is not able to be determined. No amount is payable by the Company to Mr Gilbertson or Mr Thapliyal in respect of these interests or entitlements.

13.7 DIRECTORS' PARTICIPATION IN THE OFFER

Directors are entitled to participate in the Offer by subscribing for Shares on the same terms and conditions as other Applicants. As at the Prospectus Date, Priyank Thapliyal intends to apply for up to 2,160,000 Shares under the Offer and no other Director has determined whether or not he intends to participate in the Offer.

13.8 EXPENSES OF THE OFFER

The cash expenses of the Offer are expected to comprise the following estimated costs and are exclusive of any GST payable by the Company.

Expense	Minimum Subscription	Maximum Subscription
ASIC fees	$9,690	$9,690
ASX fees	$467,407	$467,407
Managers' fees	$4,000,000	$4,800,000
Consultants'/experts' fees	$250,256	$250,256
Legal fees	$279,468	$279,468
Promotion, printing, distribution and registry expenses	$30,445	$30,445
Miscellaneous fees	Nil	Nil
Totals	**$5,037,266**	**$5,837,266**

Notes:

[1] As set out in Section 12.2, pursuant to the Sale Agency Deed, the Selling Shareholders must reimburse the Company for the fees payable to the Managers by the Company.

[2] Assumes Managers are paid the 0.5% discretionary fee described in Section 12.4.

[3] GST does not apply to ASIC fees.

13.9 TAXATION IMPLICATIONS

The taxation obligations and the effects of participating in the Offer can vary depending on the circumstances of each individual investor. Applicants who are in doubt as to their taxation position should seek professional advice. It is the sole responsibility of Applicants to inform themselves of their taxation position resulting from participation in the Offer.

The Directors do not consider that it is appropriate to give potential Applicants advice regarding the taxation consequences of applying for Shares under this Prospectus, as it is not possible to provide a comprehensive summary of the possible taxation positions of potential Applicants.

Neither the Company, nor any of its officers or advisors, accept any responsibility or liability for any taxation consequences to Applicants in relation to the Offer.

13.10 LEGAL PROCEEDINGS

As at the Prospectus Date, neither the Company nor its subsidiary entities are involved in any material legal proceedings and the Directors are not aware of any material legal proceedings pending or threatened against the Company or its subsidiary entities.

13.11 ASX AND ASIC

(a) ASX confirmation

ASX has informed the Company that none of the Shares that will be held by the Existing Shareholders following completion of the Offer will be classified as restricted securities by ASX and accordingly they will not be subject to mandatory escrow. However, the Escrowed Shares are subject to voluntary escrow restrictions, as set out in Section 12.3.

(b) ASIC relief

ASIC has granted:

(a) the Company and Jupiter SaleCo relief from section 606 of the Corporations Act to allow the Company and Jupiter SaleCo to enter into the Sale Agency Deeds with the Selling Shareholders, as set out in Section 12.2; and

(b) the Company relief from section 606 of the Corporations Act to allow the Company to enter into the Voluntary Escrow Deeds with the Escrowed Shareholders for the voluntary escrow restrictions, as set out in Section 12.3.

13.12 INTERESTS OF EXPERTS AND ADVISERS

Other than as set out below or elsewhere in this Prospectus:

(a) all other persons named in this Prospectus as performing a function in a professional, advisory or other capacity in connection with the preparation or distribution of this Prospectus do not have, and have not had in the 2 years before the Prospectus Date, any interest in:

  (i) the formation or promotion of the Company;

  (ii) property acquired or proposed to be acquired by the Company in connection with its formation or promotion or the Offer; or

  (iii) the Offer; and

(b) amounts have not been paid or agreed to be paid (whether in cash, Securities or otherwise), and other benefit have not been given or agreed to be given, to any of those persons for services provided by those persons in connection with the formation or promotion of the Company or the Offer.

Expert/advisor	Service or function	Amount paid or to be paid
Hartleys Limited **Foster Stockbroking Pty Ltd** **Aitken Murray Capital Partners Pty Ltd**	Managers to the Offer	The Managers will be entitled to be paid the fees described in Section 12.4 for services related to this Prospectus and the Offer.
Mineral Corporation Consultancy (Pty) Ltd trading as The Mineral Corporation	Tshipi Competent Person's Report	The Mineral Corporation will be paid approximately ZAR1,536,995 (being equal to approximately $165,000) (exclusive of VAT) for preparing the Tshipi Competent Person's Report contained in this Prospectus. The Mineral Corporation has not been paid and is not entitled to be paid any amount by the Company for any services provided in the period 2 years prior to the Prospectus Date.
SRK Consulting (Australasia) Pty Ltd	CYIP Independent Geologist's Report	SRK Consulting will be paid approximately $24,833 (exclusive of GST) for preparing the CYIP Independent Geologist's Report contained in this Prospectus. SRK Consulting has been paid or is entitled to be paid approximately $28,243 (exclusive of GST) for geological services provided to the Company in the period 2 years prior to the Prospectus Date, inclusive of $24,833 (exclusive of GST) in relation to this Prospectus and the Offer.
Grant Thornton Corporate Finance Pty Ltd	Investigating Accountant's Report	Grant Thornton Corporate Finance Pty Ltd will be paid approximately $60,000 (exclusive of GST) for preparing the Investigating Accountant's Report contained this Prospectus and the Offer. Grant Thornton Corporate Finance Pty Ltd has not been paid and is not entitled to be paid any amount by the Company for any services provided in the period 2 years prior to the Prospectus Date.
Jackson McDonald (a partnership)	Solicitors to the Offer and general legal services CYIP Tenure Report	Jackson McDonald will be paid approximately $225,000 (exclusive of GST) for services related to this Prospectus and the Offer, including preparation of the CYIP Tenure Report contained in this Prospectus. Jackson McDonald has been paid or is entitled to be paid approximately $310,606 (exclusive of GST) for legal services provided to the Company in the period 2 years prior to the Prospectus Date, inclusive of $209,377 (exclusive of GST) in relation to this Prospectus and the Offer.
Webber Wentzel (a partnership)	Tshipi Title Opinion Attorney with respect to South African legal matters	Webber Wentzel will be paid approximately ZAR450,200 (being approximately $48,454) (exclusive of VAT) for services related to this Prospectus and the Offer, including preparation of the Tshipi Title Opinion contained in the Prospectus. Webber Wentzel has not been paid and is not entitled to be paid any amount by the Company for any services provided in the period 2 years prior to the Prospectus Date.

13.13 CONSENT STATEMENTS

The following persons have given their written consent to be named in this Prospectus in the form and context in which they are named and to the inclusion of a statement or report in this Prospectus in the form and context in which it is included:

Party	Capacity in which named	Statement or report in this Prospectus
Hartleys Limited	Lead Manager	Not applicable
Foster Stockbroking Pty Ltd	Co-Manager	Not applicable
Aitken Murray Capital Partners Pty Ltd	Co-Manager	Not applicable
Pallinghurst Steel Feed (Dutch) B.V. POSCO Australia GP Pty Ltd EMG Jupiter L.P. HJM Jupiter, L.P. FRK Jupiter, L.P. POSCO Australia Pty Ltd Red Rock Resources plc	Selling Shareholders	Not applicable
Mineral Corporation Consultancy (Pty) Ltd trading as The Mineral Corporation	Competent Person	Tshipi Competent Person's Report
SRK Consulting (Australasia) Pty Ltd	Competent Person	CYIP Independent Geologist's Report
Grant Thornton Corporate Finance Pty Ltd	Investigating Accountant	Investigating Accountant's Report
Grant Thornton Audit Pty Ltd	Auditor	Not applicable
Tshipi é Ntle	Not applicable	Financial information concerning Tshipi é Ntle in Section 3.5.
KPMG Inc	Auditor of Tshipi é Ntle	Tshipi é Ntle audited historical financial information (Section 3.5(b))
Webber Wentzel (a partnership)	South African Attorney	Tshipi Title Opinion
Jackson McDonald (a partnership)	Solicitors to the Offer	CYIP Tenure Report
Link Market Services Limited	Share Registry	Not applicable
SRK Consulting (South Africa) (Pty) Limited	Not applicable	Independent Technical Review of the Feasibility Study for the Tshipi Borwa Mine referred to in paragraph 24.5 of the Tshipi Competent Person's Report.
Hardrock Mining Consultants Pty Ltd	Not applicable	Statement in section 3.6.1 of the CYIP Independent Geologist's Report

Each of the parties named above as providing their consent:

(a) did not authorise or cause the issue of this Prospectus;

(b) does not make, or purport to make, any statement in this Prospectus nor is any statement in this Prospectus based on any statement by any of those parties other than as specified in this Section 13.13; and

(c) to the maximum extent permitted by law, expressly disclaims any responsibility or liability for any part of this Prospectus other than a reference to its name and a statement contained in this Prospectus with consent of that party as specified in this Section 13.13.

13.14 CONSENT AND AUTHORISATION OF JUPITER SALECO

Jupiter SaleCo and the directors of Jupiter SaleCo have authorised and consented to the issue of this Prospectus and to Jupiter SaleCo being named in this Prospectus as the sales agent for the Selling Shareholders.

14. AUTHORISATION

This Prospectus is issued by the Company and its issue has been authorised by a resolution of the Directors.

In accordance with section 720 of the Corporations Act, each Director has consented to the lodgement of this Prospectus with ASIC and has not withdrawn that consent.

This Prospectus is signed for and on behalf of the Company pursuant to a resolution of the Board by:

Brian Gilbertson
Chairman

Date: 4 April 2018

15. GLOSSARY

In this Prospectus the following terms have the following meanings:

Term	Definition
$	Australian dollars.
AEST	Australian Eastern Standard Time.
Aitken Murray Capital Partners	Aitken Murray Capital Partners Pty Ltd ACN 169 972 436; AFSAR: 000465249 (as representative of AFSL: 238198 and AFSL: 246842).
Applicant	A person who applies for Shares under and in accordance with this Prospectus.
Application	A valid application for Shares offered under this Prospectus.
Application Form	The application form attached to or accompanying this Prospectus.
Application Money	Money received from an Applicant in respect of an Application.
ASIC	Australian Securities and Investments Commission.
ASX	ASX Limited ACN 008 624 691 trading as the 'Australian Securities Exchange'.
ASX Recommendations	ASX Corporate Governance Council's Corporate Governance Principles and Recommendations (3rd edition).
ASX Settlement	ASX Settlement Pty Ltd ACN 008 504 532.
ASX Settlement Rules	The official ASX Settlement Operating Rules.
Auditor	Grant Thornton Audit Pty Ltd ACN 130 913 594.
Board	The board of Directors of the Company.
Central Yilgarn Iron Project or **CYIP**	The Company's Mount Mason Hematite Project and Mount Ida Magnetite Project located in the Central Yilgarn region of Western Australia.
CHESS	Clearing House Electronic Sub-register System.
Chief Executive Officer or **CEO**	The chief executive officer of the Company from time to time.
Closing Date	The date on which the Offer closes.
Co-Managers	The co-managers to the Offer, being Foster Stockbroking and Aitken Murray Capital Partners.
Company or **Jupiter**	Jupiter Mines Limited ACN 105 991 740.
Company Secretary	The company secretary of the Company from time to time, being Melissa North at the Prospectus Date.
Consolidated Group	The Company and its subsidiaries.
Constitution	The constitution of the Company.
Corporations Act	*Corporations Act 2001* (Cth).
CY	Calendar year.

Term	Definition
CYIP Independent Geologist's Report	The Independent Geologist's Report on the Central Yilgarn Iron Project prepared by SRK Consulting and contained in Appendix 2.
CYIP Tenure Report	The CYIP Tenure Report prepared by Jackson McDonald referred to in Section 10.2.
Director	A director of the Company from time to time.
DMR	Department of Mineral Resources, Republic of South Africa.
EBIT	Earnings before interest and tax.
EBITDA	Earnings before interest, tax, depreciation and amortisation.
Escrow Period	The period of time during which the Escrowed Shares are subject to voluntary escrow, as described in Section 12.3.
Escrowed Shareholder	Existing Shareholders that will continue to hold Shares on completion of the Offer, and who have entered into voluntary escrow deeds as described in Section 12.3.
Escrowed Shares	The Shares held by the Escrowed Shareholders that are subject to voluntary escrow pursuant to the voluntary escrow deeds described in Section 12.3.
Executive Director	An executive director of the Company from time to time.
Existing Share	A Share issued by the Company prior to the Opening Date.
Existing Shareholder	Those persons or entities that are Shareholders of the Company as at the Prospectus Date and hold Existing Shares.
Exposure Period	The period of 7 days after the date of lodgement of the Original Prospectus, which was extended by ASIC by 7 days pursuant to section 727(3) of the Corporations Act.
Fe	Iron.
FOB	Free on board shipping.
Foster Stockbroking	Foster Stockbroking Pty Ltd ACN 088 747 148; AFSL: 223687.
FY	The financial year commencing on 1 March and ending on the next 28 or 29 February, as the case may be.
Glossary	This glossary of terms.
Group	Jupiter and its controlled entities, including Jupiter Kalahari and Jupiter SaleCo.
GST	Goods and services tax levied under the *A New Tax System (Goods and Services Tax) Act 1999* (Cth).
Hartleys	Hartleys Limited ACN 104 195 057; AFSL: 230052.
Holding Statement	A holding statement for Shares under CHESS.
HY	Half-financial year commencing on 1 September and ending on the next 31 August.
Institutional and Sophisticated Investor Offer	The offer of Shares to Institutional Investors and Sophisticated Investors described in Section 2.3(a).

Term	Definition
Institutional Investor	An investor: (a) in Australia who is a "wholesale client" for the purpose of section 761G of the Corporations Act and who is either a "professional investor" or a "sophisticated investor" within the meaning of sections 708(11) and 708(8) of the Corporations Act; (b) in New Zealand to whom an offer or invitation can be made without the need for a product disclosure statement under the Financial Markets Conduct Act, 2013 (New Zealand) (**FMC Act**), being persons who are an investment business within the meaning of clause 37 of schedule 1 of the FMC Act, persons who meet the investment activity criteria within the meaning of clause 38 of schedule 1 of the FMC Act, persons who are large within the meaning of clause 39 of the FMC Act, persons who are a government agency within the meaning of clause 40 of schedule 11 of the FMC Act; or persons who are eligible investors within the meaning of clause 41 of the FMC Act; or (c) in certain other jurisdictions, in the absolute discretion of the Managers, to whom offers or invitations in respect of securities can be made without the need for a lodged or registered prospectus or other form of disclosures document or filing with, or approval by, any government agency. In all cases, provided that such person is not in the United States.
Investigating Accountant	Grant Thornton Corporate Finance Pty Ltd ACN 003 265 987.
Investigating Accountant's Report	The report of the Investigating Accountant contained in Section 5.
JORC Code	The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (2012 edition).
Jupiter Kalahari	Jupiter Kalahari S.A., a wholly owned subsidiary of Jupiter.
Jupiter SaleCo	Jupiter SaleCo Pty Ltd ACN 624 156 387.
KMF	Kalahari manganese field.
Lead Manager	The lead manager to the Offer, Hartleys.
Listing Date	The date on which quotation of Shares on ASX commences.
Listing Rules	The listing rules of ASX.
LMO	Lower manganese ore-bed.
LoM	Life of mine.
Managers	The Lead Manager and each of the Co-Managers.
Managers Mandate and **Managers Mandate Agreement**	The mandate agreement between the Company and the Managers referred to in Sections 2.12 and 12.4.
MMO	Middle manganese ore-bed.
Mn	Manganese.
Mount Ida Magnetite Project	The Company's Mount Ida Magnetite Project as described in Section 10.2.
Mount Mason Hematite Project	The Company's Mount Mason Hematite Project as described in Section 10.2.
Mtpa	Million tonnes per annum.
New Share	A new Share issued by the Company under this Prospectus.

Term	Definition
New Shareholder	A person or entity who is not a Shareholder as at the Prospectus Date, and who acquires Shares under the Offer.
Non-Executive Director	A non-executive Director of the Company from time to time.
NPAT	Net profit after tax.
NPBT	Net profit before tax.
Offer	The offer of up to 600 million Shares at an offer price of $0.40 per Share for sale by the Selling Shareholders and 10,000 New Shares for issue by the Company at an issue price of $0.40 per Share.
Offer Period	The period between the Opening Date and the Closing Date of the Offer.
Offer Price	The offer price of a Share offered under this Prospectus, being $0.40.
Offer Securities	Securities in the Company offered pursuant to the Offer.
Opening Date	The date on which the Offer opens.
Original Prospectus	The prospectus lodged by the Company with ASIC on 19 March 2018, which is replaced by this Replacement Prospectus.
Pallinghurst	Pallinghurst Resources Australia Limited ACN 125 228 006.
Pallinghurst Co-Investors or **Pallinghurst Co-Investor Group**	The consortium of co-investors that was led by Pallinghurst, comprising AMCI Capital (a partnership), Algemene Pensioen Groep, The Energy & Minerals Group, Investec Bank Limited, PRL, POSCO, Smedvig Capital Limited and Temasek Holdings (Private) Limited.
POSCO	POSCO Australia GP Pty Ltd ACN 145 620 864 or POSCO Australia Pty Ltd ACN 002 062 160.
PRL	Pallinghurst Resources Limited, registered in Guernsey with company registration number 47656, and listed on the Johannesburg Stock Exchange (JSE: PGL) and the Bermuda Stock Exchange (BSX: PALLRES.BH).
Prospectus or **Replacement Prospectus**	This prospectus dated 3 April 2018 and any supplementary or replacement prospectus.
Prospectus Date	The date this Prospectus was lodged with ASIC.
PSF	Pallinghurst Steel Feed (Dutch) B.V.
Public Offer	The offer of Shares to members of the public described in Section 2.3(b).
Sale Agency Deed	A Sale Agency Deed, as described in Section 12.2.
Sale Date	The date of transfer of Shares sold under this Prospectus.
Sale Shares	The Shares offered for sale under this Prospectus.
Securities	Has the meaning given to that term in section 92(4) of the Corporations Act.
Selling Shareholders	Existing Shareholders of the Company who are offering Existing Shares for sale pursuant to the Offer and who have entered into a Sale Agency Deed, as identified and described in Section 12.2.
Share	A fully paid ordinary share in the capital of the Company.
Share Registry	Link Market Services Limited ACN 083 214 537.
Shareholder	A holder of a Share.
Significant Investors	Means the Existing Shareholders named in Section 2.10.

Term	Definition
Sophisticated Investor	An investor to whom an offer or invitation of securities can be made without the need for a prospectus under section 708 of the Corporations Act.
South African Attorney	Webber Wentzel.
SRK Consulting	SRK Consulting (Australasia) Pty Ltd ACN 074 271 720 trading as SRK Consulting.
The Mineral Corporation	Mineral Corporation Consultancy (Pty) Ltd (Reg. No. 1995/000999/07) trading as The Mineral Corporation.
Tshipi or **Tshipi Mine**	The Tshipi Borwa Manganese Mine as described in Sections 3.5 and 8.
Tshipi é Ntle	Tshipi é Ntle Manganese Mining (Pty) Limited (Reg. No. 2008/003117/07).
Tshipi Competent Person's Report	The report of The Mineral Corporation on Tshipi é Ntle's Tshipi Mine contained in Appendix 1.
Tshipi Title Opinion	The Tshipi Mine Title Opinion prepared by Webber Wentzel referred to in Section 10.1.
UMO	Upper manganese orebody.
Valmin Code	The Australasian Code for Public Reporting of Technical Assessments and Valuations of Mineral Assets (2015 edition), published by the Australasian Institute of Mining and Metallurgy and the Australian Institute of Geoscientists.
VAT	Value Added Tax, payable in South Africa, which as at the Prospectus Date is payable a rate of 15%.
Voluntary Escrow Deed	A Voluntary Escrow Deed, as described in Section 12.3.
VWAP	Volume weighted average price, as defined and calculated in accordance with the Listing Rules.
ZAR	South African rand.

APPENDIX 1 TSHIPI COMPETENT PERSON'S REPORT

Tshipi é Ntle
Manganese Mining

Prepared on behalf of
Jupiter Mines Limited

2018/04/03

COMPETENT PERSONS REPORT ON TSHIPI É NTLE MANGANESE MINING (PTY) LIMITED'S TSHIPI BORWA MANGANESE MINE

THE MINERAL CORPORATION

ADVISORS TO THE MINERAL BUSINESS

PREPARED ON BEHALF OF
Jupiter Mines Limited

COMPETENT PERSONS REPORT ON TSHIPI É NTLE MANGANESE MINING (PTY) LIMITED'S TSHIPI BORWA MINE

The Mineral Corporation
Report No. C-TMM-JUP-1786-1079
2018/04/03

P O Box 1346, Cramerview 2060, South Africa
Homestead Office Park, 65 Homestead Avenue, Bryanston 2021
Telephone: +27 11 463-4867 Facsimile: +27 11 706-8616 e-mail: business@mineralcorp.co.za

EFFECTIVE DATE AND COMPETENT PERSONS LIST

The effective date for this report is 31 December 2017.

The following Competent Persons contributed to this report and the technical work underlying it:

Role	Name
The Mineral Corporation Lead Competent Person: Mineral Resources	Stewart Nupen
The Mineral Corporation Lead Competent Person: Ore Reserves	Jon Buckley

THIRD PARTY CONSENTS

References to various statements and reports from VBKOM Engineering Consultants (VBKOM), SLR Consulting (Africa) Pty Limited (SLR) and SRK Consulting (South Africa) (Pty) Limited are contained within the Competent Persons Report. Written consent from the parties has been obtained by The Mineral Corporation and the relevant reports are referenced in the text and in Section 29 of the Competent Persons Report.

DISCLAIMER

This report has been compiled by The Mineral Corporation for Jupiter Mines Limited in accordance with the scope of work determined by Jupiter Mines Limited. The report provides the results of a review of Tshipi Borwa Mine in which Jupiter Mines Limited holds a material interest. It is presented in the form of a Competent Persons Report intended to be used in support of a security exchange listing. The report is intended to be read in its entirety along with the appendices referred to throughout.

In the preparation of this report, The Mineral Corporation has exercised reasonable skill, care and diligence. The opinions, findings and estimates contained herein are those of The Mineral Corporation and are based on information provided to The Mineral Corporation by Jupiter Mines Limited and/or its associates. The Mineral Corporation's reasonable enquiries found no reason to doubt the completeness, accuracy or reliability of the information provided and The Mineral Corporation accepts no liability for the accuracy or completeness of the information and data provided by Jupiter Mines Limited and/or its associates.

The Mineral Corporation's opinions, findings and estimates reflect various techno-economic conditions, assumptions and interpretations (prices, currency exchange rates and other conditions) as at the effective date of this report that can change significantly over a relatively short period of time, and with respect to new information. As such, the information and opinions in this report may also be subject to change.

The Mineral Corporation accepts no liability or responsibility whatsoever for, or in respect of, any use of or reliance upon this report by any third party or if it is used by Jupiter Mines Limited out of context or for any purposes other than that originally intended.

EXECUTIVE SUMMARY

Introduction

The Mineral Corporation has prepared a Competent Persons Report (CPR) on Tshipi Borwa Manganese Mine (Tshipi Borwa Mine or the Mine) owned by Tshipi é Ntle Manganese Mining (Pty) Ltd (Tshipi) on behalf of Jupiter Mines Limited (Jupiter). This CPR documents the Mineral Resource and Ore Reserve estimates, which are reported following the guidelines of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code).

This report is intended to be the Public Report, documenting Mineral Resource and Ore Reserve estimates to support a potential listing of Jupiter on the ASX. This report was prepared by The Mineral Corporation, which is a technical advisory and consulting firm. Neither The Mineral Corporation nor any of its Directors, staff or sub-consultants who contributed to this report has any material interest in Jupiter, Tshipi or the operation reviewed.

Mineral Resource estimates contained in this report have been prepared under the supervision of and are signed-off by Mr Stewart Nupen (BSc. Hons, MBA, FGSSA, Pr.Sci.Nat). Ore Reserve estimates for the Mine have been prepared under the supervision of and signed-off by Mr Jonathan Buckley (BSc. Hons. MSc. FSAIMM, Pr. Eng.).

Description of the Asset

Tshipi Borwa Mine is an open pit mine, approximately 35km north of Kathu, in the Northern Cape of South Africa which has produced between 1 million tonne per annum (Mtpa) and 2.5Mtpa of manganese (Mn) ore, at an average grade of 36.5% Mn, since coming into production in 2012. In 2017, the Mine successfully ramped-up production to 3.0Mtpa, in response to buoyant Mn prices.

Tshipi has a MECA II rail capacity allocation with Transnet Freight Rail (TFR). Tshipi's business plan is in excess of the allocated rail tonnage per the TFR MECA II agreement and as a result, incremental tonnage above the rail allocation is transported by road and / or rail to various ports.

Ownership, Legal and Permitting

Tshipi é Ntle Manganese Mining (Pty) Limited, and hence the Tshipi Borwa Mine, is 50.1% owned by Main Street 774 (Pty) Limited (Main Street) and 49.9% owned by Jupiter Kalahari S.A. (JKSA). Ntsimbintle Mining (Pty) Limited (Ntsimbintle), a broad-based black economic empowerment (B-BBEE) mining company representing shareholders including Safika Resources, Nkonjane and Kgalagadi Trust, holds a 74% share in Main Street, while OM Holdings Limited (OMH) holds the remaining 26% share. JKSA is a wholly owned subsidiary of Jupiter.

Tshipi has a valid mining right, which expires in 2040. The Life of Mine Plan (LoM Plan) extends to 2047, but there is a renewal mechanism in the Mineral and Petroleum Resources Development Act, and there is a reasonable expectation that the mining right would be renewed. Tshipi advises that there are no material legal matters which would negatively impact the LoM. The Mineral Corporation has not identified any material concern with regards to Tshipi's compliance with its Social and Labour Plan commitments, or its relationships with employees or neighbouring communities. Tshipi holds the surface rights to the area comprising the mining right as well as surface rights to the south and southwest of the mining right. All of the Mine infrastructure including the pit, waste dump, metallurgical plant, load-out facility and rail-loop are understood to be within these rights.

Material contracts and agreements

The Tshipi shareholder's agreement was entered into by Ntsimbintle, Main Street, Jupiter Kalahari (Mauritius) Limited (now JKSA), Jupiter and Tshipi, and specifies aspects of the sale of the Mine's product. Main Street or its nominee has the exclusive right to purchase 50.1% of the manganese produced. JKSA or its nominee has the exclusive right to purchase the remaining 49.9% of the manganese produced by the mine. JKSA has nominated Jupiter to purchase its 49.9% share of the product and Ntsimbintle and OMH's 50.1% is marketed through a separate entity, OM Tshipi (OMT).

Other material contracts and agreements which support the LoM include the mining contract agreement, the ore processing agreement, the agreements related to rail transport services, the supply of petroleum and a joint application with neighbouring Hotazel Manganese Mines (Pty) Limited (HMM) to mine the barrier pillar between these operations.

Geology

The Kalahari Manganese Field (KMF) is a globally significant manganese deposit, which has been extensively described in the literature. Of the three sedimentary manganese layers in the Hotazel Formation of the Main Kalahari deposit, the Lower Manganese "ore bed" or LMO is the best developed and most laterally continuous. At Tshipi Borwa Mine, the LMO is on average 37.5m thick, and generally has a shallow dip to the northwest.
The LMO is subdivided on the basis of geological features and metal content, into six sub-zones termed N, C, M, Z, Y and X from the base to the top. The grouped N, C and M zones average 19.5m thickness, with a 37.5% Mn grade, and constitute the Graded Ore mined by Tshipi.

Exploration

Several phases of exploration drilling have been undertaken. The Competent Person has reviewed the exploration protocols and exploration Quality Assurance and Quality Control (QAQC) results and considers the exploration data to be suitable for use in Mineral Resource estimation. There is limited protocol and QAQC information from the boreholes obtained from Mamatwan Mine. However, the public domain description of the geology, mineralisation and exploration protocols at Mamatwan Mine are similar to Tshipi. Further, as a result of their location, these holes have limited influence on the Mineral Resource estimates.

Mineral Resources

Mineral Resource estimates have been undertaken for the six zones which make up the LMO, as well as a zone of manganese enrichment (the Supergene Zone). Tshipi have a local structural geological model which is informed by sufficient drilling to support the Mineral Resource classification. Wireframe models of the zones were generated, and a single length-weighted borehole composite derived for each zone. Mn, iron (Fe) and specific gravity (SG) estimates have been interpolated into a block model, using Ordinary Kriging.

A thickness cut-off has been applied to the Y Zone, in that it has been excluded from the Mineral Resource where its thickness is greater than 5m. All of the remaining parts of the Mineral Resources are considered to have reasonable prospects of eventual economic extraction. The Mineral Resource model has been classified on the basis of varying levels of confidence, informed by drill spacing. The Inferred Mineral Resource is typically supported by a 400m drill pattern. Indicated Mineral Resources have been defined as Mineral Resource which are supported by a 200m drilling pattern while Measured Mineral Resources are supported by a 100m drilling grid or less. The Competent Person is satisfied that the nature, quality, amount and distribution of data have been taken into account when applying the Mineral Resource classification categories. The Mineral Resource estimates as at 31 December 2017, inclusive of Ore Reserves, are provided below.

Classification	Zone	Tonnes	Mn (%)	Fe (%)	SG (t/m^3)
Measured	X	19 305 000	31.87	4.81	3.55
	Y	9 532 000	22.24	5.74	3.32
	Z	9 104 000	32.52	5.78	3.60
	M	16 945 000	38.15	4.63	3.76
	C	31 982 000	36.40	3.74	3.66
	N	13 733 000	35.62	4.87	3.65
	Supergene	1 999 000	36.44	4.70	3.49
	Total	**102 602 000**	**34.07**	**4.63**	**3.61**
Indicated	X	37 272 000	31.20	4.91	3.50
	Y	6 237 000	23.10	5.45	3.28
	Z	16 712 000	31.39	6.33	3.54
	M	15 417 000	37.79	5.27	3.74
	C	32 957 000	36.69	3.74	3.68
	N	10 858 000	34.95	5.46	3.66
	Total	**119 455 000**	**33.51**	**4.91**	**3.58**
Inferred	X	67 955 000	30.92	5.22	3.52
	Y	22 730 000	25.41	5.35	3.35
	Z	22 802 000	31.39	5.73	3.57
	M	43 817 000	34.67	5.10	3.68
	C	53 450 000	35.35	4.13	3.66
	N	26 726 000	34.43	5.41	3.66
	Total	**237 483 000**	**32.52**	**5.04**	**3.58**
Total Mineral Resource		**459 541 000**	**33.13**	**4.91**	**3.59**

Geohydrology

Groundwater monitoring prior to mining indicated that static groundwater levels ranged from 38m to 42m below ground level in the vicinity of the pit. Current levels vary between 35m and 75m. It is forecast that mining will create a cone of drawdown with a maximum lateral extent of 5.5km to the east and 8.3km to the west of Tshipi Borwa Mine with a maximum extent at the end of the current LoM Plan. Should mining operations cease and backfilling take place, the water levels would start recovering, however, at this stage, the LoM Plan only considers partial backfilling.

The potential cone of drawdown is a district scale feature, located mainly around Mamatwan and UMK Mines, and Tshipi Borwa Mine has minimal contribution to the cone of drawdown.

Optimisation, planning and scheduling

The Mineral Corporation has reviewed and is satisfied with the geotechnical assumptions which inform the LoM Plan. The pit limits used were those determined in February 2017, using the 2016 Mineral Resource model. This is not a material issue, as the selected pit was conservative, with a revenue factor of 0.67, and re-running the optimisation would not have impacted on the Ore Reserve estimates.

The Mineral Resources in the selected pit have been scheduled, taking into account the appropriate modifying factors, which The Mineral Corporation considers reasonable. The Mineral Corporation notes that the plans to increase the level of mining production have been achieved. The Mine has sufficient owner and contractor staff to support the LoM.

Tshipi and HMM submitted a joint Boundary Pillar extraction plan that was approved by the Department of Mineral Resources (DMR) in May 2017. The Boundary Pillar mining is currently included in the LoM Plan, with the first mining of waste commencing in FY2019 and with the first ore production produced in that same year. No flaws were identified with regards to the approach adopted for the extraction of the Boundary Pillar; however it will be important that all the outcomes of the Risk Assessment process are implemented to ensure that the extraction is both safe and effective.

Waste rock disposal

Backfilling of waste material inside the pit is done to minimise the surface dump footprint and it also allows for shorter haul distances, due to the trucks not having to travel out of the pit to the waste dumps. Detailed design and scheduling on the backfill process and waste dump capacities has been undertaken. The LoM Plan does not attempt to completely fill the open pit, and the remaining void at the end of the LoM Plan is estimated to be 209 million cubic metres.

A study has been commissioned with regards to accessing the Mineral Resources beyond the final open pit. The two options being considered are access via a vertical shaft system or access via a series decline systems out of the final open pit high wall. In the case of the latter, the final open pit void will have to remain open to provide functional access. The trade-off study will be completed during the first half of 2018. The decision to fill the final void at the end of the LoM will be dependent on the outcome of the underground access study and approval of a revised Environmental Management Plan (EMP) in due course.

Metallurgical processing

The Mineral Corporation has reviewed the historical and planned process plant operations. The quality of product obtained has generally been to an acceptable standard against specification, and should improve with the current and planned process improvements being implemented. The installation of the GP500s plant currently underway is regarded as a positive step forward in the process, which should ultimately lead to productivity, quality and cost improvements. The LoM Plan processing inputs are regarded as reasonable and achievable.

Engineering infrastructure

The Mineral Corporation has not identified any issues with regards to on-site engineering infrastructure which would impact on the LoM Plan, including the product handling and rail-loading facilities, fuel handling, water and waste management, electrical supply and distribution as well as offices and workshops. Tshipi plans to connect to the ESKOM grid in due course and capital for this has been provided in the LoM Plan.

Product logistics

Off-site product logistics are a key component in the achievement of the LoM Plan, in that they make-up a large component of the Mine's operating cost, and the multiple channels to market require planning and management. Although other logistics routes have been utilised in the past, the LoM assumes that the following routes are utilised:

- Bulk rail to the Port Elizabeth Bulk Ore Terminal;
- Rail to Port Elizabeth Container Terminal;
- Road haul to Port Elizabeth Fresh Produce Terminal;
- Rail to Durban, and
- Road haul to Durban

Of Tshipi's current 3.0Mtpa production, 1.8Mtpa is covered under the original MECA II agreement with TFR. The renewed MECA II agreement, signed in February 2018, has an increased allocation of 2.1Mtpa. Tshipi have planned on achieving 1.9Mtpa through this allocation, assuming a 91% strike rate, which is in line with historical performance, and have planned an additional 0.3Mtpa tonnes to be transported to Durban by rail. Effectively 73% of production will be transported by rail, and the balance is to be transported by road haul to port

Tshipi thus has a robust and flexible product logistics management chain, which covers the current production volumes, and is competitively priced. The Mineral Corporation is satisfied that the mine rail loading facility can handle the planned volumes and that the mine is capable of loading the required number of road trucks. Road access at the mine will deteriorate with the planned road transportation loading, which is the responsibility of the Provincial Road Authority.

Environmental

The LoM Plan at Tshipi Borwa Mine is supported by the appropriate environmental authorisations, and while there are instances of non-compliance, the risk to the LoM Plan is considered low. Tshipi submitted an application for an amendment to its EMP (EMP1) in 2017, to address these non-compliances, and received approval of the 2017 EMP1 amendment from the DMR on 31 January 2018. A Water Use License (WUL) amendment process is still underway, but given that no unacceptable risks or impacts have been identified, it is reasonable to assume that the WUL amendment will be granted.

The closure cost estimate does not take into account the cost of backfilling the final void, or the reshaping of the remaining waste rock dumps, as envisioned in the approved 2009 EMP. Tshipi has indicated that it has started work towards a second amendment of its EMP (EMP2), which will seek to align the EMP with the current waste dumping strategy. Given the likelihood of renewing the mining right in due course, the potential for continued open pit or underground mining beyond the LoM Plan and the low agricultural potential of the area, Tshipi should be able to provide a compelling motivation for not undertaking complete backfilling and put in place feasible mitigation measures for residual impacts resulting from a change to the rehabilitation strategy. The cost of complete backfilling, together with the cost of developing a new underground mining operation from surface, would likely sterilise the remaining Mineral Resources.

Market review

Manganese ore is not exchange traded, and prices are largely determined by supply and demand dynamics linked to the global steel industry production levels. Manganese ore is priced in US Dollars per metric tonne unit (US$/mtu), and consequently ore grade is directly reflected in the price per tonne of ore.

In mid-2016, manganese ore prices surged in response to a sharp drawdown of industry stock levels. These reflected substantial production cutbacks brought about by low prices over the previous year, in combination with logistical problems in South Africa and a resurgence of demand from China. In 2017, ore prices have remained high. Increased South African production during 2017 has yet to alleviate this perceived ore scarcity and ore prices have continued to be buoyant into 2018.

It is The Mineral Corporation's view that the long-term demand fundamentals underpinning primary manganese ore pricing are sound. For most established ore producers, there are limited material technical constraints to sustained or expanded manganese ore production. Rather, product logistics and efficient transport infrastructure determine relative cost efficiency competitiveness and Tshipi is well placed in this context. The Mineral Corporation would consider the US$4.00/mtu (2018 terms) utilised for the pit optimisation to be reasonable with respect to the prices currently being attained which are in the range of US$3.00 to US$6.00/mtu (FoB), depending on product type and shipping arrangements. A long term FoB price range of US$3.50 to US$4.50/mtu (2018 terms) is considered a reasonable and conservative range within which to test the viability of the Ore Reserves.

Operating and capital costs

The Mineral Corporation is of the opinion that the various operating costs have been developed in sufficient detail and accuracy to be utilised in an assessment of the economic viability of the Ore Reserves. The mining cost applied is the average mining cost over the LoM, which is considered appropriate as there are limited changes to the stripping ratio. There is a reduction in the processing costs planned, which is as a result of commissioning the new plant and decommissioning of some of the mobile plants in the early part of 2018. Considering the vast majority of the mining functions are driven by contractors, The Mineral Corporation is of the opinion that the various capital items and costs budgeted for are sufficient to ensure the sustainability of the operation in the longer term.

Ore Reserve estimate

The Ore Reserve estimates as at 31 December 2017 are provided below.

	Zone	Tonne	Mn (%)	SG (t/m^3)
Proved	Z	2 913 000	31.62	3.59
	M	12 181 000	38.01	3.77
	C	24 379 000	36.47	3.68
	N	7 410 000	34.36	3.65
	Supergene	766 000	37.03	3.51
	Sub-total	**47 649 000**	**36.25**	**3.69**
Probable	Z	3 265 000	32.12	3.56
	M	9 230 000	38.20	3.75
	C	21 749 000	36.83	3.68
	N	4 517 000	33.86	3.65
	Sub-total	**38 761 000**	**36.41**	**3.68**
Total Ore Reserve		**86 410 000**	**36.32**	**3.69**

Only those components of the Mineral Resource which are used in the LoM Plan have been converted to Ore Reserves. Measured Mineral Resources within the LoM Plan have been converted to Proved Ore Reserves, while Indicated Mineral

Resources have been converted to Probable Ore Reserves. No Inferred Mineral Resources have been converted to Ore Reserves.

The LoM Plan which supports the Ore Reserves at Tshipi Borwa Mine is considered to be economically mineable at the long term price range identified in the Market Review (US$3.50 to US$4.50/mtu, FoB). In addition, the Mine has shown the ability to flexibly adjust its production rate, and costs, as the market dictates.

Risk Assessment

There are no risks identified which would prevent the declaration of Mineral Resources and Ore Reserves. The risks identified which are potentially material are the following:

- Potential additional financial provision closure: Should Tshipi be unable to amend the EMP to reflect only partial filling of the void, the Mine's closure provision will have to be increased and funded from FY2019 onwards. To support the amendment process, a study has been commissioned to access the remaining Mineral Resources either from an extension of the open pit, from a decline system developed out of the open pit void or via a vertical shaft system (located outside the open pit).
- Manganese price volatility: The manganese price has seen considerable volatility over the previous number of years. Lower than anticipated manganese prices would have a material impact on the business. In this regard, Tshipi has a relatively high variable cost component in mining, process and logistics, and has shown that in the past it has been possible to flexibly adjust product volumes, as dictated by the market; and
- Potential logistics costs increases: Given the importance of the product logistics costs to Tshipi's overall cost, increases in road, rail or shipping costs would have a material impact on the business. Product logistics is a key management focus area, and Tshipi has demonstrated a robust and flexible product logistics plan..

Other minor risks identified are discussed in Section 23.4. The Mineral Corporation is satisfied that Tshipi is aware of all of the risks, and has mitigation measures in place, or is actively pursuing strategies to minimise the impact of the risks on the mining and processing operations.

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1 INTRODUCTION

1.1 Background

The Mineral Corporation has prepared a Competent Persons Report (CPR) on Tshipi Borwa Manganese Mine (Tshipi Borwa Mine or the Mine) owned by Tshipi é Ntle Manganese Mining (Pty) Ltd (Tshipi) on behalf of Jupiter Mines Limited (Jupiter).

1.2 Scope of Work

This CPR documents the Mineral Resource and Ore Reserve estimates, which are reported following the guidelines of the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code).

This report is intended to be the Public Report, documenting Mineral Resource and Ore Reserve estimates, to support a potential listing of Jupiter on the ASX.

This report specifically excludes commentary on the value of any related Corporate Securities.

1.3 Capability and Independence

This report was prepared by The Mineral Corporation, which is a technical advisory and consulting firm, providing Mineral Resource evaluation, mining engineering and mine valuation services to the mining industry. The Mineral Corporation has received, and will receive, professional fees for its preparation of this report. Neither The Mineral Corporation nor any of its Directors, staff or sub-consultants who contributed to this report has any material interest in Jupiter or Tshipi.

Mineral Resource estimates contained in this report have been prepared under the supervision of and are signed-off by Mr Stewart Nupen (BSc. Hons, MBA, FGSSA, Pr.Sci.Nat) who is a Director of The Mineral Corporation. Ore Reserve estimates for the Mine have been prepared under the supervision of and signed-off by Mr Jonathan Buckley (BSc. Hons. MSc. FSAIMM, Pr. Eng.), who is a Senior Mining Engineer and a full-time associate of The Mineral Corporation.

Drafts of this report were provided to Tshipi and Jupiter, but only for the purpose of confirming both the accuracy of factual material and the reasonableness of assumptions relied upon in the report.

1.4 Property Description

Tshipi Borwa Mine is an open-pit manganese mine with an integrated ore processing plant located in the Kalahari Manganese Field (KMF) in the Northern Cape Province of South Africa (Figure 1). With nameplate Run of Mine (RoM) capacity of 3.6 million tonne per annum (Mtpa), the mine has been operational since December 2011 and has produced between 1.0Mt and 3.0Mt of RoM manganese ore per annum, with production output depending on demand.

Tshipi Borwa Mine exploits the Lower Manganese Orebody (LMO), which is a laterally continuous, stratiform, manganese-bearing layer in the KMF. The LMO dips at ±7° towards the north-west and is currently being mined via the conventional drill and blast (truck and shovel) open-pit mining method. Based on the current Ore Reserves, Tshipi Borwa Mine has an estimated Life of Mine (LoM) of 30 years at a steady-state production level of 3.0Mtpa, although the Mineral Resource would sustain a much longer LoM. The average grade of manganese ore sold is 36.5% Mn, with additional products of differing manganese grade and sizing generated as the market demands.

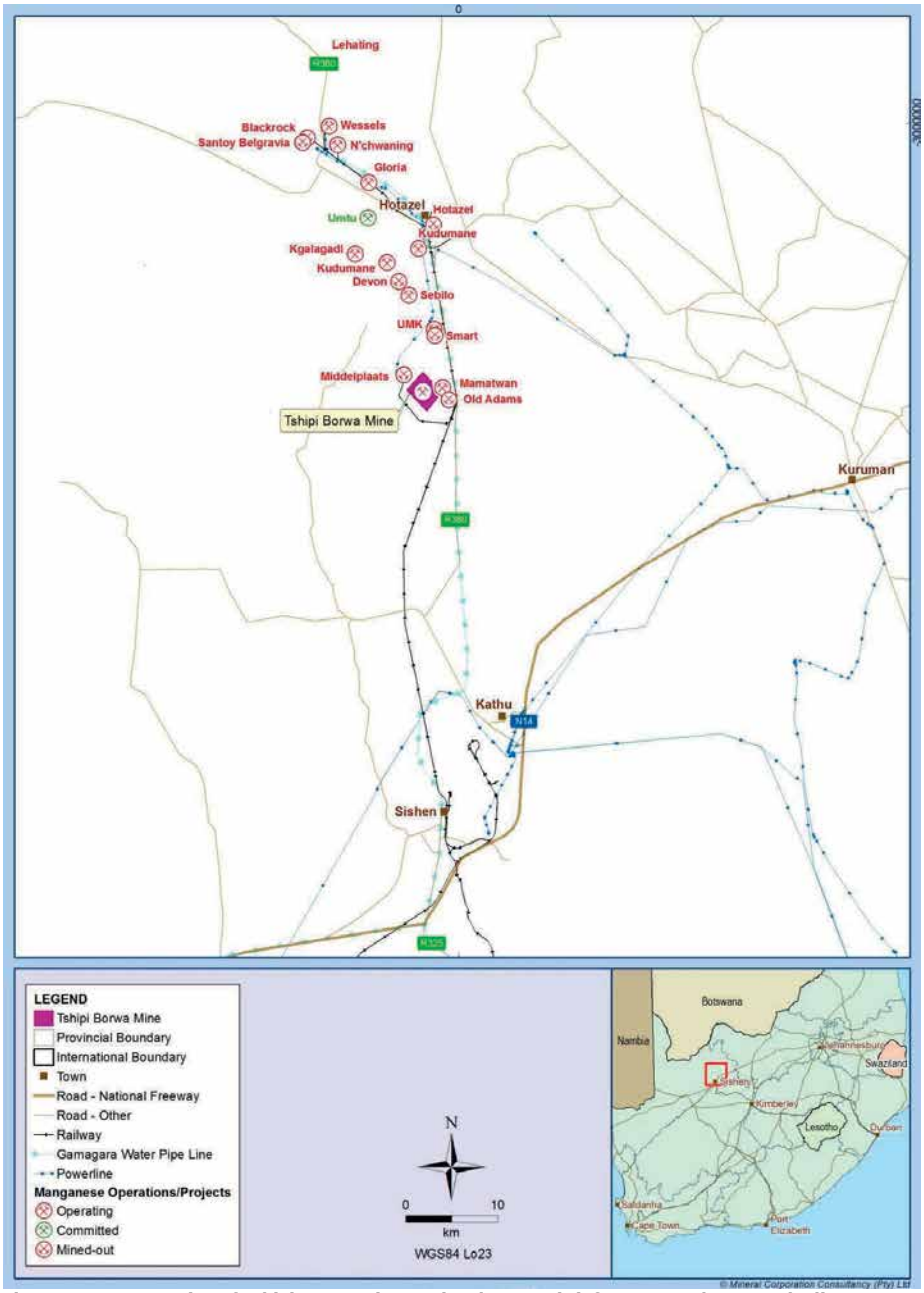

Figure 1: **Location of Tshipi Borwa Mine, regional economic infrastructure layout and adjacent properties**

1.5 Location and Infrastructure

Tshipi Borwa Mine is located on the southern extremity of the KMF approximately 47km west-northwest of Kuruman and 35km north of Kathu. The KMF extends continuously in a north-westerly direction for 35km and is 5km to 20km wide (Figure 2 and Figure 6). The Banded Iron Formation (BIF) – hosted manganese deposits of the KMF are estimated to contain some 4 200Mt or 77% of the world's known inventory of land-based manganese metal (Beukes et al, 2016).

The KMF is accessible by the tarred R380-public road. The nearest national airport is located in Kimberley, approximately 230km to the southeast of Kathu. However, the privately owned Sishen airport, which is located near Kathu, is served by a number of commercial operators.

Generally, local infrastructure is well-established, having been developed to serve the needs of the manganese and iron ore mining operations in the region. Major towns in the region are served by a network of well-maintained tarred and gravel roads. Several of the mines in the region are connected to the Sishen-Saldanha or Sishen-Port Elizabeth railway lines (Figure 1). Water for use in the mines and local towns is available from the state-owned Vaal-Gamagara pipeline managed by Sedibeng Water. Electricity is typically supplied from the Eskom electricity grid, although this is not the case at Tshipi Borwa Mine.

1.6 Landscape, Climate and Vegetation

Local topography is predominantly flat-lying at an average elevation of 1 100m above mean sea level (mamsl) and is characterised by several vegetated northwest to southeast-trending red sand dunes, up to 10m in height and 200m wide, and tens of kilometres in length. Most of the surrounding area is covered by windblown sands underlain by limestone. The regional drainage pattern is broadly northwards but water-flows in the streams are generally rare.

Tshipi Borwa Mine is located in a semi-arid area characterised by low rainfall (<300mm per annum), high day temperatures (>30°C) and moderate to low night temperatures (<20°C), during summers (December-March). However, temperatures may occasionally drop below freezing during winter (May-August). There are no seasonal restrictions on the operations in the area.

Typically, arid shrub-savannah, grass and scattered trees such as the black thorn (*Acacia mellifera*), shepherd's tree (*Boscia albitrunca*) and camel thorn (*Acacia erioloba*) grow on a layer of the red Kalahari sand.

1.7 Adjacent Properties

The opencast Mamatwan manganese mine, owned by Samancor Manganese (Pty) Limited (Samancor), a joint venture between South 32 Limited, Anglo American Limited and Broad-Based Black Economic Empowerment (B-BBEE) entities, is directly east of Tshipi Borwa Mine. The dormant Middelplaats underground manganese mine, also owned by Samancor is situated north-west of Tshipi Borwa Mine. Other mines in the district are illustrated in Figure 2.

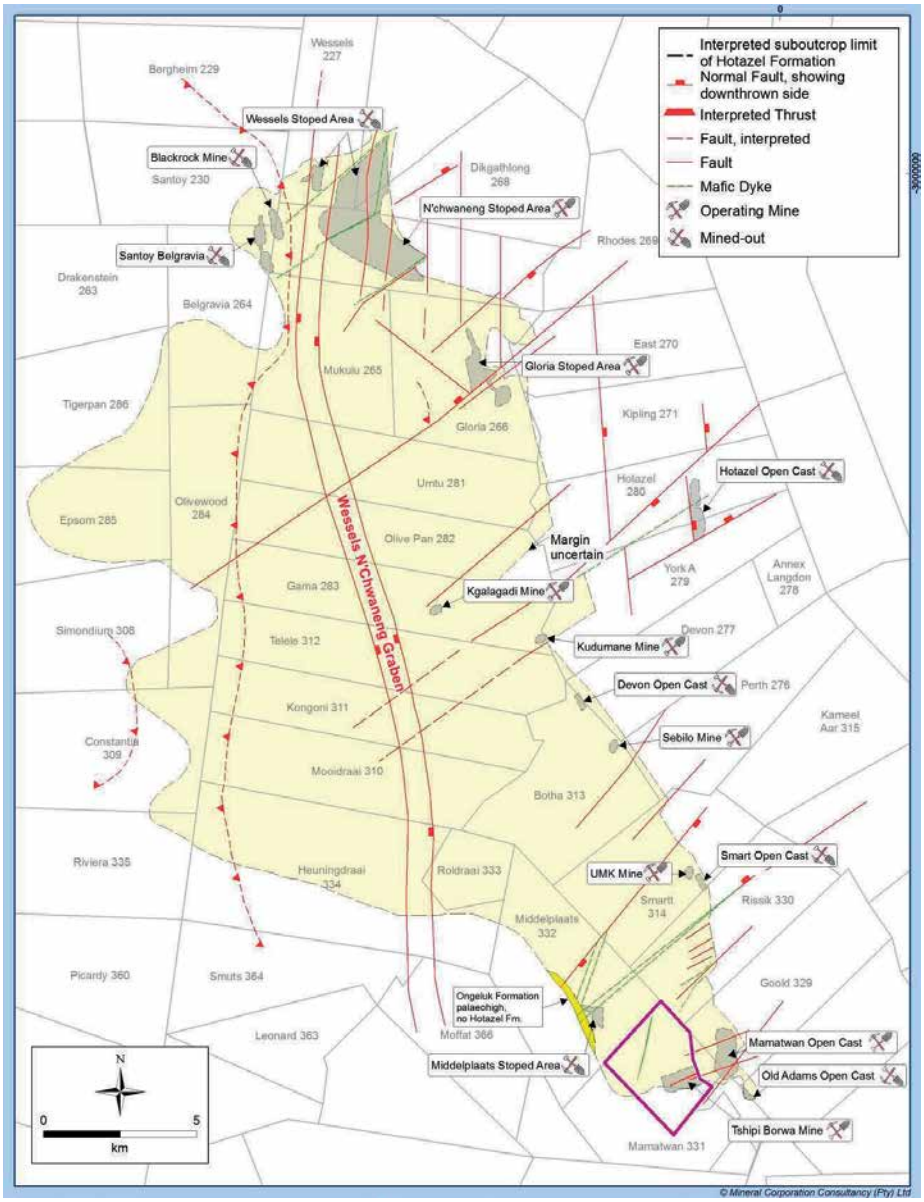

Figure 2: District locality and adjacent operations (after Beukes et al, 2016)

1.8 History

Ntsimbintle Mining (Pty) Limited (Ntsimbintle), a B-BBEE company, was formed in 2003 to pursue exploration and mining opportunities emerging in the South African manganese sector, expected as a consequence of the promulgation of the Mineral and Petroleum Resources Development Act No. 28 of 2002 (MRPDA). During 2003, Ntsimbintle and Samancor jointly and unsuccessfully applied for prospecting rights on Samancor-owned properties in the KMF. Ntsimbintle's subsequent prospecting right applications, after the April 2004 promulgation of the MRPDA, over portions of the farms Mamatwan 331 and Wessels 227 were successful. Initial prospecting activities on the farm Mamatwan 331, funded by Ntsimbintle, commenced in 2006. These rights were held in Ntsimbintle's subsidiary company Tshipi é Ntle Manganese Mining (Pty) Limited (Tshipi).

Discussions with Pallinghurst Resources led to a consortium of Pallinghurst Co-Investors, acquiring a 49.9% interest in Tshipi in 2008, and the acceleration of concerted exploration and linked technical studies to establish the feasibility of an open pit mine and supporting infrastructure adjacent to Samancor's Mamatwan Mine. By 2009, Ntsimbintle vended certain portions of its prospecting right portfolio to Samancor in exchange for 9% participating interest in Samancor's Hotazel Manganese Mines (HMM). Ntsimbintle's 2010 award of a mining right concluded three years of successful exploration, scoping and feasibility studies as the basis for the establishment of the Tshipi Borwa Manganese Mine on the farm Mamatwan.

In 2010, South Korea's POSCO acquired a stake in Tshipi from the Pallinghurst Co-Investors and in 2011, Jupiter Mines Limited (Jupiter), then an ASX-listed company in which Pallinghurst Resources held an investment, acquired the Pallinghurst Co-Investors' 49.9% interest in Tshipi. In the same year, OM Holdings (OMH) invested into Ntsimbintle. The Tshipi mining right application was approved in 2010 with funding for project development secured. A 20-month construction and commissioning phase saw Tshipi Borwa Mine, rail and export its first manganese ore by December 2012. Tshipi has subsequently completed and commissioned a rapid load out station and has sold approximately 8.7Mt of manganese ore in its five years of operation.

A brief history is provided in Table 1.

Table 1: Ownership and project development history

Period	Activity	Notes
October 2006	Prospecting Right (PR) granted to Ntsimbintle.	Portions 1 and 2 of Mamatwan 331 and Sinterfontein 748.
November 2008	Mining Right (MR) application accepted by DMR.	
2008-2009	Drilling of NEX001 to NEX122. Exploration campaign run by Orex Exploration CC (Orex)	Oversight from The Mineral Corporation.
May 2008	Scoping Study and Mineral Resource model	Completed by The Mineral Corporation.
April 2009	Feasibility Study completed.	Mineral Resource completed by The Mineral Corporation Feasibility Study completed by Turgis Consulting
July 2009	Mineral Resource model update.	Conducted by The Mineral Corporation.
April 2010	MR granted.	Excludes an area in the east of the PR which is the subject of a JV between Ntsimbintle and Samancor.
November 2010	Mineral Resource declaration for the 'top cut' (Zones X, Y and Z).	Conducted by SRK.
June 2010 to March 2011	Drilling of cored boreholes NEX123 to NEX131 and MP01 to MP16.	Exploration campaign run by Orex.
December 2011	Mining of overburden commences.	
April 2012	Mineral Resource model update.	Conducted by SRK.
October 2012	Mining of ore commences.	
2013	Drilling and updated Mineral Resource	Update by SRK
2015	Drilling and Mineral Resource update	Update by RHC Mining Consultants
2016 / 2017	Updated Mineral Resource and Reserve estimate	Effective 31 December 2016. Signed off by The Mineral Corporation
2017 / 2018	Drilling and Mineral Resource and Ore Reserve update	This report. Effective 31 December 2017.

1.9 Current Ownership

Tshipi é Ntle Manganese Mining (Pty) Limited, and hence the Tshipi Borwa Mine, is 50.1% owned by Main Street 774 (Pty) Limited (Main Street) and 49.9% owned by Jupiter Kalahari S.A. (JKSA). Ntsimbintle, a B-BBEE mining company representing shareholders including Safika Resources, Nkonjane and Kgalagadi Trust, holds a 74% share in Main Street, while OMH holds the remaining 26% share. JKSA is a wholly owned subsidiary of Jupiter (Figure 3).

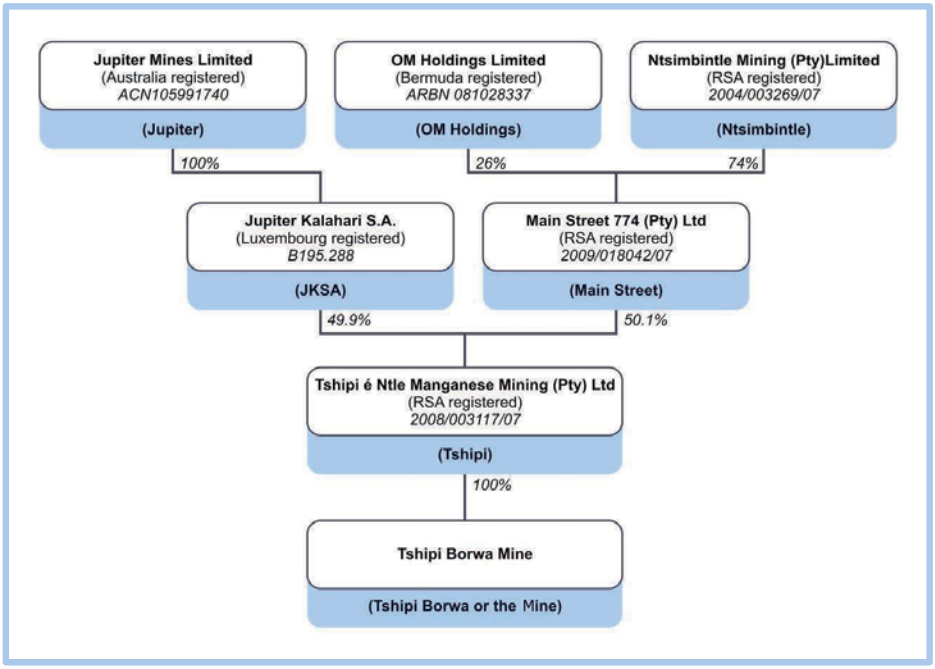

Figure 3: Ownership of Tshipi Borwa Mine

2 COUNTRY PROFILE

2.1 Political, Economic and Social Context

South Africa's peaceful transition from apartheid to democracy during the 1990s was one of the more remarkable, globally significant political transitions in modern history. The governing party, the African National Congress (ANC), has been driving the policy agenda since then and has enjoyed a significant, but steadily declining, political majority over the last two decades.

South Africa is considered a middle-income emerging market with abundant natural resources, a history of innovative natural resource exploitation, a well-developed financial services sector, including Africa's largest stock exchange, a sound and independent legal system, and well-established communications, energy and transport sectors. The country's forecast 2018 gross domestic product is approximately US$280 billion. However, economic growth has decelerated in recent years and unemployment, poverty and inequality remain a challenge. South Africa's prevailing economic policy has focused on controlling inflation; however, the country faces structural constraints that also limit economic growth, such as amplified political uncertainty, skills shortages, power supply costs and instability and declining global competitiveness.

Recent downgrades to certain of South Africa's global credit ratings are likely to result in a greater proportion of the national budget being redirected to debt repayment, exacerbated by the fiscus having to support a number of distressed state-owned enterprises. The government faces growing pressure to improve the delivery of basic services to low-income areas and to increase job growth in the face of burgeoning and, at times, populist opposition politics. The ANC's disappointing results in the 2016 Local Government Elections is symptomatic of growing perceptions of poor service delivery as a result of factionalism, corruption, cronyism, and "state capture" by private individuals. Sentiment as reflected in exchange rates and bond yields, has improved post the December 2017 ANC elective conference outcome, as expectations that a renewed ANC leadership will improve governance and tackle graft are growing.

2.2 Mining Related Legislation

2.2.1 *The Mineral and Petroleum Resources and Development Act*

The Mineral and Petroleum Resources and Development Act 28 of 2002 (MPRDA), came into effect on 1 May 2004 and transferred Mineral Resource ownership to the South African Nation, with the South African Government as custodian. The MPRDA sought to promote equitable access to the nation's Mineral Resources by South Africans, expand opportunities for historically disadvantaged persons who wish to participate in the South African mining industry and advance social and economic development.

With the Department of Mineral Resources (DMR) as custodian, the South African government exercises regulatory control over the exploitation of Mineral Resources having the power to grant, subject to terms and conditions, rights to prospect and mine for minerals. At promulgation, the MPRDA required mining companies to apply for the right to mine and/or prospect and to apply for the conversion of "old order" prospecting rights and mining rights to "new order" prospecting rights and mining rights. In order to qualify for these rights, applicants were required to demonstrate that the granting of such a right would advance the requirements of the Mining Charter published pursuant to the MPRDA. The MPRDA also required that mining companies submit social and labour plans (SLPs) which set out their commitments relating to human resource development, labour planning and socio-economic development planning to the DMR.

In terms of Section 47 of the MPRDA, the Minister of Mineral Resources may suspend or cancel the existing mining rights or, under Section 23(3) of the MPRDA, refuse to grant applications for new mining rights by mining companies, should such holders of mining rights be deemed not to be in compliance with the requirements of the MPRDA as read with South Africa's mining industry empowerment requirements. If the Minister was to determine that a mining company was not in compliance with the requirements of the MPRDA and its empowerment requirements, that company may be required to engage in remedial steps to the satisfaction of the Minister.

An amendment bill to the MPRDA, namely the Mineral and Petroleum Resources and Development Bill (MPRDB), was passed by both the National Assembly and the National Council of Provinces (NCOP) in March 2014. In January 2015, the President of South Africa referred the MPRDB back to parliament for reconsideration and, in November 2016, the Portfolio Committee on Mineral Resources tabled non-substantial revisions to the MPRDB in the National Assembly and a revised version of the MPRDB was passed by the National Assembly and referred to the NCOP. There is uncertainty regarding the changes that will be brought about should the MPRDB be made law.

Notably, the MPRDB seeks to require the consent of the Minister of Mineral Resources for the transfer of any interest in an unlisted company or any controlling interest in a listed company where such companies hold a prospecting right or mining right. The MPRDB will also give the Minister of Mineral Resources broad discretionary powers to prescribe the levels required for mineral beneficiation.

2.2.1.1 The Mawetse Judgement

In the Mawetse SA Mining Corporation (Pty) Ltd versus Minister of Mineral Resources and Others (3081/12) [2014], the Supreme Court of Appeal (SCA) recently ruled on the calculation of the period for which a prospecting right endures. The SCA held that the duration of a right should be calculated from the date on which the applicant was informed that the right has been granted (upon receipt of the grant letter) and not from the date of the notarial execution of the prospecting right or the date on which the environmental management plan was approved (if that date differed to the date of grant).

For the purposes of this CPR, the stated execution dates and expiry dates are as quoted on the prospecting and mining rights.

2.2.2 *The Mining Charter*

In order to provide guidance on the fulfilment of the broad-based socio-economic empowerment requirements to the mining industry, the DMR published the Mining Charter, which became effective on 1 May 2004 (Charter I). Charter I required 15% Historically Disadvantaged South African (HDSA) ownership by 2009 and 26% HDSA ownership by 2014. In 2010, the DMR introduced the Amended Mining Charter (Charter II) containing guidelines envisaging, among other things, that mining companies should achieve a minimum of 40% HDSA representation by 2014 at board level, senior management executive committee level, core and critical skills, middle management level and junior management level.

In 2014, the DMR initiated a process of assessing mining companies' compliance with the B-BBEE guidelines of Charter I and Charter II. This review process raised a number of concerns among mining companies due to its inflexible approach towards the assessment of compliance with Charter II. In March 2015, the DMR released an interim report of the consolidated results of the assessment, which showed relatively general compliance with the new ownership requirements of Charter II. However, the DMR did not report the results of compliance with the HDSA ownership guidelines and noted that there was no consensus on certain applicable principles. At that time, the Chamber of Mines reported that the DMR believed that empowerment transactions by mining companies concluded after 2004, where the HDSA ownership level has fallen due to HDSA disposal of assets or for other reasons, should not be included in the calculation of HDSA ownership for the purposes of the 26% HDSA ownership guidelines under the Mining Charter.

Subsequently, the DMR and the Chamber of Mines agreed to approach the South African courts jointly to seek a declaratory order that will provide a ruling on the relevant legislation and the status of Charter II, including clarity on the status of continuing consequences of previous empowerment transactions. The Chamber of Mines and the DMR filed the Main Application papers in court and the matter was to be heard in March 2016. In February 2016, an application was filed by a third party, Malan Scholes Inc., to consolidate the Main Application with its own application for a declaratory order on the empowerment aspects of the Mining Charter. In April 2016, the DMR published a new draft mining charter, which proposed, amongst other things, that mining entities must maintain HDSA equity ownership at a minimum of 26% regardless of prior transactions. Where empowerment transactions have been concluded and empowerment partners have sold their shares and exited the structure, new empowerment transactions will need to be concluded for mining right holders to be compliant. In May 2016, the court refused to consolidate the two applications. The original Main Application was not entered on the court roll, pending an attempt for an out-of-court settlement and the court reserved judgment in the Scholes Application in February 2017.

These events have now been overtaken. The Minister of Mineral Resources gazetted a revised Mining Charter (Charter III) on 15 June 2017. Amongst many provisions, Charter III prescribes a one-year transition period during which mining companies holding mining rights will be required to achieve 30% ownership by Black Persons (defined as Africans, Coloureds and Indians who are South African citizens by birth, descent or naturalisation), while applicants for prospecting rights will require 50%+1 share ownership by Black Persons. Charter III prescribes a 1% of turnover preference payment to the 30% Black Person shareholders and sets new prescribed employment equity demographics, local beneficiation rules and preferential procurement requirements, including a 1% fee on foreign supplier turnover. Charter III also requires that a Black shareholder must achieve a no-debt position within 10 years and, if selling shares, must do so to another Black company.

Charter III has been negatively received by the mining industry and investors and was the subject of a July 2017 urgent interim interdict application by the Chamber of Mines to prevent its implementation, prior to seeking an order to review and set aside Charter III. Furthermore, the Chamber of Mines has asked the High Court in Gauteng to re-enrol the Chamber's paused application with respect to Charter II.

On 19 July 2017, the Minister of Mineral Resources gazetted a notice in which he invited submissions by 4 August 2017 in respect of his stated intention to indefinitely suspend the processing of new Section 11, mining and prospecting rights applications or their renewal. On 25 July 2017, the Chamber of Mines issued and served notice of an urgent application with the Pretoria High Court to review and set aside the notice and to interdict the Minister from taking any decision or any directive contemplated in the Minister's notice.

The declaratory matter was heard by the Pretoria High Court on the 9th and 10th of November 2017, and judgment has been reserved. The Charter III hearing scheduled for December 2017 was postponed and will be heard in February 2018.

For the purpose of this CPR, where necessary, The Mineral Corporation has made reference to, and has assessed compliance against the requirements of Charter II.

2.2.3 *The B-BBEE Act and the B-BBEE Amendment Act*

The B-BBEE Act established a national policy on B-BBEE with the objective of increasing the participation of HDSAs in the economy. The B-BBEE Act provides for various measures to promote black economic empowerment, including empowering the Minister of Trade and Industry to issue the B-BBEE Codes with which organs of State and public entities and parties interacting with them or obtaining rights and licences from them would be required to comply. On 24 October 2014, the B-BBEE Amendment Act No 46 of 2013 was brought into operation. Prior to the gazetting of Charter III, there has been some debate as to whether or to what extent the mining industry was subject to the B-BBEE Act and its policies and codes; however, Charter III purports to be harmonised with the provisions of the B-BBEE Act and its policies and codes.

In this respect, the B-BBEE Amendment Act and the Revised BEE Codes expressly stipulate that, where an economic sector in South Africa has a sector code in place for BEE purposes, companies in that sector must comply with the sector code. For purposes of the B-BBEE Act, the Mining Charter is not a sector code. On 17 February 2016, the Minister of Trade and Industry published a gazette notice which repealed or confirmed the validity of a number of sector codes. The omission of the prevailing Charter II from that notice can be interpreted as confirmation that the B-BBEE Act did not intend to undermine Charter II. Given Charter III's gazetting and the pending legal action it has prompted, it remains to be seen how this will be interpreted.

2.2.4 *The Mineral and Petroleum Resources Royalty Act*

The Mineral and Petroleum Resources Royalty Act, No 28 of 2008, or the Royalty Act, imposes a royalty on refined and unrefined minerals payable to the South African government. There are two different royalty calculations that may be used which are determined as a percentage of gross sales of Mineral Resources. One calculation is applicable to refined Mineral Resources and the other applicable to unrefined Mineral Resources such as manganese. The two calculations are:

- Refined Mineral Resources:

$$0.5 + \frac{EBIT}{Gross\ sales\ x\ 12.5}\ x\ 100$$

(for refined Mineral Resources: the minimum of 0.5% to a maximum of 5%).

- Unrefined Mineral Resources:

$$0.5 + \frac{EBIT}{Gross\ sales\ x9}\ x\ 100$$

(for unrefined Mineral Resources: the minimum of 0.5% to a maximum of 7%.)

The Royalty Act also includes provisions that may exempt certain extractors or provide relief under certain circumstances.

The Minister of Finance has appointed the Davis Tax Review Committee to look into and review the current mining tax regime. The Committee's First Interim Report on Mining, which was released for public comment in August 2015, proposed no changes to the royalty regime but recommended the discontinuation of the upfront capital expenditure write-off provisions in favour of an accelerated capital expenditure depreciation regime. In its final report released in November 2017, The Committee recommended that the proposed accelerated capital expenditure depreciation regime for new capital expenditure should consider a 40%-20%-20%-20% write off basis, with capital expenditure being written off from the date incurred. The degree and pace at which these recommendations may be translated into policy remains to be seen.

2.3 Environmental Legislation governing the Mining Industry in South Africa

Environmental acts and legislation governing the mining sector in South Africa include:

- The Constitution of South Africa, Act 108 of 1996
- Mineral and Petroleum Resources Development, Act 28 of 2002 (MPRDA)
- National Environmental Management Act 107 of 1998 (NEMA) and EIA Regulations
- National Water Act 36 of 1998 (NWA)
- National Environmental Management: Waste Act 59 of 2008 (NEMWA)
- National Environmental Management: Biodiversity Act 10 of 2004 (NEMBA)
- National Environmental Management: Air Quality Act 39 of 2004 (NEMAQA)
- National Heritage Resources Act 25 of 1999 (NHRA)
- National Environmental Management: Protected Areas Act 57 of 2003 (NEMPAA)
- National Forests Act 30 of 1998 (NFA)
- Provincial Conservation Ordinances and Acts

Over the past decade, there has been significant reform and numerous changes in the environmental legislation as it applies to the mining sector, and more changes are in the pipeline. Some of the recent changes are currently being managed under transitional arrangements and, for some, further legislative reform is required for the changes and transitional arrangements to come into effect. Some changes, particularly those around financial provisions for rehabilitation and closure, have given rise to uncertainties in interpretation and application, well publicised concerns and consequences that are currently being debated between government, role-players in the mining sector and environmental groups, and draft new regulations financial provisions were issued for comment in November 2017. These changes and uncertainties have made environmental compliance management complex and challenging and marred with delays and lengthy decision-making timeframes. In recent years, there has been increased government focus on compliance and enforcement and an increase in the number of inspections and government audits.

The key elements of the acts and associated regulations, standards and guidelines, recent changes, transitional arrangements and aspects that are currently under review are presented below. The various legal approvals (permits, licences and authorisations) required in terms of these acts are discussed in separate sections of the report.

2.3.1 *The Constitution of South Africa and the Environmental Legal Framework*

The National Environmental Management Act (NEMA) and the National Water Act (NWA) form the environmental legal framework in South Africa that gives effect to the environmental rights entrenched in the Constitution of South Africa. Both the NEMA and the NWA impose a statutory duty of care to prevent pollution or degradation of the environment from occurring, continuing or recurring, or where such harm cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment. This duty of care applies to past pollution that occurred before the NEMA commenced, to pollution that might arise at a different time from the actual activity that caused the contamination and to pollution that may arise following an action that changes pre-existing contamination. The Acts provide for the prosecution of offenders, issuing of fines equivalent to the monetary advantage gained by committing the offence, and for convicted offenders to be imprisoned and compensate the State or third parties for costs incurred and loss or damage suffered as a consequence of the offence and associated legal proceedings.

2.3.2 *National Environmental Management Act 107 of 1998 (NEMA), EIA Regulations and Mineral and Petroleum Resources Development 28 of 2002 (MPRDA)*

2.3.2.1 Environmental Authorisations and Environmental Management Plans and Programmes

The MPRDA prohibits prospecting and mining without an approved Environmental Management Plan or Programme (EMP) and consultation with the owner or lawful occupier of the land in question. Historically, EMPs for prospecting, mining and related activities had to be approved by the DMR in terms of Section 39 of the MPRDA but, as of 8 December 2014, the statutory requirements regarding environmental management on mines changed from the MPRDA to the NEMA with the commencement of the One Environmental System in South Africa. Prospecting, mining and related activities now require environmental assessment, consultation with interested and affected parties, and an environmental authorisation (EA) from the DMR in terms of the 2014 EIA Regulations as amended on 07 April 2017 (Government Notice (GN) 326) for all activities listed in the 2014 EIA Regulations Listing Notices as amended on 7 April 2017 (GN 327, GN 325 and GN 324). Transitional arrangements applicable to this change are dealt with in terms of the National Environmental Management Amendment Act of 2008 and the National Environmental Management Laws Amendment Bill of 2015 and are thus yet to be finalised but if once the Amendment Bill is promulgated, EMPs approved in terms of the MPRDA will be deemed to be an environmental authorisation in terms of the NEMA. Unlawful commencement of an activity without the necessary environmental authorisation requires rectification in terms of Section 24G of the NEMA and payment of an administrative fine.

2.3.2.2 Compliance and Auditing

In terms of the EIA Regulations, auditing of compliance with the conditions of an EA and an approved EMP must be undertaken at least every five years or as specified in the conditions of the environmental authorisation. However, the Regulations in terms of the MPRDA (GN Regulation 527, 23 April 2004), which has not been repealed and is thus still applicable, requires that the holder of a mining right must submit EMP performance assessments (compliance audits) to the DMR every two years, or per alternative timeframes agreed to by the DMR. As such, EMP compliance audits for mines are still required at least every two years or annually if agreed with the DMR. Authorities can issue a directive to ensure that an offender takes reasonable measures to address actual or potential pollution or degradation. Failure to comply with a directive is an offence and could lead to the permit, licence or authorisation, including the mining or prospecting right which is the subject of the compliance directive, being suspended or revoked.

2.3.2.3 Closure and Rehabilitation Liability Calculations and Financial Provisions

Historically, closure and rehabilitation liability calculations and financial provisions had to be determined and provided for in accordance with Regulations 53 and 54 under the MPRDA and the guideline document for the evaluation of the quantum of closure-related financial provisions issued by the Department of Minerals and Energy (as it then was) in 2004. Regulation 54 required mines to provide for premature closure (current liabilities), decommissioning and final closure (at the end of the planned life) of the operation; and post closure management of residual and latent environmental impacts.

Financial provisioning regulations (GN Regulation 1147, 20 November 2015) were published in 2015 to replace Regulations 53 and 54 under the MPRDA. However, draft new regulations (GN 1228, 10 November 2017) were published for comment in November 2017. If the regulations are issued to substantially reflect the November 2017 draft, mines will have to comply with the following requirements, from February 2019:

- Put in place the following: an annual rehabilitation plan that also indicates rehabilitation backlogs; a final (meaning the end of the planned life of the operation) rehabilitation, decommissioning and mine closure plan; and an environmental risk assessment dealing with known residual environmental impacts and potential residual environmental impacts that may become known in the future (pumping and treatment of polluted or extraneous water is specifically mentioned, but reference to latent impacts have been removed).
- Develop an operational budget for implementing the annual rehabilitation plan. The budget must be updated and submitted to the DMR annually.
- Put in place financial provisions that, at any given time, equal the sum of the actual costs of implementing the final rehabilitation, decommissioning and mine closure plan; rehabilitation backlogs not covered in the operational budget for annual rehabilitation, and costs to implement the requirements of the environmental risk assessment report on known and potential residual impacts for period of at least 3 years going forward. Costs must be calculated based on actual third-party contractor rates. The adequacy of the financial provision and the proof of payment or arrangements to provide for any adjustments must be reviewed and assessed annually. Financial provisions may be in the form of guarantees, bank deposits or trusts, but trusts cannot be used for management of residual impacts.

In terms of new regulations under the NWA, a mine closure and rehabilitation plan with detailed costing needs to be submitted to Department of Water Affairs and Sanitation (DWS) as part of the Water Use Licence (WUL) application process.

2.3.2.4 Care and Maintenance of Mines

Environmental management during care and maintenance of mines is governed by the 2015 Financial Provisioning Regulations under the NEMA but following mining sector objections, all references to care and maintenance have been removed from the draft new regulations published in November 2017. The care and maintenance requirements of the regulations were therefore excluded from the legal compliance assessment.

2.3.2.5 Decommissioning and Mine Closure

The EIA Regulations and Listing Notices require an environmental assessment and environmental authorisation for decommissioning, including closure, of activities associated with mining operations as well as the development and approval of a closure plan in a prescribed format. Where throughput of the activity has reduced by 90% or more over a period of five years, this is deemed to constitute mine closure unless the DMR has agreed otherwise. A holder of a right or permit must ensure that a final rehabilitation, decommissioning and mine closure plan, including financial provision for final rehabilitation, decommissioning and closure as well as an environmental risk report, including financial provision for latent or residual environmental impacts which may become known in the future, including the pumping and treatment of polluted or extraneous water, as approved by the DMR, is in place before submitting an application for a closure certificate in terms of Section 43 of the MPRDA. The requirement to maintain and retain the financial provision for environmental liabilities remains in force notwithstanding the issuing of a closure certificate. Once a closure certificate has been issued, a portion of the financial provision set aside for rehabilitation may be retained by the DMR in order to address latent, residual or any other environmental impacts, including the pumping of polluted or extraneous water, for a prescribed period.

2.3.2.6 Mine Residue Stockpiles and Mine Residue Deposits

Refer discussion under the National Environmental Management: Waste Act. (Section 2.3.4)

2.3.3 *National Water Act 36 of 1998 (NWA)*

2.3.3.1 Authorisation of Water Uses

Section 21 of the NWA broadly defines 'water uses' to include: taking or abstraction of water; storing of water; activities which would impede, reduce or divert stream flow; controlled activities that could impact detrimentally on a water resource; disposing of waste or water containing waste, that may detrimentally impact on a water resource; and removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people (i.e. at mining excavations and workings). These water uses must be licenced unless: the water use is listed as exempt, was established before the promulgation of the NWA and regarded as an existing lawful use, is permissible under a general authorisation or if the DWS waived the need for a WUL.

The processing of WUL applications is notoriously slow and marred with uncertainties in terms of procedural and technical information and content requirements. Older licences are also often incomplete due to uncertainties with regards the interpretation and definition of a 'water use' over the years. However, new regulations regarding the procedural requirements for WUL applications and appeals were promulgated in 2017 (GN Regulation 267, 24 March 2017). Under the new regulations, the processing of WUL applications by DWS will be undertaken within a period of 300 calendar days from the time of submission of the application. The regulations also aim to provide clarity on procedural requirements and the technical information and content of an application for mining operations, a mine closure and rehabilitation plan, including a detailed costing, which needs to form part of the application.

2.3.3.2 Compliance and Auditing

Holders of a WUL must comply with the conditions of the licence and non-compliance may lead to the licence being suspended or revoked. Timeframes for auditing are typically specified as a licence condition and, in most cases, annual internal and external audits are required for mining operations with a WUL. The water quality standards that must be complied with are typically specified in the licence conditions.

2.3.3.3 *Use of Water for Mining and Related Activities*

Regulations on the use of Water for Mining and Related Activities aimed at the Protection of Water Resources (GNR Regulation 704, 4 June 1999) prohibits the placement or disposal of any residue or substance which causes or is likely to cause pollution of a water resource in mine workings, pit or other excavation; requires the separation of clean and dirty water and design of water management systems in accordance with 1 in 50 year flood risks; and provides for measures to ensure the stability of dams, stockpiles and mine residue deposits (tailings, slimes or discard); measures to prevent pollution of a water resources; measures to prevent the erosion or leaching of materials from any residue deposit or stockpiles; measures for recycling of water; and measures for preventing the spillage, seepage or release of water containing waste, except where an application of exemption was granted by the DWS.

2.3.4 ***National Environmental Management: Waste Act 59 of 2008 (NEMWA)***

2.3.4.1 *Licensing of Waste Management Activities*

Waste management activities listed in terms of the NEMWA (GN Regulation 921, 29 November 2013) include: storage of waste; the reuse, recycling and recovery of waste; treatment of waste; and disposal of waste, at specified thresholds. Listed waste management activities that may not commence, be undertaken or conducted without the issuing of a waste management licence, as well as waste management activities that may only commence, be undertaken or conducted in accordance with norms and standards published in terms of the NEMWA.

2.3.4.2 *Waste Classification and Registration and Norms and Standards for Disposal of Waste to Landfill*

Waste classification and management regulations as well as national norms and standards for the assessment and disposal of waste to landfill that were published in August 2013.

Chapter 6 of NEMWA provides for the registration of hazardous waste generators producing over the stipulated threshold volumes.

2.3.4.3 *Residue Stockpiles and Residue Deposits*

Historically, mine residues were managed in accordance with the MPRDA and the NEMA. This situation changed in 2014 with the promulgation of the National Environmental Management: Waste Amendment Act of 2014 and its inclusion of mine residue as a Category a (hazardous) waste, and addition of mine residue stockpiles and residue deposits to the list of waste management activities requiring a waste management licence. Transitional arrangements applicable to this change stipulated that EMPs approved in terms of the MPRDA shall be deemed as an approval in terms of the NEMWA for residue stockpiles and residue deposits managed in the prescribed manner and on a site demarcated for that purpose in an approved EMP. Temporary or permanent deposition of residue stockpile or residue deposits on any site other than on a site defined in an approved EMP or approved waste management licence is prohibited.

Regulations regarding the planning and management of residue stockpiles and residue deposits (GN Regulation 632, 24 July 2015) were published in July 2015. These regulations stipulate requirements for: the assessment of the impacts and risks of residue deposits as part of the NEMA EIA process, site investigation and selection, the characterisation and classification of the mine residues, the pollution control barriers needed in terms of the norms and standards for assessment and disposal of waste to landfill, and management of impacts.

The current applicability of the NEMWA to mine residues created difficulties since the waste classification and management regulations and national norms and standards for assessment and disposal of waste to landfill now also applied to mine residues. The norms and standards set stringent requirements for the design of containment barriers. Mine residues now had to be classified in accordance with the waste management classification regulations and lined according to the strict requirements for containment barriers aimed primarily at landfill waste disposal. The DWS sought to extend the applicability of the norms and standards by making the approval of WMLs (where the technical designs are reviewed DWS) and the approval WULs under the NWA conditional upon installing lining systems as containment barriers for mine residue disposal sites in accordance to the norms and standards.

The approach was widely criticised as it does not consider the actual environmental risks and impacts posed by the mine residues, and the norms and standards were drafted for landfill disposal containing waste material that can, in nature, differ significantly from mine residues. The approach resulted in unwarranted and potentiality prohibitive costs to mining companies, without real benefit to the environment; this lead to a negative response by mining companies and litigation in a number of cases.

The Chamber of Mines proposed the application of a risk-based containment barrier design approach instead the blanket approach adopted by the norms and standards. In the latter half of 2017, the DWS agreed to provisionally apply a risk-based approach during the processing of mining WUL applications and approval of the technical designs for mine residue deposits. The decision by DWS has interim application since the DEA needs to amend the regulations relevant to mine residue deposits to ensure alignment of decisions taken by DWS and legislation issued by DEA.

The National Environmental Management Laws Amendment Bill published in 2017 proposes to revert back to the situation before 2014 when the NEMWA was not applicable to residue stockpiles and deposits. The Bill proposes to amend both the NEMA and the NEMWA and if it is enacted in its current form, mine residues will again be regulated or managed in terms of NEMA. It terms of transitional provisions, the Bill states that despite the repeal of the provisions relating to residue stockpiles and deposits in the NEMWA, the approvals or licences granted under the NEMWA remain in force. The Bill does not stipulate how mine residues will have to be managed in future. This remains a regulatory gap still to be to be addressed.

2.3.5 *National Environmental Management: Air Quality 39 of 2004 (NEMAQA)*

2.3.5.1 Air Emissions Licensing

In terms of Section 21 of the NEMAQA, an air emissions licence is required for listed processes that may result in atmospheric emissions which may have a significant detrimental effect on the environment, including health, social and economic conditions. Listed processes include: certain combustion installations; metallurgical processes; mineral processing, storage and handling; thermal treatment of waste; and chemical processes that meet the thresholds specified (GN 893, 22 November 2013). With the exception of certain processing plants, these typically do not apply to mining operations.

2.3.5.2 Dust Emissions

The National Dust Control Regulations (GN Regulation 827, 1 November 2013) outline standards for dustfall in residential and non-residential areas, and the requirements of monitoring and reporting to the air quality officer. Mining operations have the responsibility to comply with the standards.

2.3.5.3 Ambient Air Quality

The Ambient Air Quality Standards (GN 1210, 24 December 2009 and GN 486, 29 June 2012) provide standards for sulphur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), benzene (C_6H_6), lead (Pb), carbon monoxide (CO) and particulate matter of aerodynamic diameter less than 10µm and those less than 2.5µm. Mining operations have the responsibility to comply with the standards.

2.3.6 *National Heritage Resources Act 25 of 1999 (NHRA)*

The NHRA requires that a heritage assessment be undertaken for developments listed in the Act and prohibits; the alteration, disturbance, damage or demolishment of buildings and structures older than 60 years; archaeological and palaeontological artefacts; cultural significant graves and burial sites; and public monuments, except for where a permit was issued by the relevant provincial heritage resources authority.

2.3.7 *National Environmental Management: Protected Areas Act 57 of 2003 (NEMPAA)*

The NEMPAA regulates the system of protected areas in South Africa and their management. It distinguishes between the following types of protected areas: national parks; nature reserves; special nature reserves; and 'protected environments'. Mining is prohibited in national parks, nature reserves and special nature reserves, but mining in 'protected environments' may be allowed with the necessary permission from the Minister of Environmental Affairs as well as the Minister of Mineral Resources. The approval of mining developments near national parks and nature reserves, and within protected environments (as well as areas recognised as unique or sensitive with potential to be declared as a protected environment) often receive extensive negative media and public attention and these developments often attract strict, and costly, conditions and mitigation requirements as part of their approval and authorisation processes.

2.3.8 *National Environmental Management: Biodiversity Act (NEMBA)*

2.3.8.1 Control of Alien and Invasive Species

Holders of a mining right need to comply with the Alien and Invasive Species Regulations for listed species (GN 864, 29 July 2016), which deals with different categories of alien and invasive plant and animal species that are either prohibited, must be combatted or eradicated, controlled, that require a permit, or are subject to certain exemptions and prohibitions.

2.3.8.2 Threatened or Protected Ecosystems

The NEMBA provides for listing of threatened or protected ecosystems, in one of four categories: critically endangered; endangered; vulnerable; or protected. The purpose of listing threatened ecosystems is primarily to reduce the rate of ecosystem and species extinction and to prevent further degradation and loss of the structure, function and composition of these ecosystems. In terms of the list, the significance of impacts on biodiversity, (when there is a loss of natural habitats listed as either a critically endangered or an endangered ecosystem) would be regarded as highly significant and, in terms of the draft National Biodiversity Offset Policy published in 2017 (GN 276, 31 March 2017), adverse residual impacts on critical or irreplaceable ecosystems would be regarded as a fatal flaw to a development.

2.3.8.3 Residual Impacts and the Establishment of Biodiversity and other Environmental Offsets

Residual loss of biodiversity, ecosystem services and threatened ecosystems, such as wetlands, is widely recognised as significant with potential negative effects on water supply, flooding, food security and economic development. Once in place, the National Biodiversity Offset Policy (GN 276, 31 March 2017) will need to be taken into consideration for developments that will have residual biodiversity impacts, as is often the case with mining operations. However, the management of residual risks and impacts is already legally entrenched in the NEMA, the EIA regulations and the 2015 Financial Provisioning Regulations. It also forms an integral part of the mitigation sequence to be followed during an EIA process – the mitigation sequence involves steps to: first avoid or prevent impacts, then minimise or mitigate what cannot be avoided, then rehabilitating where possible and, as a last resort, offsetting the residual impact as a form of compensation. Mines also need to take cognisance of the 2013 Mining and Biodiversity Guidelines that deal extensively with offsets. There are a number of case studies in South Africa where biodiversity offsets became a condition of the environmental authorisation and where offset agreements have been signed between mining companies and government and where the implementation of an offset management plan was included as a condition of the WUL. The use of biodiversity and other environmental offsets to manage residual risks is expected to increase with the roll-out of the Financial Provisions Regulations in 2019 in order to address residual impacts on biodiversity and other ecosystem services.

2.3.9 *National Forest Act 84 of 1998 (NFA)*

The NFA prohibits the cutting, disturbance, damage or destruction of trees in natural forests and trees included in the lists of protected tree species published in terms of the NFA, except where a licence was issued by the Department of Forestry and Fisheries (DAFF).

2.3.10 *Provincial Conservation Ordinances and Acts*

The removal of protected plants and the cutting or destruction of indigenous plants on private land, in nature reserves and near public roads is governed in terms of provincial ordinances and acts. A permit is required for removal of declared protected plants and permission from the landowner is needed for destruction of indigenous vegetation in terms of the Cape Nature and Environmental Conservation Act 9 of 2009 (NCNCA).

2.4 Concluding Remarks

While mining companies in South Africa are exposed to global industry risks associated with rising costs, commodity price and currency fluctuations, demand forecasting, skill shortages, resource nationalisation, care for the environment and the social licence to operate, additional country risk is raised through legislative uncertainty, political interference and bureaucratic ineptitude. Notwithstanding this, South Africa's institutions continue to provide an environment in which mining companies can operate sustainably, and an environment which has the potential to improve.

Tshipi's current HDSA shareholding is well above the Charter II requirements. While the South African operating environment, particularly with respect to mining and environmental legislation is dynamic, Tshipi has demonstrated, through its project development and operating track record, to be able to manage these complexities.

3 LEGAL ASPECTS AND PERMITTING

3.1 Mining Right

Ntsimbintle Mining Pty Limited (Ntsimbintle) applied for and was granted a mining right for manganese ore in terms of Section 23 of the MPRDA, under the DMR reference NC 30/5/1/1/2/206 MR. This right was executed 07 April 2010 and unless suspended or cancelled shall continue to be in force for a period of 30 years expiring on 06 April 2040.

According to Section 24 of the MPRDA, the holder of a mining right may apply to the Minister to renew the right for further periods (each of which may not exceed 30 years at a time). Section 24 (3) of the MPRDA states that the Minister must grant the renewal of a mining right if the applicant has applied in the prescribed manner of the Act, and has complied with:

- The terms and conditions of the mining right and is not in contravention of any relevant provisions of the Act or any other law;
- The mining work programme;
- Requirements of the prescribed social and labour plan; and
- Requirements of the approved environmental management programme.

Based on the foregoing, there is a reasonable expectation that the mining right will be renewed and thus the fact that the current LoM Plan and Ore Reserve estimate extends to 2047, is not considered a material issue.

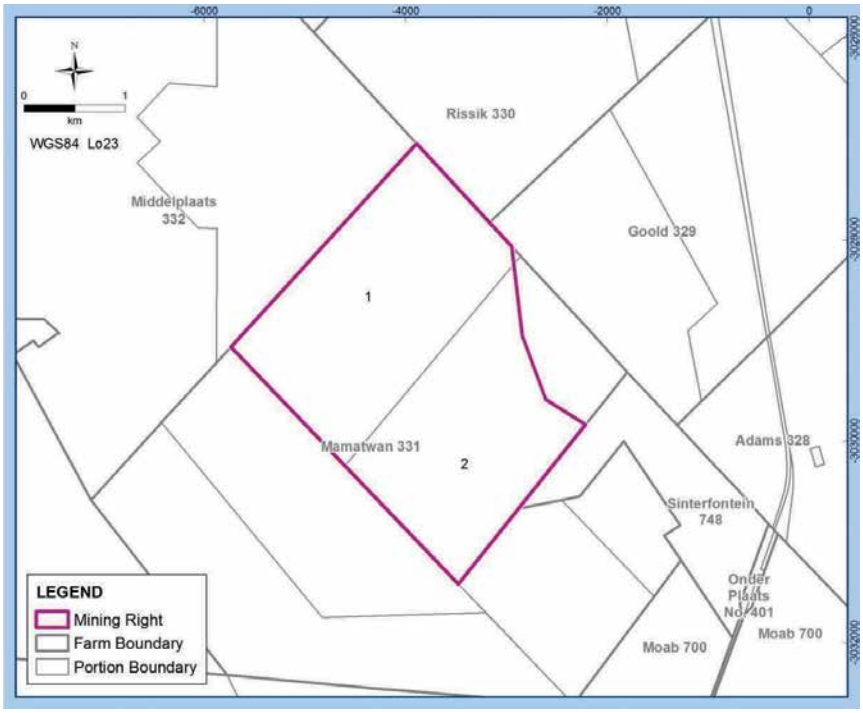

Figure 4: Mining Right for Tshipi Borwa Mine

As described in the mining right, the mining area comprises a portion of portion 1 and a portion of portion 2 of the farm Mamatwan No 331 measuring 767.3155 ha in the Kuruman District of the Northern Cape. It should be noted however that a portion of portion 1 is now known as portion 16 (as per SG 1222/2009) and a portion of portion 2 is now known as Portion 17 (as per SG 1223/2009).

A transfer of ownership in terms of Section 11 of the MPRDA was applied for ceding the mining right from Ntsimbintle to Tshipi é Ntle Manganese Mining (Pty) Ltd (Tshipi). The Section 11 was granted on the 26 July 2010 and the notarial cession of the mining right was registered at the MPTRO on the 17th March 2011 (MPT 8/2011). In The Mineral Corporations review, two Section 93 notices have been identified with regards to the Mine's SLP. These are described further in Section 17.1.

A summary of compliance with the regulatory reporting requirements has been provided in Table 2.

Table 2: Regulatory compliance overview

Report Due	2012	2013	2014	2015	2016	2017
SLP report and implementation plan	Not Available	Not Available	Submitted	Only a letter submitted; no report	Submitted	Submitted
Mining Charter Compliance reports	Submitted	Submitted	Submitted	Submitted	Submitted	Submitted
EMP performance assessment reports	Submitted	Not required	Submitted	Not required	Submitted	Not required

The Environmental Management Plan (EMP) was approved in October 2009 (Permit 63/2009), and the Social and Labour Plan was approved in conjunction with the execution of the right on 07 April 2010. Further details are provided in Section 16.1.

A WUL for Tshipi Borwa Mine was granted by the Department of Water and Sanitation on 19 April 2015 (License No: 10/D41k/AGJ/1735).

3.2 Surface ownership

Tshipi é Ntle Manganese Mining (Pty) Ltd (Tshipi) holds the surface rights to the area comprising the mining right as well as surface rights to the south and south west of the mining right as per Table 3 and Figure 5. Adjacent properties have also been included. All of the Mine infrastructure including the pit, waste dump, metallurgical plant, load-out facility and rail-loop are understood to be within these rights.

Table 3: Surface right ownership for mining right and adjacent properties

Farm Name	Portion Description	Surface right holder	Title Deed Number	Area (ha)
Properties within the mining right				
Mamatwan 331	Portion 16	Tshipi é Ntle Manganese Mining (Pty) Ltd	T416/2014	427.557518
	Portion 17	Tshipi é Ntle Manganese Mining (Pty) Ltd	T416/2014	339.758039
Properties adjacent to the mining right				
Mamatwan 331	Re Portion 1	Hotazel Manganese Mines (Pty) Ltd	T2426/2010	0.684389
	Portion 2	Hotazel Manganese Mines (Pty) Ltd	T2426/2010	88.196764
	Portion 8	Tshipi é Ntle Manganese Mining (Pty) Ltd	T770/2011	346.538118
	Portion 18	Tshipi é Ntle Manganese Mining (Pty) Ltd	T416/2014	210.232252
Sinterfontein 748	Farm	Hotazel Manganese Mines (Pty) Ltd	T2426/2010	196.106374
Middelplaats 332	Portion 4	Hotazel Manganese Mines (Pty) Ltd	T2426/2010	510.986744
Rissik 330	Portion 1	Hermanus Steyn	T3526/2008	762.806247
Goold 329	Portion 5	Hotazel Manganese Mines (Pty) Ltd	T2426/2010	325.306088

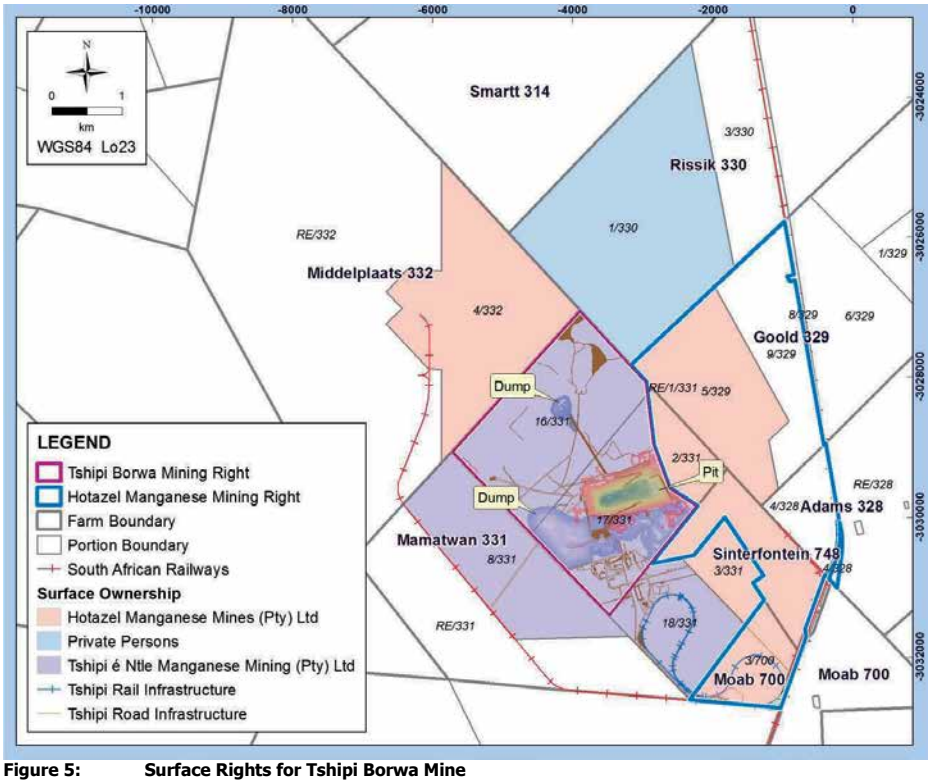

Figure 5: Surface Rights for Tshipi Borwa Mine

3.3 Legal proceedings

The Board of Tshipi advises that there are no material legal matters which would negatively impact the LoM Plan.

3.4 Statutory Royalties

Management advises that Tshipi is in good standing regarding the statutory royalty payments which are paid on a biannual basis.

3.5 Liabilities

The approved 2009 EMP allows for full rehabilitation of the waste dumps and backfilling of the final void, whereas the LoM Plan only makes provision for the partial backfilling of the final void. Further information on the assessment of these liabilities is included in Section 17.4. Tshipi intends making an application for an amendment to its EMP in due course, on the basis that there are reasonable prospects that operations will continue post the current LoM Plan, either by continuing with an open pit, or through an underground operation.

4 MATERIAL CONTRACTS AND AGREEMENTS

4.1 Tshipi shareholder's agreement

The Tshipi shareholder's agreement was entered into by Ntsimbintle, Main Street, Jupiter Kalahari (Mauritius) Limited (now JKSA), Jupiter and Tshipi, and specifies aspects of the sale of the Mine's product.

According to the Tshipi shareholder's agreement, Main Street or its nominee has the exclusive right to purchase 50.1% of the manganese ore produced. JKSA or its nominee has the exclusive right to purchase the remaining 49.9% of the manganese produced by the mine. Each of the shareholders may appoint a permitted nominee to on-sell their respective manganese ore to the final buyer.

In September 2013, the shareholders of Tshipi entered a Joint Venture Agreement (JVA) whereby a new entity, OM Tshipi (OMT), jointly owned by Jupiter, Ntsimbintle and OMH, was created to market manganese ore produced by Tshipi. In January 2016, Jupiter exited the JVA, and JKSA nominated Jupiter to purchase its 49.9% share of the product. This take or pay off-take agreement is described in Section 4.2.2 . Ntsimbintle and OMH retained their shareholding in OMT, in order to market the remaining 50.1% of production and this agreement is described in Section 4.2.1.

4.2 Take or pay off-take agreements

4.2.1 *OMT*

When Tshipi and OMT signed a take or pay off-take agreement in August 2013, Main Street and JKSA both nominated OMT as the buyer of 100% of the mine's product. While JKSA terminated the agreement with OMT in February 2016, it is still valid for Main Street's 50.1% share of the Mine's production.

In terms of the agreement, Tshipi agrees to supply and deliver 50.1% of the tonnage produced by the mine on a wet metric tonne (WMT) basis at the agreed quality specifications and OMT agrees to purchase and pay for this tonnage. The agreement is extended annually on the same term, unless terminated by either party. The agreement specifies the responsibilities of the parties with respect to the measurement of tonnage and quality and price determination. The product specifications are presented in Table 4.

Table 4: OMT product specifications

	Lumpy / Fines	
	Minimum	**Maximum**
Mn	35.00	n/a
Fe	4.50	7.50
SiO_2	5.30	13.00
P	0.02	0.05
H_2O	1.00	3.00
Lumpy size (mm)	6	75
Fines size (mm)	0	6

4.2.2 *Jupiter*

Tshipi signed a take or pay off-take agreement with Jupiter, as nominee in December 2016, with a commencement date of 5 February 2016, for the remaining 49.9% of the tonnage produced by the Mine. The agreement endures for a period of 24 months and is automatically extended on the same terms, unless terminated. The agreement specifies the responsibilities of the parties with respect to the measurement of tonnage and quality and price determination. The product specifications are presented in Table 5.

Table 5: Jupiter product specifications

	Low Grade Lumpy		High Grade Fines		High Grade Lumpy	
	Minimum	**Maximum**	**Minimum**	**Maximum**	**Minimum**	**Maximum**
Mn	32.00	35.00	35.00	38.00	36.00	38.00
Fe	4.00	6.00	4.00	7.00	4.00	7.00
SiO_2	2.00	7.00	2.00	7.00	2.00	7.00
P	0.00	0.03	0.00	0.03	0.00	0.03
S	0.00	0.04	0.00	0.04	0.00	0.04
CaO	12.00	19.00	12.00	17.00	12.00	17.00
Al_2O_3	0.10	1.00	0.10	1.00	0.10	1.00
MgO	3.00	5.00	3.00	5.00	3.00	5.00
Size (mm)	6	75	6	8	6	75

4.3 Other Material Agreements

Table 6: Material contracts and agreements

Name of Contract	Description	The Mineral Corporation Comments
Mining contract agreement	Tshipi signed a mining contract with Aveng Moolmans (Pty) Ltd (Aveng) in September 2015. Aveng was contracted to haul waste and ore, according to the mine's Annual Production Plan for a period of five years. The contract is renewable for a further six months thereafter. Upon termination of the contract, Tshipi shall be entitled to purchase the contractor's mining equipment. The agreement is on a dry rate basis (Diesel supplied by the mine) and the dry rates can be adjusted every six months. Should the variation in volume be in excess of 115% or 85% of the Annual Production Plan, then Aveng requires a meeting with Tshipi to agree on the resultant change in costs. An addendum to the contract was concluded in August 2017 to regulate the variation of rates and equipment in line with the Mine's 3mtpa production plan.	The Aveng contract is aligned with typical mining industry standards. Furthermore the five year duration also aligns with industry norms. Typically mining contracts are reviewed every five years where a comparative analysis is conducted to evaluate the contractor model versus the owner operator model.
Ore processing services agreement	African Mining and Crushing SA (Pty) Limited (AMC) was contracted to process ore, according the mine's Annual Production Plan from 2 October 2015, for a period of two years. The contract is renewable for a further 12 months thereafter. AMC provide secondary crushing and screening on a 24 hour, 7 day a week basis. An Addendum was concluded in August 2017 for the optimisation of ore processing and screening services which required additional equipment and resulted in changes to the rates applicable. Tshipi is responsible for the supply of water and diesel.	The provision of secondary crushing and screening services expires with final commissioning of the GP500s plant. A third addendum is in place governing the Phase 1 operation of the GP500 plant, until February 2018 or until commissioning occurs. The existing plant remains on site and available for low grade material crushing on a month by month basis. The contract and LOI for the design and construction of the GP500 plant have also been reviewed.
MECA II term sheet	The MECA II term sheet defines Tshipi's capacity allocation as negotiated with Transnet. It is effective from September 2015 for a period of three years and six months, until March 2019. Tshipi has an allocated tonnage of 1.8Mtpa, including a temporary allocation of 78,407tpa, when available. The term sheet notes that Transnet may recall 20% of the allocation, excluding the temporary allocation, from time to time at its own discretion. The term sheet defines the current tariff and the formula for annual escalations, as well as additional charges. The renewal of this agreement was signed in February 2018.	The renewed agreement allows for an increase in the rail allocation to 2.1Mtpa. Tshipi have assumed an annual tonnage of 1.9Mtpa, at a planned strike rate of 91%.
Rail transport services agreement	Tshipi signed a rail transport services agreement with Transnet SOC Limited (Transnet) through its operating division, Transnet Freight and Rail (TFR) in August 2013 which will endure until 31 March 2018. The agreement sets out the terms and conditions of transport of manganese product from the mine site to various South African ports using skiptainers, via TFR's selected route. Prices are set to increase annually on 1 April. Annual price escalations were set at 5.7% for the first year and then negotiated thereafter. Diesel, electricity, exchange rate and steel price fluctuations are accounted for by means of a levy.	This agreement has allowed Tshipi to supplement its MECA II rail allocation
Road haul transport agreements	Tshipi does not have any long term road haul transport agreements.	Agreements are negotiated on an ad hoc basis as and when required.
Dry bulk commodity storage agreement	Tshipi signed a dry bulk commodity storage agreement with Transnet SOC Limited through Transnet Port Terminals (Transnet Port) in November 2013. The agreement commenced on 1 December 2013 and will endure until 31 March 2018. The agreement sets out the terms and conditions of handling, storage, loading and conveyance of the dry bulk commodity by the terminal operator at Port Elizabeth harbour. The agreement sets out the responsibilities of each party. Tshipi is responsible for providing a minimum of 560,000t of dry bulk commodity per annum, effective from 1 April 2014, failing which penalties will be incurred.	The agreement is appropriate for Tshipi's requirements.
Water supply agreement	Tshipi has an agreement with the Sedibeng Water Board for the provision of bulk potable water which is effective until September 2020. Tshipi is authorised to purchase 27 900m^3 of water per month (pm), and must purchase a minimum of 22 320m^3pm. Both quantities are accumulated and measured annually for contractual compliance.	The fuel supply agreement is appropriate for Tshipi's requirements.

Name of Contract	Description	The Mineral Corporation Comments
Supply of petroleum products agreement	Tshipi signed a fuel supply agreement with Chevron South Africa (Pty) Ltd (Chevron) in May 2014 for a period of two years, with the option of renewing the agreement on the same terms and conditions for further periods of one year. The current extension is valid until February 2020. Tshipi receives a discounted price for diesel, provided it purchases 500kl per month. Chevron is required to provide tanks, pumps, flow meters and safety equipment. Tshipi is required to store and use diesel exclusively from Chevron.	The fuel supply agreement is appropriate for Tshipi's requirements.
Boundary Pillar extraction application	In October 2016, Hotazel Manganese Mines (Pty) Limited (HMM) and Tshipi submitted a joint application to the DMR in terms of the Mine Health and Safety Regulation to "work or cut through" the existing boundary pillars between the companies' contiguous mining areas. The companies wish to extract the existing 9m wide boundary pillars on either side of their shared mining right boundary. HMM and Tshipi have agreed to co-operate for the extraction of the pillars, until the extent of the pit voids are backfilled. Tshipi will take on the role of employer for the purposes of the Mine Health and Safety Act for the operations taking place in their mining right area.	This represents a block of approximately 200m in width at the mining horizon. It is in the interests of both parties not to sterilise this resource. Approval to proceed and implement the extraction plan was given by the DMR on 3 May 2017.

5 GEOLOGICAL SETTING AND MINERALISATION

5.1 Regional Geology

Over the last three decades, scientific research into the KMF, its regional geological setting and context for its economic geology has established a substantial body of literature (as summarised by Beukes *et al*, 2016), from which the following description has been compiled.

South Africa is located on the Archaean Kaapvaal Craton, which preserves several large Palaeoproterozoic sedimentary basins including the Griqualand West Basin which is host to the KMF.

The 2.2 billion year (Ga) Hotazel Formation of the Postmasberg Group of the Transvaal Supergroup is host to the manganese mineralisation in the KMF, and has been identified in five poorly exposed erosional relicts (the Main Kalahari, Avontuur, Leinster, Langdon and Hotazel deposits), west and northwest of Kuruman, and broadly aligned along the Dimoten syncline axis as depicted in Figure 6.

The Hotazel Formation comprises three sedimentary manganese layers interbedded with BIF, which unconformably overly the mafic volcanic rocks of the Ongeluk Formation and which are, in turn, overlain by dolomites of the Mooidraai Formation of the Transvaal Supergroup. An unconformity marks the boundary between the Mooidraai Formation and the overlying ±2Ga Mapedi/Gamagara Formations of the Elim Group and Kheis Supergroup.

Beukes *et al* (2016), describe the Main Kalahari deposit as having a doubly plunging synclinal form, which was peneplaned prior to deposition of the Mapedi/Gamagara Formations, then tilted to the northwest, prior to or during a regional eastward verging thrusting event along the western margin of the Main Kalahari deposit. This succession was subject to further erosion circa 300 million year (Ma) as evidenced by the local preservation of Dwyka Group diamictites of the Karoo Supergroup in generally north south trending broad "valleys". Continued uplift and erosion preceded the deposition of a regional-scale veneer of Kalahari Supergroup sediments.

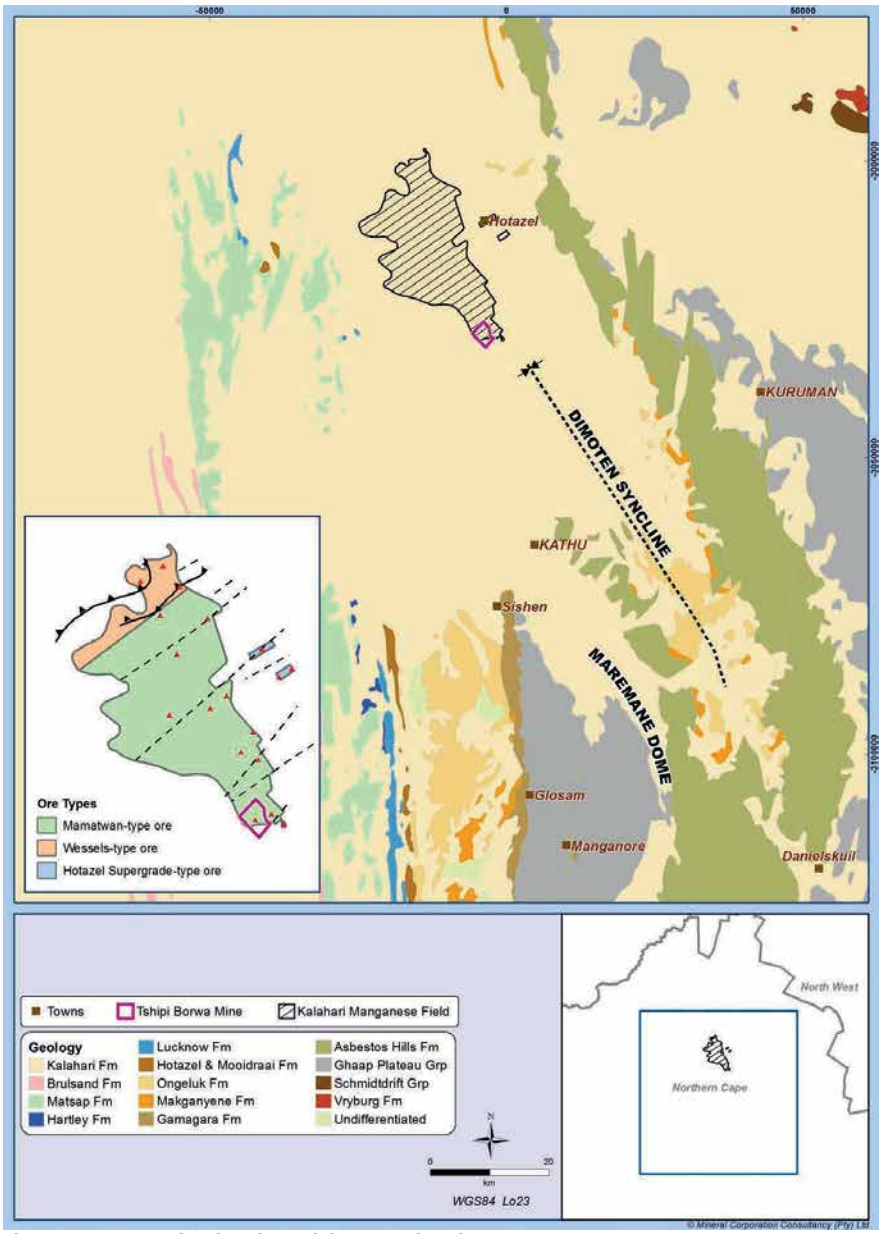

Figure 6: Regional geology of the Hotazel-Kathu-Kuruman area

5.2 Manganese Mineralisation in the KMF

Of the three sedimentary manganese layers in the Hotazel Formation hosted in the Main Kalahari deposit, the Lower Manganese "ore bed" (LMO) is the best developed and most laterally continuous, with thicknesses of up to 45m in the southeast near Tshipi Borwa Mine, and thicknesses of 5-8m along the north limit of the Main Kalahari deposit. The Middle Manganese "ore bed" (MMO) is generally less than 1m in thickness and of low manganese content. The Upper Manganese "ore bed" (UMO) displays variable thickness from several metres to several tens of metres with sympathetic increases in manganese content. Consistent cyclical gradational contacts between the manganese-bearing braunite lutites and intercalated banded iron formations are observed.

Gutzmer and Beukes, (1996) describe three main manganese ore types in the Main Kalahari deposit:

- Low-grade primary sedimentary Mamatwan-type ore that contains 30 to 38.5 weight percent (wt%) manganese metal, and is composed of fine microcrystalline braunite, cemented by kutnahorite and containing abundant tiny concretionary ovoids and lenses of kutnahorite and manganese calcite;
- High-grade Wessels-type ore containing 42 to 60 wt% manganese metal, that is virtually devoid of carbonate minerals and composed of mixed assemblages of hausmannite, bixbyite, braunite II, and secondary coarse braunite;
- High-grade supergene ore that is devoid of manganese carbonates and composed of Mn (IV) oxide minerals like cryptomelane, with a manganese metal content of 40 to 42 wt%.

Mamatwan-type ore forms the bulk of the mineralisation in the KMF and is the principle mining target at Tshipi Borwa Mine.

5.3 Manganese Mineralisation at Tshipi Borwa Mine

At Tshipi Borwa Mine, mineralisation in the LMO consists of banded, very fine-grained braunite-kutnahorite lutite, containing concretionary ovoids, laminae and lenticles of Mn-calcite with which hausmanite is commonly associated. Subordinate amounts of hematite, jacobsite and rhodochrosite are also present. The LMO is 37.5m thick on average, and is subdivided on the basis of geological features and metal content, into six sub-zones termed N, C, M, Z, Y, X from the base to the top (Figure 7). The grouped N, C and M zones average 19.5m thickness, with a 37.5% Mn grade and Mn/Fe ratio of 8.5. This constitutes the Graded Ore mined by Tshipi.

The overlying Z, Y and X zones contain 31% Mn and have an Mn/Fe ratio of 5. This constitutes Tshipi Borwa Mine's Low Grade Ore mined and blended with Graded Ore, or sold as Low Grade product as the market may demand from time to time.

Supergene mineralisation has been encountered at Tshipi Borwa Mine, and is related to weathering effects along the unconformity between the Kalahari Supergroup and the LMO. This manganese enrichment effect is confined to a narrow zone along the sub-outcrop of the LMO, and appears to be limited to the Z, Y, X and M zones.

At Tshipi Borwa Mine, the MMO and UMO constitute stratigraphic markers rather than potential mining targets by virtue of their relatively low manganese content.

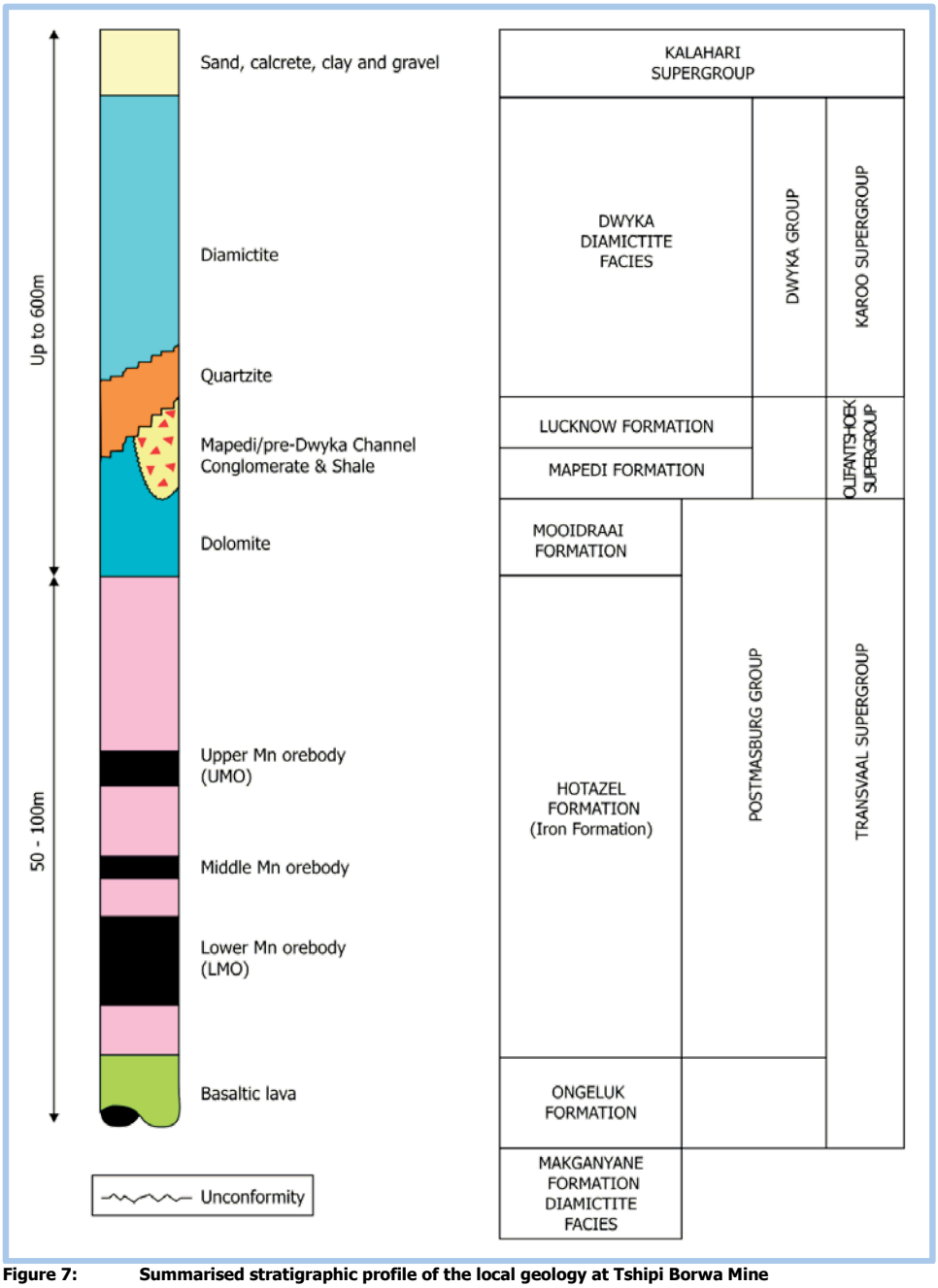

Figure 7: **Summarised stratigraphic profile of the local geology at Tshipi Borwa Mine**

5.4 Structural Geology at Tshipi Borwa Mine

Tshipi Borwa Mine straddles the southern boundary of the Main Kalahari deposit. The LMO sub-outcrops against the Kalahari Supergroup along this contact and dips to the northwest at an average of 7°.

Figure 8 illustrates M Zone elevation contours derived from surface drilling, the interpreted position of a mafic dyke, and the mapped position of a sub-vertical fault, trending 045°, with a variable throw of <5m identified by Tshipi's mine geologists.

It is noted that the structural setting of mineralisation at Tshipi Borwa Mine is well constrained by exploration drilling and in-pit mapping, particularly in the southern portion of the Mine. The Mineral Corporation has updated the structural interpretation which supports the Mineral Resources (Figure 30). Deviations in the M Zone contours in the centre of the mining right indicate the possibility of the fault postulated by Beukes (2016) in Figure 2 and which has been exposed in the neighbouring Mamatwan Mine. The structural interpretation is considered a robust basis on which to develop the Mineral Resource estimates.

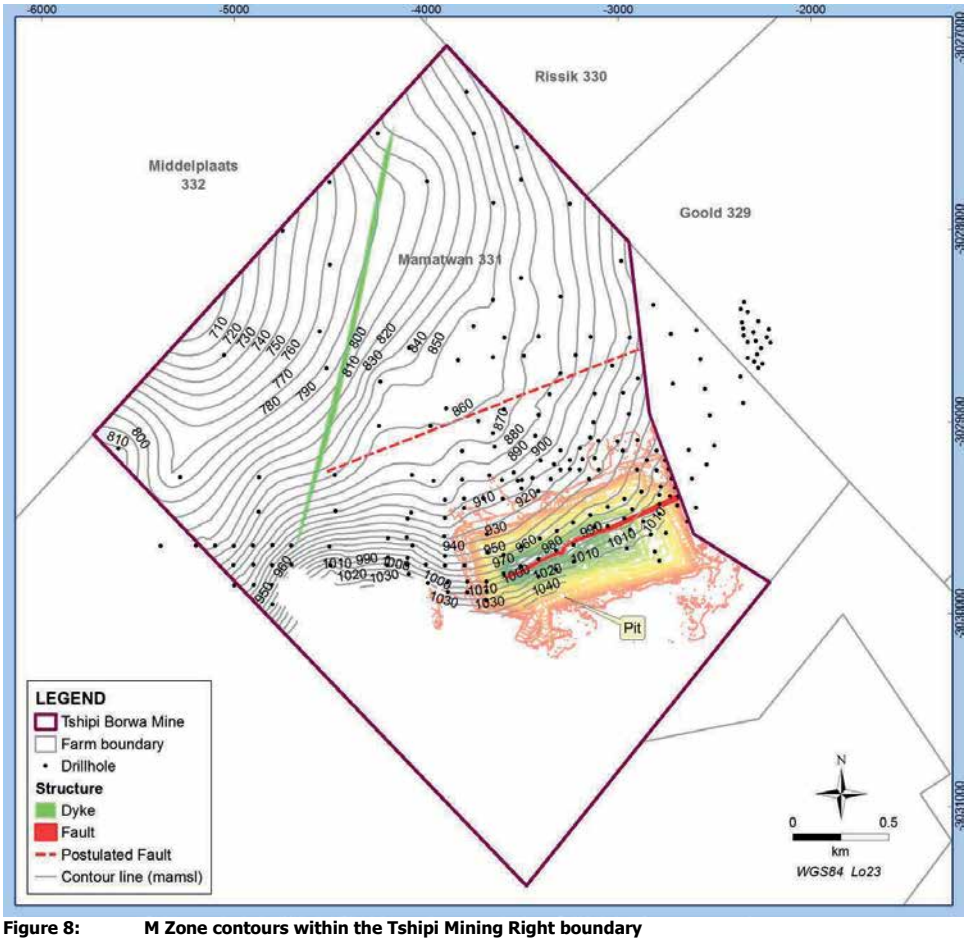

Figure 8: M Zone contours within the Tshipi Mining Right boundary

6 EXPLORATION DATA

6.1 Exploration History

Prior to the granting of the prospecting right to Ntsimbintle in 2006, exploration activities were limited to regional exploration by previous mineral title holders. While these initiatives are likely to have informed the decision to apply for the prospecting right, no data from previous mineral right holders informs the Mineral Resource estimates. Given the blind nature of the deposit, exploration is driven primarily by drilling.

Concerted exploration drilling started in 2008, with the drilling of diamond drilled (DD) boreholes NEX001 to NEX122. A second DD campaign was completed in March 2011 with the addition of NEX123 to NEX131 and MP01 through MP16. Holes NEX001 to NEX131 are collectively referred to as the "Ntsimbintle Series", while MP01 to MP16 are referred to as the "MP Series". The Ntsimbintle and MP Series were supervised by Orex Exploration cc (Orex), with oversight of the Ntsimbintle series at that time, by The Mineral Corporation.

In 2013, Tshipi undertook a reverse circulation (RC) campaign of 37 boreholes, but these boreholes have not been utilised in the Mineral Resource estimate, as they were drilled primarily for short-term planning purposes, and had no Quality Assurance and Quality Control (QAQC) associated with them.

From September until November 2013, Tshipi drilled an additional 16 DD holes, namely EX01 to EX16. Tshipi then undertook drilling of 53 DD boreholes from 2014 to the end of 2015 and a further 20 DD boreholes in 2017. These boreholes are collectively referred to as the "Tshipi Borwa Series".

In addition to the boreholes drilled within the mining right, the Mineral Resource estimates are informed to a certain extent by a set of boreholes obtained through a data swap with the neighbouring Mamatwan Mine, owned by Samancor. These boreholes are referred to as the "Samancor Series".

The current database now consists of 380 boreholes with a total of 54 162m of drilling, of which 8 802m intersected zones of economic interest. The exploration history is tabled below (Table 7) with location of all the boreholes in database shown in Figure 9.

Table 7: Exploration history

	Period	Activity	Notes
Samancor Series	Various phases, data obtained in 2009	Core drilling programme, predominantly on Mamatwan Portion 2 and Goold.	Drilling programme by Samancor Manganese (Pty) Limited.
Ntsimbintle Series	2008-2009	Drilling of cored boreholes NEX001 to NEX122.	Exploration campaign run by Orex Exploration cc (Orex) with oversight from The Mineral Corporation. Analysis by SGS Lakefield Research Africa (SGS).
	June 2010 to March 2011	Drilling of cored boreholes NEX123 to NEX131	Exploration campaign run by Orex. Analyses by SGS.
MP Series	June 2010 to March 2011	MP01 to MP16.	Exploration campaign run by Orex. Analyses by SGS.
Tshipi Borwa Series	September to November 2013	Drilling of cored boreholes EX01 to EX16.	Exploration conducted by Tshipi geologists with some assistance from Orex. Orex cut core and did SG measurements. Sampled at 50cm intervals. Analysis at mine laboratory. No QAQC samples submitted.
	2013-2014	Drilling of 37 Reverse Circulation percussion boreholes.	Drilled in the pit. Sampled over 1m intervals. Analysis at mine laboratory. No QAQC samples submitted.
	2014-2015	Core drilling programme.	53 boreholes completed in 2015, part of an infill drilling campaign. Orex cuts core and does SG measurements. Mine geologists log core and take samples. Samples are limited by geological Zones. Analyses at local mine laboratory. QA/QC system in place..
	2017	Core drilling programme.	20 boreholes completed in 2017, infill drilling campaign. Mine geologists log core and take samples. Samples are limited by geological Zones. Analyses at local mine laboratory. QA/QC in place.

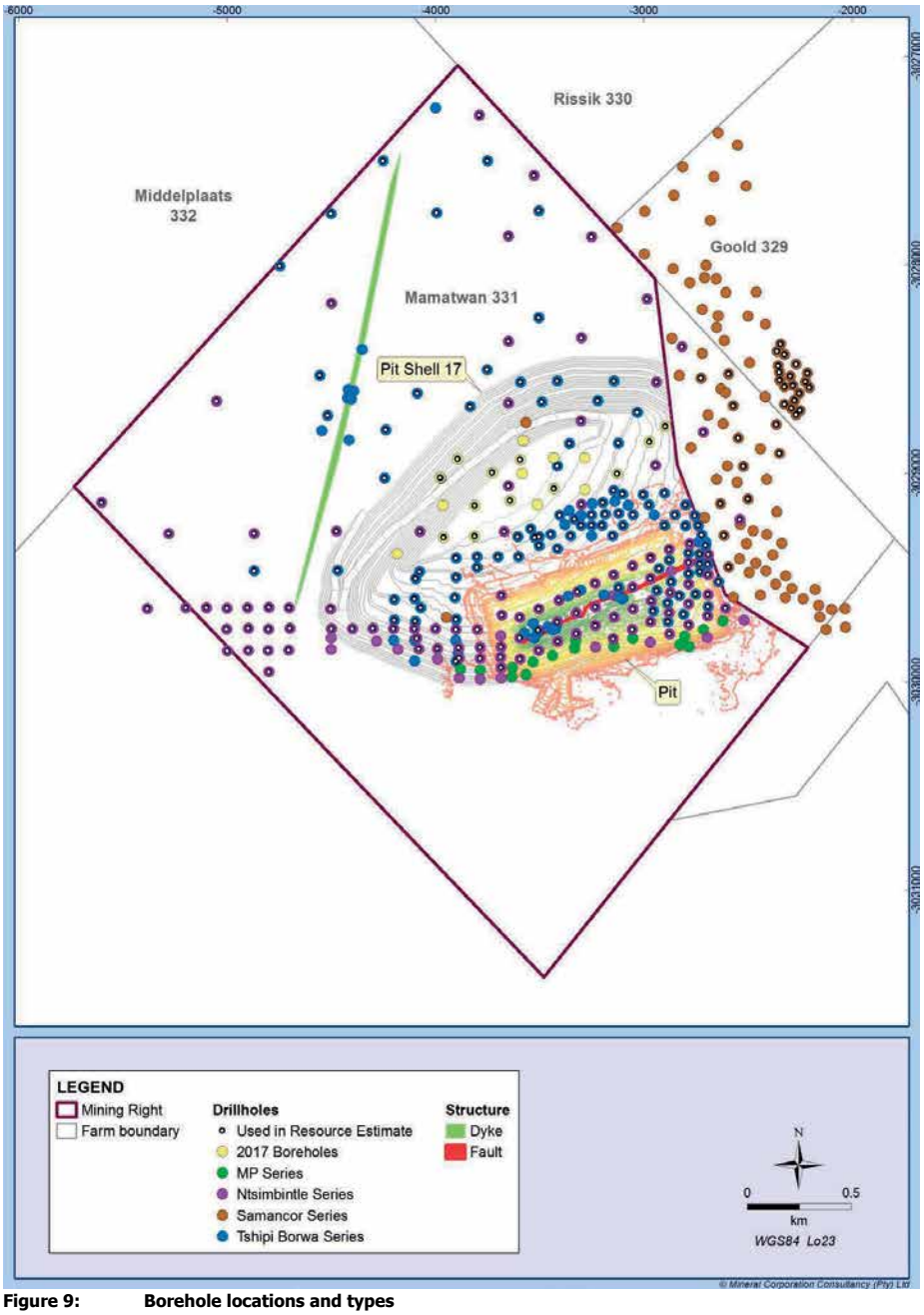

Figure 9: Borehole locations and types

6.2 Drilling Techniques

6.2.1 *Ntsimbintle Series, MP Series and Tshipi Borwa Series*

6.2.1.1 Drilling

DD holes are initiated by the percussion drilling of pilot holes which are drilled through the overlying waste lithologies, starting with 10" diameter through the sand, reduced to 8" through the Upper Kalahari and to 6" through the clay to the top of the Hotazel Formation.

This is followed by wireline diamond drilling with a BQ size diamond drill bit through the Hotazel Formation and stopped below the N Zone. Holes are labelled in the field with boards, but not capped.

6.2.1.2 Survey

Borehole collars are surveyed by a qualified Mine Surveyor with more than 15 years' experience. The datum and coordinate system in use are, respectively, WGS 84 and Lo23. Instrumentation utilised is a Trimble R4 GPS.

Downhole surveying is not routinely undertaken. This is common practice in the KMF, due to the relatively shallow drilling depths and vertical drilling orientation. Six holes in the Ntsimbintle Series had downhole surveys, as these were inclined holes drilled for geotechnical purposes.

6.2.1.3 Logging

Core is logged qualitative and quantitatively, utilising paper logs, within geological domains, in accordance with the intersection of the orebody. Lithological logging of waste zones is also undertaken; the waste zones were logged in greater detail in the Ntsimbintle Series than in the Tshipi Borwa Series, as the classification of the waste zones has been simplified for mining and modelling purposes.

Only trained mine geologists log the core, after which the logs are validated by the Chief Geologist. Visual interpretation is used to distinguish between different zones due to the transitional contacts between the different domains. Depth markers are checked for accuracy as well as potential core loss as marked on the individual depth markers.

After logging, core is transported by the Mine's geologists to Orex's core processing facility near Hotazel, where the core is photographed, prior to halving the core longitudinally for sampling purposes. It is then transported back to the Mine.

The Mineral Corporation has checked these protocols and procedures on site, and has confirmed that there are no material errors or omissions, and that the logging is of sufficient detail to support Mineral Resource estimation.

6.2.1.4 Core recovery

Expected core recovery as per the drilling contract is 95%. This is influenced by the lithological conditions. If recovery is below 95%, the drilling contractor is instructed to re-drill the hole depending on where the loss occurred. Sample recovery is maximised by continuous evaluation of correct drill bits for relevant lithologies. Tshipi geological staff advise that core recovery observed approaches 100%, and this was confirmed during the site visit by the Competent Person.

6.2.1.5 Data spacing

The borehole spacing is dependent on the phase of drilling, and typically starts on a large grid, becoming progressively closer. The effective borehole spacing is approximately 100m x 100m for Measured, 200m x 200m for Indicated and 400m x 400m for Inferred.

The intersection angle between borehole and orebody is near perpendicular, as the orebody has an average dip of 7°. Due to the shallow dip of the orebody, down-hole length is recorded and not the true width of the orebody. Sufficient data is available to establish the dip and dip direction of the orebody as well as the estimated width of the orebody. Samples are composited downhole within geological domains and as sampling does not cross geological domains, the full sample is utilised during compositing.

6.2.2 *Samancor Series*

No information regarding the drilling, survey, logging and core recovery for the Samancor Series is available. However, as these boreholes were drilled by Samancor, a description of the exploration procedures at Mamatwan is available in the public domain. These have been reviewed and are considered to be broadly in line with those described in Section 6.2.1

6.3 Sampling, storage and capture

6.3.1 *Ntsimbintle Series, MP Series and Tshipi Borwa Series*

6.3.1.1 Sampling

Core logging and sampling follows well-structured protocols to ensure consistency. Sample lengths are restricted to 50 cm, albeit always respecting lithological changes within a specific sample as well as contacts. All core to be sampled is halved longitudinally using a diamond blade saw, following the sample marks on the core made by the geologist. This ensures that while one half is sent for analysis, the other half is stored for future reference. It is the geologist's responsibility to check the depth markers are correct as well as to ensure that a hard copy of the logging is recorded including the sample depths, sample numbers and borehole numbers are correct and entered into Excel format. DD boreholes are sampled for all intersected manganese-bearing zones.

Spot checks of sampling practices were undertaken by the Competent Person on randomly selected boreholes on site, and no material errors were identified.

6.3.1.2 Core and sample storage

Core is currently stored in containers; however excess core is stacked outside due to limited availability of space. Samples are stored within the containers in crates. All samples are retained.

The Mineral Corporation has identified a number of areas in which the core and sample storage facilities could be improved. While it is recommended that these are implemented, the shortcomings are not considered a material risk to the Mineral Resource estimates.

6.3.2 *Samancor Series*

No information regarding the sampling procedures for the Samancor Series is available. The procedures available in the public domain have been reviewed, and are considered to be broadly in line with those described in Section 6.3.1.

6.4 Sample Preparation and Analysis

6.4.1 *Ntsimbintle Series boreholes*

The Ntsimbintle Series boreholes were analysed at SGS Lakefield Research Africa laboratory (SGS), located in Booysens, Johannesburg. SGS (Registration Number 1948/28709/07) is a reputable laboratory that is accredited by SANAS (ISO 17025) for the analysis of Mn and other major and minor element oxides.

SGS crushed the half core samples to 100% < 20mm and then milled half of the crushed sample to achieve 90% <75µm and, subsequently, took a 0.7g-sub-sample from each pulp sample for chemical analysis.

SGS employed a borate fusion technique with abundance measurements taken via an X-Ray Fluorescence (XRF) spectrometer. Each of the 0.7g-samples was mixed with 10g Li tetraborate before adding a non-wetting agent. The mixture was then fused in an automatic fluxer, cast into buttons and cooled. Loss on ignition (LOI) was determined separately by roasting approximately 1g of sample at 1 000ºC for 1 hour.

Analyses were completed for the major oxides of Mn, Fe, P, Si, Al, Ca, Mg, K, Na, Ti, Cr and V. The Mineral Corporation reviewed the sample preparation and analysis protocols at SGS for the purpose of the 2009 Feasibility Study, and found them to be acceptable.

6.4.2 *MP Series and Tshipi Borwa Series*

The MP Series and Tshipi Borwa Series boreholes were analysed at the on-site laboratory at the Tshipi Borwa Mine.

The on-site laboratory is not currently accredited under the South African National Accreditation System (SANAS). The Mineral Corporation does not consider the absence of accreditation a material risk with regards to analytical work, as the mine laboratory participates in regular round robin exercises (Section 6.5.5) with local and industry known accredited laboratories. The performance of the on-site laboratory in these round robin exercises has been found to be either at or above expected standards.

Half core samples are crushed and milled, before being analysed by means of XRF diffraction for Mn and Fe as well as trace element concentrations. Chemical determination by titration is used for QA/QC checks on Mn and Fe.

Pulp samples received at the laboratory are approximately 250g in size. Samples are each tagged with an individual sample number with no indication as to the expected grade of the sample.

LIMS Manager, a software suite specifically designed for laboratories, is used to capture the following sample information:

- Receiving;
- Analysis required;
- Methods used for analysis;
- Reporting.

Results are then e-mailed in an MS Excel format to the relevant geologist from where the data is captured into the geological database.

The Mineral Corporation undertook a visit to the on-site laboratory during the January 2018 site visit, to review the sample preparation and analysis protocols, and found them to be acceptable. It was noted during the site visit that the general housekeeping at the laboratory could be improved, and that certain equipment was off-line. The continued good performance of this laboratory is critical to Mineral Resource and Ore Reserve estimates, and to the control of product quality.

6.4.3 *Samancor Series*

No information regarding the sample preparation and analysis for the Samancor Series is available. However, the procedures available in the public domain have been reviewed and are considered to be broadly in line with those described in Section 6.4.1.

6.5 Quality Assurance and Quality Control (QAQC)

6.5.1 *Introduction*

The Quality Assurance and Quality Control (QAQC) measures have remained largely unchanged through the Ntsimbintle, MP and Tshipi Borwa Series boreholes. QAQC samples including blanks, duplicates and certified reference material (CRMs or standards) are included in the batches before submission to the laboratory.

6.5.2 *Certified reference material (CRMs)*

CRM's have been sourced from Mintek (SARM16 and SARM17) and from African Mineral Standards (AMIS0407). The QAQC database contains the results of 586 standards. Of these, 4 results are considered to be anomalous for either Mn or Fe, and have been excluded from this analysis. The holes with erroneous values have been identified, but it this stage, the sample batches have not been re-submitted. The results of the analysis are shown in Figure 10 and Figure 11, in which the Error Deviation has been calculated utilising the following formula.

$$Error\ Deviation = \frac{Result(original) - Result(standard)}{Result\ (standard)}$$

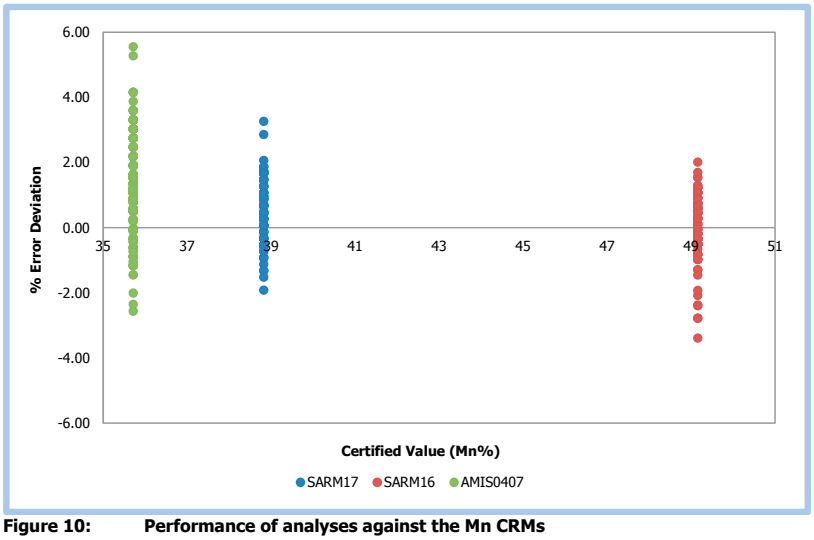

Figure 10: Performance of analyses against the Mn CRMs

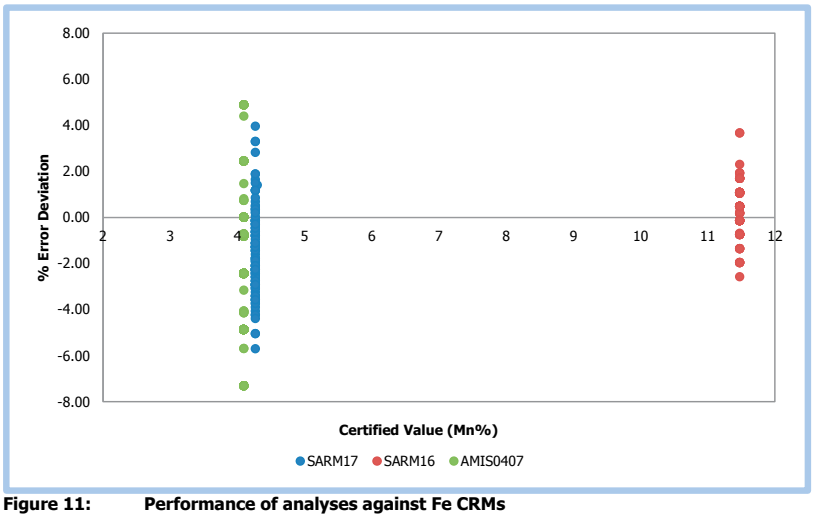

Figure 11: Performance of analyses against Fe CRMs

Figure 10 illustrates instances of over-reporting of the Mn grades with reference to AMIS0407 and SARM17 and instances of under-reporting of the Mn grades with reference to SARM16, albeit with Error Deviations of less than 6%. Figure 11 shows minor under-reporting of the Fe grades with reference to AMIS0407 and SARM17.

As performance of the samples against all three standards is generally under a 5% Error Deviation, no material issues with regards to the accuracy of the analytical processes at the Tshipi Borwa Mine laboratory have been identified.

6.5.3 *Blank analysis (blanks)*

Figure 12 and Figure 13 show the performance of all of the blank samples in the QAQC database. A total of 35 samples, 26 coming from boreholes drilled in the 2017 campaign, indicate the possibility of sample contamination or a higher level of Mn in the blank.

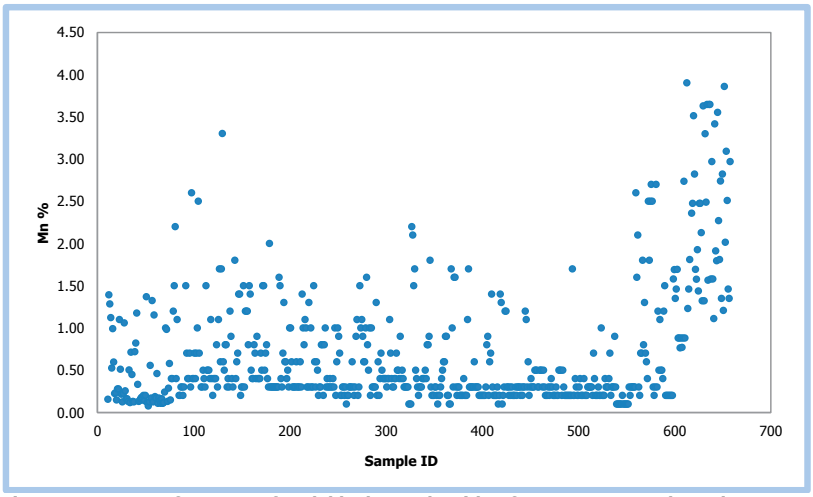

Figure 12: Performance of each blank sample with reference to Mn grade analyses

Two batches of samples evidently used a blank with a high Fe content. As these samples would not be useful in identifying sample contamination they were removed from analysis. In contrast to the above, the 26 samples with anomalous Mn returns do not have anomalous Fe returns. This implies that the problem identified in Figure 12 is probably not contamination related.

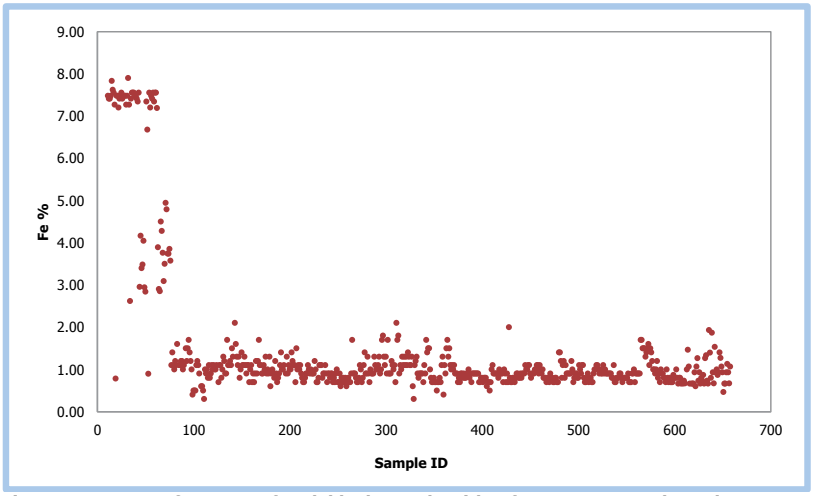

Figure 13: Performance of each blank sample with reference to Fe grade analyses

Figure 14 and Figure 15 show the performance of blank samples for Mn and Fe respectively, after the removal of the samples described above.

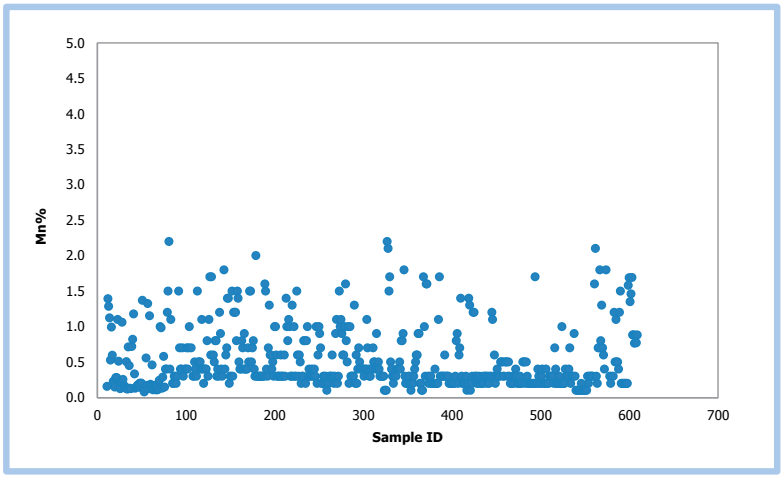

Figure 14: Performance of blank samples with reference to Mn (anomalies removed)

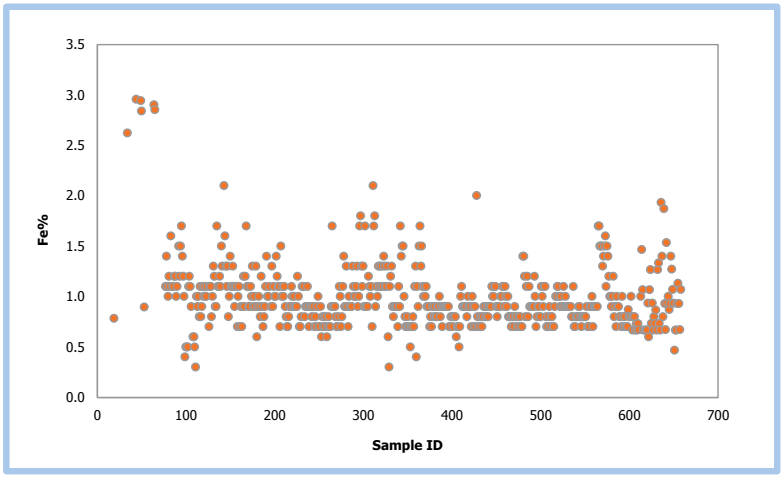

Figure 15: Performance of blank samples with reference to Fe grade analysis (anomalies removed)

Although the blanks used are not true blanks, in that they report on average 0.51% Mn and on average 0.99% Fe, the blank results are considered acceptable.

6.5.4 *Duplicates*

Duplicates were inserted for the Ntsimbintle Series boreholes, which were analysed at SGS. For the Tshipi Borwa Series which utilised the on-site laboratory, no duplicates were utilised.

Duplicate samples were selected from pulverised samples from previous batches. The comparison of the original verses duplicate samples have been plotted in the linear regression graphs in Figure 16 and Figure 17 for Mn and Fe respectively. The correlation coefficient is 0.8991 for Mn and 0.7831 for Fe. This is considered a reasonably high level of reproducibility in results for the Ntsimbintle Series.

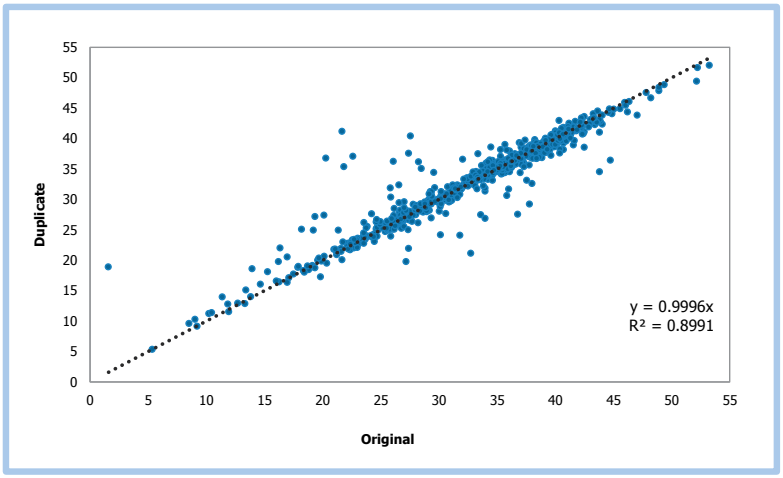

Figure 16: **Graph depicting the Mn% original versus duplicate samples**

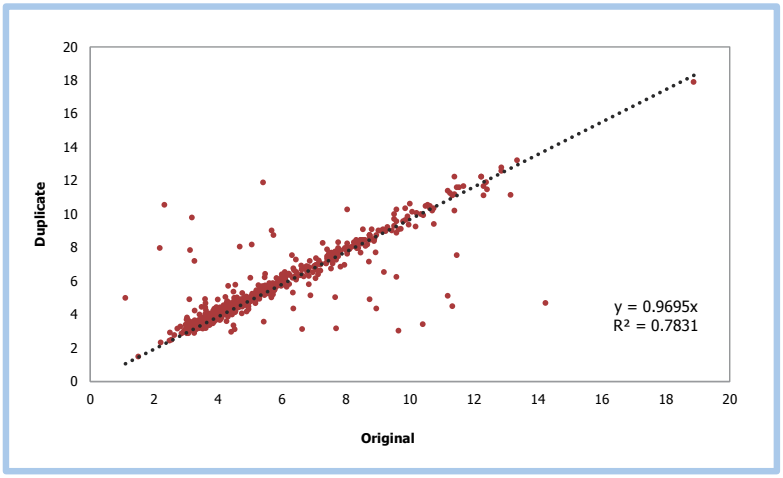

Figure 17: **Graph depicting the Fe% original verses duplicate samples**

6.5.5 *Laboratory round robin results*

The results of Tshipi's participation in laboratory Round Robins have been analysed. XRF is used for grade control and for exploration drilling, except for instances of very high or low Mn grades, when titration (wet chemistry) is used. Wet chemistry is used for all product analysis, which is cross checked with the receiving laboratory at the port. The Mn grades for XRF are calibrated by CRM's, as well as by cross-checking with the wet chemistry results.

Table 8 indicates that the Tshipi laboratory has a good track record with respect to the analysis of Mn. There are instances where the measurement of other elements has not passed the Round Robin criteria. Tshipi has indicated that where these elements have not passed, it has either been due to errors in reporting (by Tshipi) or the concentration of a measured being out of the normal range within which the XRF is calibrated.

Table 8: **Laboratory round robin results**

Round	XRF (CaO, FeO, SiO_2, Al_2O_3, MgO and P)	Wet Chem (Mn)
2015_10	OK	OK
2016_01	Ca and Al did not pass	OK
2016_02	OK	OK
2016_03	No result	No result

Round	XRF (CaO, FeO, SiO_2, Al_2O_3, MgO and P)	Wet Chem (Mn)
2016_04	OK	OK
2016_05	Al, Fe and P did not pass	OK
2016_06	Ca and Mg did not pass	OK
2017_01	No result	No result
2017_02	No result	No result
2017_03	Ca Questionable	OK
2017_04	Did not participate	Did not participate
2017_05	OK	OK
2017_06	OK	OK

6.5.6 *QAQC conclusions*

The sampling protocols used for insertion of CRMs are sufficient to measure the reliability, accuracy and precision of the sample data. The standards and duplicates for the Ntsimbintle Series indicate acceptable levels of accuracy and precision.

The standards for the Tshipi Borwa Series show acceptable levels of accuracy. Some of the blanks show elevated levels of Mn, however these levels are not evident in the Fe. Given the acceptable results for the standards and Round Robin, and the Fe results, it is likely that the increase in Mn in the blank results is indicative of an elevated Mn source.

The lack of duplicates for the Tshipi Borwa Series limits the extent to which the reproducibility of the on-site laboratory can be assessed. However, the Competent Person has made a number of visits to the on-site laboratory, and the internal controls are considered good, and the risk posed to the Mineral Resource estimation by this omission is not considered material.

Tshipi do not have access to the QAQC for the Samancor Series boreholes, but as these boreholes do not have a material influence on the grade estimates (due to their location) and they come from a well-established mining operation, the risk posed to the Mineral Resource estimation by the lack of QAQC for this series is not considered material.

The Mineral Corporation has independently reviewed the QAQC results and concludes the database can be used for the estimation of Mineral Resources.

6.6 Density (SG) determination

For all boreholes, density (SG) has been determined using the Archimedes Method, whereby an open top balance with a sample holder is used to measure the mass of dry samples in air and in water. The density of the samples is calculated using the formula below:

$$Density = \frac{Mass(air)}{Mass\ (air) - Mass(water)}$$

Mineral Resource tonnages were based on SG estimates, using the exploration borehole data. No corrections to accommodate bulk density were considered appropriate, as the LMO does not typically display any significant porosity, and the borehole SG is considered a robust estimate of the bulk density.

6.7 Database Management

6.7.1 *Database*

The database used for the Mineral Resource estimates is an MS Access database, which was exported into MS Excel for ease of data manipulation within SURPAC™. A total of 380 boreholes are in the geological database, of which 240 boreholes have complete assay results and 304 have intersected the LMO. All RC and blast holes have been excluded for modelling of the Mineral Resources.

6.7.2 *Data capture*

Data is captured manually into the MS Access database. Data is double checked through validation within MS Excel as well as the data validation function within SURPAC™. There has not yet been any re-drills on the holes.

6.7.3 *Interpreted data elements*

All grades have been directly analysed. There are no grades derived from other data.

6.7.4 *Data validation and sign-off*

Data verification is done by checking whether the depth from and depth to records are consistent for each borehole. In addition, zero grades are checked for, as well as other obviously erroneous data such as negative grades. Drillhole numbering is checked within SURPAC™ in order to ensure no duplication of collar identifiers. When importing assay, survey, lithology and collar files into SURPAC™, a hole summary and errors report is run. Errors picked up during this process are reviewed and corrected in the primary database.

The location of each surface drillhole is checked and verified by Tshipi's staff as well as the lithological and assay tagging within the drillholes. Nearly every surface drillhole has completely delineated both the hangingwall and footwall.

Data which appears to be erroneous is investigated by returning to the original log and if not satisfied, relooking at the original borehole core. Once data has been confirmed, the hole is signed-off by the Chief Geologist. A validation report is run on the data utilising MS Excel software. Holes are compared in terms of the presence of collar elevations, geological intersections logged and if assay data have been captured.

6.7.5 *Data storage, retrieval and back-up*

Data is stored on a remote server in Johannesburg where access to the server is managed through on-site IT support and backed up on a daily basis. Data is retrieved from the server via access to the secure server.

6.7.6 *Competent Person validation of database*

As with previous campaigns, the Competent Person supervised a validation process undertaken by The Mineral Corporation. In addition to verifying the data validation steps described above, the verification steps included:

- Independent logging and cross validation of selected boreholes;
- An independent review of the QAQC results;
- Scrutiny of all the borehole logs.

6.8 Future Exploration Plans

A budget for additional drilling in 2018 has been approved. This will focus on the infill drilling in the Indicated Mineral Resources, in order to upgrade them to the Measured category.

7 MINERAL RESOURCE ESTIMATION

7.1 Geological Model and Interpretation

As described in Section 6, the Mineral Resources are contained entirely within the LMO. At Tshipi, the LMO is gently folded, has a shallow dip and is subdivided into six mineralised zones. The nature of this mineralisation lends itself to the modelling of a series of top and bottom wireframe surfaces, which are constructed through the analysis of cross-sections and plans.

The distribution of the supporting drilling data, the exposure of the LMO within current mining operations, and the extensive exploitation of the LMO at neighbouring operations, would indicate that the structural model is robust, and the consideration of alternative models is not required.

7.2 Estimation and Modelling Techniques

7.2.1 *Topographic control*

A surface topography digital terrain model (DTM) was generated from the Lidar survey of 2009 and used in combination with the month-end survey (December 2017) to constrain the model within the pit limits.

7.2.2 *Definition of mineralised zones and cut-offs*

Tshipi Borwa Mine currently mines all of the mineralised zones within the LMO, including the X, Y, Z, M, C and N Zones. In addition, the locally upgraded LMO near the sub-outcrop, the Supergene Zone, is modelled as a separate zone.

The vertical cut-off applied is therefore a lithological cut-off, rather than a grade cut-off, as the Mn grade at the lithological boundaries drops sharply and is no longer economically viable. Waste is defined as those areas where total Mn grade is lower than 16% and within the V or W zones.

7.2.3 *Construction of wireframes*

The wireframe model was developed in two parts. The waste surfaces were generated in Datamine Studio 3™ through triangulation of the top and bottom intersections logged in each borehole. The mineralised zone surfaces were developed in Datamine Strat3D™ and these wireframes were then imported into Datamine Studio 3™.

From field observations, it was noted that the Supergene Zone is limited to the X, Y, Z and M Zones and that normal mineralisation exists within the underlying C and N Zones. The Supergene Zone near the sub-outcrop was therefore modelled as a separate zone for the X though M Zones.

All the six mineralised zones and the lithologies immediately above them were then truncated at the base of the Kalahari surface. Figure 18 illustrates a typical cross section through the geological model.

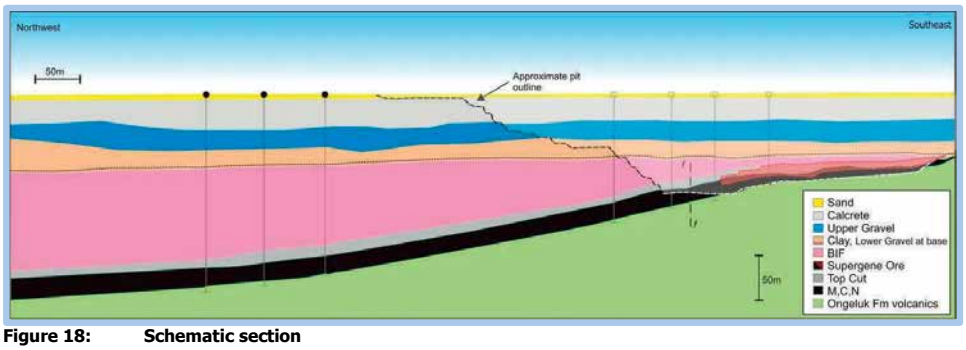

Figure 18: Schematic section

7.2.4 *Data exclusion*

Data excluded from the model is listed below in Table 9 as well as reasons for its exclusion:

Table 9: Boreholes excluded from the modelling process

Borehole ID	Complete / Partial	Reason for Exclusion
MA001	Totally excluded	No Geological Log
MA026		No Assays
MA027		No Geological Log
MA046		No Mn Intersected
MA047		No Mn Intersected
MA054		No Assay results
MA064		No Assay results
MA065		No Assay results
EX054		Could not validate collar.
EX085		Complete log unavailable.
MA128	Partially excluded	Assay data not obtained
MA171 to 172		
MA183		
MA188-193		
MA217		
MA220-226		
MA262		
NEX050		Localised elevation discrepancies. Drillhole omitted from mineralised zone surface.
EX039		
EX067		
EX081		Drillhole stopped after percussion pilot stage was complete. Used for Kalahari surface only.
EX089		
EX092		
EX093		
EX095		
EX087		Assay results not available. Drillhole excluded from geological model.
EX082		Drillhole intersected a dyke. Excluded from grade estimation but used for Kalahari surface.

7.2.5 *Data compositing*

Density and length-weighted composites were calculated over the full width of each mineralised zone.

7.2.6 *Treatment of outliers/grade capping*

Basic statistics were examined within each zone to identify any outliers. Although some values looked like outliers, the global means before and after capping of data using the 95% Confidence Interval (CI) were highly comparable and demonstrated that capping had no material effect to the population. As such no capping was applied.

The composite statistics yielded the following averages for each zone (Table 10).

Table 10: Composite average values

Zone	Mn (%)	Fe (%)	SG (t/m^3)	Composite Length (m)	Al_2O_3 (%)	SiO_2 (%)	P_2O_5 (%)
X	32.81	4.83	3.55	6.34	0.37	5.03	0.033
Y	23.28	5.63	3.32	4.67	0.49	4.24	0.031
Z	32.21	5.98	3.58	3.28	0.35	5.17	0.031
M	37.83	4.87	3.74	5.15	0.29	5.31	0.029
C	36.50	3.80	3.66	7.87	0.28	4.55	0.028
N	35.66	5.07	3.67	3.47	0.31	5.22	0.030
Supergene	36.99	4.95	3.47	12.04	0.26	5.48	0.039

7.2.7 *Estimated variables*

Statistical and geostatistical analysis was undertaken for Mn, Fe, SG and Thickness. The Thickness variable was assessed as a check against the zone thickness modelled from the wireframe surfaces. Although assays are present for several deleterious elements, (Al_2O_3, SiO_2, P_2O_5), no estimation of these elements was undertaken. Tshipi has not found it necessary to monitor these deleterious elements in its mine planning, and has produced a marketable product for several years. For this reason, the modelling of deleterious elements is not considered a requirement.

7.2.8 *Variography*

A variography study was carried out on the composite data. As no anisotropy was observed in spatial plots of the composite data, omni-directional variograms for Mn, Fe, SG and Thickness were modelled. A summary of the variography results is provided in Table 11.

Table 11: Variogram parameters utilised for estimation purposes

Zone	Variable	Nugget	Sill C1	Range C1 (m)	Sill C2	Range C2 (m)
X	Mn	0.00	7.17	115	2.88	700
	Fe	0.02	0.88	130	0.18	600
	SG	0.00	0.01	200	0.01	700
	Thickness	0.89	3.84	144	10.16	927
Y	Mn	2.18	13.83	115	5.78	350
	Fe	0.42	0.47	411	1.32	1 645
	SG	0.00	0.01	150	No second structure	
	Thickness	1.16	2.07	118	3.87	882
Z	Mn	0.89	7.20	65	10.69	200
	Fe	0.22	1.44	80	No second structure	
	SG	0.00	0.02	122		
	Thickness	1.07	1.50	670		
M	Mn	2.84	3.57	90	3.68	500
	Fe	0.13	1.32	55	No second structure	
	SG	0.01	0.01	485		
	Thickness	3.51	2.79	330	1.03	790
C	Mn	1.99	1.09	150	2.31	600
	Fe	0.17	0.14	250	0.22	950
	SG	0.00	0.00	200	0.00	630
	Thickness	5.39	7.26	620	No second structure	
N	Mn	3.45	4.93	300		
	Fe	0.10	0.90	350		
	SG	0.00	0.02	200		
	Thickness	0.32	3.20	90		
Super	Mn	7.70	30.80	300		
	Fe	1.48	5.92	350		
	SG	0.01	0.05	200		
	Thickness	1.48	5.93	90		

Reasonable variograms models were generated and the results are given in Appendix 2.

7.2.9 *Block size and search strategy*

The block model was oriented parallel to the axes of the Mine's coordinate grid. The following parameters were used for the definition:

- Origin: -3 030 250 North, -6 000 East, 700 Elevation
- Maximum extent: -3 034 500 North, -1 750 East, 700 Elevation
- Parent block size: 50m x 50m x Zone thickness (X, Y, Z)
- Minimum sub-block size: 5m x 5m x 1m (X, Y, Z)

Block sizes were based on application of geostatistical principles on available sampling distances as well as a consideration of the size of the blocks being mined, to establish an accurate reporting of tonnages from the Mineral Resource during monthly reconciliation.

A 2-stage search strategy was employed. The first search radius was set to the average of the ranges of the first structure of the variograms. A minimum of 3 samples and maximum of 10 samples was applied. If these criteria were not met, the second search radius was used, with search ranges of twice the variogram range; again with a minimum of 3 and a maximum of 10 samples.

7.2.10 *Grade and tonnage estimation*

Mn, Fe, SG and Thickness of the mineralised zones were estimated using Ordinary Kriging. The grades are direct estimates and are not back-calculated from metal accumulation.

The product of SG and Volume was used to derive tonnage estimates. The reported volumes were derived from the wireframes, as modelled, and are not from composite Thickness estimates. The average SG for the mineralised zones from Ordinary Kriging is provided in Table 12 and the SG's for the waste material are provided in Table 13.

Table 12: Average estimated SG for the mineralised zones

Mineralized Zones	SG (t/m^3)
X	3.53
Y	3.33
Z	3.56
M	3.69
C	3.65
N	3.66
Supergene	3.45

Table 13: Assigned SG values for the waste zones

Waste Zones	SG (t/m^3)
Kalahari Sands	1.90
Calcrete	2.19
Clay	1.98
Upper Gravel	2.19
Lower Gravel	2.19
Dolomite	2.72
Tillite	2.72
BIF	3.16
UMO	3.46
MMO	3.46

7.2.11 *Block model validation*

The grade estimates were validated by checking the mean estimated values in the block model with the basic statistics of the raw data and the composited data. Figure 19 to Figure 21 demonstrate that there is a very good correlation between the data sets.

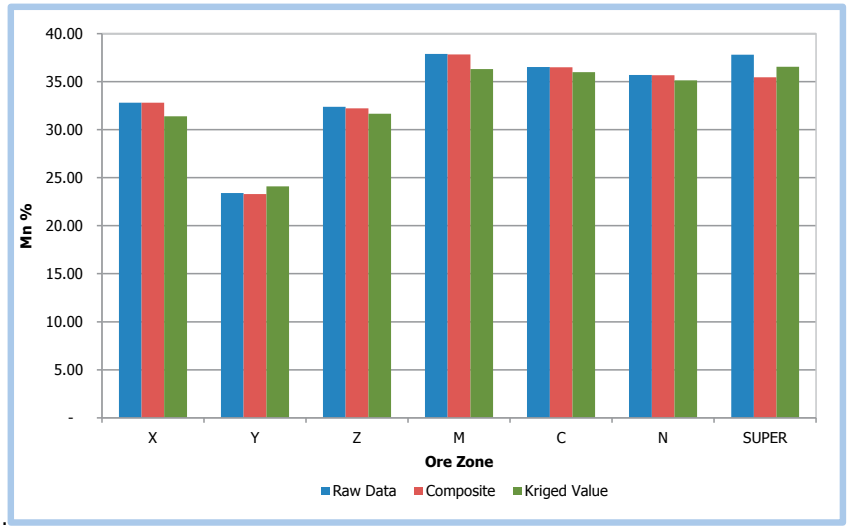

Figure 19: Global Statistics depicting the mean value for Mn%

Figure 20: **Global Statistics depicting the mean value for Fe%**

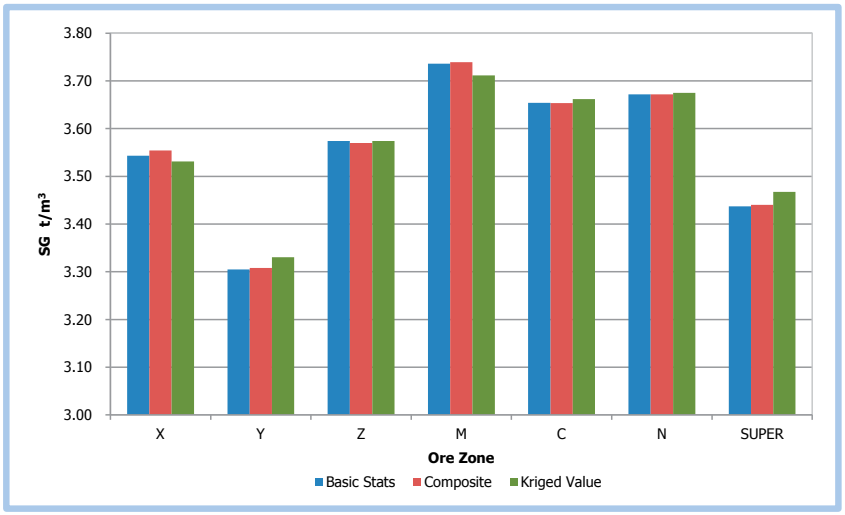

Figure 21: **Global statistics depicting the mean value for SG**

7.2.12 *Manual validation*

Block Model grade and tonnage estimates were manually validated by utilising the area, the average thickness and grade in the borehole data. This approximate estimate of the Mineral Resource tonnage for each zone has been compared with the block model in Table 14.

Table 14: **Manual validation of estimated tonnages**

Zone	Area (m^2)	Geo-Losses	Thick (m)	SG (t/m^3)	Manual (t)	Block Model (t)	% Diff
X	4 508 246	10%	8.21	3.53	117 589 357	125 137 172	6.0
Y	3 730 663	10%	3.70	3.32	41 211 279	38 827 104	-6.1
Z	4 508 246	10%	3.19	3.57	46 207 136	48 871 114	5.5
M	4 508 246	10%	4.73	3.71	71 200 854	76 979 389	7.5
C	4 508 246	10%	7.54	3.65	111 664 304	120 406 571	7.3
N	4 508 246	10%	3.20	3.67	47 650 361	52 183 566	8.7

The differences noted between the block model and the calculated results are due to the thickness and SG variations within the orebody, and are to be expected. As the reconciliation differences are under 10%, the above validation is considered robust.

7.3 Block Model Results

Estimated grades and thickness were plotted against composite grade and thickness and displayed a very good correlation.

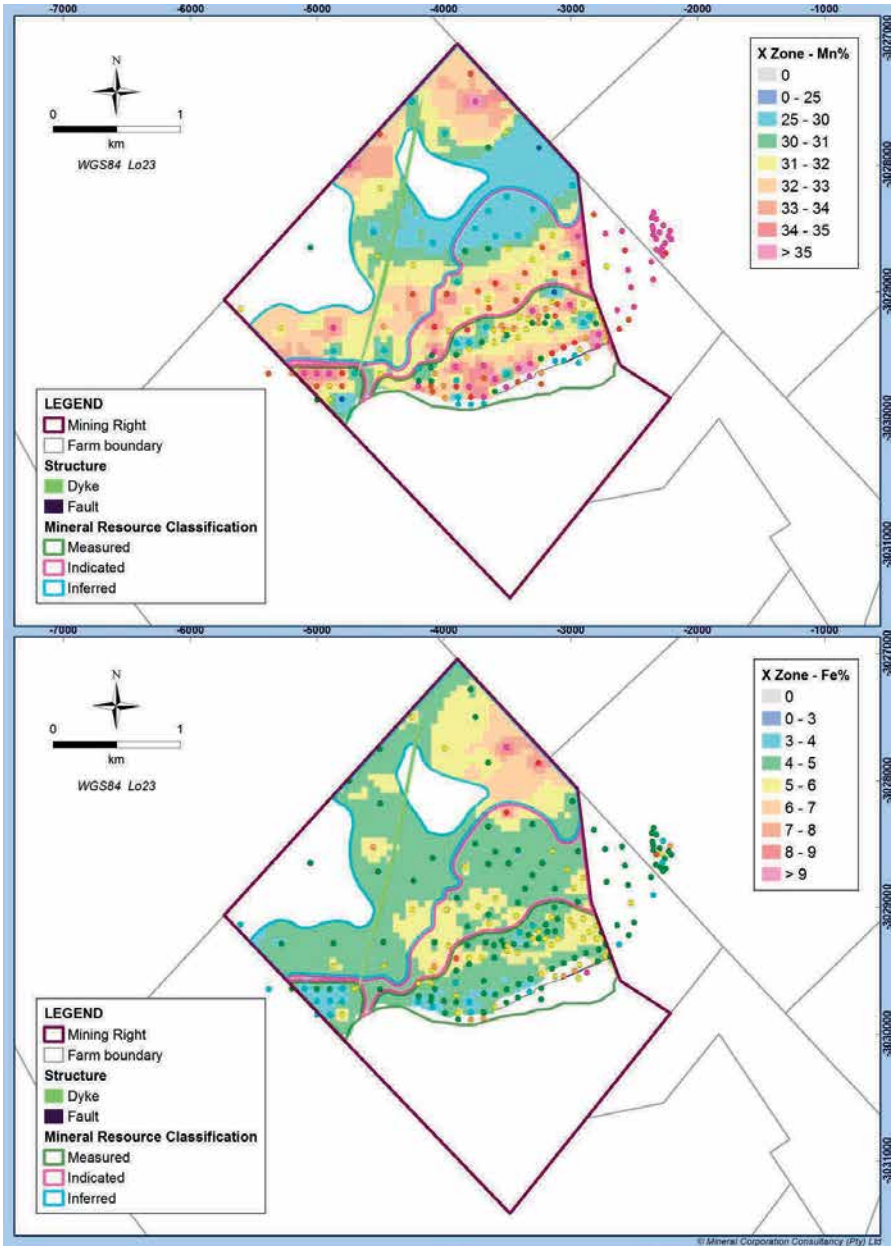

Figure 22: X Zone Mn and Fe estimates

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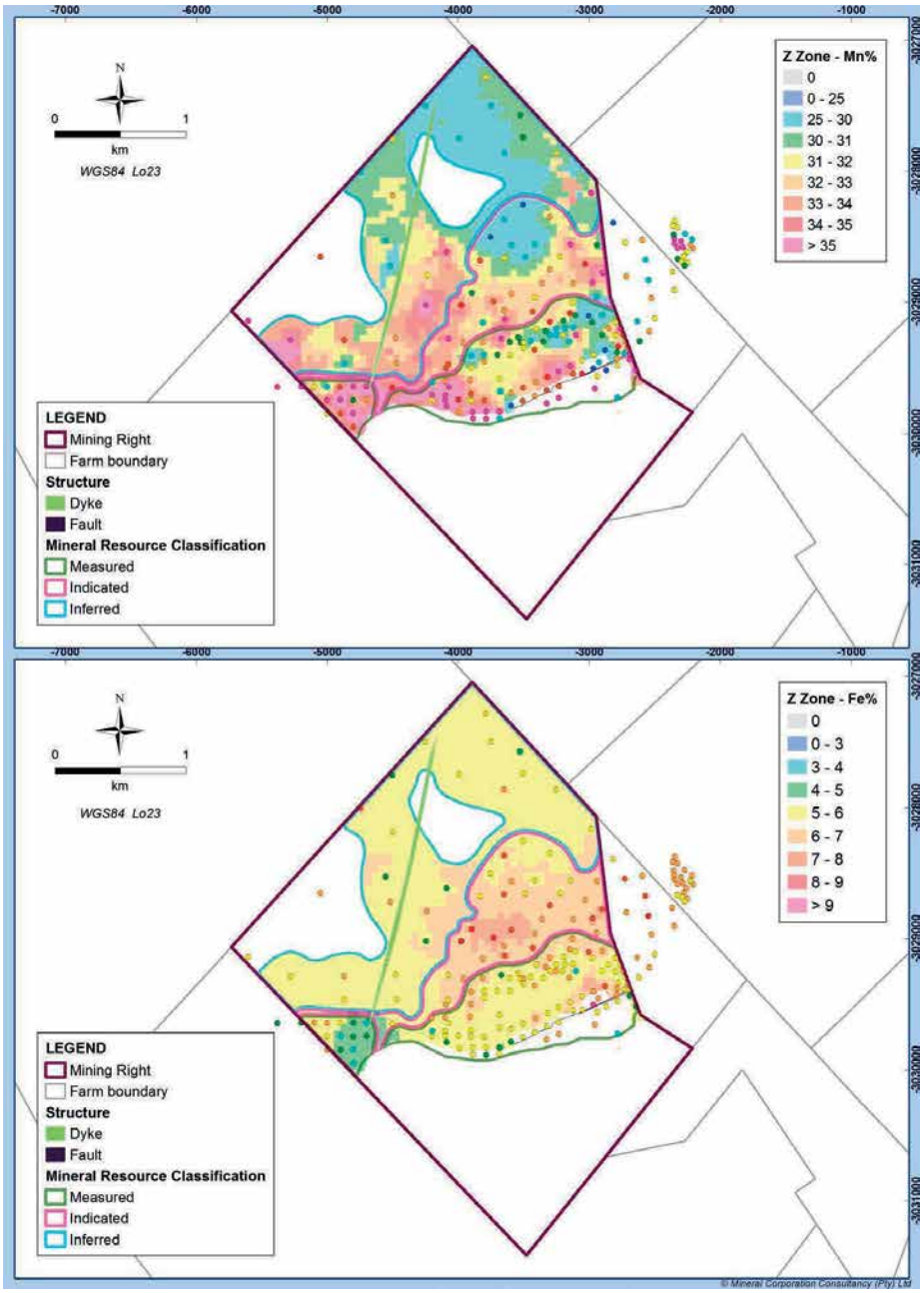

Figure 23: Z Zone Mn and Fe estimates

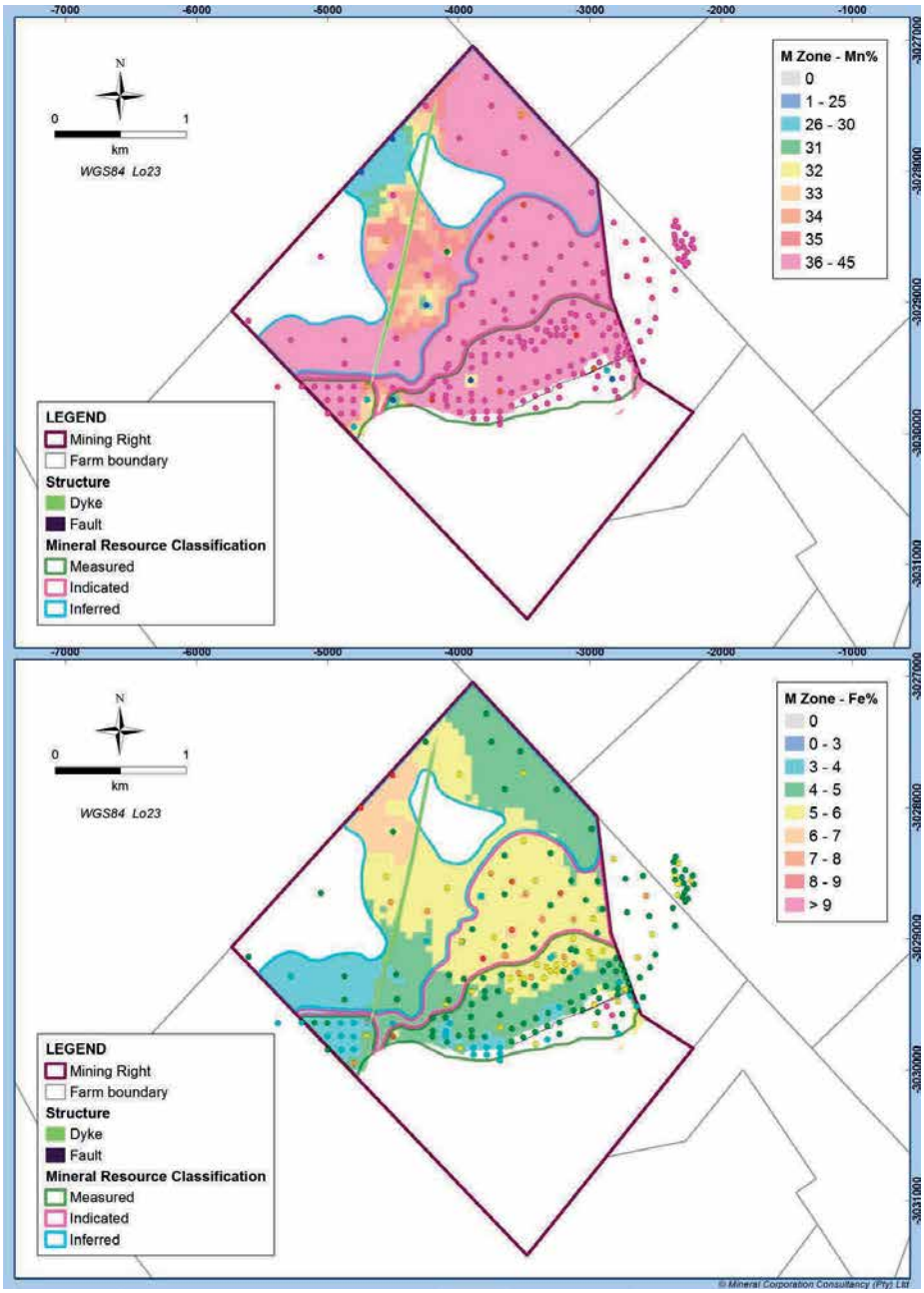

Figure 24: **M Zone Mn and Fe estimates**

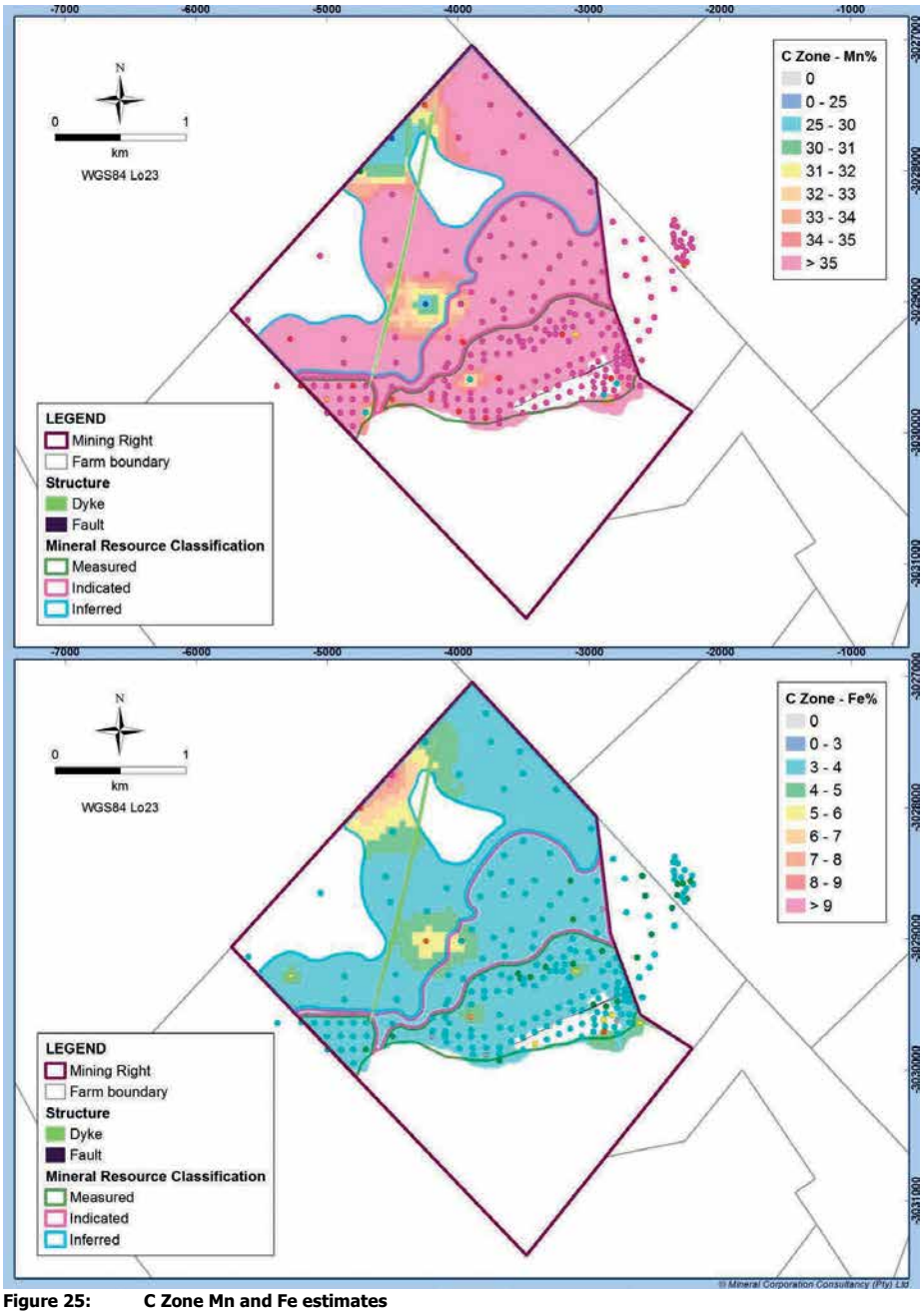

Figure 25: C Zone Mn and Fe estimates

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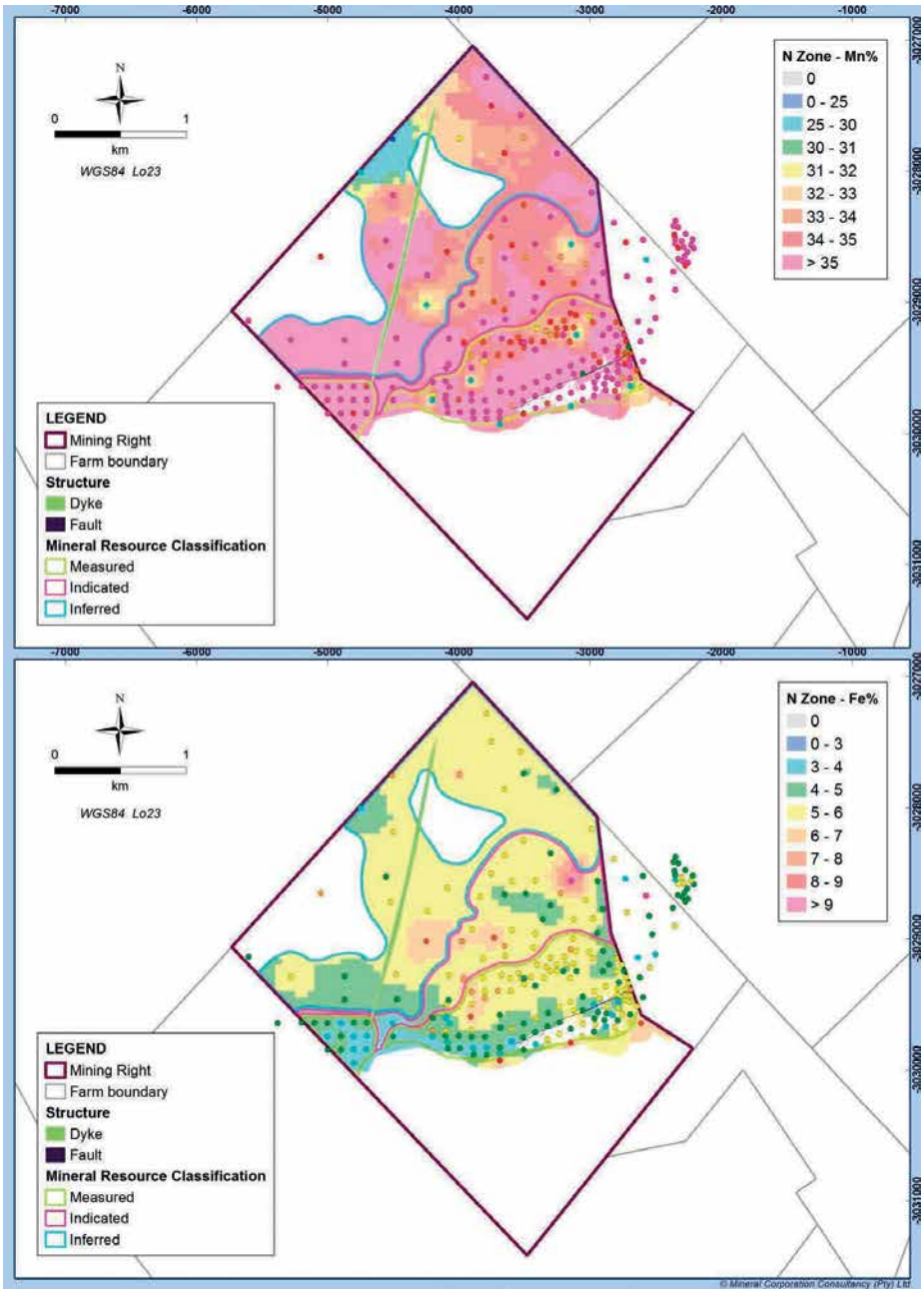


Figure 26: N Zone Mn and Fe estimates

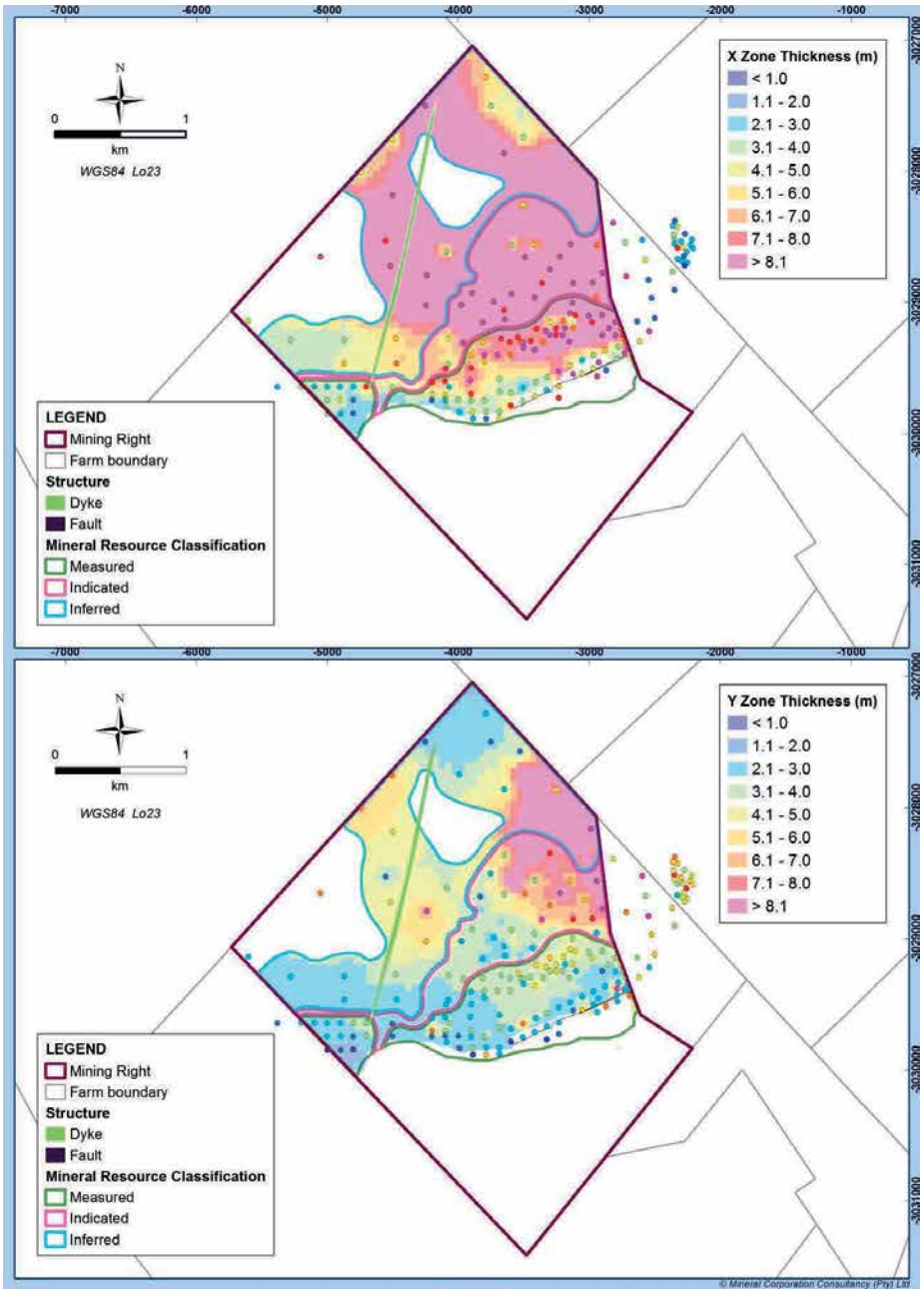


Figure 27: X and Y Zone thickness estimates

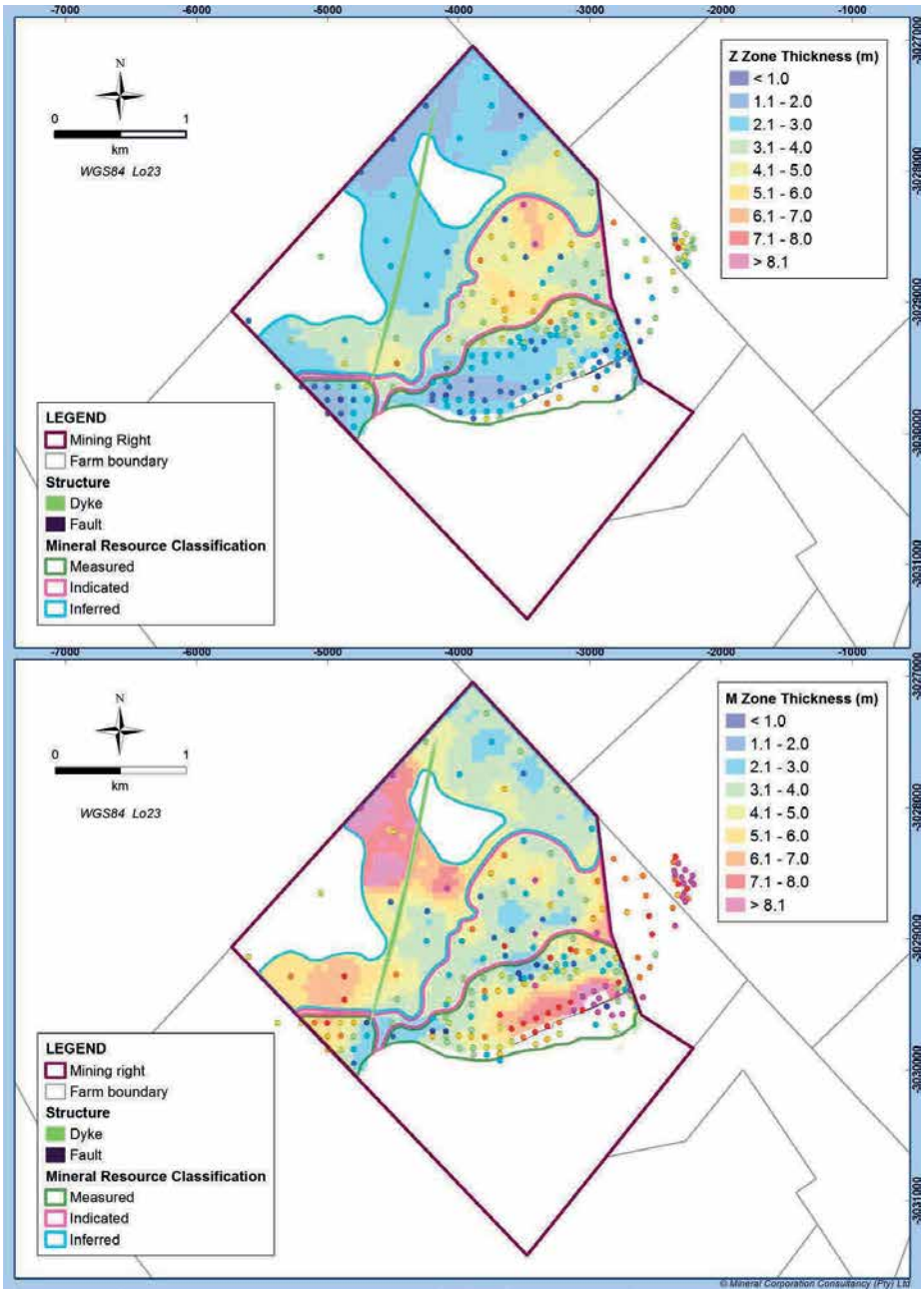


Figure 28: Z and M Zone thickness estimates

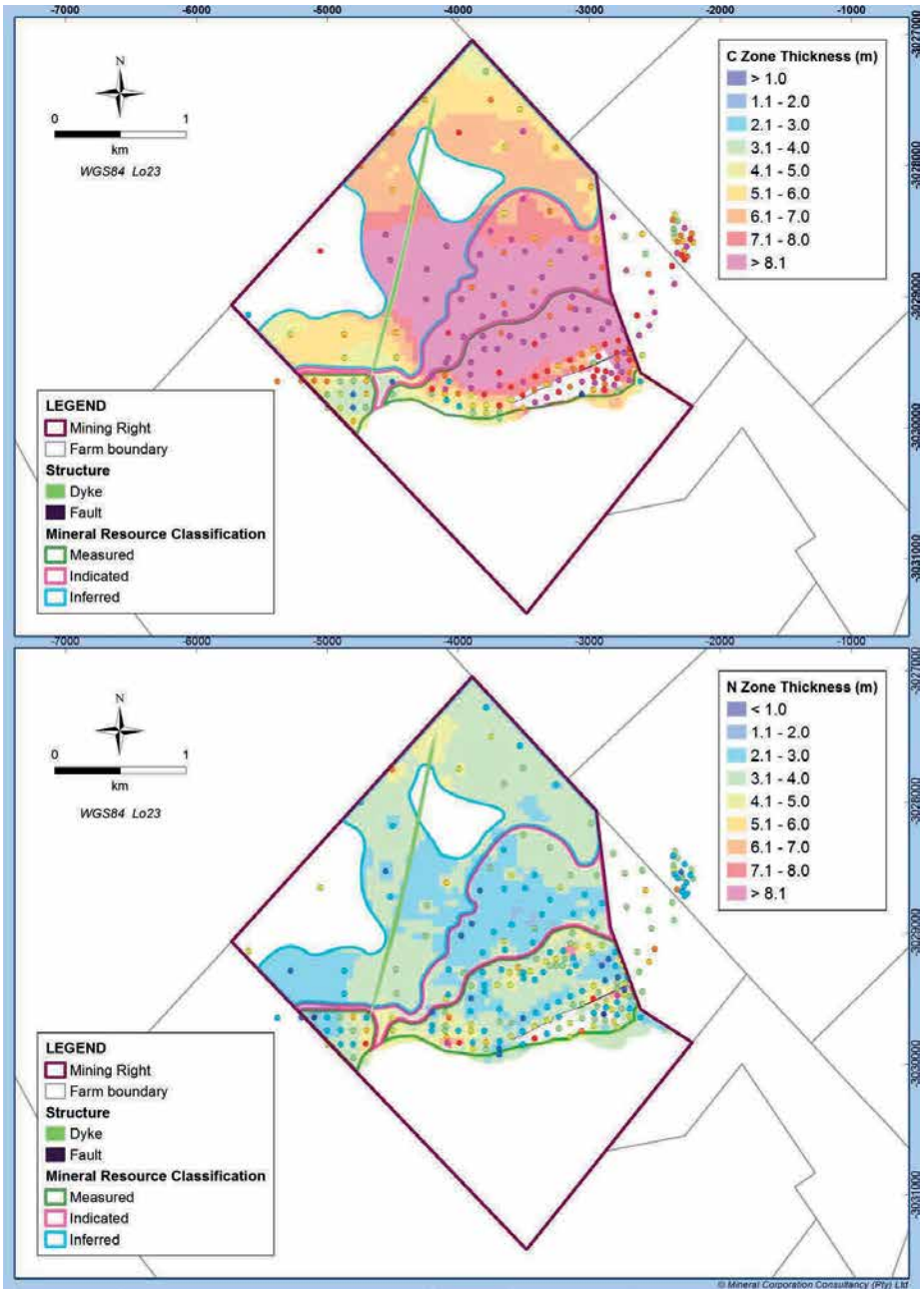


Figure 29: C and N Zone thickness estimates

7.4 Reasonable Prospects for Eventual Economic Extraction (RPEEE)

7.4.1 *Mining*

At Tshipi Borwa Mine, all of the mineralised zones within the LMO are mined, and the pit is currently at a depth of 110m below surface.

The Mineral Resource estimates contained in this report extended to a depth of 365m below surface. A LoM optimisation study based on the 31 December 2016 Mineral Resources was completed in February 2017 by VBKOM. This optimisation study demonstrated that at a Mn price of US$4.00/mtu and at prevailing mining costs, all of the 31 December 2016 Mineral Resources could potentially be extracted through the open pit operation. The results of this February 2017 study are still considered to be a reasonable demonstration of the prospects of economic extraction of the Mineral Resource, as the key economic variables (such as price and operating costs), have not changed materially in the interim.

7.4.2 *Processing*

The processing characteristics of the various zones which comprise the Mineral Resources are well established.

7.4.3 *Marketing*

The M, C and N Zone comprise Tshipi's Graded Ore (GO) product, which is typically 36.5% Mn. Where the combination of the M, C and N Zone have an average grade which is higher than 36.5%, lower grade Z Zone material is used to maintain the average grade of the GO. There is a well-established market for Tshipi's GO.

The remainder of the X, Y and Z Zones make up Low Grade Ore (LGO) production (32-34% Mn) or Low Low Grade Ore (LLGO) production (28-32% Mn). While the former has been marketed in the past, no Low Grade production has been included in the marketing schedules reviewed by The Mineral Corporation. A Low Grade stockpile is tracked in the forecast, but is not turned to account in the LoM Plan. Fe estimates are included in the Mineral Resource statement as an indication of product quality only, and Fe does not contribute to Tshipi's revenue.

7.4.4 *RPEEE summary*

Although the Y Zone has a lower average grade than the LLGO (approximately 22% Mn), and would ideally not be used for blending purposes, it is not thick enough to be mined selectively in the current pit. However, as evidenced in Figure 28, the Y Zone thickness increases downdip, and The Mineral Corporation has excluded the Y Zone from the Mineral Resource, where it has a thickness of more than 5m.

After the exclusion of the Y Zone above a thickness cut-off, all of the remaining parts of the Mineral Resources are considered to have reasonable prospects of eventual economic extraction.

7.5 Depletions

The month-end wireframe for December 2017 was used to deplete the Mineral Resource.

7.6 Mineral Resource Classification

The Mineral Resource model has been classified both qualitatively and quantitatively, based on the levels of confidence discussed below.

7.6.1 *Inferred Mineral Resources*

As per the definition in the JORC Code (2012), an Inferred Mineral Resource is "…that part of a Mineral Resource for which quantity and grade are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply, but not verify geological and grade (or quality) continuity. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to an Ore Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration."

The Inferred Mineral Resource is typically supported by a 400m drill pattern. The area around the explosive magazine has been excluded from the Mineral Resource, due to restrictions on drilling within a 360m area around the magazine, and an area towards the North of the property also lacks sufficient information to be declared.

7.6.2 *Indicated Mineral Resources*

An Indicated Mineral Resource is "…that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes, and is sufficient to assume geological and grade (or quality) continuity between points of observation where data and samples are gathered. An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Ore Reserve."

In this case, Indicated Mineral Resources have been defined as those Mineral Resource which are supported by a 200m drilling pattern.

7.6.3 *Measured Mineral Resources*

A Measured Mineral Resource is "…that part of a Mineral Resource for which quantity, grade, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes, and is sufficient to confirm geological and grade (or quality) continuity between points of observation where data and samples are gathered. A Measured Mineral Resource has a higher level of confidence than that applying to an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proved Ore Reserve or under certain circumstances to a Probable Ore Reserve."

Measured Mineral Resources at Tshipi are supported by a 100m drilling grid although it should be noted that most of the holes within the Measured Category have a spacing of between 50m and 100m. In addition, the Measured Mineral Resources are close to where the LMO is exposed in the open pit, and hence supported by geological mapping observations, and grade control drilling.

There is an area within the pit where the 100m description is not honoured. However, as the mineralised zones in these areas have already been exposed and are currently being mined, the classification of Measured remains appropriate.

7.6.4 *Resulting Mineral Resource classification*

The validation and integration of the geological and sampling information by the methods outlined above have allowed for the construction of a robust 3-dimensional Mineral Resource model. The fundamental parameters, including geology and grades, densities, shape, physical character and mineral content, are estimated with a level of confidence which is sufficient to support the Mineral Resource classification applied.

The Mineral Corporation notes that practice of classifying Mineral Resources on the basis of borehole spacing, rather than geostatistical confidence, is established on the mine.

As a means of validating this methodology, the average Kriging Efficiency within each classification category, by zone, was calculated and is shown in Table 15.

Table 15: Average Kriging efficiency for mineralised zones

Zone	Average Kriging Efficiency		
	Measured	Indicated	Inferred
X	0.66	0.36	-0.02
Y	0.62	0.38	-0.15
Z	0.64	0.39	-0.18
M	0.58	0.35	-0.09
C	0.64	0.38	-0.03
N	0.63	0.38	-0.20

The Mineral Corporation usually considers a Kriging Efficiency of above 0.5 to be an indicator of a Measured Mineral Resource and a Kriging Efficiency of >0.25 to be an indicator of an Indicated Mineral Resource. The results of the analysis suggest that if a geostatistical approach had been taken to the classification, the Mineral Resource classification would not have been materially different. The resulting Mineral Resource classification is shown in Figure 30.

The Competent Person is satisfied that the nature, quality, amount and distribution of data have all been taken into account when applying these Mineral Resource classification categories.

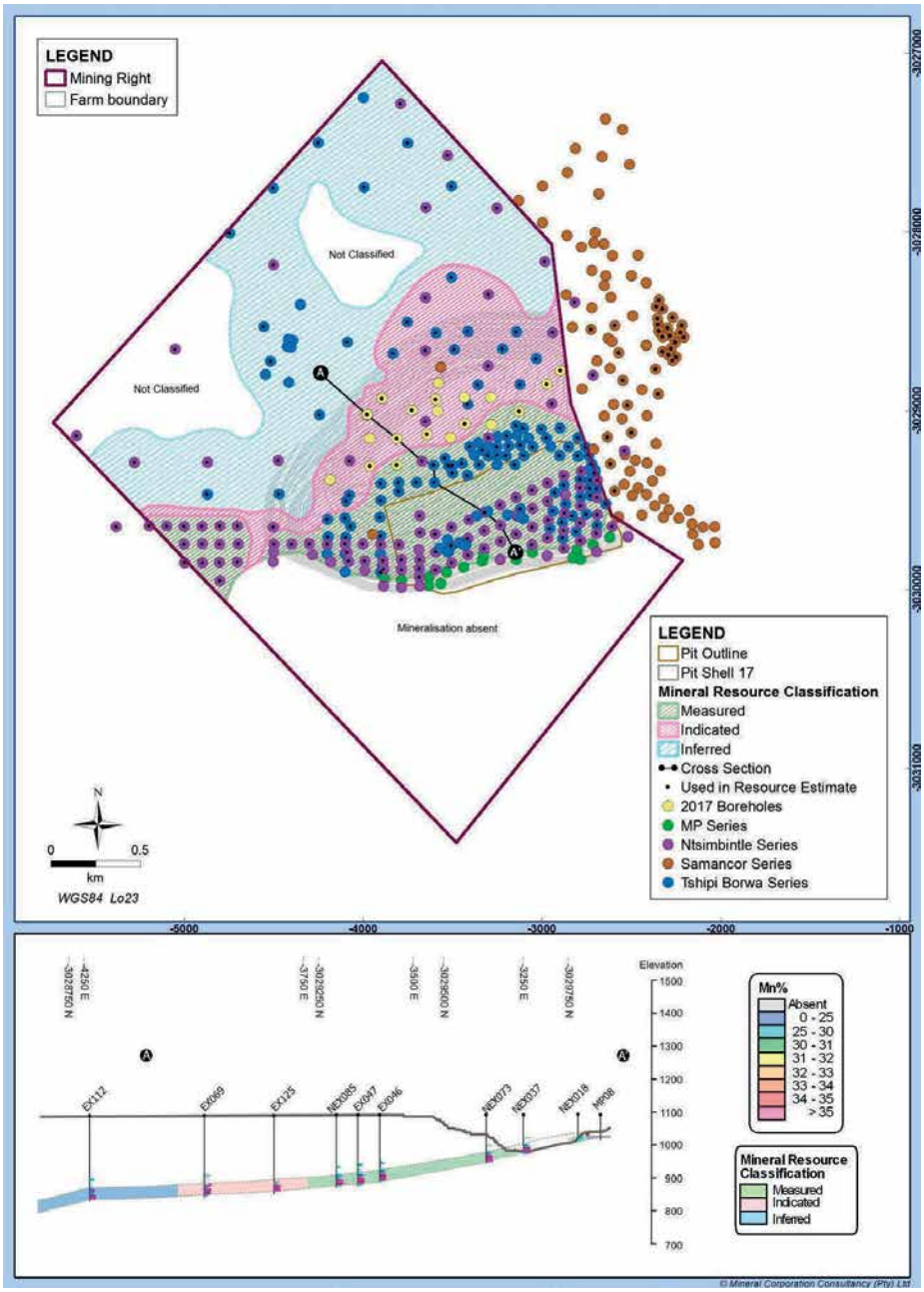


Figure 30: **Mineral Resource classification**

7.7 Geological Losses

The dyke interpreted in the north-west part of Mineral Resource was modelled as a solid and excised from the Mineral Resource model. Similarly, the fault zone intersected in the south of the Mine was modelled as a solid and excised from the Mineral Resource model.

These two structures form the only explicit geological losses applied to the Mineral Resources. No further geological losses have been applied.

From knowledge of the structural geology of the project area, this is considered a reasonable assumption, as the Mine is not structurally complex. Mining through the fault is not challenging although local variability in dip and grade can be experienced and can generally be planned for in advance to prevent complications that may arise as a result of the existence of the geological structures.

7.8 Depth Restrictions

As described in Section 7.4, the entire Mineral Resource is considered to be potentially mineable as an open pit and therefore no depth cut-off was applied.

7.9 Current Mineral Resource Estimate

The Mineral Resource estimate for dated 31 December 2017 is provided in Table 16. It should be noted that the Mineral Resource estimates are inclusive of Ore Reserves estimates.

Table 16: Current Mineral Resource estimate (31 December 2017)

Classification	Zone	Tonnes	Mn (%)	Fe (%)	SG (t/m^3)
Measured	X	19 305 000	31.87	4.81	3.55
	Y	9 532 000	22.24	5.74	3.32
	Z	9 104 000	32.52	5.78	3.60
	M	16 945 000	38.15	4.63	3.76
	C	31 982 000	36.40	3.74	3.66
	N	13 733 000	35.62	4.87	3.65
	Supergene	1 999 000	36.44	4.70	3.49
	Total	**102 602 000**	**34.07**	**4.63**	**3.61**
Indicated	X	37 272 000	31.20	4.91	3.50
	Y	6 237 000	23.10	5.45	3.28
	Z	16 712 000	31.39	6.33	3.54
	M	15 417 000	37.79	5.27	3.74
	C	32 957 000	36.69	3.74	3.68
	N	10 858 000	34.95	5.46	3.66
	Total	**119 455 000**	**33.51**	**4.91**	**3.58**
Inferred	X	67 955 000	30.92	5.22	3.52
	Y	22 730 000	25.41	5.35	3.35
	Z	22 802 000	31.39	5.73	3.57
	M	43 817 000	34.67	5.10	3.68
	C	53 450 000	35.35	4.13	3.66
	N	26 726 000	34.43	5.41	3.66
	Total	**237 483 000**	**32.52**	**5.04**	**3.58**
Total Resource		**459 541 000**	**33.13**	**4.91**	**3.59**

Tonnes are rounded down to 1 000t

7.10 Comparison with Previous Mineral Resource Estimates

The most recent previous Mineral Resource estimate was the 31 December 2016 estimate, signed-off by The Mineral Corporation. This is provided in Table 17 and reconciliation between the 31 December 2017 and 31 December 2016 Mineral Resource estimates are provided in Table 18. The following is noted:

- The Measured Mineral Resource has increased by 14.7Mt;
- The Indicated Mineral Resource has increased by 44.8Mt;
- The Inferred Mineral Resource has decreased by 17.8Mt.

The current Mineral Resource model incorporates 20 new boreholes drilled during 2017. The drilling was concentrated to the immediate north of the current pit with intention to provide information to upgrade Mineral Resources in this section from the Inferred to Indicated category.

Table 17: Previous Mineral Resource Estimate (31 December 2016)

Classification	Zone	Tonnes	Mn (%)	Fe (%)	SG (t/m³)
Measured	X	15 857 000	32	4.76	3.66
	Y	8 523 000	22.4	5.54	3.51
	Z	7 427 000	32.26	5.81	3.64
	M	15 782 000	38.18	4.55	3.71
	C	27 446 000	36.41	3.76	3.56
	N	9 212 000	35.51	4.94	3.65
	Supergene	3 635 000	35.34	5.23	3.52
	Total	**87 882 000**	**34.08**	**4.61**	**3.55**
Indicated	X	20 570 000	31.44	4.77	3.52
	Y	4 010 000	22.24	5.42	3.51
	Z	9 660 000	31.52	5.97	3.62
	M	12 200 000	37.45	5.04	3.69
	C	20 600 000	36.82	3.79	3.56
	N	7 530 000	34.85	5.24	3.45
	Total	**74 570 000**	**33.77**	**4.78**	**3.56**
Inferred	X	68 360 000	31.08	5.06	3.52
	Y	18 410 000	24.18	5.43	3.49
	Z	28 800 000	31.4	5.76	3.62
	M	51 650 000	35.35	5.06	3.72
	C	60 490 000	35.73	4.12	3.5
	N	27 550 000	34.37	5.44	3.51
	Total	**255 260 000**	**32.94**	**4.98**	**3.56**
Total Resource		**417 712 000**	**33.33**	**4.87**	**3.56**

Tonnes are rounded down to 1 000t

Table 18: Reconciliation between 31 December 2017 and 31 December 2016 estimates

Classification	Zone	Tonnes	Mn (%)	Fe (%)	SG (t/m³)
Measured	X	3 448 000	-0.1	0.0	-0.1
	Y	1 009 000	-0.2	0.2	-0.2
	Z	1 677 000	0.3	0.0	0.0
	M	1 163 000	0.0	0.1	0.0
	C	4 536 000	0.0	0.0	0.1
	N	4 521 000	0.1	-0.1	0.0
	Supergene	-1 636 000	1.1	-0.5	0.0
	Total	**14 720 000**	**0.0**	**0.0**	**0.1**
Indicated	X	16 702 000	-0.2	0.1	0.0
	Y	2 227 000	0.9	0.0	-0.2
	Z	7 052 000	-0.1	0.4	-0.1
	M	3 217 000	0.3	0.2	0.0
	C	12 357 000	-0.1	0.0	0.1
	N	3 328 000	0.1	0.2	0.2
	Total	**44 885 000**	**-0.3**	**0.1**	**0.0**
Inferred	X	-405 000	-0.2	0.2	0.0
	Y	4 320 000	1.2	-0.1	-0.1
	Z	-5 998 000	0.0	0.0	-0.1
	M	-7 833 000	-0.7	0.0	0.0
	C	-7 040 000	-0.4	0.0	0.2
	N	-824 000	0.1	0.0	0.2
	Total	**-17 777 000**	**-0.1**	**0.0**	**-0.1**
Total Resource		**41 829 000**	**-0.2**	**0.0**	**0.0**

Tonnes are rounded down to 1 000t

7.11 Reconciliation

Reconciliation is completed on a monthly basis where the volumes mined, as predicted from the Mineral Resource model, are compared to the volumes extracted from the pit, as determined by survey.

A summary reconciliation has been completed (Table 19) to check the accuracy of the Mineral Resource model against the volumes mined, in the following categories:

- Waste – Kalahari, BIF, Tillite and Dolomite;
- Low Grade Ore – X, Y and Z Zone;
- Graded Ore – M, C, N and Supergene Zones.

Table 19: Reconciliation of volumes mined vs volumes reported from FY17 block model

Material Category	Total Mined Volumes (m^3) (Jan 2017 - Dec 2017)	Block Model Volumes (m^3) (Jan '17 to Dec '17)	Difference	% Difference
Waste	8 626 298	8 311 548	(314 750)	-4%
Low Grade Ore	103 909	102 465	(1 444)	-1%
Graded Ore	876 436	917 627	(41 191)	-5%
Grand Totals	**9 606 643**	**9 331 640**	**(275 003)**	**-3%**

Reconciliation of grade between the Block Model and the RoM is complicated by the stockpiling of material in front of the primary crusher; however, a yearly reconciliation has been undertaken on the grades reported from the block model and the grades that were reported by the metallurgical plant. The average grade reported from the block model was 36.2% Mn and an average grade of 36.2% Mn was reported by the metallurgical plant. Hence, on a global basis, the Mineral Resource grade estimates have proven robust.

8 GEOHYDROLOGY

8.1 Topography and drainage

The Tshipi Borwa Mine is located within the D41K quaternary catchment within the Lower Vaal Water Management Area (WGC, 2009). The catchment is drained by the Ga-Mogara and Kuruman Rivers and their tributaries. The Mine is located within the sub-drainage catchments of the non-perennial Vlermuisleegte and Witleegte River courses.

Generally, the district topography is flat sloping towards the west and regionally there are a number of koppies and elongated E-W trending dykes which are post-Mapedi Bostonite dykes. Original groundwater monitoring indicated that static groundwater levels ranged from 38 metres below ground level (mbgl) to 42mbgl in the vicinity of the pit, with water levels dropping to 50mbgl and 72mgbl to the northeast and northwest respectively.

8.2 Groundwater Study (July 2017)

SLR, an independent firm of environmental consultants, was appointed to conduct a groundwater study to support additional environmental authorisation processes.

8.2.1 *Unsaturated Zone*

From the groundwater risk assessment conducted by SLR, it was established that the depth of the unsaturated zone was approximately 45m. The unsaturated zone falls within the Kalahari Formation and consists of sand, clay and limestone.

8.2.2 *Saturated Zone*

Based on the desktop information review, the following aquifer zones are relevant:

- A shallow aquifer in the Kalahari beds with hydraulic conductivity of less than 10m/d (WGC 2009). The shallow aquifer is approximately 25m thick;
- A low permeability Dwyka layer with hydraulic conductivity of less than 0.1m/d (WGC 2009); and
- A deep fractured aquifer with hydraulic conductivity of less than 1m/d.

8.2.3 *Ground Water Levels*

From the various studies conducted before mining commenced it was found that the average groundwater levels recorded ranged from 20mbgl to 45mbgl. Tshipi continues to monitor groundwater levels. A hydrograph is provided in Figure 31.

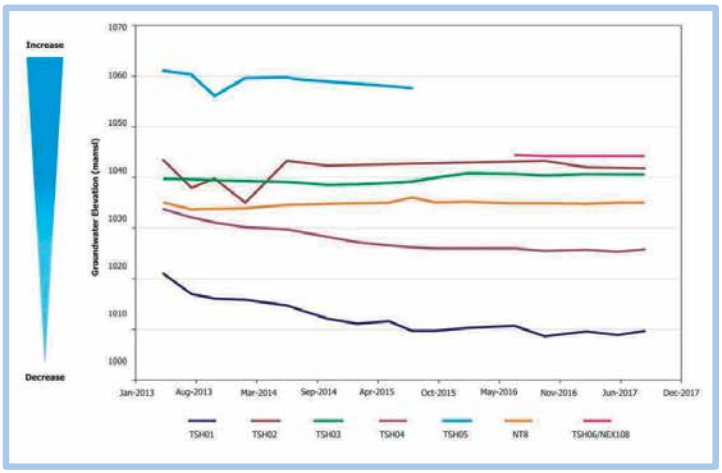


Figure 31: Hydrograph (SLR 2017)

The results to date show that:

- Groundwater levels vary between 35mbgl to 75mbgl. It follows that since the commencement of the mine, there has been a decrease in the groundwater levels;
- Groundwater levels are consistent with previous data; and
- From the available data, it is difficult to determine groundwater flow direction; however it is likely to follow topography towards the Vlermuisleegte Stream to the west as indicated by previous studies.

8.2.4 *Conclusion*

From modelling it is forecasted that mining will create a cone of drawdown with a maximum extent of 5.5km to the east and 8.3km to the west of Tshipi Borwa Mine with an expected drop in water depth of up to 2m at the maximum extent. The cone of drawdown is at maximum extent at the end of mining (2047). As mining operations stop and when backfilling takes place, the water levels should start recovering. The cone of drawdown is a district feature, located mainly around Mamatwan and UMK Mines, and Tshipi Borwa Mine has a minimal contribution to the cone of drawdown.

8.3 Quarterly Ground Water Monitoring (August 2017)

SLR has been commissioned by Tshipi to report on routine groundwater and surface water monitoring data for the Tshipi Borwa Mine.

8.3.1 *Sampling Locations*

The original groundwater monitoring network comprised nine boreholes. The current monitoring network consists of eight boreholes as one borehole, was sterilised (TSH05) in September 2015. Four newly drilled boreholes which do not form part of the current monitoring network are also sampled in addition to the monitoring boreholes. See Table 20 for detail on the boreholes and Figure 32 for their location in relation to the mine property.

Table 20: Groundwater Monitoring Boreholes

	ID	Location	
Existing	Nt1	Surrounding Area	Upstream of Mine
	Nt8	Surrounding Area	Northwest of Mine
	Nt15	Surrounding Area	East of Mine
	TSH01	Within Mine Property	Upstream of Mine
	TSH02	Within Mine Property	Upstream of Mine
	TSH03	Within Mine Property	Upstream of Mine
	TSH04	Within Mine Property	Upstream of Mine
	TSH05 (sterilised)	Within Mine Property	Upstream of Mine
	TSH06/NEX108	Within Mine Property	Upstream of Mine
New	TSH07	Within Mine Property	Upstream of Mine
	TSH08	Within Mine Property	Upstream of Mine
	TSH09	Within Mine Property	Southeast of Mine
	TSH10	Within Mine Property	Southeast of Mine

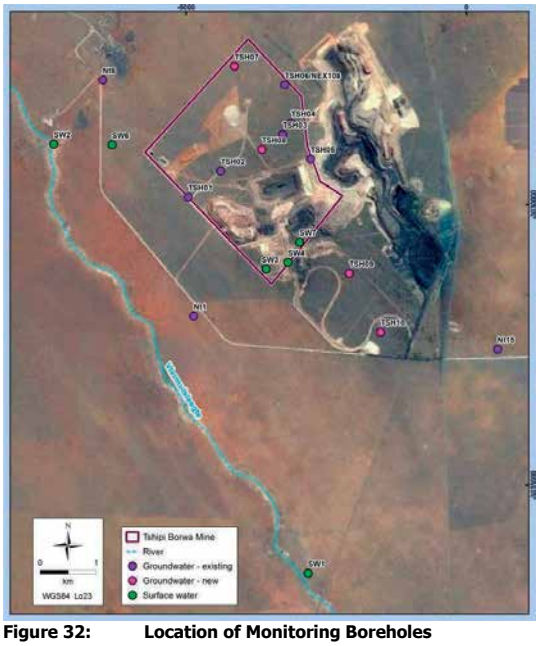


Figure 32: Location of Monitoring Boreholes

8.3.2 *Ground Water Level Results*

SLR recorded groundwater levels in six of the eight monitoring boreholes and in all four of the newly drilled boreholes during the Q2 monitoring event. Groundwater levels and details are presented in Table 21 and a hydrograph showing historical and current groundwater levels (mbgl) are presented in Figure 31.

Results show that groundwater levels varied between 41.8mbgl in TSH02 and 73.5mbgl in TSH01. There has been a decrease in the water level of boreholes TSH01, TSH02, TSH04, TSH05 and TSH06/NEX10 compared to the baseline water level.

Table 21: Water Level Status (SLR 2017)

Borehole ID	Baseline		Current		
	Monitoring Start date	Depth (mbgl)	Date measured	Depth (mbgl)	Water level trend compared to baseline
TSH01	Apr-13	62.16	Sep-17	73.50	Decrease (further from surface)
TSH02	May-13	41.53	Oct-17	43.18	Decrease
TSH03	Jun-13	49.2	Nov-17	48.34	Increase (closer to surface)
TSH04	Jul-13	56.25	Dec-17	64.28	Decrease
TSH05	Aug-13	33.92	Jan-18	Sterilised	Decrease
Nt8	Sep-13	42.02	Feb-18	42.02	Increase
TSH06/NEX108	Jun-16	41.58	Mar-18	41.77	Decrease

8.3.3 *Concluding remarks*

The groundwater monitoring results obtained during the August 2017 monitoring event are generally consistent with the results from the previous monitoring events. The drop down in the water levels generally align with expectations and the previous modelling conducted to assess the impact of the open pit mining operations.

8.4 Current status (2018)

For the purpose of confirming the current position of the water table and to determine the impact on it as a result of mining, SLR have been commissioned to complete a further hydrogeological study which is due for completion by May 2018.

The current open pit depth is 223mbgl at its deepest point (sump) while the original water level was on average at 40mbgl. The open pit is thus the lowest point, and water is being drawn down around the perimeter of the open pit by sump pumping from this lowest point.

8.5 Water monitoring

The potential for water impacting on slope stability is monitored via regular inspections carried out by the appointed geotechnical engineer, and production supervisors.

Effectively the open pit slopes are monitored twice daily by the pit superintendents and the pit controllers, and any concerns with regards to slope stability due to water seepage are logged in the safe declaration daily logs.

In addition on a quarterly basis, the groundwater levels and qualities are monitored and reported on. From the reports viewed by The Mineral Corporation no material issues were identified that could have a negative impact on the slope stability of the open pit.

8.6 Findings from site visit

Through observation and discussion with the appointed geotechnical engineer and production staff in January 2017, there was minor water seepage into the open pit post the high levels of rain fall water encountered during that month. The water that does seep into the open pit is collected in a sump at the lowest point in the pit and pumped as and when required for drilling and dust suppression purposes. It was also indicated during discussion that for geotechnical design purposes it is assumed that the clay layer is saturated.

During the subsequent site visit in January 2018 the findings and therefore the status remains unchanged.

8.7 Concluding remarks

The Mineral Corporation could identify no flaws with regards to the groundwater control and management system implemented at the Mine. Through the various observations and discussions, there appears to be no material impact of groundwater on the stability of the open pit slopes.

9 GEOTECHNICAL

9.1 General

The following is primarily derived from Tshipi's MIN-COP-001 - Mandatory Code of Practice to Combat Rock Fall and Slope Stability Related Accidents (the COP).

The COP addresses the following aspects:

- Ground control districts;
- Risk management;
- Overall mine stability;
- Mining operations; and
- Implementation of the COP.

9.2 Ground control districts identification

Several variables were utilised by the geotechnical team to identify specific design sectors including rock type, thickness variations, the presence and orientations of discontinuities and the orientation of the high wall. The most important factor used to determine the ground control districts was the thickness of the clay in the Kalahari Formation. The red clay thickness distribution was contoured using all available drillholes intersecting the clay horizon. The jointed Mooidraai and Hotazel Formations made high wall orientation critical. Dry pit wall conditions were expected below the Kalahari Horizon, but the clay layer forms an impermeable boundary and was assumed to be saturated for design purposes.

The original layout designs were executed separately for every rock type, applying appropriate material properties and using methods suitable to each specific environment. These methods included limited equilibrium, kinematic and probabilistic analysis. The final high wall designs originally included three different layouts, generated for different design sectors and mining directions within each of the sectors. (Figure 33)

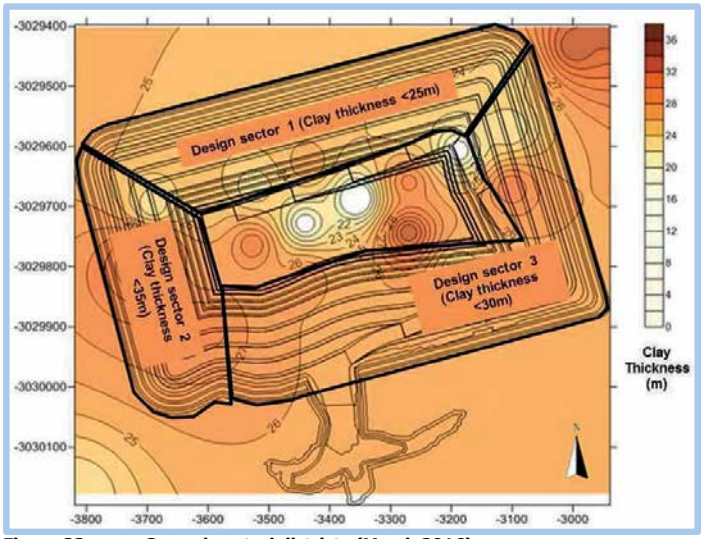


Figure 33: Ground control districts (March 2016)

9.3 Geotechnical management

9.3.1 *Hazards and risk identification*

The method adopted to identify the potential hazards at Tshipi Borwa Mine and to quantify the inherent risks is to carry out visual inspections of the excavation pit slopes in the active mining areas to identify signs of instability such as recent failures, bull noses, overhangs, ravelled ground, over-blasting, loose ground, seepages and tension cracks. These inspections are carried out by the appointed Rock Engineer and senior mining personnel on a regular basis.

The risk assessment addresses hazard identification, deviations and impacts associated with the following activities:

- Slope design;
- Slope stability strategy;
- Slope monitoring;
- Pit access protection;
- Blast design;
- Blasting operations;
- Integrity of the high wall;
- Overburden removal; and
- Seepages and tension cracks.

All competent persons, who can contribute to the risk assessment process through their technical skills, are required to participate. All legally appointed persons are required, in terms of their appointment, to do risk assessments. A register of significant rock related risk and slope instability hazard is recorded and fully described in such a manner that the risk management strategies can be cross referenced to them. A copy of the mine plan and a plan of the ground control districts is kept in the Tshipi Borwa Mine offices.

9.3.2 *Technical and historical information*

Incident information is accumulated for the purpose of historical analysis. Annual statistics of rock related incidents (slope failures etc.) are collated in a table format. Geotechnical monitoring beacons have been installed and information is gathered to highlight trends that could potentially lead to a modification of slope designs. The beacons are monitored on a monthly basis by the survey department with critical areas such as ramps being monitored twice a week, or at intervals as determined by the appointed Geotechnical Engineer, thereafter a weekly report is produced reporting on status of such.

All bench scale and larger slope failures and significant rolling rock incidents are recorded and investigated with respect to local geology and structure, geotechnical material parameters, failure mechanisms and triggers. Where possible such failures are back-analysed to enhance the database on geotechnical design parameters.

All possible relevant information such as accident statistics, research reports, various geological, hydrological and geotechnical parameters or rock excavation processes are considered.

9.3.3 *Review*

The COP is reviewed every two years and updated after every serious accident or incident relating to the content covered. It is also updated if any significant changes are made to pit design, procedures, mining strategy, mining methods, equipment and material.

9.3.4 *Overall mine stability*

9.3.4.1 Strategy to ensure overall stability of the mine

All faces are visually inspected during the shift by competent persons (qualified in open pit mining management) working below a bench face to identify possible loosening rock fragments. Daily monitoring of slopes is mainly confined to the visual examinations required for the completion of the High wall Examination Report. In addition, other displacement measuring techniques such as monitoring beacons, pins and extensometers can be used if required.

9.3.4.2 Field estimates of strength

An empirical approach developed by Hoek (2002) was used in conjunction with the rock mass rating and laboratory data to evaluate the field strength, deformation and failure parameters required for the stability analysis.

9.3.5 *Designing of pit slopes*

The design process commenced with the collection of all the necessary data (which include joint dip directions and dips, joint spacing's and extent of weathering) to perform a geo-mechanics classification according to three different Rock mass Rating Systems.

In addition a multi-bench clay slope failure was back analysed using the RocScience program SLIDE to determine the cohesion at which failure occurs. The shear strength properties derived from the back-analysis was then used to optimise the clay slopes.

The results of the back analysis indicate that the cohesion of the red clay for a static friction angle of 25° is:

- 21.2kPa for dry slopes; and
- 36.9kPa for saturated slopes.

For the slope optimisation simulations the following conditions were used:

- Saturated cohesion values; and
- Safety Factor of 1.5.

Although the COP highlights different configurations for each sector, to ease proper implementation a single configuration was selected which is viewed as the most conservative approach with regards to securing overall mine stability. The slope configuration selected is shown in Table 22 and in Figure 34.

Table 22: Slope configuration summary

Formation	Material	Max Bench Height (m)	Berm Width (m)	Bench Face Angle (°)	Stack Angle (°)	Overall Slope Angle (°)
Kalahari	Sand	10	Push Back	45	41	38
	Soft Calcrete	10	8	70		
	Hard Calcrete	10	8	70		
	Gravel	10	8	70		
	Catch Bench (m)	16				
	Clay	5	8	50		
	Clay	5 and 10	8 and 10	50	27	
	Gravel	10	8	70		
	Catch Bench (m)	16			48	
Hotazel	Banded Ironstone	10	8	80		
	Manganese	10	5	90		

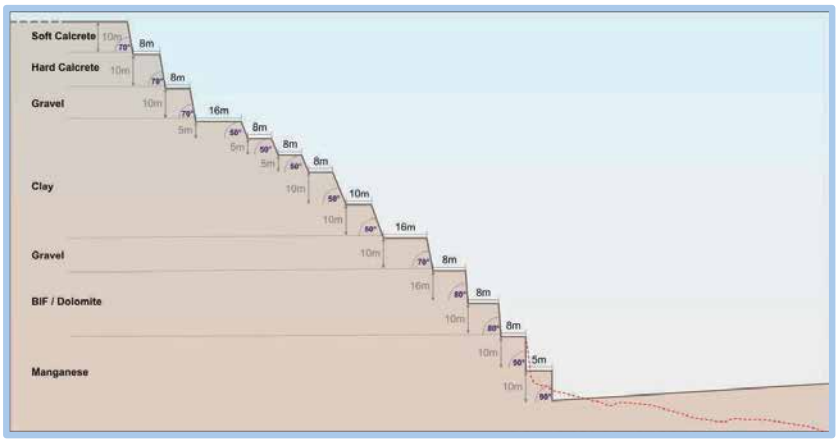


Figure 34: Original Slope configuration (as per COP)

9.3.6 *Review of slope design*

A review of the influence of variations in geology, intersection of major discontinuities and new geotechnical and groundwater information has on the open pit design is undertaken through a multi-disciplinary review committee, at the mine manager's discretion. This review concentrates on actual slope performance as compared to slope design, as well as operational performance in terms of overall rock-related risk management.

Based on the open pits slope performance in terms of stability (stable), since the commencement of mining operations (2012), a number of revisions have been made to the slope design in an effort to reduce the stripping ratio. The updated design (Bench Heights) are summarised in Table 23 while the revised slope configuration is illustrated in Figure 35. The overall impact is to increase the slope angle from 38° to 43°.

The procedures as described below ensure that continuous monitoring of slope stability is carried out on a daily basis and thus monitor the impact of any changes to ensure there is no detoriation in the open pits overall slope stability.

Table 23: Slope configuration summary

Formation	Material	Max Bench Height (m)	Berm Width (m)	Bench Face Angle (°)	Stack Angle (°)	Overall Slope Angle (°)
Kalahari	Sand	10	Push Back	45	41	43
	Soft Calcrete	20	8	70		
	Hard Calcrete	20	8	70		
	Gravel	10	8	70		
	Catch Bench (m)	16				
	Clay	5	8	50		
	Clay	5 and 10	8 and 10	50	27	
	Gravel	20	8	70		
	Catch Bench (m)	16			50	
Hotazel	Banded Ironstone	15	8	80		
	Manganese	20	5	90		

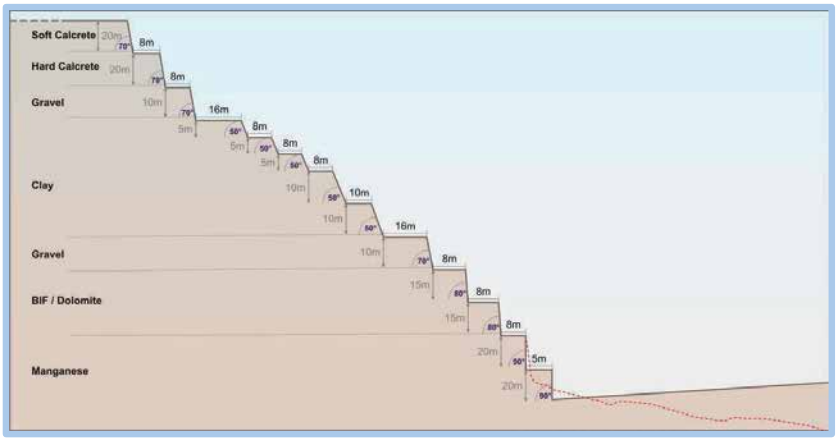


Figure 35: Revised Slope configuration

9.3.7 *Pit design strategy, unplanned or uncontrolled collapses*

The following is taken into account in the overall pit slope design:

- The rock mass properties;
- The geological structure (faults dykes, sills, joints, fissures);
- The ground conditions;
- The presence of groundwater;
- The proximity of nearby mines;
- The blast design;
- The weathering that has and may take place;
- Field stress and its changes; and
- The operating life of the slope.

9.3.8 *Examinations/inspections*

As indicated previously in order to prevent unplanned and uncontrolled collapses, the active mining areas in the pit are visually inspected daily and a high wall inspection report completed.

Any evidence of instability is reported for further investigation and indicated on the Geotechnical Hazard Plan. Significant falls of ground and slope failures are to be investigated by the appointed Rock Engineer and reported in detail, and indicated on the Geotechnical Hazard Plan. Cracking, ravelling and toppling are reported in terms of occurrence and location, with the appropriate notations on the Geotechnical Hazard Plan. Figure 36 illustrates the current Geotechnical Hazard Plan.

Figure 36: Geotechnical Hazard Plan (Source: Tshipi Borwa Mine)

9.3.9 *Scaling of high walls*

High walls are scaled in an attempt to prevent loose material from falling from a face. The areas designated for scaling are clearly communicated, and include all final and interim walls. The scaling operation is conducted under the direct supervision of a competent person.

9.3.10 *Protection of the mine accesses/exits*

Standard Operating Procedures were reviewed for Ramps and Haul Roads and for Entry Procedure. The Mine's strategy is to ensure overall safety of mine access ways and exits. The access ramps are primarily located on the high wall. Therefore, the life of access ways is of short duration and not located adjacent to bench faces or high walls to avoid loose rock on these faces falling on the haul trucks.

Total width from toe of the first high wall to edge of following high wall is 25m, catering for CAT 777 D&F haulage trucks. The berm standard is 1.5m high and 4m wide, with an additional 1m left for trenching.

- The slopes stability monitoring beacons are used to monitor any movement of the ground in the access/exit roads/ramps. The information is also used to monitor or protect the integrity of the access/exit ways;
- The appointed Geotechnical Engineer develops a report based on the geotechnical characteristics of the rock;
- Roads are dressed with competent material to reduce slippery road conditions during rainy conditions;
- Graders and water tankers are used to maintain the roads to allay dust and maintain the integrity of the roads;
- Any haulage access or area of active mining is made safe by delineating areas of seepage and excluding access to these areas; and
- Mine accesses and exits are monitored visually by competent personnel and no reports to date have been issued regarding any instability or possible instability.

9.4 Mining operations monitoring

Mining procedures and standards, relevant to rock fall and slope instability, and approved by Tshipi, are written with an emphasis on the establishment of safe working behaviours and conditions. These procedures and standards are included in the training of mine personnel. Furthermore, the following key elements affect the mining operations.

9.4.1 *Condition of pit slopes and support strategy/pit wall design*

- The condition of the pit slopes are monitored daily according to the High Wall Inspection Form (COP);
- The mining equipment used in the pit is built to safeguard the operator from rolling and falling rocks from the open pit high walls; and
- Where the potential for failure of slopes, rock faces, or benches have been identified, these instances are corrected and preventative methods are put in place.

9.4.2 *Accident - slope stability analysis*

In the event of an unforeseen accident, or significant incident, a back-analysis of the slope failure is required to be undertaken by the Geotechnical Engineer, who shall include the results of such analysis within the permanent record of the accident/incident on file.

9.4.3 *Instability caused by undercutting faces*

Undercutting of rock faces or benches will not be allowed, as they may collapse and cause damage to machinery or injury to people. If undercutting is observed, the area is barricaded off and the incident is recorded immediately. A comprehensive risk assessment will be conducted and the best possible solution will be selected to rectify the situation.

9.4.4 *Declaration of safe working areas*

Examinations/Inspections are carried out in accordance with the procedures. Where an area is believed to be unsafe it is dealt with according to the instructions in the applicable inspection form (High Wall examination form).

9.4.5 *Rock breaking*

The Blasting Procedure requires that all persons within a distance of 500m of the blast position are evacuated prior to detonation. The blast design is prepared by the Blaster and is approved by the Mining Superintendent prior to its execution. The boosters coupled with the detonators are inserted in a blast hole filled with HEF (Emulsion Explosive). Vertical drill holes of 127 and 171mm in diameter at spacing of at least 5 by 5.5m are drilled in a square/staggered pattern. The blast design is suitable for the ground conditions. Both electronic and mechanical methods of initiation are used to set off the blast and the stemming of the holes is done by the drill chips.

9.4.6 *The impact of mining operations on neighbouring mines*

A blasting agreement is in place between Tshipi Borwa Mine and immediate neighbouring mines that can impact one another operationally. Seismographs are strategically placed around the pit and within close proximity to the neighbouring mines to monitor air blast and ground movements resulting from the blast. An agreement exists where by blasting times are synchronised.

9.5 Implementation plan

Controlled copies of the COP are issued to key personnel. The recipients of the document are required to implement the COP in their area of responsibility. The content and implementation of the COP is discussed at all Health and Safety Forum meetings. Sections of the COP relevant to the occupations of employees are included in their training.

The Tshipi Borwa Mine planning meeting is carried out on a weekly basis and the designs are discussed with the involvement of the Geotechnical Engineer. The history of the slope behaviour is used to review the mine plan benches and berms. The Geotechnical Engineer guides the mine planning committee on all matters related to slopes stability that need to be incorporated into the design.

The production team executes the mining according to the mine plan designs. The conformance to this design is monitored by survey data and is discussed on a monthly basis.

Tshipi Borwa Mine utilises the service of a Geotechnical Engineer on a monthly basis to ensure that adequate data is gathered to fully understand the slope behaviour of Tshipi Borwa Mine's open pit. The geotechnical beacons are used to monitor any ground movements. This Rock Engineer advises if any deviation is needed from the design or mining sequence when required. The appointed Rock Engineer conducts a COP compliance audit at least every six months.

9.6 Findings from site visit

Through discussions with the appointed Geotechnical Engineer, Aveng's mining personnel and through observations on site in January 2017 and subsequently in January 2018, it is apparent that the geotechnical design has been implemented as per the latest designs and its implementation is being monitored on a continuous basis by the appointed Geotechnical Engineer.

Furthermore the mining contractor's supervisors carry out inspections of the pit walls on a continuous basis through the safe declaration system. Basically this consists of the following elements:

- Prior to the commencement of each shift (twice per day) the pit superintendent inspects the open pit and declares the pit safe for the commencement of work These inspections include all access ramps and pit slopes (high walls); and
- Pit supervisors inspect each pit slope above face loading operations and only if the pit wall is declared as safe and stable are loading operations allowed to commence.

Should any pit slope failures or potential failures be identified by the above supervisors this is brought to the immediate attention of the mine management and subsequently the appointed Geotechnical Engineer. Action plans to resolve any slope instability issues are developed as a joint effort between the mining operators and the appointed Geotechnical Engineer.

9.7 Concluding remarks

The Mineral Corporation regards the approach adopted to define the various ground control districts reasonable. The approach adopted with regards to the identification and management of Hazards and Risks is in the opinion of The Mineral Corporation also reasonable and generally aligns with industry best practice. Furthermore no flaws could be identified with regards to the monitoring of open pit slope stability and related failures, the approach adopted to define the various slope angles and configurations and the procedures adopted to monitoring slope stability and initiate design changes when required. The mining procedures and standards reviewed align with best practice and thus if applied as intended the Mine's general overall stability should be maintained.

10 MINE OPTIMISATION

10.1 Introduction

The pit optimisation at Tshipi Borwa Mine was undertaken during 2017 by VBKOM (Pty) Ltd (VBKOM), and has been reviewed by the Competent Person for Ore Reserves. This section of the CPR has been principally derived from VBKOM (2017).

10.2 Methodology

The pit limits at Tshipi Borwa Mine have been established using the Gemcom Whittle pit optimisation software (Whittle), undertaken by VBKOM in February 2017. The pit limit defines an outline that has the highest possible relative value, subject to the required pit slope angles. It should be noted that this outcome should in no way be construed as a project valuation and is purely a mine plan optimisation result. This outline includes every block that adds value when waste stripping is taken into account and excludes every block that does not add value. The process takes into account all revenues and costs and includes mining and processing parameters.

The optimisation process can be effectively divided into two processes:

- Creation of a range of nested pit shells of increasing sizes. This is done by varying the product price and generating a pit shell at each price point; and
- Selection of the optimal pit shell. This is achieved by generating production schedules for each pit shell and calculating the relative value for each schedule. The optimal pit is usually regarded as the shell with the highest value or the shell that represents a good trade-off between maximum value and maximum life.

10.3 Scenarios

A number of different optimisation scenarios exist, depending on whether the Mamatwan Mine Boundary Pillar is included or excluded from the scenario, and if the scenario takes into account the backfilling of waste material into the pit. For the purpose of the LoM Plan which supports this Ore Reserve statement, the optimisation scenario sought the best relative value pit, including the mining of the Mamatwan Boundary Pillar, with backfilling. This scenario assumes that Tshipi is able to mine waste on the Mamatwan side of the boundary between the two mines, in order to access the pillar.

Taking into account that the mining of the pillar between Tshipi Borwa Mine and Mamatwan Mine is required prior to the commencement of any waste backfilling operations, this scenario would appear to be reasonable. However, The Mineral Corporation agrees with the approach of evaluating a number of scenarios.

10.4 Optimisation modifying factors

Table 24 lists the inputs used in the February 2017 optimisation process. It is noted that the operating costs (mining) per bench and material type (ore and waste), as per current contractor rates, were utilised in the model as part of the optimisation process. The US$4.00/mtu (FoB) is more conservative than the current price being achieved for all sales. As is best practice, all inputs to the optimisation process are signed off by the operational technical team and the CFO. The Mineral Corporation supports this approach.

Table 24: Input parameters

Parameters	Unit	Value
Mining Costs	R/Bank cubic Meter (bcm)	Variable – as per mining contract
Processing cost	R/t Processed	60.00
Selling cost	R/t Sold	805.00
G&A	R/t Ore	106.00
FoB selling price	US$/mtu	4.0
Exchange rate	R:US$	13.5
Mining recovery	%	91
Lumpy recovery (processing)	%	85
Mining limit	Mtpa	3.00

10.5 Optimisation block model setup

Tshipi went through a reblocking and renaming process to ensure that the block model contained all necessary information to be used in the pit optimisation process. Key assumptions made in the reblocking and mining block model preparation process were:

- The average ore / waste SG was assigned to any blocks which did not have an SG assigned;
- Additional waste blocks were added below the Mineral Resource blocks, and across the boundary with Mamatwan;
- Mining Cost Adjustment Factors (MCAFs) were calculated by taking into account the bench height adjustment factor and the applicable rock type; This data was obtained from the contractor's mining rates; and
- The block model was reblocked to 20m x 20m x 10m. This was done to do optimisation runs within in a realistic time frame.

The Mineral Corporation concludes that the approach described above appears to be reasonable and aligns with industry best practice.

10.6 Pit shell selection

10.6.1 *Optimisation run selection*

Multiple runs with different ramp-up and scheduling approaches were undertaken and compared in order to obtain an approach that produced the provided a feasible LoM and strip ratio, with the highest relative value.

10.6.2 *Optimal pit shell*

Figure 37 shows the different pit shells, with ore and waste tonnes together with the relative value for each shell.

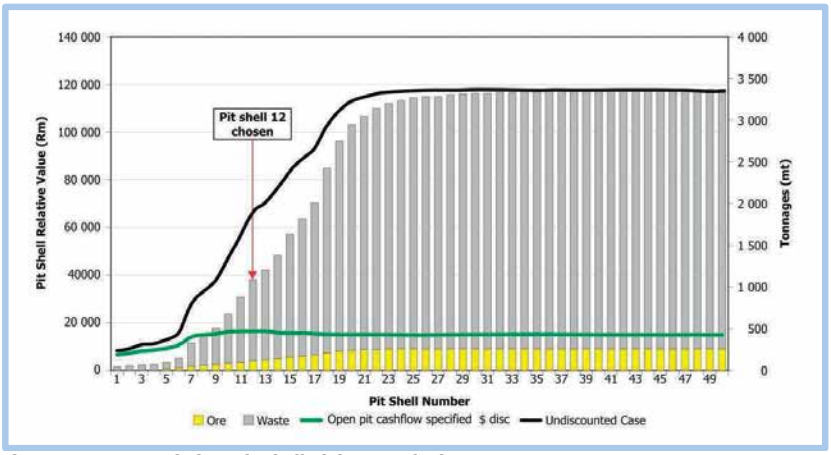


Figure 37: Optimiser Pit Shells (Size vs Value)

Pit Shell 12 was selected as the preferred pit for the following reasons:

- It is a pit which can be subdivided into practical pushbacks and pushback periods;
- It has a stripping ratio of 10.35 (bcm/bcm) (see Figure 38);
- The LoM extends over a period of 39 years (at 3.0Mtpa), which compares well with similar mining projects with a LoM of 25 to 40 years; and
- It generates the highest relative value.

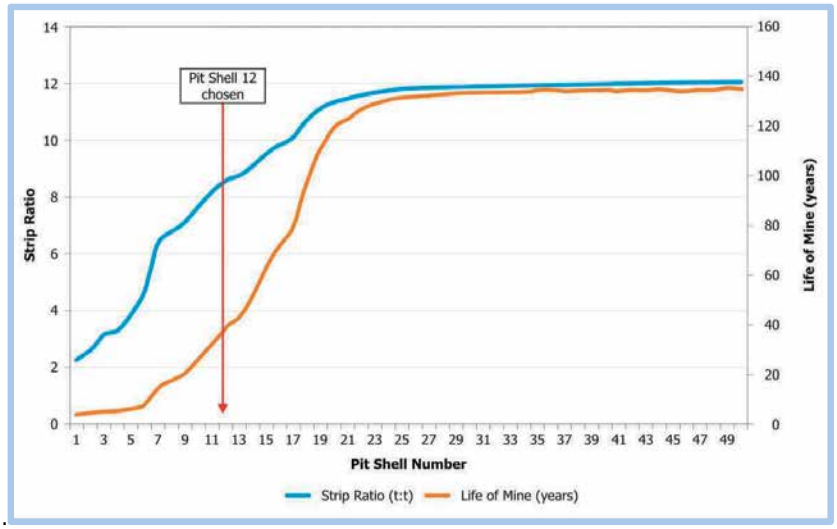


Figure 38: Stripping Ratios

Pit Shell 12 is generated when the price used in the optimisation study was discounted by 33%, which equates to a revenue factor (RF) of 0.67. By selecting this pit, the LoM was reduced from approximately 130 years to a more appropriate 39 years.

The 39 year LoM production schedule of the mine is displayed in Figure 39. It is noted that are periods where the schedule (ore and waste) is sub-optimal in this high-level strategic schedule. These issues were resolved during the development of the detailed LoM schedule post the optimisation process.

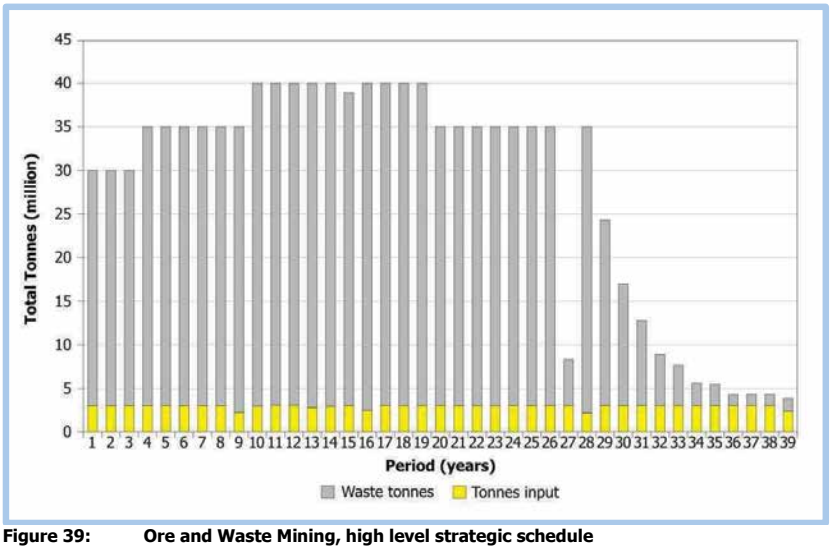


Figure 39: Ore and Waste Mining, high level strategic schedule

10.7 2017 Summary

As part of the optimisation process, the selected scenario was tested at different prices to determine the sensitivity of the pit shell and thus it life and relative value. This process demonstrated that the operation is generally robust, even if the Mn price should drop by 25% below the imput assumptions used.

Table 25: Scenario Analysis

	February 2017 $4.0/mtu	February 2017 $3.50/mtu	February 2017 @ $3/mtu
Processing Limit	3 Mt pa	3 Mt pa	3 Mt pa
Revenue factor	0.67	0.75	0.84
Ore tonnes	113Mt	82Mt	43Mt
Waste tonnes	972Mt	647Mt	277Mt
Strip ratio (tonne:tonne)	8.5	7.8	6.4
Strip ratio (bcm:bcm)	10.35	9.4	7.7
Total tonnes	1 085Mt	729Mt	36.8Mt
LOM	**39 years**	**29 years**	**15 years**

10.8 Concluding remarks

The mine optimisation approach adopted (inclusive of input parameters) to select the final optimised pit shell appears reasonable and The Mineral Corporation could find no flaws with regards to the final outcomes.

11 MINE DESIGN AND SCHEDULE

11.1 Introduction

The mine design and schedule and waste rock disposal design and schedule at Tshipi Borwa Mine was undertaken during 2017 by VBKOM, and has been reviewed by the Competent Person for Ore Reserves. This section of the CPR has been principally derived from VBKOM (2017).

11.2 Mine Design Parameters

From the final optimised pit shell, detailed pit shells were designed with the following basic parameters being taken into account:

- Horizontal operational benches of 20m to a maximum of 60m;
- Bench heights of 20m and 5m (Section 9.3.6);
- Smallest mining unit 10m x 10m x 10m;
- Current block models (2017);
- Mining and Geological losses of 9%;
- Tonnes / mining direction varied to produce 3.0Mtpa crusher feed (post 9% losses) at 36.5% Mn; and
- Pit 50m from the western waste dump.

In addition, the pit design took into account the key geotechnical input parameters, as described in Section 9. Figure 40 outlines the final open pit design while Figure 41 illustrates a number of open pit cross sections.

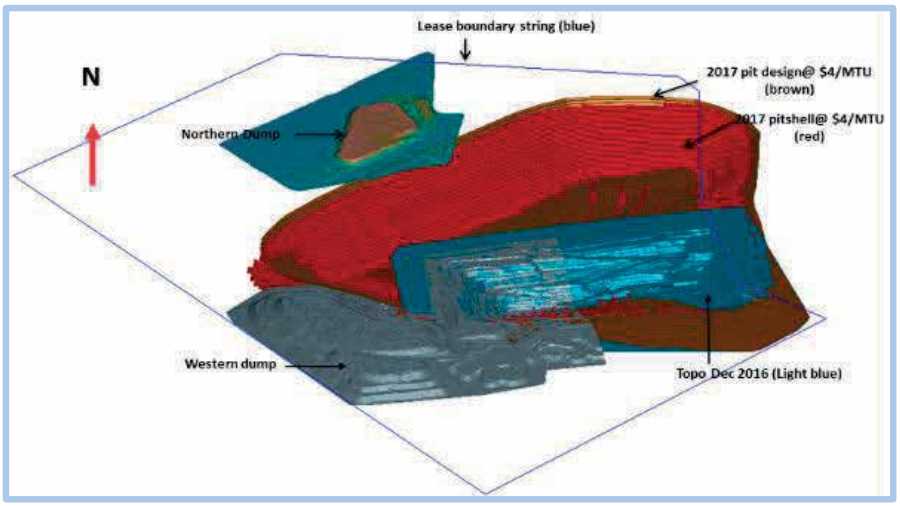


Figure 40: Pit Design (schematic, not to scale)

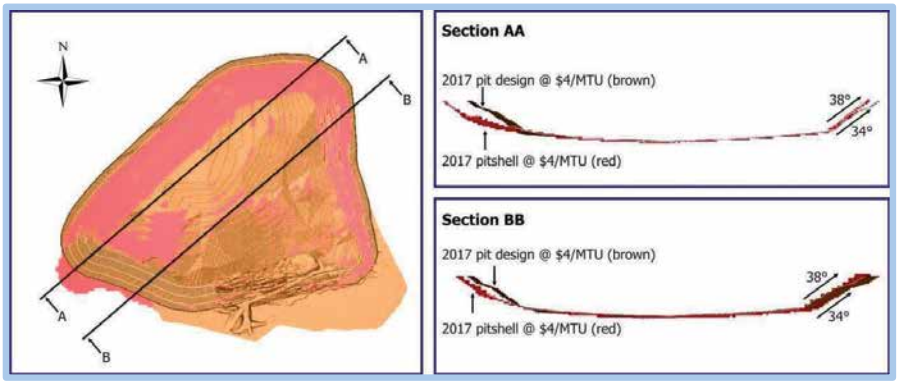


Figure 41: Open pit design cross sections (schematic, not to scale)

11.3 Production schedule

The production scheduling was developed on the basis of the following key requirements:

- Maximised overall relative value for the mine;
- Minimum plant feed of 3Mtpa at a grade of 36.5%;
- Minimise stockpile movement and inventory (Low grade and RoM stockpiles), with maximum on site stock levels of approximately 800ktpa;
- Waste volumes mined at approximately 10.6M bank cubic meters (bcm) per annum and total material mined on average of 12.4Mbcm per annum; and
- The minimum amount of active benches and optimised vertical advance.

11.3.1 *Scheduling approach*

The schedule was developed using Geovia Minesched™ mine scheduling software and was based on the following:

- A set of user defined objectives and rules such as material movement, value maximisation, etc;
- On a block-by-block as opposed to a bench-by-bench scheduling approach, resulting in the true grades and true strip ratios being reported in any reporting period; and
- Utilising capacity constraints and targets to control the tonnes and volumes content being mined for any material type and destination target.

The production schedule was selected using the results from the Geovia Minesched™ simulations and incorporated the following requirements:

- Management of fluctuations in mining rates by applying steady mining rate yet deferring waste as far as practically possible;
- Meet product targets throughout LoM;
- Low risk achievable production schedule; and
- Maintain average head feed grade.

The production scheduling model extracted material from each practical pit following a mining sequence and mining rates determined by the required stripping ratio for each pushback. The model allowed for mining from different benches.

A number of scenarios where initially created and run in order to reach a constant production, an average Mn grade of 36.5% and a constant crusher feed of 3.0Mtpa when accounting for 9% (mining and geological) losses. This was originally run on the 30 December 2016 Mineral Resource model to generate an initial practical schedule. The schedule was created to include the mining of the Mamatwan area, however, the ore from Mamatwan was not included in the crusher feed, but was taken to a separate stockpile. In July 2017, re-runs of the selected schedule was carried out utilising the 30 June 2017 Mineral Resource block model.

To control the sequence of mining, cut designs were used to assign cuts in the block model, see Figure 42. Some of the cuts were mined simultaneously in a period while other cuts were mined alone; this assisted in ensuring that a practical production schedule was created. Zones were used to define the material classes. The zones were separated into Graded Ore (GO) and Low Grade (LG). To reach the 36.5% Mn grade target, GO and Z were the only materials scheduled to go to the crusher, since they are high grade, while X and Y are assigned to a stockpile.

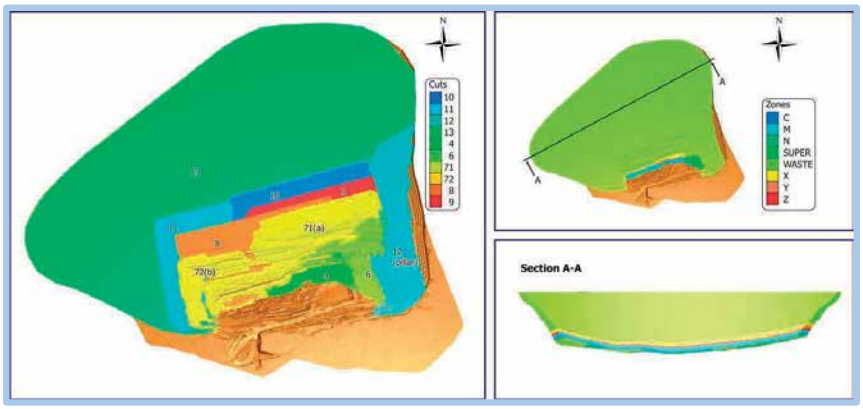


Figure 42: Cuts Assigned in the Block Model (not to scale)

11.3.2 *Scheduling results*

Figure 43 and Figure 44 illustrate the final outcomes of the July 2017 scheduling. The graphs indicate the results obtained from scheduling the GO and LG material, however, only the GO and Z were scheduled to the crusher and X and Y were scheduled to LG stockpiles.

The total RoM tonnes to the crusher after losses is 91.5Mt and this results in crusher feed of 3Mtpa at an average Mn grade ranging from 36.0% to 36.5%. The 36.5% Mn grade target is reached from 2018 until 2028 while from 2029 up to 2033, the Mn grade ranges from 36.1% to 36.4% (Figure 43 and Figure 44). The mining of ore ceases in in 2015 with crusher feed being provided from stockpiled material up to 2047.

From period 2025 to 2028, the strip ratio increases there is additional waste that needs to be removed in order to reach grades of 36.5%. The waste profile generated can be viewed as the minimum amount of waste mined to sustain constant feed to the crusher and varies over the different time periods, which is not optimal for operating a mining fleet. The further optimisation of the production profile will, as per normal mine planning practice, form part of the medium term schedule and the LoM Plan. The scheduling indicates that there will be insufficient capacity on the North, West and East waste dumps for all the waste. Once the Boundary Pillar has been mined out, backfilling of waste material in the open pit void will re-commence. This will enable Tshipi to reduce its waste hauling costs and support the final restoration at mine closure.

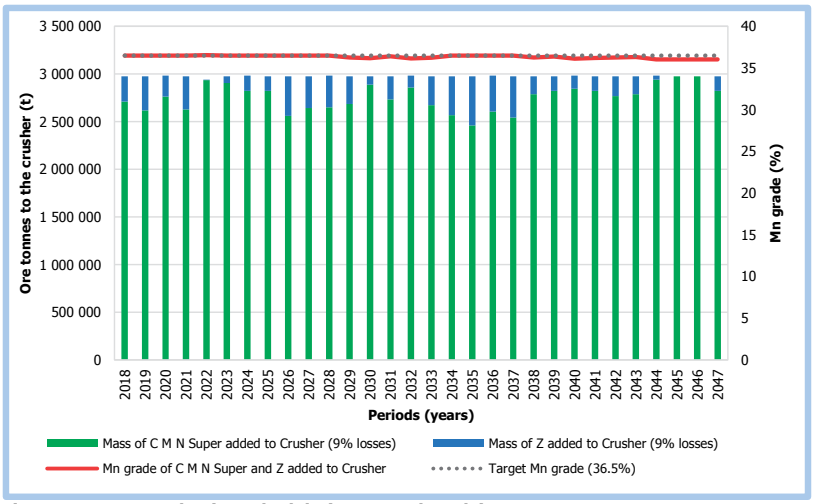


Figure 43: Production schedule (Tonne and grade)

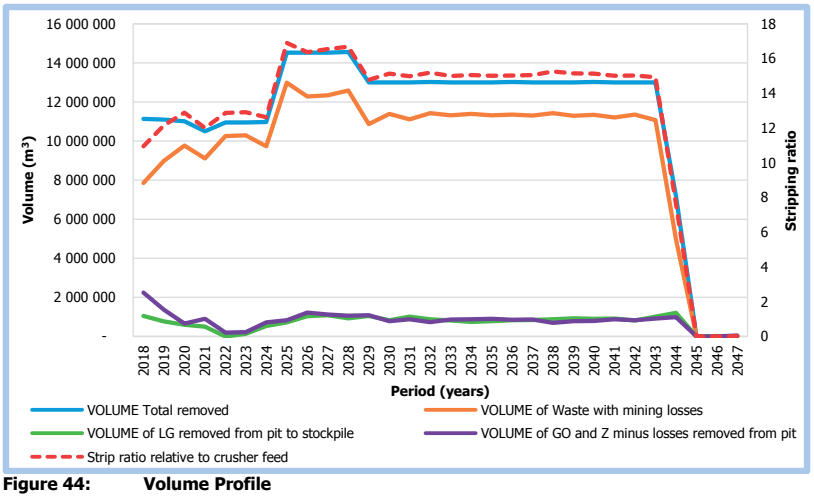


Figure 44: Volume Profile

11.4 Waste rock disposal

11.4.1 *Backfill Design*

Backfilling of waste material inside the pit is done to minimise the surface dump footprint and it also allows for shorter haul distances due to the trucks not having to travel out of the pit to the waste dumps. A number of backfill options have been assessed to determine the optimal backfill design.

The following criteria were considered when developing the optimal backfill option:

- The waste volume capacity in loose cubic meters (lcm) that can be dumped inside each of the backfill design options;
- The percentage of the LoM waste that can be accommodated within each design;
- The distance that the waste is located from the LoM pit's edge;
- The distance from the Mamatwan boundary;
- Access to the pit (the design should still allow for access ramps to the pit);
- The top elevation of the dump (this has an environmental implication with regards to the visual impact of the dump); and
- The surface footprint of the dump.

The backfill design process was carried out in two phases. The objective of the first phase was to complete a high level design for the backfill to determine if the overall shape, the dimensions and boundaries of the backfill were functional. The second phase was to develop the selected option in more detail.

11.4.2 *First Phase Designs*

Two options were considered for the first phase of backfill designs:

- A backfill design that forms an extension of the East dump; and
- A backfill design that is an extension of the East and West dumps.

These two designs were carried out at a conceptual basis to determine which of these options will be used in the second phase of the backfill design process. The first option (Extension of the East dump) is illustrated in Figure 45. The yellow surface indicates the shape of the backfill design. The current surveyed pit outline, final pit shape and Mamatwan boundary are also indicated in the same figure.

The backfill option that extends the East and West dumps is shown in Figure 46. The red surface indicates the shape of the backfill design. The current surveyed pit outline, final pit shape and Mamatwan boundary are also indicated in the figure.

It is clear from the figures that the option which extends both the East and West dumps to the backfill has considerably more capacity than the option which only extends the East dump. The East and West dump extension option was therefore selected to be developed further in the second phase of the backfill design process. Post the first phase process, the backfill design was adjusted so at a slope angle of 26° the toe of the dump would be no closer than 50m from the final pit slope. The final distance to the Mamatwan boundary was also reduced from 100m to 50m for the second phase.

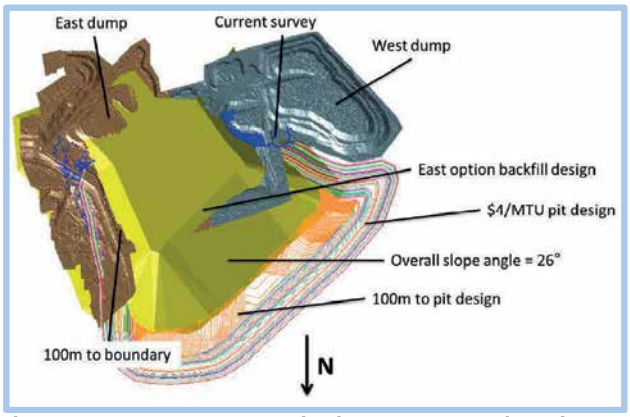


Figure 45: East Dump Extension (Source: VBKOM, schematic, not to scale)

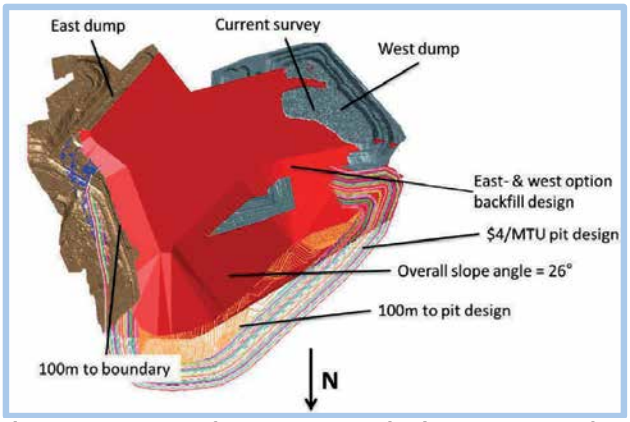


Figure 46: East and West Dump Extension (Source: VBKOM, schematic, not to scale)

11.4.3 *Second Phase Designs*

The second phase of backfill designs were developed in more detail than the first phase. All of the second phase designs have a ramp located on the backfill and individual benches were also added to the design.

One of the objectives of the second phase design process was to determine what elevation the top of the backfill dump could be. Nine designs were completed, each with a different elevation with the lowest elevation being 1090mamsl and the highest 1250mamsl; they were designed in increasing height increments of 20m (one bench).

Three of the designs are listed below:

- The 1090m design, which is the lowest (height) and matches the Tshipi surface elevation. This dump has the lowest capacity;
- The 1150m design, which is the design that was selected prior to the updating of the block model in this current study. The top of this design coincides with the final height of the Western dump; and
- The 1170m design, was eventually selected as the optimal design, and thus was used in the update of the backfill schedule (Figure 47);

The 1170m elevation design was chosen for the amendment of the EMP. The West and the East dump were excluded in this design in order to determine how much volume the dumps can still accommodate on their own when the dumps are expanded up to an elevation of 1170m and expanded to the footprint area of EMP1.

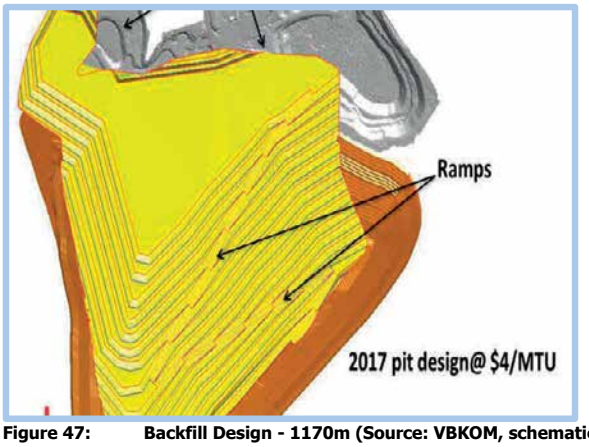


Figure 47: Backfill Design - 1170m (Source: VBKOM, schematic, not to scale)

Table 26 gives the volumes for each of the nine backfill designs that were developed. The percentage of the LoM waste that can be dumped inside each design is indicated in the column on the right. This is calculated by dividing the waste volume capacity of the backfill option by the total LoM waste, which is 291Mbcm.

The waste from the pit was multiplied by a swell factor of 1.3 and a compaction factor of 10% which then gives a waste volume generated for the remaining LoM volume of 344Mlcm. To date 1.5Mlcm of backfill has been placed in the open pit.

The backfill option that is designed up to the existing surface elevation can accommodate up to 194Mlcm or 56% of the waste from the pit. The remaining waste will have to be dumped on a surface dump and thus would not form part of the backfill design.

The 1150m backfill option rises to the same height as the current West dump. This option can accommodate approximately 74% of the LoM's waste material. The 1170m backfill option can accommodate 77% of the waste volumes. The backfill option with the largest capacity (88%) is the 1250m option; however the final top surface of the dump will extend up to 160m above the topography.

A trade-off was made between the capacity of the dump and the height that the dump will be above surface elevation. A higher dump will have a larger visual impact on the environment and also longer ramps. Taking into account the required volumes while at the same time minimising the visual impact, the 1170m backfill design was selected for further consideration in the study by VBKOM.

Table 26: Backfill Volumes (Source: VBKOM)

Backfill option (elevation)	Waste volume capacity (Mlcm)	% of pit waste that can be dumped in backfill option
1090m	194.19	56%
1110m	213.42	62%
1130m	234.74	68%
1150m	255.67	74%
1170m	265.44	77%
1190m	290.1	84%
1210m	297.4	86%
1230m	301.37	87%
1250m	303.49	88%

11.4.4 *Waste Dump Design*

An additional waste dump is required to be located within some part of Mamatwan portion 8. This is required to accommodate the final total of 344Mlcm that cannot all be accommodated in the backfill design and on the existing dumps. See Figure 48.

The portion 8 waste dump is required to be 35m away from the farm boundary at a final dump height of 80m (1170m). The current Eastern and Western dump have been designed up to their final 80m height (1170m) and expanded on the original 2009 EMP footprint area in order to determine how much more volume they can still accommodate. The Northern dump was designed in order to allow for practical backfilling an explanation of this can be found in the sections that follow. Table 27 shows the basic parameters that were used for the dump designs.

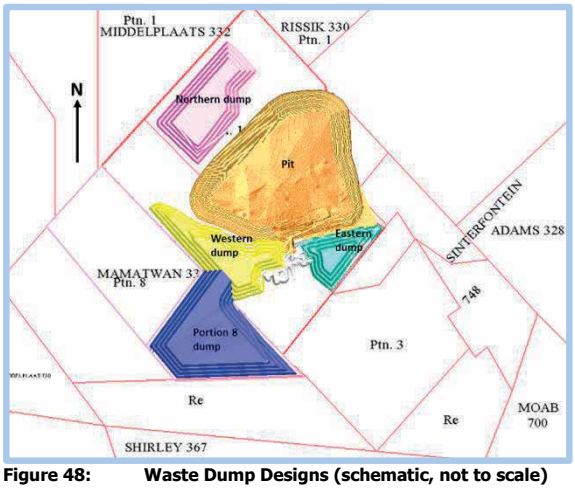


Figure 48: Waste Dump Designs (schematic, not to scale)

Table 27: Design Parameters

Dump Design Parameters	
Bench height	20m
Berm width	20m
Design angle	37°
Ramp width	25m
Ramp gradient	01:10
Overall slope angle	25°

11.4.5 *Waste Disposal Schedule*

11.4.5.1 Final Design

The 1170m backfill design does not include the East and West dumps as these existing dumps were expanded independently of the backfill to a final 1170m within the original 2009 EMP footprint. Figure 48 illustrates the backfill and dumps in relation to the farm boundaries. The final designs give a combined capacity of 418Mlcm, which is more than enough to accommodate the estimated 344Mlcm. However a combination of backfilling and waste dump utilisation will be required to ensure that the toe of the backfilling is no closer than 50m from the active open pit mining faces.

11.4.5.2 Scheduling Parameters

The backfill schedule was developed out of the LoM production schedule. Two scenarios were considered; the first approach was to start the backfilling operation as soon as possible and the second was to only start the backfilling once all the other waste dumps (East, West, Portion 8 and North). Table 28 illustrate the various dump's remaining capacities while Figure 49 shows the location and naming convention used in the scheduling process. The tables are reporting capacities in compacted lcm.

For the purposes of maintaining flexibility in the open pit while not allowing the toe of the backfill waste to approach no closer than 50m from the active mining faces scenario two has been adopted, that is to say that the main backfilling will commence in the year 2029 once the waste dumps are close to capacity and to realise a cost saving (reduced load and haul of waste) to partially compensate for the increasing stripping ratio (mining cost) as mining progresses Northwards. The planned destinations for the waste are summarised in Table 29.

Table 28: Waste Dump Remaining Capacities

Location	Available space Volume (lcm)
East dump	8 455 012
West dump	17 801 000
Portion 8 dump	70 319 283
North dump	50 861 292
Total	**147 436 587**

Table 29: Waste Volumes Scheduling

Location	Volume (lcm)
East dump	8 464 136
West dump	14 496 196
Portion 8 dump	70 319 283
North dump	39 977 533
In-pit dumping/Backfill	210 728 460
Total volume scheduled	**343 985 608**

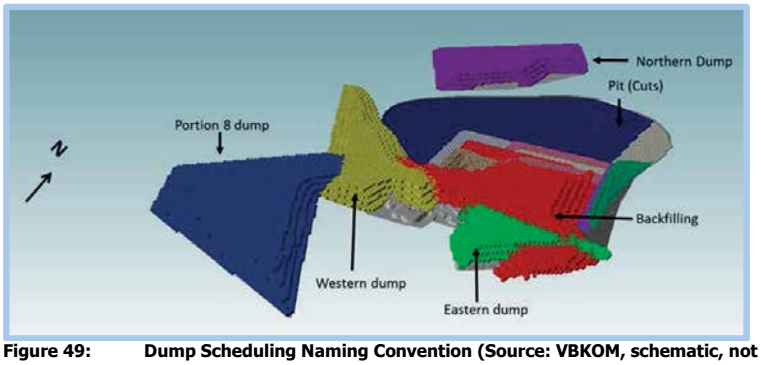


Figure 49: Dump Scheduling Naming Convention (Source: VBKOM, schematic, not to scale)

11.4.5.3 Haul Roads

The West and East dumps are the closest to the pit exits. The North dump is the furthest (3km) in relation to the LoM open pit design and ramp exits, while Portion 8 is 2km away from the same pit exits. See Figure 50 and Table 30.

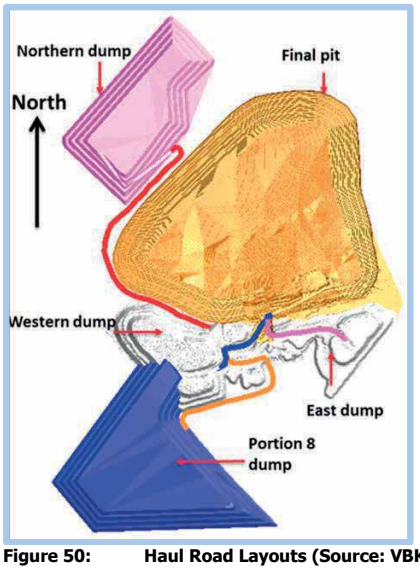


Figure 50: Haul Road Layouts (Source: VBKOM, schematic, not to scale)

Table 30: Haul Road Distances

Distances from pit exit to dump entrance:	Distance (m)
West Dump	998
East Dump	812
Portion 8 dump	2 049
North Dump	3 018

11.4.5.4 Scheduling

Some waste backfilling takes place between years 2018 and 2024, however the main backfilling commences in 2029. Figure 51 shows how the dumping progresses over the LoM. The scheduling was carried out to ensure that the minimum 50m clearance between the backfill waste toe and the active mining faces was maintained. Furthermore, the waste mining schedule has been optimised to maintain an average waste stripping rate of 11.5Mbcm's per annum and an average ore mining rate to RoM of 3Mtpa.

In this scenario it can be observed that the East dump will be filled to its capacity of 9M compacted lcm by the end of 2020, while dumping on the North dump will cease in 2024. The Portion 8 dump will replace both these sites with dumping commencing in 2024. There will be some dumping to the West dump between the years 2030 and 2036. Backfilling of the open pit void re-commences in 2029 with significant volumes being attained by 2031. This backfilling continues until the end of the LoM. At mine closure the remaining open void will be approximately 209Mm^3 in size, see Figure 52, requiring the import of 209Mlcm of backfill from the waste dumps.

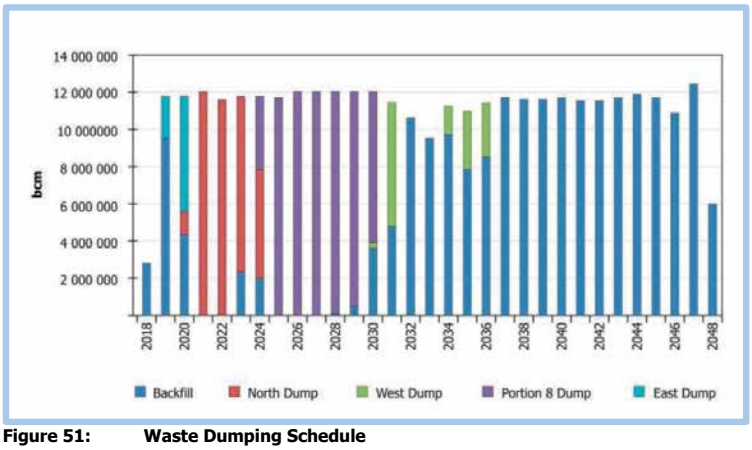


Figure 51: Waste Dumping Schedule

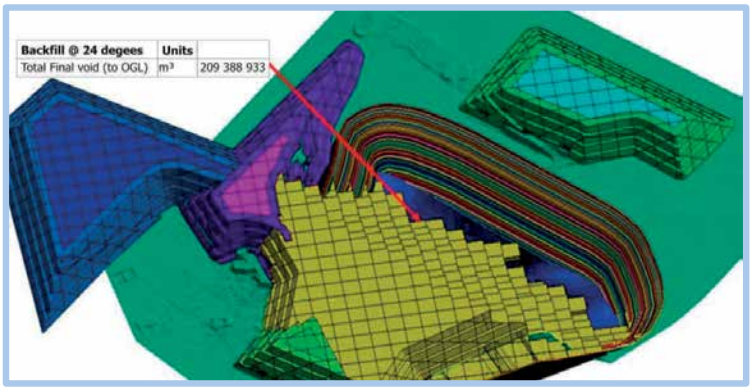


Figure 52: Final Void at end of 2048 (Source: VBKOM, schematic, not to scale)

11.5 Concluding remarks

The Mineral Corporation could identify no flaws with regards to the approach adopted for the pit design and production scheduling. The methodology adopted with regards to waste rock disposal appears reasonable and the approach utilising a combination of backfill and waste dumps aligns with typical industry best practice.

Void filling will be the most cost effective and environmentally sound practice due to the amount of waste that will be generated. Designing the dumps and backfill up to an elevation 1 170m accommodates all the waste that will be generated. The backfill toe will at all times be kept a minimum distance of 50m from the active mining faces. The North dump is critical with regards to maintaining this minimum standard. The expansion of the current dumps to the footprint of the original 2009 EMP will continue. Backfilling operations are planned to commence in 2029.

At the end of the LoM, there is currently a requirement to backfill the remaining open pit void with waste from the final waste dumps. However, if the open pit is extended or an underground mine is started, utilising a decline system for access, the backfilling of the void would be deferred. The decision to fill the final void (209Mbcm) at the end of the LoM will be dependent on the outcome of an underground access study (Section 12.6) and approval of the planned EMP amendment, EMP2.

12 BUDGET AND LOM PLANNING

12.1 Introduction

The preliminary ore and waste mining schedule developed by VBKOM and described in Section 11, has been subsequently utilised by the Mine to develop an optimised three year budget (FY2019 to FY2021) which was then rolled out into a LoM Plan which extends to FY2047. Tshipi Borwa Mine's financial years run from the beginning of March to the end of February.

The optimised LoM Plan, amongst other key parameters, takes into account:

- Current ore shipping requirements (tonnes and grade);
- Current mine performance;
- Mining fleet capacity;
- Processing plant capacity; and
- Waste dump capacities and location.

12.2 Budget Plan

The optimised Budget Plan focuses on the first three years of the LoM and schedules the following elements on a monthly basis:

- HG Lumpy shipped and revenue;
- HG Fines shipped and revenue;
- Shipping costs
- Loading of vessels;
- Marketing fees;
- Other selling experiences;
- Waste stripping requirements;
- Mining costs (Ore and Waste);
- Mining overheads;
- MRM overheads;
- Processing cost of Graded Ore (GO);
- Low Grade Ore processing;
- Overheads;
- Logistics fixed cost;
- Logistics variable costs;
- Overheads;
- Indirect costs (Salaries, Finance, Human resources, Engineering etc.);
- Capital costs;
- Depreciation and amortisation;
- Non-product costs (Head office, Corporate activities etc.);
- Interest and other income;
- Housing (income and expenses);
- Exploration expenses; and
- Royalties

The final outcome is to produce on a monthly basis a full cash flow for the first three years of the LoM Plan.

12.3 Life of Mine Plan (LoM)

The LoM Plan focuses on the remaining production life of the mine post depletion. The initial three years (FY2019 to FY2021) of the LoM Plan reflect the outcomes of the Budget Plan and thus are scheduled on a monthly basis. The remaining LoM is then scheduled on an annual basis (FY2022 to FY2047) up to mine closure. The LoM Plan reflects the same scheduled elements as the Budget Plan detailed above.

Figure 53 summarise the production schedule from mining to shipping, developed out of the LoM Plan. The variance between the tonnes mined and the tonnes delivered to the RoM is as a result of mining losses, which currently average 9%.

As a result of this final optimisation process and the development of the Budget Plan and LoM Plan, there is a 4% difference in the ore tonnage mined compared to the original production schedule.

12.4 Inferred Mineral Resources

On comparing the final LoM Plan with the Reserves it can be observed that no Inferred Resources have been scheduled for ore production.

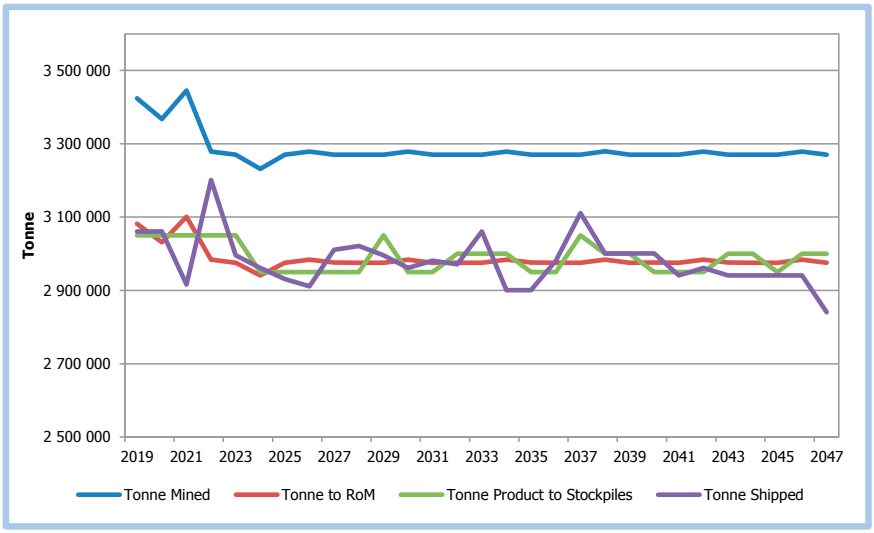


Figure 53: Production Schedule for the LoM Plan

12.5 Boundary Pillar

HMM and Tshipi share a common boundary as illustrated in Figure 54. The Boundary Pillar is 18m wide on surface, 9m either side of the mining right boundary, or approximately 200m wide on the mining horizon. The Boundary Pillar extends to the northern-most point of Areas B and C.

Tshipi and HMM have agreed to co-operate in order for the Ore Reserves in the Boundary Pillar areas, within their respective mining right areas, to be mined sequentially in a northerly direction, until the northern-most extent of the Boundary Pillar has been mined and the resulting void backfilled.

Tshipi and HMM submitted a joint pillar extraction plan that was approved by the DMR in May 2017.

12.5.1 *Boundary Pillar Extraction Strategy*

The Boundary Pillar mining is currently included in the LoM Plan for Tshipi with the first waste mining commencing in FY2019 and the first ore production in that same year. The ore production will cease at the end of FY2032.

The current intention is that Tshipi will mine all the overburden and for HMM to be invoiced for the removal of the overburden on their side of the boundary, by means of a survey certificate accounting for the mining contractors current rates. Each party will then mine their own portion of the ore (as defined by survey) which will be for their own account and will load and haul the ore to their respective ore-tips/crushers.

Currently, the intention is that all the topsoil will go to the Tshipi Topsoil dump while the other waste will go, as far as practicable, to the respective waste dumps.

12.5.2 *Boundary Pillar Backfill Strategy*

Currently the intention is to commence the filling of the Boundary Pillar void once the ore mining has a lead of 100m. A slope angle of 24° is never exceeded in the backfill design.

The current plan is that each party will carry out ongoing backfill of the Boundary Pillar void to the extent of the volumes extracted on their respective side of the boundary. In practice, dumped material will not 'respect' the boundary line, but the volumes will be surveyed to ensure equitable dumping.

On the basis of the 100m lead indicated above, the current plan is indicating that the roll over backfilling will commence in FY2020 with the intention of having completed the Boundary Pillar backfilling by FY2033.

Figure 54: Boundary Pillar Plan (Source: Tshipi)

12.6 Open Pit Extension / Underground Mine Potential

A study has been commissioned with regards to accessing the Mineral Resources beyond the final open pit outline. The two underground options being considered are access via a vertical shaft system located approximately 500m from the final pit edge or access via a series decline systems which are developed out of the final open pit high wall. In the case of the latter, the final open pit void will have to remain open to provide functional access. A third alternative would be to continue the open pit, as the current pit optimisation indicates that there a reasonable prospects for the extraction of Mineral Resources beyond the current LoM Plan. The trade-off study will be completed during the first half of 2018.

12.7 Findings From 2018 Site Visit And 2017 Progress

Long term planning was initially carried out by VBKOM, with short to medium term planning carried out as a joint effort between mine personnel and the appointed mining contractor. The Budget Plan and subsequent LoM Plan incorporate the initial work by VBKOM and are subject to various optimisation processes conducted on mine and at corporate office prior to the start of the new financial year. There is sufficient equipment on site to meet the mining requirements for the planned ore and waste mining. Projected performance for FY2018, based on 11 months production, indicates that the mine will achieve in excess of 3Mt of Graded Ore for processing by the end of the financial year. This aligns with the LoM Plan.

12.8 Concluding remarks

The process adopted to develop the Budget Plan and subsequent LoM Plan aligns with typical industry practice and the outcomes in terms of planned ore to be shipped appear reasonable and align with the projected FY2018 achievements. As with any mining operation, the LoM Plan will be subject to continuous review as the operation is sensitive to prevailing market conditions.

No flaws were identified with regards to the approach adopted for the extraction of the Boundary Pillar; however it will be important that all the outcomes and recommendations of the Risk Assessment process are implemented, to ensure that the extraction is both safe and effective.

There are substantial Mineral Resources beyond the end of the current LoM Plan. A trade off-study to assess the most effective means of extracting these Mineral Resources will consider an open pit extension, as well as underground access options.

13 LABOUR

Tshipi Borwa Mine is an owner-managed, contractor-staffed mine with the operations split between an owner's team and various contractors' teams. The labour complements have been reviewed in order to assess if the mine is sufficiently resourced to maintain safety and planned production targets.

13.1 Owner's team

The following key roles are manned by the owner's team:

- Company executive;
- General mine management;
- Mining operations management;
- Processing plant management;
- Logistics;
- Engineering management;
- Mine site safety management;
- Human resources management;
- Mine planning; and
- Mine finance.

Table 32 summarises the various key department's staffing. It should be noted that all contractors employed on site appoint their own safety officers who report into the health and safety department as well as their relevant contractor/site line managers. The total owner's complement currently on the mine site is 171.

13.2 Contractors

Contractors are employed in a number of activities, amongst others they are:

- Mining;
- Processing;
- General site maintenance; and
- Loadout operations.

13.2.1 *Mining*

The key contractor on site is Aveng, the mining contractor, which carries out all drill, blasting hauling and stockpiling activities on the mine site. The manning of the various key functions to fulfil the 3Mtpa requirement of crusher feed is outlined in Table 33.

13.2.2 *Processing*

The principal contractor operating the processing facilities is AMC; they have the personnel on site as per Table 31 to operate the fixed and mobile crushing and screening facilities.

In addition to AMC there is also another contractor on site, Motsi Civils, principally moving the saleable ore from the processing facilities to the loadout stockpiles. Their complement is also summarised in Table 31.

Table 31: Processing Personnel

	AMC Contract Staff	Motsi Civils Contract Staff
Admin and site management	18	14
Shift supervision	8	8
Plant operations	20	
Mobile machinery operators	20	86
Weighbridge/Tally	4	4
Mobile machinery maintenance	7	13
Electricians/millwrights	3	
Boilermakers and welders	11	
Fitters	9	
Belt maintenance	3	
Stores	4	
General labour and drivers	15	
Total	**122**	**125**

13.2.3 *Other contractors*

The Mineral Corporation has been informed that there are sufficient personnel and skills on site to service all other contracts such as logistics, infrastructure maintenance, housing maintenance, dust suppression, construction etc.

13.3 Concluding remarks

The Mineral Corporation is of the opinion that the owner's team is sufficiently resourced to maintain the required corporate activities while maintaining the mine operational requirements in terms of safety and production output.

The Mineral Corporation is also of the opinion that the various contractor teams are sufficiently resourced to maintain the Mine's operational requirements, particularly as several of the contractors have been active on site for a number of years.

Table 32: Key Owner's Team Staffing

Executive	Finance	Logistics	Operations	HSE	MRM	Mining	Processing	Engineering	HR
CEO (1)	CFO (1)	GM logistics (1)	General Manager (1)	Safety officers (2)	Chief Geologist (1)	Mining superintendent (1)	Production superintendent (1)	GES (1)	IR specialist (1)
CFO (1)	Financial manager (HO) (1)	Logistics superintendent (1)	MRM Manager (1)	Occupational hygienist (1)	Senior Geologist (1)	Mining contractors contracts manager (1)	Plant supervisors (4)	Electrical foreman (1)	Education and Training officers (3)
Corporate services (1)	Financial manager (Mine) (1)	Port controller (1)	Mining manager (1)	Environmental officer (1)	Surveyor (1)	Magazine master (1)	Site manager (contractors) (3)	Mechanical foreman (1)	HR officer (1)
Executive PA (1)	Procurement Superintendent (1)	Logistics Administrator (2)	Plant manager (1)	SHE Administrator (1)	Laboratory manager (1)		Load out station foreman (4)	Services foreman (1)	Training co-coordinator (1)
Legal Compliance (1)	IT & Risk manager (1)		Engineering manager (1)		Geotechnical engineer (outsourced) (1)		Plant operators (16)	E&I superintendent (1)	HR administration (1)
	Cost management accountant (1)		SHE manager (1)		Laboratory manager (1)		Control room technicians (4)	Instrumentation technician (2)	
	Fixed asset accountant (1)		HR manager (1)		Medium term planner (1)		Shunting operator (4)	Electricians (3)	
	Financial Accountant (1)		SED manager (1)		Short term planner (1)		Loadout operators (4)	Millwrights (5)	
	Procurement officer (2)		Security superintendent (1)		Grade control officer (4)			Diesel mechanics (3)	
	Warehouse superintendent (1)		Office manager (1)		Laboratory officer (1)			Riggers (2)	
	Debtors controller (1)				Sampler (12)			Boilermakers (3)	
					Laboratory Assistant's (4)			Fitters (3)	
								Maintenance planner (1)	

Table 33: Mining Contractor Personnel

Site management	Drilling	Blasting	Load and Hauling	Engineering Support	Ancillary
Contracts manager (1)	Drilling foreman (4)	BME Sub-contractors (15)	Load and haul foreman (6)	Workshop foreman (2)	Bus drivers (7)
Technical manager (1)	Drill rig operators (16)		Earthmoving plant foreman (2)	Auto electrician (3)	Crane drivers (5)
Production manager (1)	Assistant drill rig operators (21)		Dump truck operators (101)	Boilermaker (5)	General workers (pumping, cleaning, survey) (6)
Training manager (1)			Excavator operator (18)	Diesel mechanic (3)	Multi-skilled operators (5)
Senior plant manager (3)			Dozer operators (19)	Earth Moving Mechanic (18)	
Pit superintendents (3)			Loader operators (3)	General Worker (Tyre fitter) (2)	
Pit controllers (4)			Diesel bowser driver (7)	Maintenance planner (2)	
SHE manager (1)			Grader operator (6)	Service truck driver (8)	
SHE controllers (3)			Water bowser driver (10)	Apprentices (35)	
Instructors (3)				IMT Sub-contractors (9)	
Logistics controller (1)				Alfa-Gomma Sub-contractors (7)	
Graduate mining engineer (1)				Sandvik Sub-contractors (2)	
HR staff (3)				SM-Mechanical (3)	
Clerks (12)				Millwright (1)	

14 METALLURGICAL

14.1 Metallurgical testwork and bulk sampling

The processing facility is a mature operation and has been producing saleable manganese ore for a number of years and as such, the initial testwork and bulk sampling undertaken is no longer relevant.

14.2 Processing facilities

14.2.1 *Process description*

The current Tshipi Borwa Mine process flowsheet is depicted in Figure 55. The Mineral Corporation notes that high grade ore processing infrastructure is owned by Tshipi (as indicated by the blue lines in Figure 55), whilst the low grade processing infrastructure is owned and operated by AMC. The new secondary crushing and screening plant (termed the "GP500s Plant"), was being finally commissioned at the time of the site visit and had already been in partial operation since August. This plant will be operated and maintained by AMC initially and migrated to Tshipi in three years.

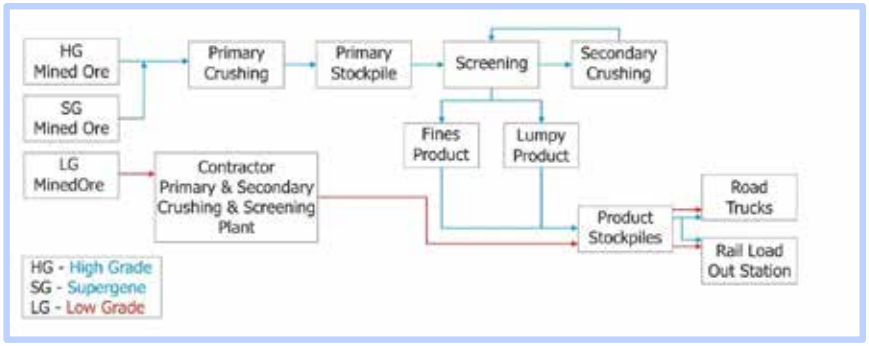


Figure 55: Process flowsheet

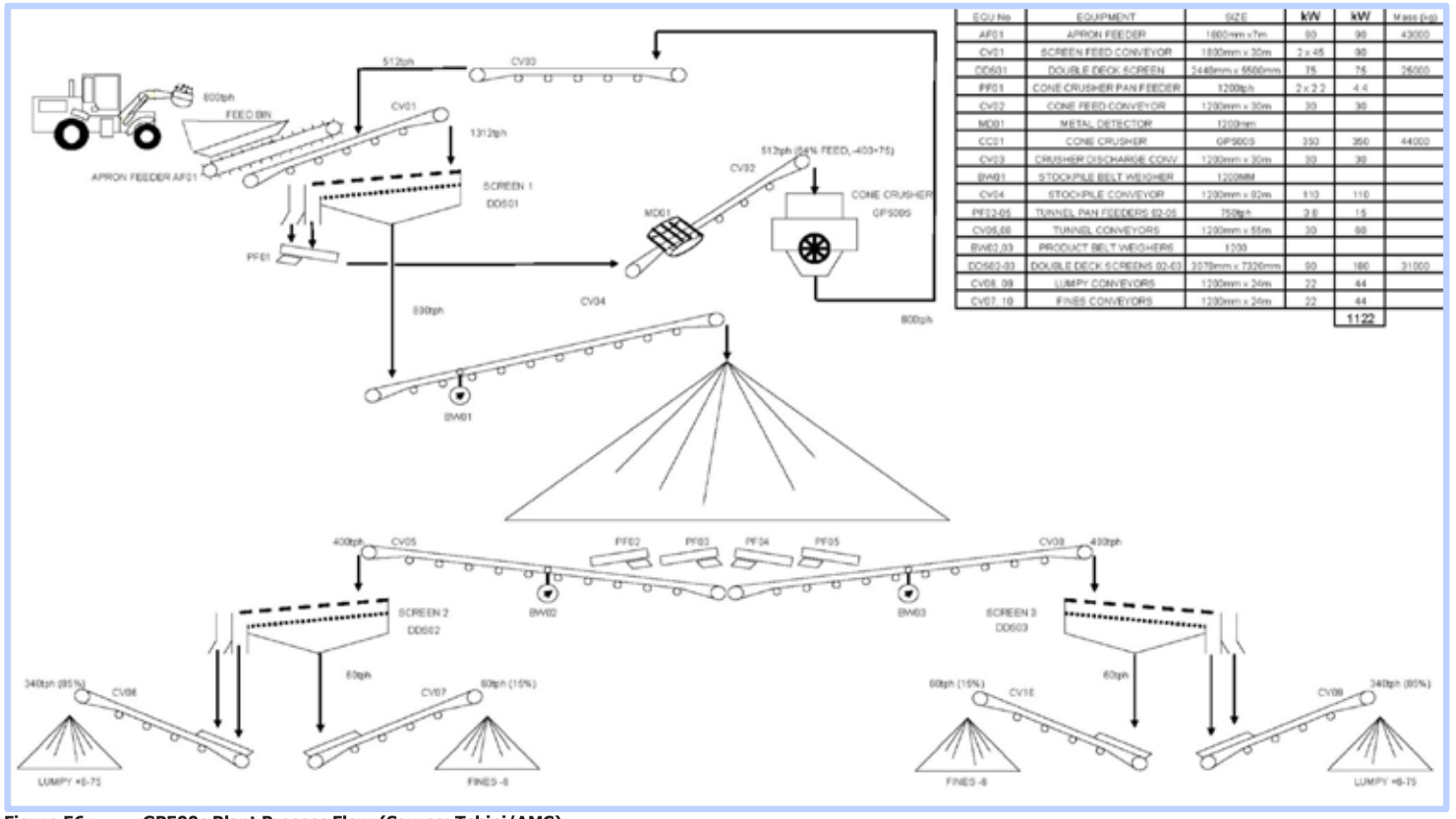
The RoM ore is delivered to the RoM stockpile area via dump trucks from the mining operations and is stockpiled based on the grade of the RoM, specifically as High Grade (HG), Supergene (SG) or Low Grade (LG). The ore is reclaimed from the RoM stockpile via front end loader and deposited onto an 800mm square aperture grizzly. A fixed pecker is mounted adjacent to the grizzly to break oversize rocks. A recent major overhaul to the primary crushing section was completed on budget and ahead of schedule. The ore is transported via an apron feeder to a vibrating grizzly and thereafter deposited into the primary jaw crusher. This is a 60 x 52 Osborn double toggle jaw crusher, currently operating at a closed side setting of 150mm, resulting in a crushed discharge of nominally less than 400mm.

The crushed ore is transported via conveyors to the secondary stockpile area, from where it is reclaimed via front end loader and discharged into a feed bin at a nominal rate of 800tph. The material is delivered into the plant via an apron feeder from where it is conveyed to a double deck screen. The screen final undersize (-75mm) is conveyed to the crushed ore stockpile, and is weighed via a belt weightometer.

The combined oversize from the two screen decks is conveyed to the Metso GP500s cone crusher via a stop belt metal detector (to protect the crusher from tramp steel), the cone crusher is set to an open side setting of 77mm, and the crushed product is returned in closed circuit to the screen.

The secondary screening plants are duplicate installations, operating at 400-600tph capacity, and comprise a vibrating screen and product delivery conveyors. The crushed ore is withdrawn from the stockpile to each plant via two pan feeders onto the tunnel conveyor under the stockpile. A belt weightometer is installed on each stockpile discharge conveyor, these deliver the crushed ore onto a double deck vibrating screen. The final screen undersize (-6mm) reports to the fines product conveyors, whilst the combined oversize (6-75mm) reports to the lumpy product stockpiles.

The process flow diagram for the GP500s plant is presented in Figure 56.



EQU No	EQUIPMENT	SIZE	kW	kW	Mass (kg)
AF01	APRON FEEDER	1800mm x 7m	90	90	43000
CV01	SCREEN FEED CONVEYOR	1800mm x 30m	2 x 45	90	
DD501	DOUBLE DECK SCREEN	2448mm x 6500mm	75	75	36000
PF01	CONE CRUSHER PAN FEEDER	1200tph	2 x 2.2	4.4	
CV02	CONE FEED CONVEYOR	1200mm x 30m	30	30	
MD01	METAL DETECTOR	1200mm			
CC01	CONE CRUSHER	GP500S	350	350	44000
CV03	CRUSHER DISCHARGE CONV	1200mm x 30m	30	30	
BW01	STOCKPILE BELT WEIGHER	1200MM			
CV04	STOCKPILE CONVEYOR	1200mm x 92m	110	110	
PF02-05	TUNNEL PAN FEEDERS 02-05	750tph	3.0	15	
CV05.09	TUNNEL CONVEYORS	1200mm x 55m	30	90	
BW01.03	PRODUCT BELT WEIGHERS	1200			
DD502-03	DOUBLE DECK SCREENS 02-03	2078mm x 7320mm	90	180	31000
CV06..09	LUMPY CONVEYORS	1200mm x 24m	22	44	
CV07..10	FINES CONVEYORS	1200mm x 24m	22	44	
				1122	

Figure 56: GP500s Plant Process Flow:(Source: Tshipi/AMC)

Low grade material will be processed in an AMC owned and operated primary and secondary crushing and screening plant, operating on a contract basis to provide tonnage as required by Tshipi, this plant is due for delivery to site during the course of January 2018 and will replace the current separate LG primary and secondary mobile plants. The LG lumpy and fines products will be treated similarly to the HG streams, but will be stockpiled separately.

The site layout of the revised plant structures is presented in Figure 57.

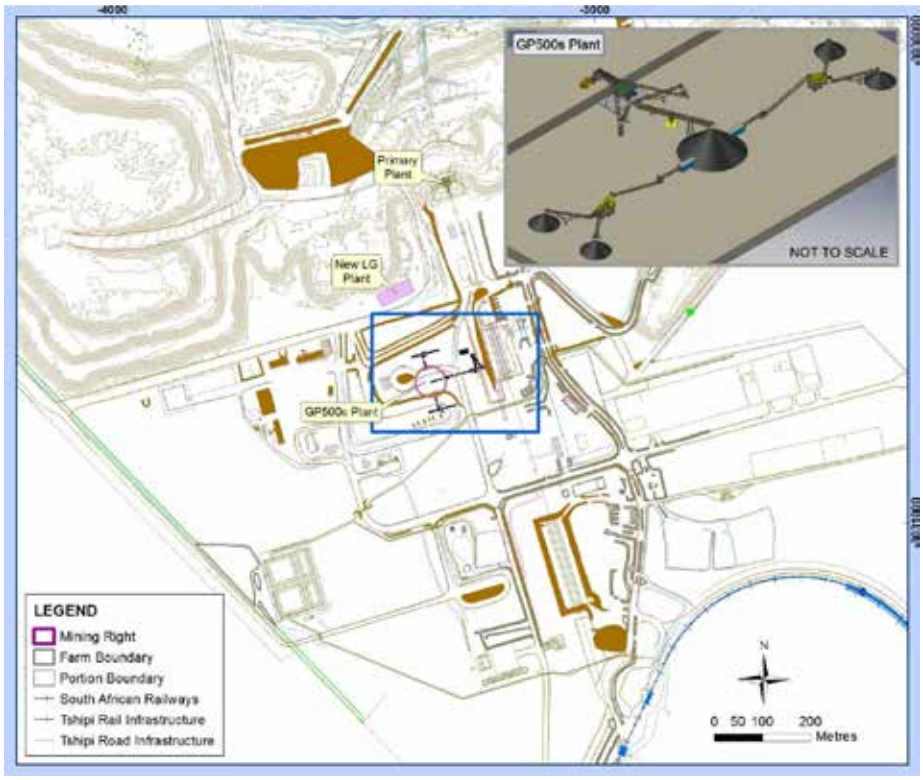


Figure 57: Location of plants

The fines and lumpy product stockpiles are sampled for grade control purposes, and the products are then transported via dump trucks to demarcated product stockpiles of known grade. These stockpiles are used as the final product stockpiles, and are loaded either directly into road truck for despatch via the road weighbridges, or loaded onto the Load-Out Station (LOS) feed conveyors.

These conveyors have an estimated combined capacity of 2 500tph, and allow a train to be loaded on a continuous basis within typically 4-6 hours. The material is sampled on the LOS feed conveyors via rotary hammer samplers, and discharges into a hopper, and then into a weighflask.

The wagon loading is controlled via the weighflask and double checked by the in-line rail weighing system to ensure conformance with TFR axle and differential loading specifications.

The grade control and despatch product samples are pre-crushed to a 20mm topsize and delivered to the plant laboratory. The grade control samples are taken hourly and the analysis results are used to allocate the materials to the correct grade stockpile for later blending purposes.

The despatch samples are composited into groups of 6 wagons and then sent to the laboratory after pre-crushing. The samples are analysed via pressed pellet X-Ray Fluorescence (XRF) spectrometry, and the results are forwarded to the Mineral Resource Manager, who is then able to adjust the blend of material being despatched to optimise the specification to contract requirement.

The laboratory also has wet chemical titration and Inductively Coupled Plasma (ICP) spectrometry facilities for calibration and back-up analysis if required. The XRF produces the following analysis listed in Table 34 for the production and despatch samples:

Table 34: Summary of analyses performed

Element / Compound Analysed							
Mn	Fe	SiO_2	CaO	Al_2O_3	P	S	MgO

Stockpile and export blending is however only performed using the Mn analysis.

No export certification is performed; however cross-checks against third party samples and analyses of export shipments are performed with no recent discrepancies reported. Pulp samples from each set of train samples are retained for a period of 5-6 months for potential referee purposes in the case of a dispute.

14.2.2 *Further planned process upgrades*

The installation and final commissioning of the GP500s plant is planned for January 2018, and was in progress at the time of the site visit, however the final configuration of the current Phase 2 installation will deposit sized fines and lumpy products on the ground, which will require double handling to transport to final product stockpiles.

Phase 3 of the GP500s plant installation will include conveyors to feed the plant from the primary crushed stockpile area and conveyors to transport the fines and lumpy products to the final product stockpile areas. These conveyors will connect with the existing stockpile feed conveyors. The planned layout is presented in Figure 58. A budget of R85 million has been allocated for this project for expenditure and completion in FY2019.

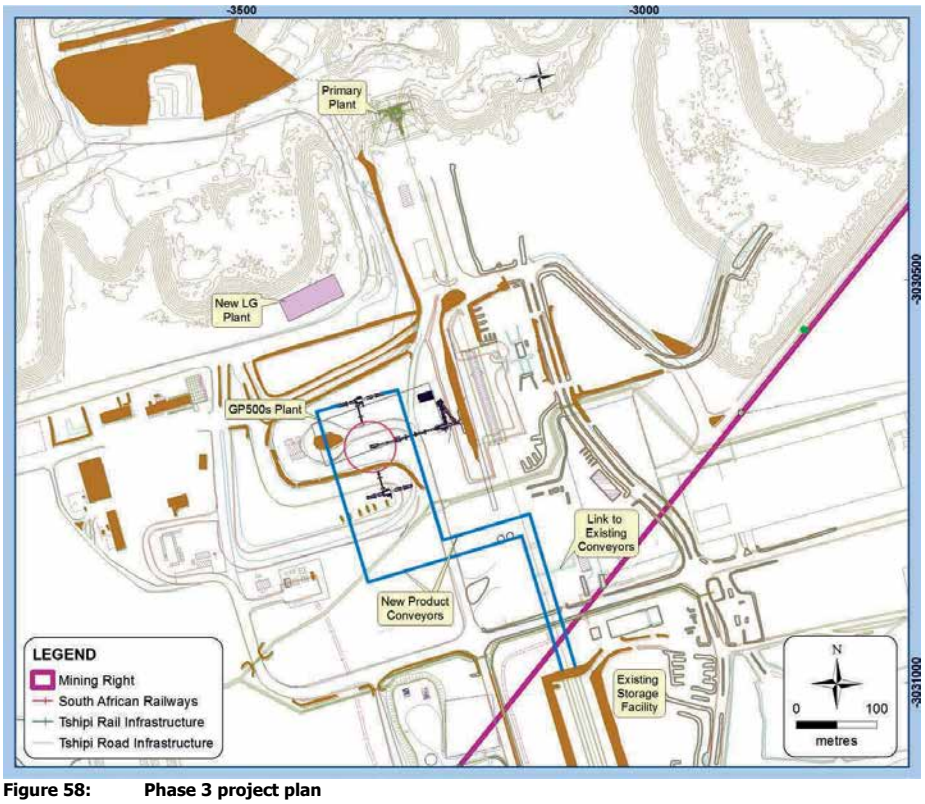


Figure 58: Phase 3 project plan

14.2.3 *Processing complements*

Due to the contract nature of the Tshipi operations, both historically and going forward, the actual Tshipi processing staff complement is low compared to other operations, the planned complements are presented in Table 35. The Mineral Corporation noted on the January 2018 site visit that the requirements of the laboratory from grade control and production analyses appeared greater than capacity. Additional staff complements may be required in this section.

Table 35: Summary of processing staff complement

	Level	Plant	Lab	Load Out
Day	Management	1	1	
	Supervision	1	1	
	Labour			
Shift	Supervision	4		4
	Labour	24	8	8

There is an outsourced dayshift cleaning crew.

14.2.4 *Tailings treatment*

A TSF and associated return water storage was previously installed for future use. The TSF installation is not reticulated for power and pumping of tailings and water. The current process and currently envisaged future processes are all dry, whereby all processed material reports to one of the two final products. As such there is currently no requirement for tailings storage or handling.

14.2.5 *Production history*

Table 36 presents an overview of annual performance of the Tshipi operation since commencement in late 2012, it may be seen that the production peaked in 2015 and then reduced thereafter as a result of market conditions, this situation has however been reversed in FY2018, with production at record levels. The ratio of lumpy produced has been relatively consistent, however generally below the 85% target, and product Mn grades have also been relatively consistent. The FY2018 production increased however, in response to market conditions, and the process infrastructure has been upgraded as discussed previously to allow this to be maintained.

Table 36: Summary of annual performance

	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018 YTD Dec 2017
RoM Tonnes	146 756	1 316 337	2 072 518	1 467 002	1 576 487	3 028 039
Lumpy tonnes (HG)	117 268	890 471	1 881 973	1 182 178	1 886 351	2 269 343
Fines tonnes (HG)	38 038	154 772	396 569	212 308	215 038	441 885
% Lumpy	75.5%	85.2%	82.6%	84.8%	82.7%	83.7%
LG Lumpy tonnes	No data			23 521	539 096	237 636
LG Fines tonnes				5 742	132 176	70 809
Lumpy Grade (%Mn)	35.0	36.6	37.0	37.1	37.1	36.8
Fines Grade (%Mn)	N/A	34.8	35.4	35.6	36.1	35.3

Primary crushing circuit availability for FY2018 has averaged 83% (excluding the major overhaul shutdown which occurred in August), with the three months following completion of the shut averaging in excess of 88%.

The availability for the GP500s plant cannot be assessed from a historical perspective, as it has only been operational from August 2017, and is still classified as in commissioning, however, the availability since startup has averaged 79%, whilst the Process Design stipulates an average availability of 86%, which is considered as realistic and achievable.

14.2.6 *Planned production*

The LoM called for an increase in ore mined and RoM processed from the historical 1.5-2.0Mtpa levels to a nominal level of 3Mtpa, equivalent to a monthly HG production tonnage of approximately 260ktpm. The May-Oct 2017 tonnage budget was further increased to 280ktpm to capitalise on market conditions. This ramp up in budget, the actual HG tonnage processed for FY 2017 and FY2018 to date and the budget to FY2021 is illustrated in Figure 59. It may be seen that the actual RoM tonnes crushed achieved have increased in line with the budget figures, and have been sustainably ahead of the budget levels required for the LoM Plan.

No LGO sales are included in the LoM Plan, with the total production planned from GO while the market exists for this level of production.

It is further noted from Figure 59 with the commissioning of the GP500s plant from August 2017 onwards, that a production peak of over 300ktpm was achieved in December. This is prior to the commissioning of the full GP500s facility and indicates that excess capacity above the planned tonnages should be achievable from this facility. The staffing and shift operations for the GP500s plant will be performed by AMC on a contract basis, the current shift structure for the plant is under review. However review of the operational time, and design availability and utilisation for the GP500s plant indicates an annual capacity of 3.26Mtpa. The Mineral Corporation is of the opinion that this capacity is achievable and realistic.

The nominal capacity of the primary crushing facility is 500t/hr and average availability of 83% yields an effective capacity of 300ktpm, which is in excess of the LoM planned throughput of 260ktpm.

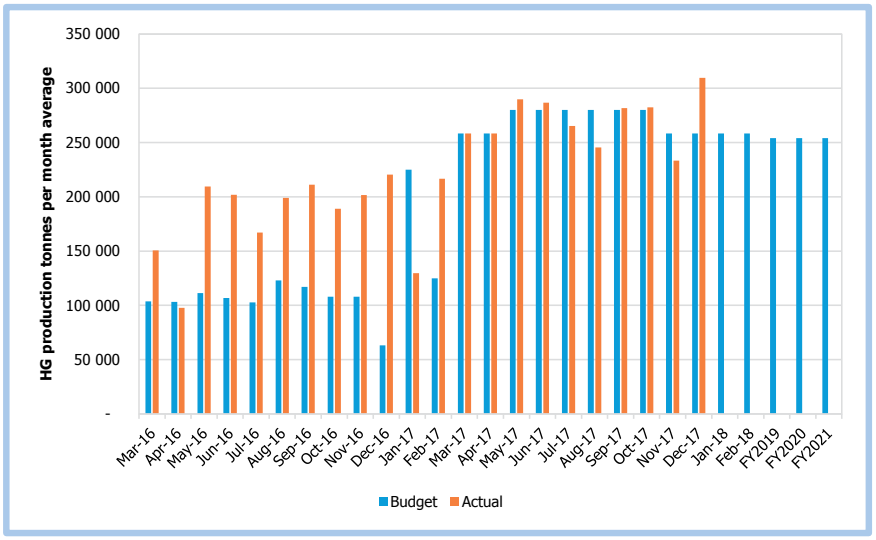


Figure 59: FY2017-2021 HG tonnages

The installation and current commissioning of the GP500s plant has increased the tonnage treatment capacity to an estimated level of 3.6Mtpa, based on process design capacity and availability, and supported by the December actual tonnage processed.

14.3 Deleterious elements and product qualities

Figure 60 presents the historical yields obtained for the lumpy product as a percentage, and also presents the 3 year plan for the lumpy yield going forward. It may be seen that for the FY2017 and FY2018 monthly data provided, the lumpy yield is inconsistent, but within the range 77-84% and averaged 82% for the period under review. This is to some extent caused by the previous configuration of multiple mobile plants, which should improve with the installation of the GP500s plant, which comprises only secondary crushing rather than secondary and tertiary crushing. The budget figure for the lumpy yield for the next three year period is 85%, which, based on current history would appear to be optimistic. However it may be seen from Figure 60 that the yield obtained from the GP500s plant in November and December 2017 was above target, at 87% and 88% lumpy yield respectively. The Mineral Corporation is of the opinion that subject to the suitable operational and maintenance structures being installed that the GP500s plant is likely to at least achieve the target lumpy yield, with the potential to exceed it, as demonstrated in Figure 55.

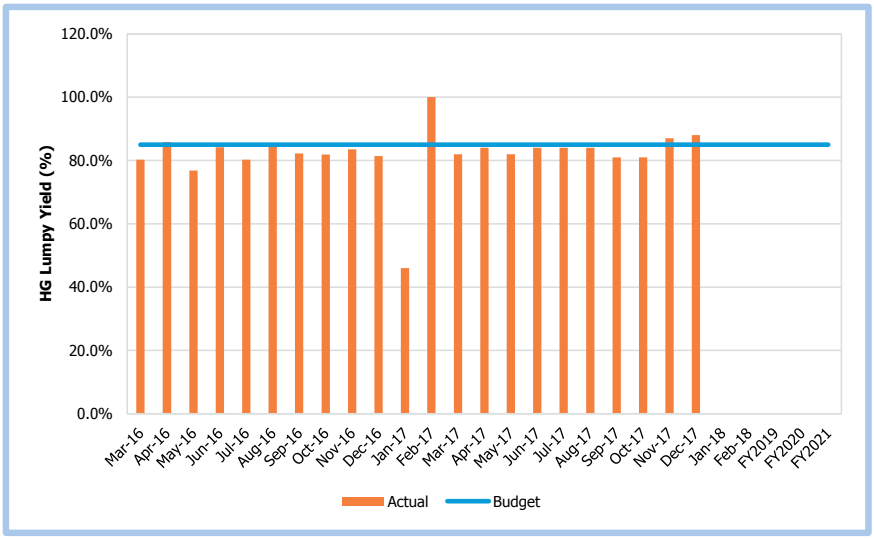


Figure 60: Historic and budget lumpy production yield

Table 37 presents a summary of the various products supplied by the Tshipi operation, and the chemical and physical specifications and typical analyses against which the products are sold.

Table 37: Summary of Final Product Specifications

		LG Lumpy		HG Fines		HG Lumpy	
		Typical (%)	Range (%)	Typical (%)	Range (%)	Typical (%)	Range (%)
Manganese	(Mn)	33.0	32.0 – 35.0	35.5	35.0 – 38.0	36.5	36.0 – 38.0
Iron	(Fe)	5.0	4.0 – 6.0	5.0	4.0 – 7.0	5.0	4.0 – 7.0
Silicon Oxide	(SiO_2)	5.5	2.0 – 7.0	6.0	2.0 – 7.0	5.5	2.0 – 7.0
Phosphorous	(P)	0.01	0.00 – 0.03	0.02	0.00 – 0.03	0.02	0.00 – 0.03
Sulphur	(S)	0.02	0.00 – 0.04	0.02	0.00 – 0.04	0.02	0.00 – 0.04
Calcium Oxide	(CaO)	17.0	12.0 – 19.0	15.0	12.0 – 17.0	13.0	12.0 – 17.0
Aluminium Oxide	(Al_2O_3)	0.3	0.1 – 1.0	0.3	0.1 – 1.0	0.3	0.1 – 1.0
Magnesium Oxide	(MgO)	3.4	3.0 – 5.0	3.3	3.0 – 5.0	3.4	3.0 – 5.0
Size: (90 percent minimum)	mm	+6-75		-8		+6-75	

The Mineral Corporation has reviewed the despatch analysis data for the 434 shipments which have been completed since 2013, and compared the final Mn content reported by the client against the documented product specification. The following products were compared:

- High Grade Lumpy;
- Low Grade Lumpy; and
- High Grade Fines.

Table 38 presents the results of the product quality review, from which it may be seen that the compliance to specification has typically not been an issue since 2013, with non-conforming shipments controlled at very low levels post 2013.

The Mineral Corporation notes that each shipment to customer comprises a number of individual consignments from the mine, each of which is analysed and reported separately, however for the purposes of this analysis the individual consignment analyses have been combined per shipment (for which there is a specific contract) and compared against the contractual minimum Mn specification.

Table 38: Consignment quality compliance (by calendar year)

	2013	2014	2015	2016	2017
Non-conforming consignments	21%	3%	0%	2%	3%
Number of consignments	61	143	90	46	94

No other product analysis against specification is tracked, but they are however measured, no quality issues have been recorded for any other deleterious elements in the finished products delivered.

It is noted that following the non-conforming shipments in FY2018, all supply contracts have been renegotiated to include a penalty clause, which stipulates a pro-rata reduction in price for the first half percentage point below contractual stipulated minimum grade based on delivered dmtu. It further allows for renegotiation of price below this level, however, shipment grade in excess of one half percentage point below specification has never been seen, nor is it expected to be breached. The Mineral Corporation has reviewed contract number TSH-50-2017F dated 6 September 2017, and has confirmed that the clause as described is included.

14.4 Concluding remarks

The Mineral Corporation has reviewed the historical and planned process plant operations, the quality of product obtained has generally been to an acceptable standard against specification, and should improve with the current and planned process improvements being implemented. The installation of the GP500s plant currently underway is regarded as a positive step forward in the process, which should ultimately lead to productivity, quality and cost improvements. The LoM plan processing inputs are regarded as reasonable and achievable.

15 ENGINEERING INFRASTRUCTURE

15.1 Basis of design

15.1.1 *Introduction*

Tshipi Borwa Mine was designed and constructed in 2012 to process manganese ore by means of crushing and wet screening to produce lumpy and fines product at 36.5% for export via the various ports. Construction of the processing plant as designed was not fully completed, so various semi-fixed secondary crushers and dry screens were commissioned to satisfy the market requirements.

In 2017, the smaller secondary cone crusher and screen "Combo Mobile Plant and the secondary "Finger mobile plant" with two screens and an HP 400 Cone Crusher have been replaced by a new GP500s crusher and two subsidiary parallel dry screening systems to reduce the number of operating units and amount of product re-handling. The project is complete and ready for commissioning in January 2018. The company has departed from the philosophy of wet screening.

As such the total installed production capability onsite is now estimated to be capable of treating 3.3Mtpa. The load-out station is capable of loading in excess of 3.6Mtpa, based on a train loading time of four-six hours.

15.1.2 *Geotechnical conditions*

The Site area and the adjacent provincial roads are underlain by an aeolian sand unit of the Kalahari Supergroup, which is prone to collapse and settlement.

Prior to commencement of the construction of the processing plant and infrastructure in 2012, a geotechnical study was carried out to confirm the design criteria for the large load bearing structures. The larger structure civil foundations were excavated down to the calcrete, to remove the aeolian sands, and backfilled and re-compacted to the appropriate level. Most of the structures have been completed and remain robust to present. The only area of concern identified during the construction was the cantilever conveyor at the load out facility which resulted in the necessity for piles to be installed below this structure to ensure stability.

15.1.3 *Site construction*

All of the primary structures on the site have been erected and are complete with the exception of; the main incomer sub-station and completion of the mine engineering workshops. The permanent secondary crushing and screening plant has been completed and will be commissioned in January 2018. The mine plan for the next year includes:

- Completion of the mine owner's workshop facilities;
- Construction and commissioning of the Incomer Main Stepdown Substation as soon as agreement is reached with ESKOM on the costing and execution of this project;
- Completion of the reticulation to the new mine owners workshop,
- Completion of the ring feed between the main substation and the secondary crusher substation; and
- Construction of the GP500 conveyor.

15.1.4 *Concluding remarks*

The Mineral Corporation's opinion is that the infrastructure design and construction is robust and adequate for the designed loading of the processing plant and facilities. The Mineral Corporation found no material issues with the site construction.

15.2 Road access

The main entrance to the Tshipi Borwa Mine is located along the D3457 road which is accessed via an intersection off the provincial R380 road. The D3457 is a gravel road which has an all-weather bitumen "chip and spray" wearing course which will require ongoing maintenance. The R380 is a typical provincial road, built from the 1960s to the 1980s, designed to a standard capable of carrying approximately 1 million equivalent 80kN axles over an expected lifetime of 30 years. The expected lifetime of these roads has generally expired, and is confirmed by a clear and rapid deterioration of the condition of the roads.

With the ongoing road trucking of manganese ore from Tshipi and adjacent mines, traffic volumes (light and heavy) are expected to remain high, which will necessitate an increase in the technical specification requirement and maintenance of the local roads by local authorities.

Internal haul roads are used to transport manganese-bearing ore and waste rock. The haul roads are constructed from suitably sized and compacted waste rock. Internal haul roads vary in width up to a maximum width of 25m and have a safety berm on the down slope side. It is not anticipated that the proposed increase in production will influence existing traffic congestion at the mine.

15.3 Rail access infrastructure

A railway siding has been installed and commissioned between the regional railway line (adjacent to the R380) and Tshipi's silo/loading area. The construction of the railway siding has made provision for an additional length of 7 km, to accept two full trains totalling 208 wagons. The railway siding is fully electrified from the Transnet Freight Rail (TFR) turnout, but is energised only when trains are loaded.

The installed rail section specifications of the incoming side of the loop (empty wagons) are designed to accommodate 20t axle load wagons, whilst the outgoing line (full wagons) is designed for 30t axle load wagons. This means that the outgoing loop can accommodate 100t wagons. However, the TFR main line in the area is only equipped to accommodate 63t wagons, limiting the loading capacity of the Tshipi facility.

The company has installed a Rapid Load Terminal (RLT), which includes a silo above the rail complete with 600t of storage and a measuring flask for a single wagon. The silo is fed from two parallel 110cm conveyor belts that are loaded in parallel tunnels below the product stockpile. The belts load a complete train of 104 CR type, 63t wagons in approximately four-six hours, well below the TFR requirement of 12 hours turnaround for a train. The company has a rental agreement with Grindrod to provide two locomotives on site to shunt wagons during loading thereby releasing the TFR mainline locomotive.

The facility has "in line weighing" of wagons, both empty and full to account for the amount loaded per wagon and per train. The "in line weighing" is reconciled with the 5 idler belt weightometers on the two feed belts and the loading flask load cell which is calibrated regularly via permanently installed weights. The loading facility as installed is fully automatic but is normally manually controlled. The loader chute has proximity safety devices to withdraw the chute should an abnormally high wagon be presented or if the loco attempts to pass under the facility, with the chute extended.

15.4 Water Management

The mine is situated in a low rainfall, but high evaporation area. The average rainfall over the last 69 years has been 372mm of rainfall with a lower quartile of 202mm and upper quartile of only 454mm. The main areas of catchment are the open pit, the stormwater dam and the dirty water dam. The three largest water uses at the site are dust suppression for roads, plant sprays (Benmarc® system) and washdown water. In addition potable water is required for laboratories, offices and change houses. The potential sources of water at the site include potable water supplied by Sedibeng Water, stormwater collected in the dams and open pit, groundwater collected within the open pit and borehole water supply as permitted under the current Water Use License. The catchment in the mine pit will increase as the footprint of the pit increases over the life of mine.

The theoretical water balance of the operation was reviewed and updated by SLR in 2017. The total water usage at the mine is expected to be approximately 875m^3/day (26 500m^3/month or 320 000m^3/year). When available, water is pumped back from the pit into the dirty water dam at a relatively low rate of 100m^3/day or as required and treated water from the sewerage effluent is returned to the dirty water dam. Water trucks take recycled water from the dirty water dam for dust suppression on roads at a rate of 270m^3/day. Water is also used for the Benmarc® dust suppression system in the processing plant, where a chemical is sprayed onto the product for dust suppressing in crushing, screening and transport.

The mine receives treated water from the Sedibeng Vaal Gamagara system via a 150mm pipeline from the common reservoir which has capacity for both Mamatwan Mine and Tshipi Borwa Mine, whilst raw water is sourced from the mine pit. Water from Sedibeng is received into the newly expanded 1000m^3 (previously 150m^3) storage tank and the water from the pit is pumped into the dirty water supply dam. The mine is entitled to draw 27 900 m^3/month from Sedibeng.

15.4.1 *Water Consumption*

Priority is given to reusing dirty water, treated sewage effluent, and stormwater collected within the dirty water dam, workshop dirty water collection dam and stormwater dam, for non-potable (process water) uses before abstraction of water from clean water sources i.e. potable water supplied by Sedibeng Water.

The process water requirements of the mine are as follows:

- Dust suppression for roads: 20 x 16 m^3 trucks and 10 x 22 m^3 trucks per day. Total of 540m^3/day.
- Plant sprays (Benmarc® system): 249m^3/day.

The potable water requirements of the mine are 86m^3/day which is supplied from Sedibeng Water and passed through a Reverse Osmosis (RO) Plant prior to consumption. 53m^3/day of the total potable water used is returned to the dirty water dam via the sewage treatment plant, and a further 22m^3/day is generated as brine from the RO Plant which flows into the dirty water dam.

15.4.2 *Potable water reticulation and storage tanks*

The clear water storage tank is manufactured from pressed steel hot dip galvanised sections for corrosion control in accordance with the requirements of the SANS 121 (ISO 1461) galvanising standard. The tank has back up pumping to supply both the Process Plant if required and the RO water treatment facility.

Each of the departmental offices, workshops, control rooms etc., have a dedicated potable water tank supplied from the RO plant. These are 10kl plastic tanks, on appropriate foundations each equipped with pressure pumping (and back up pumping) to supply each of the buildings requiring water. The main office block and change house is equipped with two 10kl tanks. The reticulation system is constructed of medium pressure HDPE.

15.4.3 *Reverse osmosis water treatment facility*

Raw water is pumped from the storage raw water tank though a dosing facility and then filtered, prior to entering the 5kl/hr RO plant. Water is passed initially through a primary filter and then a carbon filter and the raw water is constantly monitored for conductivity.

Filtered water is fed into the RO system by means of high pressure pumps at a flow of 4.5m^3/h. Anti-Scale dosing pumps are configured to operate simultaneously with the high pressure pumps at the rate determined by the measured raw water total dissolved solids content (TDS). An in-line chlorine dosing unit is calibrated to the flowrate of the water.

Treated water is pumped from the plant to the various satellite storage tanks at each of the service buildings, workshops and offices.

15.4.4 *Dewatering and process water*

Ground water seepage into the open pit from the wall faces as well as rain water during storm events is pumped to the dirty water dam. The water (i.e. ground and storm water) is used for dust suppression on the roads and dust suppression in the processing plant. The dirty water dam is used as surge capacity where excess water can be temporarily stored for later usage. This water is also used for general wash-down water in areas such as the Heavy Motor Vehicle (HMV) wash bay, HMV tyre bay, HMV workshop and contractors process plant terrace. In the event that the dam is empty, any process/service water required will be taken from the main supply pipeline as make-up water as mentioned above.

15.4.5 *Borehole water*

Borehole water is suitable for all non-potable uses. Under Tshipi's WUL, the mine is permitted to abstract up to 25 224m^3/year from boreholes TSH01 and TSHI02 for potable and emergency water use. This equates to 69m^3/day. At present there are no boreholes used for water supply at the mine.

15.4.6 *Tanker water filling station*

For the purpose of surface road dust suppression, a tanker filling facility for the mining contractor is constructed at the dirty water dam. The facility has a secondary feed from the main site potable water tie-in line fed from the Sedibeng supply pipeline.

15.4.7 *Sewage*

The sewage treatment plant installed on site is a sludge activated system for the treatment of 96m^3 of sewage per day to accommodate approximately 300 persons. The system is capable of handling sewage and waste water from the processing plant change house, offices and ablutions, and the mining change houses and office areas. Sewage effluent on site not connected directly to the sewage treatment plant is collected in conservancy tanks before being sent to the sewage treatment plant. Each conservancy tank has a capacity of 4kl. The sewage plant has two 20kl storage tanks as buffer capacity prior to treatment.

The sludge activated sewage treatment plant allows for the treatment of sewage by means of aeration treatment (inclusion of oxygen), chlorination to kill any remaining bacteria and filtration to remove suspended solids. Treated sewage effluent is collected in a lined stormwater dam and re-used within the mine process. The treated sewage effluent is not used for domestic purposes and all sewage sludge is removed from site by a certified contractor and disposed of at a licensed sewage works.

15.4.8 *Storm water management*

As per the approved 2009 EMP separate clean and dirty water systems at the mine have been designed, implemented, and managed in accordance with the provisions of Regulation 704, 4 June 1999 (Regulation 704) for water management on mines. In general, the footprint of all dirty areas is minimised by isolating these areas from clean water runoff, and dirty water is contained in designated systems. In this regard the management of stormwater generated at the mine includes the diversion of clean water by means of elevated roads and berms and the containment of dirty water. Dirty water stored within containment facilities is recycled as process water.

The approved 2009 EMP makes provision for several stormwater dams within the vicinity of the plant and operational areas. These stormwater dams include the following:

- a 10Ml stormwater dam for the collection of dirty water from the operational areas (mining workshop and primary crusher area);
- an 8Ml stormwater dam for the collection of dirty water from around the plant area; and
- a 6.3Ml settling dam for dirty water from the pit dewatering and the various storm water dams.

The designs were adjusted to combine these dams into one 24.3Ml dirty water dam with four compartments.

The 2009 EMP also makes provision for the construction of dams with a capacity of 78Ml (still to be established), and the 2017 EMP1 amendment allows for a change in the location of the dams and the establishment of a clean and dirty water separation system.

15.4.8.1 Clean water system

The clean storm water system comprises storm water diversion berms constructed from stripped top soil material. These berms serve a dual purpose as clean storm water diversion and as topsoil stockpiles for rehabilitation purposes in later years. These berms are not engineered.

15.4.8.2 Dirty water system

The dirty water system comprises storm water cut-off drains, which are sloped to fall toward the stormwater control dam. Terraces and other dirty areas are sloped at 1:100 towards the drains for storm water control. The total capacity of the drain is designed to handle the 1:50 year storm event.

15.4.8.3 Stormwater control dam

The stormwater control dam is required to serve as a dirty water catchment dam to capture storm water runoff and prevent spillage into the environment. The Mine has constructed a 24.3Ml dam which receives run off the water from the plant area and a 4 Ml workshop dirty water collection dam. All of these dams are lined with HDPE liners and dirty water stored within containment facilities will be recycled.

15.4.9 *Concluding remarks*

The Mineral Corporation considers that the design and operation of the potable water supply and mine water reticulation satisfies the industry norms. Additional supply is available for the increased production, particularly in the dry months when make-up water from the pit may be limited for processing and may need to be supplemented from the 150mm Sedibeng Vaal Gamagara pipeline.

The Mineral Corporation's view is that the design and operation of other aspects of the water management system, including the tanker water filling station and sewage plant satisfy industry norms. The Mineral Corporation has reviewed the water balance for dewatering and process water requirements and concludes that these estimates are adequate. The Mineral Corporation's view is that the status of stormwater protection satisfies the industry norms and the requirements of the 2017 EMP1 amendment.

15.5 Solid waste management

Other types of waste generated on site include: hazardous industrial waste (such as packaging for hazardous materials, used oil, lubricants), general industrial waste (such as scrap metal and building rubble), medical waste (such as swabs and bandages) from the medical clinic facility, and domestic waste (such as packaging and office waste). These wastes are temporarily handled and stored on site before being removed by contractors for reuse, or disposal at an appropriately licensed waste disposal facility. It is not anticipated that these will change with the increased production capacity as such the current temporary storage, removal and disposal process at the mine will continue.

The company has appointed Enviroserv to remove all hazardous waste from the mine, and has also appointed ITSOSO, a local BEE company for the removal of all of the domestic wastes to Hotazel, as part of the company Corporate Social Ivestment program.

The Mineral Corporation concludes that the operation and costing of waste removal is responsible and cost effective given the remote location.

15.6 Electrical distribution

The mine has not been connected to the ESKOM grid but power is supplied from the Powerhouse, a set of 5 synchronised diesel generators (Section 15.10.2). At the time of the project commencement in 2009, ESKOM did not have infrastructure in the area and there was also a shortage of supply into the grid resulting from key generation projects behind schedule and poor availability from the large coal fired power stations. However, provision has been made for the connection of grid power, as soon as agreement is reached. A new substation is to be built near the entrance to the mine to step down from 132kV to 11kV. Thereafter the Power House will be used for back-up power.

The plant electrical network consists of the following substations, each positioned at primary power demand areas on the mine:

- 1UAC01 MV Substation – is the primary facility for synchronisation and step down from 11KV to 400V;
- 2UAC01 LV Substation – Supplies the secondary crushing area;
- 3UAC01 LV Substation – Supplies the Contractors workshops;
- 4UAC01 LV Substation – Supplies the primary crusher and stockpile area;
- 5UAC01 LV Substation – Supplies the Rapid Load Out station;
- 6UAC01 LV Substation – Supplies the bulk fuel depot.

The whole electrical network is monitored and controlled from the plant control system by means of a PCS7 interface device installed in the switchboards of the substations. Plant operators only have access to status monitoring, whereas maintenance personnel / technicians have higher level access to control.

The Mineral Corporation concludes that the electrical reticulation and operation is effective and fit for purpose. The connection to the ESKOM Grid will add significant value in terms of operating costs and limit the use of the diesel generation to standby operations.

15.7 Heavy motor vehicle facilities

15.7.1 *HMV workshops*

The mine has constructed a 6 bay HMV workshop and HMV terrace. The building is a typical 20m high single span portal frame steel structure equipped with a 20t electrical overhead travelling crane for safe use on the large 777 Caterpillar trucks. The building is equipped with three-phase electrical power and high bay lighting from Substation 3AUC01.

The workshop is leased to the mining contractor, Aveng, for its exclusive use, but the legal and safety responsibility appointments fall under the mine engineer.

15.7.2 *HMV wash bay*

A single HMV washbay has been constructed on a drained hardstand, with collection sump, and oil collection facility. The facility is provided with two high pressure pumps (operating and standby) drawing water from the water collection sump. Make-up water is provided from the main site potable feed water pipeline. Electrical power is supplied from 3AUC01 for the wash bay pumps. No local small power or lighting is provided for this facility as washing is only done on day shift.

15.7.3 *Contractors yards*

There are various contractors' yards at the mine allocated to Aveng, AMC, the security contractor, the cleaning contractor, road maintenance contractors etc. Infrastructure in the contractor's yards is the responsibility of the relevant contractor, but is required to conform to the mine standards of health and safety.

15.7.4 *Diesel and lubrication facilities*

The mine currently has two 23kl diesel tanks at the Power House and a 83kl diesel tank close to the processing contractor's workshop. The mining contractor has two 83kl diesel tanks at its workshop

Approval for the 2017 EMP1 amendment has been granted, including approval for the storage of a further 496kl of diesel on as the mine is proposing to expand its diesel storage to 996kl.

The Mine has completed the construction of the diesel tank farm structure for an additional twelve 83kl diesel tanks, which will be commissioned in the coming months. This will also allow for rail delivery of fuel.

All of the diesel facilities have been designed, supplied, installed and commissioned by Chevron South Africa

15.7.5 *Concluding remarks*

The Mineral Corporation concludes that the design of the HMV workshops, wash bay and diesel/lubrication facilities satisfy the industry norms.

15.8 Offices, plant and workshop infrastructure

Tshipi has modern, fit for purpose, conservative offices for administration, technical and personnel services. The mine has also constructed a training centre and change house in close proximity for mine staff. Contractors make use of their own change house facilities in the contractor yard.

The mine workshop for maintenance of the primary crusher and associated conveyors, the power house, mine LDVs and the Rapid Load Terminal is currently housed in containers. The mine has completed the floor slab for a permanent workshop facility which is due for will be completion in 2018.

15.8.1 *Laboratory*

The laboratory constructed and commissioned for the mine is more than adequate for the nature of assays and quantity of samples to be carried out. It has a fully functioning and effective sample preparation area, instrumental and wet chemical analysis facilities. The laboratory staff are appropriately qualified and skilled to carry out the required work on a normal day shift operation.

However, it was noted during the site visit in 2018 that the general housekeeping at the laboratory could be improved, and that certain equipment was off-line. The continued good performance of this laboratory is critical to the control of product quality.

15.8.2 *Security*

Security for the mine includes perimeter and security fencing around the electrical substations and transformer bays, access boom gates and a security guard house at the entrance to the facility. Contractors working at the mine, as well as the mining contractor are responsible for the security of their equipment.

All vehicles enter and depart through the main gate, and there is special provision for the ore trucks arriving and leaving the mine to use an adjacent large gate. Waybill clearances are required for all equipment or product arriving and leaving the mine, irrespective of the whether it is for contractors or the mine.

The company has erected high level lighting over the processing area, store area, office and training centre and the power house. There is no high level lighting in the pit.

The company currently utilises Thorburn Security as the appointed responsible security contractor.

15.8.3 *Plant engineering infrastructure*

The processing plant, as envisaged in the original mine design was not completed with only the primary crushing area installed and operating at inception.

The remainder of the originally designed processing plant, which included the main production conveyor line, secondary crushing and wet screening, product feed conveyor and stacker/reclaimer system has been partially constructed. All civil and most mechanical structures are in place, but the actual equipment or conveyors, crushers, screens etc., are not yet installed. However, the product feed conveyors from the bottom of the product stockpiles are completed and operational.

As a result, all secondary crushing and screening and ore handling/rehandling has been by contractor via mobile and semi-mobile equipment.

All equipment supplied by the processing contractor conforms to the electrical standards and requirements of the mine. The entire ore processing operation is performed dry except for mist sprays that are used for dust suppression at crushing and conveyor discharge points.

All semi-mobile and mobile crushing/screening equipment is contractor owned (AMC) and is operated on its own diesel generated power and does not receive power from the mine Power House.

In 2017, the company installed a permanent secondary crushing system to replace the small contractor mobile units. This new installation, to be commissioned in January 2018, includes the erection of a new GP500s crusher and two subsidiary parallel screening systems to reduce the number of operating units and amount of product re-handling. It also provides for the confident achievement in excess of 3mpta production. The installation will be operated by the contractor AMC. One of the AMC redundant mobile processing units will be erected to the east of the existing plant to process low grade material.

15.8.4 *Management information systems and communication infrastructure*

The operational systems and information technology (IT) infrastructure components as well as communications installed at the mine are based on user requirements. The major components of the information systems and communications infrastructure are:

- Wide Area Networks;
- Internet access;
- Access control;
- CCTV systems;
- Fire system;
- Two-way radio communication; and
- IP PBX telephone system.

The Mine has a Supervisory Control and Data Acquisition (SCADA) System via a profibus link in the plant to monitor equipment performance. All signals are sent to the current interim control room at the primary crusher. The permanent control room adjacent to the planned permanent secondary crushing plant has not been commissioned as the original plant was not commissioned in 2012. The information from the Rapid Load out facility is also collected electronically and fed into the local network. Waybills from the two road weigh bridges are hard copies and entered into the information network manually.

15.8.5 *Concluding remarks*

The Mineral Corporation concludes that the security systems, infrastructure and information technology are adequate for an operation of this nature. The installation of the GP500s crushing station will make a material improvement in the operation and reduction in costs.

15.9 Employee housing

The company has 58 company owned houses in the surrounding towns. They also grant a living out allowance in terms of their normal conditions of service. The company does not provide housing for contractors.

The Mineral Corporation did not review the exact terms and conditions pertaining to the employee housing arrangements in the various towns, but the housing philosophy is acceptable and appropriate for this region and in line with the approved SLP.

15.10 Power supply

15.10.1 *Eskom supply*

An electrical utility grid backbone capacity assessment was conducted for the Project in 2011, identifying that a 10MVA step down substation would be required from ESKOM. However, as mentioned in Section 15.6 above, for various reasons the connection to the ESKOM was not finalised, so the mine is operated on diesel generated power. The regional 132kV overhead ESKOM line is now available for connection when the step down substation is established. The company has engaged with ESKOM, and completed the required EIA for the overhead connection and sub-station, but awaits final approval and budget estimate. The estimate for the erection of the new step down substation and line connection is approximately R60 million.

A substation has been established at the Power House in order to receive step down power at 11kV from a regional Eskom Sub-station to be built at the mine boundary. The Power House substation is equipped with transformers and switchgear to enable the voltage from the regional line to be stepped down and internally distributed via a network comprising power lines and mini substations.

15.10.2 *Diesel power generation*

The generator plant consists of 6 diesel driven generators with provision for 1 spare generator. The generators consist of five 2000 kVA Cummins QSK60-G4/Leroy Somer Gensets and one 700 kVA Cummins VTA28-G5/Stamford Genset, designed to operate in synchronisation with each other. The generators are controlled by six DSE 8610 Load Share Generator Controllers and one DSE 8660 Mains and Bus Coupler Controller.

Each generator also has a MV (11000 V) circuit breaker local to the MV switchgear. The Medium Voltage Bus-Couplers and the automatic starting of the generators are controlled by the DSE 8660 Mains Synchronising Controller in the MV switch-room. The generators are started in a set priority sequence as opposed to lowest running hours.

Under expected loading after commissioning of the GP500s crusher, Tshipi will operate two 2.1 MVA Gensets and one 0.75 MVA genset, producing approximately 4800kW and consuming 135 000l of diesel per month. The Power House diesel account budget is approximately R1.85 million per month.

15.10.3 *Concluding remarks*

It is understood that the full 10 MVA generating capacity is not required due to the current large amount of diesel powered screening and crushing equipment on the mine. The connection to the Eskom grid would add significant value in terms of operating cost savings and limit the use of the diesel generation facility to standby operations.

15.11 Primary water supply

As per the approved 2009 EMP, both process and potable water is sourced from the Sedibeng Vaal Gamagara pipeline. This is covered in the Supply Agreement signed on 2 June 2009 for the supply of 27 900m^3 per month. The termination notice is 2 years from either party. The agreement makes provision for a minimum payment for an amount of 22 320m^3. The contract will be amended for increased supply once the new Sedibeng Vaal Gamagara pipeline is installed. This work is in progress, but currently there is not a definite completion date commitment by the water utility. The expanded clean water storage dam installed by the mine will ensure sufficient buffer in the system for the production support during the dry months of the year.

A 150mm pipeline connection has been established to the Sedibeng Vaal Gamagara reservoir to supply the mine with potable water. Secondary pipelines are installed to move water between the return water dams, water treatment and the mining areas.

Process water required for dust suppression along access roads and conveyors, the crushing and screening plant and open pit mining activities is currently sourced from the pit. Potable water is required for domestic use in offices and change rooms.

The Mineral Corporation is of the opinion that the potable water supply and reticulation satisfies the industry norms and should be adequate for the LoM Plan.

15.12 Fuel supply

The onsite fuel and lubricant storage and dispensing facility is sized to facilitate the open pit mining and product haulage fleets as well as the owner's requirements.

Tshipi had a contract with Chevron South Africa, signed on 1 December 2012 for 24 months and requires a 6 month notice period for a further 24 month renewal, for the supply of discounted diesel to the mine. The contract provides for the mine to purchase at least 500Ml per annum, failing which the discounts offered will be reduced. The company extended this contract for a period of one year to the end of February 2018, under the same terms and conditions but with adjustments to the fees payable. By letter dated 30 March 2017, Tshipi confirmed that board approval had been received and duly executed a three year extension to the contract to 28 February 2020. The contract provides for all tanks, with all the associated pumps meters, and safety equipment. The company agrees to store, handle and use diesel exclusively supplied by Chevron. Should the contract be cancelled by either party, the infrastructure remains the asset of Chevron, provided that the mine is given first opportunity to purchase the installed infrastructure.

The Mineral Corporation has reviewed the fuel storage infrastructure and the supply contract, and sees no potential flaws that will impact negatively on production however the incremental diesel storage constructed will only be commissioned in terms of the EA granted in January 2018.

15.13 Explosives supply and storage

The Mine has an explosives storage magazine and destruction area, designed and operated in accordance with the relevant mine explosives safety and security legislation. The Mine is legally responsible for the explosives magazine and has accordingly appointed the Magazine Master in terms of the Regulations. However, the magazine is managed by the mining contractor, and the explosives supply agreement is between the supplier (BME) and the mining contractor. The Mine makes use of emulsion bulk explosives stored in a silo on the property, but this is only energised when charged into the blast holes in the mine pit.

The Explosives Magazines licence, (No. W3994) which was granted by the South African Police Service on 3 April 2012 for the storage of the following explosives includes for the storage of boosters, blasting cartridges and approved ammonium nitrate blasting agents and slurry explosives, and detonating fuse. A separate licence (No. W3995) has been granted for the storage of electric detonators, capped fuse and detonating relays.

The Mineral Corporation finds no flaws in the nature of the explosives supply and storage.

15.14 Concluding remarks

The methodology adopted in regard to the original infrastructure for the Mine was based on good engineering principles for a large scale mine. As the original infrastructure was not completed and the mine was operated on mobile/semi-mobile secondary crushing and screening for some years, completion of the revised infrastructure is now imminent. The revised design as reviewed by the Mineral Corporation is considered to be reasonable and the approach aligns with typical industry best practice.

The Power House continues to provide reliable power to the operation, albeit at a high cost. The decision to connect to the ESKOM grid is timeous and should be expedited to realise the cost savings. The Power House will continue to provide good back up power should there be national or regional power outages. The Mineral Corporation has found no significant flaws in the planned power supply infrastructure design.

16 LOGISTICS

16.1 Product rail siding, stockpiling and transportation

Tshipi has a MECA II rail capacity allocation with Transnet Freight Rail (TFR). The agreement, signed in June 2016, is valid until March 2019. The agreement provides for an allocated tonnage of 1.8Mtpa to either Port Elizabeth Bulk Terminal (PE_BOT), Port Elizabeth Multipurpose Terminal (TMW) or Saldanha Multi-purpose terminal (SLD).

In addition, it has an uncommitted allocation of 20% of the allocated tonnage and 78 407tpa temporary allocations as and when it is available. The contractual tariff payable is R478.19 per ton, excluding Transnet Port Authority dues and charges. The contract provides for escalation on agreed indices. The charge for 2017 was R505/t. Tshipi has excellent engagement and co-operation from TFR and the agreement was renewed in February 2018; the terms of the renewed MECA II agreement allow for an increased allocation to 2.1Mtpa. By comparison, the average road transport to port cost is of the order of R750/t and hence every endeavour is made to rail the maximum amount and utilize road transport or road/rail for the excess tonnage.

16.2 Road haul and Road haul/train combination transport to port

The LoM Plan is in excess of the allocated rail tonnage per the TFR MECA II agreement and as a result, incremental tonnage above the railage allocation is transported by other means to the various ports. Lumpy can be transported in bulk by rail, but fines are required to be transported in closed skiptainers on road or rail. All product is sprayed with Benmarc® dust suppressant emulsion during loading to ensure minimal dust during product handling at loading at mine, during transport and offloading at port. Two dedicated weighbridges have been installed adjacent to the rail siding to cater for this level of road truck loading, which has allowed them to load and weigh in excess of 100 road trucks per day in the calendar year.

The company has engaged with road haulage/logistics companies to assist in the transport of ore to the ports. The incremental truck transport cost has been factored into the 3 year budget based on the worst case of the options. The options include:

- Road haul directly to Port Elizabeth under-utilized Fresh Produce Terminal (PE_FPT) where cargo is loaded onto the vessel via cranes and stevedore skips; and
- Road haul to Durban Mayden Wharf port (DBN) in either road trucks or skiptainers where cargo is loaded onto the vessel via cranes and stevedore skips.

In recent years Tshipi Borwa Mine has also occasionally moved ore through Cape Town, however this route is not a primary channel in the LoM Plan and remains a possible option on a adhoc basis. In the 2017 calendar year, the company succeeded in moving marginally more than the target tonnage of 3Mt, demonstrating the achievability of the logistics plan, utilizing these numerous routes and systems.

Figure 61 summarised the tonnages moved via the different port terminals in calendar 2017. The LoM Plan provides for maximum usage of facilities on bulk rail, transporting to PE Bulk Terminal and Durban Bulk Terminal, and rail and road combinations to PE Container Terminal, PE Fresh Produce Terminal and Durban Bulk Terminal and Maydon Wharf.

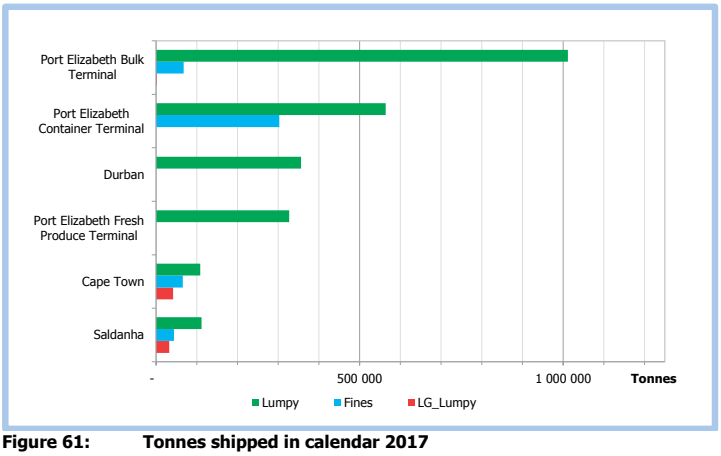


Figure 61: Tonnes shipped in calendar 2017

16.3 Logistics supporting the LoM Plan

Tshipi signed the renewed MECA II agreement in February 2018 to increase the rail allocation, as this cost is approximately R250/t less than road transport. The terms of the renewed MECA II agreement allow for an increased allocation to 2.1Mtpa. Tshipi plan on a strike rate of 91% and hence the planned tonnages by MECA II are 1.9Mpta.

Tshipi is confident that transport of the full production to port is achievable using the combination of the renewed MECA II agreement and the incremental road/rail derivatives, and this will also reduce the logistics costs from the previous plan of 1.8Mtpa by MECA II and 1.2Mtpa, predominately by road.

Figure 62 is a graphic indication of the tonnages to be moved via the different port terminals.

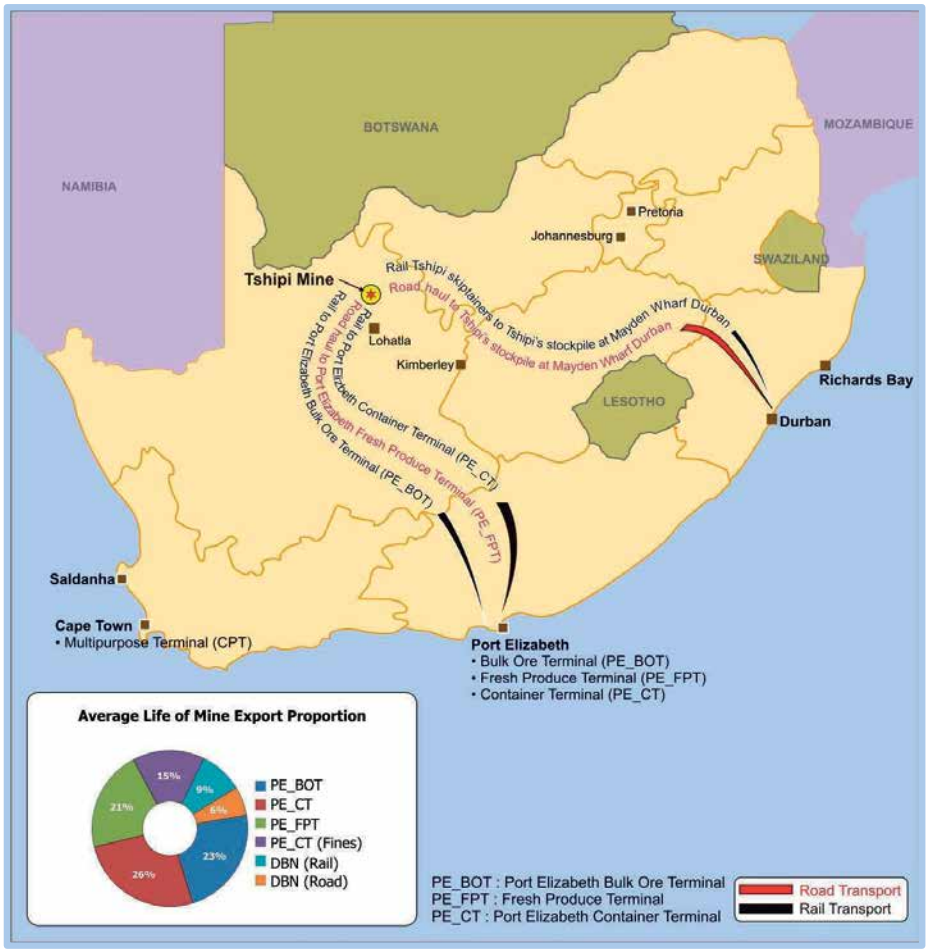


Figure 62: Logistics

The logistics routes for the LoM focus on maximising rail volumes to PE_BOT and PE_CT, with the balance on the road/rail combinations to Durban and PE_FPT. Figure 63 illustrates the proposed product logistics channels in the first eight years of the LoM Plan.

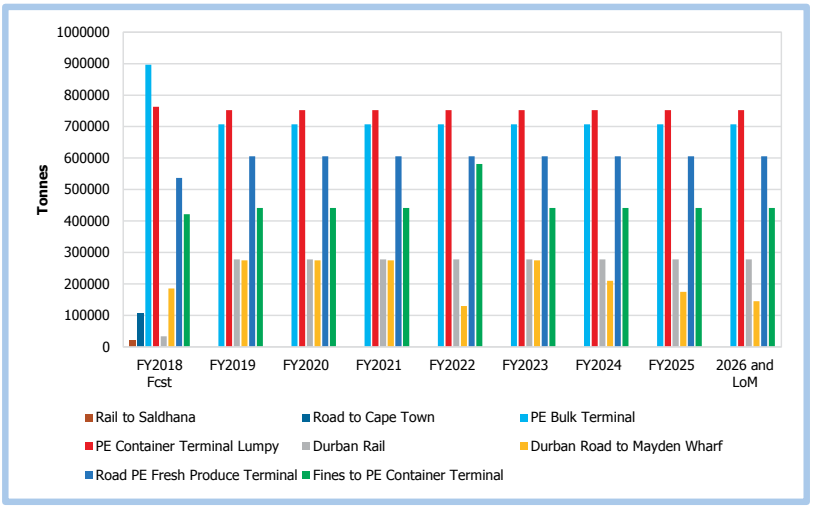


Figure 63: LoM Plan forecast product logistic channels

The company has a robust and flexible product logistics management chain, which is covering the current production volumes well, and is competitively priced, given the shortage of rail capacity in TFR. The road haulage companies used by Tshipi are reputable and reliable large commercial trucking companies.

16.4 Product sales

Product sales are managed by OM Tshipi (S) PTE Ltd (OMT), a Singapore registered manganese metal trader and Jupiter (Section 1.9). OMT is contracted to sell 50.1% of Tshipi's production, while the remainder is sold by Jupiter. Over the last fourteen months the sales by product type and customer are illustrated below in Figure 64 and Figure 65.

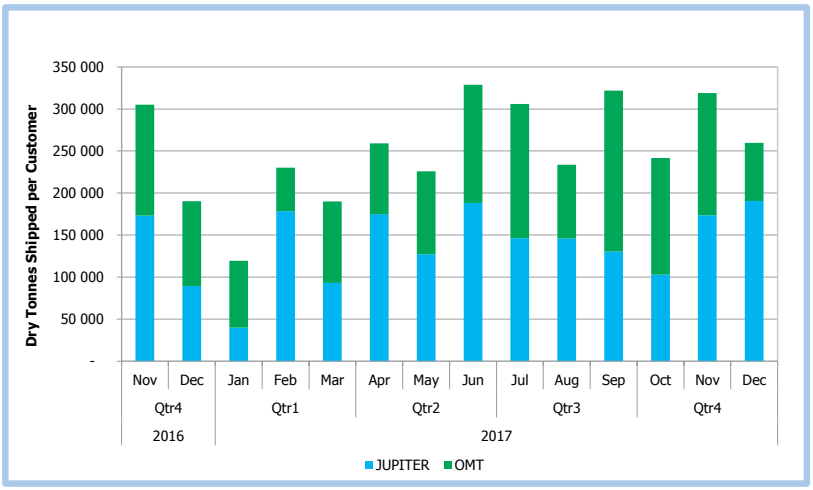


Figure 64: Sales by customer

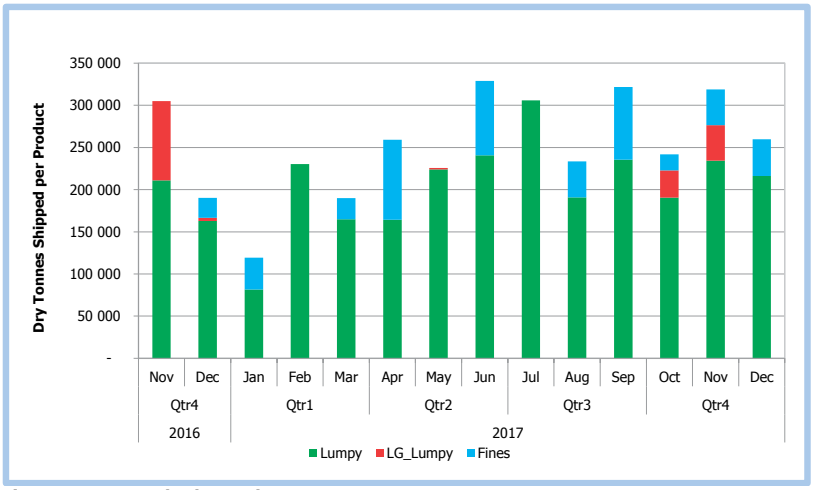


Figure 65: Sales by product type

16.4.1 *Key Off-take Contracts*

Tshipi's take-or-pay ore sales agreements with Jupiter and OMT account for all ore sales as set out below:

16.4.1.1 Jupiter

Tshipi's current take or pay agreement with Jupiter commenced in February 2016 and endures for a period of 24 months, with automatic extension on current terms, unless terminated by the parties. Under this agreement, Tshipi agrees to supply and deliver 49.9% of the tonnage produced by the mine on a wet metric tonne (WMT) basis, agreed quality specifications for lumpy, fines and low grade lumpy ore and prices referenced to the prevailing Metal Bulletin MBMnOI37 Index. Jupiter secures a marketing fee based on 3% of the saleable tonnes.

16.4.1.2 OMT

At the time of the finalization of the Jupiter off-take agreement described above, Tshipi's 2013 agreement for 100% take-or-pay offtake with OMT (as nominee of Main Street and JKSA (refer ownership organogramme (Figure 3)) was superseded by an agreement that Tshipi would supply 50.1% of the mines' production to OMT on a WMT basis, guided by quarterly scheduled quantities.

The offtake agreements are based on Metal Bulletin prices CIF China Port (Qinzhou or Xingang) for manganese on a monthly basis, discounted appropriately for the lower grade and off mine costs, depending on the terms of the agreement. Mine management is confident that OMT and Jupiter will place the incremental tonnage planned and that the logistics systems will cope with the incremental tonnage. In FY2018, OMT has secured approximately 55% of the production for clients in the East. Prices achieved have varied depending on the grade and product, but have been reflective of the world prices less shipping to South East China port.

All product sold is subject to independent survey at the port for volume, grade, sizing, moisture and impurities as listed in the contract. OMT secures a marketing fee based on 3% of the saleable tonnes.

16.5 Concluding remarks

The Mineral Corporation has reviewed a sample of the sales contracts and the TFR MECA II agreement. The Mineral Corporation has not reviewed the road haulage contracts as these are "day to day" contracts to give the mine the flexibility to manage the logistics chain. The Mineral Corporation is satisfied that the mine rail loading facility can handle the planned volumes and that the mine is capable of loading the required number of road trucks. However, the Mineral Corporation cannot comment on the reliability of the TFR capacity, other than the historical performance at Tshipi Borwa Mine, which has met expectations. The Mineral Corporation is of the opinion that the road access at the Mine will deteriorate with the planned road transportation loading. It is the responsibility of the Provincial Road Authority to allocate funds and resources for refurbishment.

17 ENVIRONMENTAL

17.1 Description of Key Environmental Features

17.1.1 *Water Resources*

There are no watercourses or wetlands at Tshipi Borwa Mine. Consequently, there are also no floodlines. The nearest watercourses are the Vlermuisleegte River (~2km west) and the Witleegte River (~10km north-east). Both these rivers are ephemeral streams.

Two aquifers are present beneath the Tshipi Borwa Mine. There is a shallow aquifer comprising the Kalahari sands and calcrete, and a deeper fractured aquifer comprising the Dwyka clay and Mooidraai dolomite formation.

Groundwater flows across the mine area in a west-northwest direction. Average groundwater levels recorded as part of the original EIA in 2009 ranged from 20mbgl to 45mbgl. Groundwater levels are currently being monitored as part of an on-going groundwater monitoring programme and are between 35mbgl to 75mbgl within and around the Tshipi Borwa Mine.

The majority of the groundwater in the broader district is used to supply drinking water for cattle and in some instances for domestic purposes. Pre-mining baseline groundwater quality results indicate that prior to the establishment of the Mine, groundwater quality had been influenced by anthropogenic pollution from farming and surrounding mining activities. Current groundwater quality data indicates consistency with baseline conditions that with elevated levels of TDS, EC, Nitrate and Chloride. Chloride has been identified as the parameter with the highest potential concentration and potential for contamination as a result of mining.

17.1.2 *Soils and Agricultural Land Potential*

Soils found in and around Tshipi Borwa Mine are homogeneous, well-drained and sandy with low organic matter content. Soil fertility is low and erodibility is high. The area has limited agricultural potential and land capability is classified as having potential for grazing.

17.1.3 *Ecosystems and Biodiversity*

Tshipi Borwa Mine is located within ecosystems classified as moderately sensitive (Grewia Flava Scrub vegetation type) and highly sensitive (Vachellia haemotoxlyon Savannah and Mixed Vachellia Savannah vegetation types). Protected species found at the mine include the Camel Thorn (Vachellia erioloba) and the Grey Camel Thorn (Vachellia haematoxylon) which are protected in terms of the National Forest Act, and the Goldblatt (Moraea longistyla) that is protected in terms of the NCNCA.

17.2 Environmental Legislation: Permits, Licences and Authorisations

The status of the various approvals (permits, licences and authorisations) required for Tshipi Borwa Mine is discussed in Table 39.

Table 39: Status of Environmental Approvals

Type of Approval	Description
NEMA and MPRDA	
Environmental management programme (EMP) and/or environmental authorisation (EA)	<u>Approved 2009 EMP and EA</u> Tshipi Borwa Mine currently holds a mining right (NC/30/5/1/2/2/0206MR) and an EMP that was completed in 2009 and approved by the DMR in terms of the MPRDA in 2010. An EA was granted in 2009 under the NEMA by the provincial department responsible for environment (NC/KGA/KATHU/37/2008). <u>Approved 2017 EMP1 Amendment and EA Granted in 2018</u> A Section 24G EA application and EMP amendment (EMP1) were submitted in 2017 and granted on 31 January 2018 for the following 'as built' and planned changes at the Mine: • Diesel storage capacity was increased from 500m^3 to 996m^3. The need for additional storage was necessitated by the fact that power supply from regional Eskom power line never materialised; • A narrow gravel road along the western boundary of the mine was widened to ~25m haul road in 2013 to cater for mine related traffic travelling to and from the explosives magazine and emulsion silos in order to avoid transportation of explosives through active mining operations; • Changes and increases in the volume and footprint of the waste rock dumps, ore stockpiles and soil stockpiles;

Type of Approval	Description
	• Changes to supporting infrastructure, including the sewage treatment plant, stormwater management and potable water management systems, railway line, tyre bays, weighbridge, offices, workshop, and the secondary crushing and screening plant; • Establishment of a clean and dirty water separation system. • Increase in the volume and footprint of the topsoil stockpiles. • Establishment of a clean and dirty water separation system. • Change in the location of the stormwater dam. • Crushing and loading of trains at night. • Mining the barrier pillar between Tshipi Borwa Mine and Mamatwan Mine. EA and EMP amendment processes (EMP2) Separate EA processes and EMP amendments will be required for the following planned changes at Tshipi Borwa Mine that are not covered under the approved 2009 EMP or the 2017 EMP1 amendment: • Amendment of the open mine pit rehabilitation strategy. The approved 2009 EMP makes provision for complete backfilling of the mine pits. Tshipi Borwa Mine has indicated that they intend to engage with DMR to amend the EMP in order to change the open pit rehabilitation commitments from complete backfilling to partial backfilling. As a consequence of this, the amendment will also include the establishment of an additional waste rock dump and changing of temporary waste rock dumps to be permanent. Certain work to support EMP2 is reportedly underway, including a number of specialist studies and consultation with stakeholders and interested and affected parties. • Possible merging the East dump with the Mamatwan Mine waste rock dump, as mentioned (but not assessed) in the 2017 EMP1 amendment report.
NWA	
Water use licence (WUL) for NWA Section 21 water uses	Approved WUL The mine has a WUL (10/D41K/AGJ/1735) issued by the Department of Water and Sanitation (DWS). WUL amendment processes Tshipi Borwa Mine reportedly submitted an application to DWS in March 2016 to amend conditions of the WUL pertaining to water quality / monitoring requirements in order to make the WUL conditions relevant to the mine and affected environment. Further amendment of the WUL is required for the water uses triggered by the activities covered in the 2017 EMP1 amendment. A background information document in support of the WUL amendment application was issued to stakeholders and interested and affected parties in November 2017. The document lists the Section 21 water uses that require licensing. As part of the WUL application process, DWS has to approve the design of the liner for the planned new waste rock dump. An independent waste assessment and classification of the waste rock was completed in February 2016. The waste rock was classified as Type 1 waste, non-hazardous and not acid generating with non-detectable sulphur levels. The material is dry and does not contain waste water. The consultants recommended a Class D liner (involving stripping of topsoil and base preparation) as appropriate for waste rock dumps. A groundwater specialist assessment was completed in July 2017 to provide input into the WUL application and the 2017 EMP1 amendment process. The assessment included conservative groundwater modelling of chloride (identified as the contamination parameter with the highest potential concentration). A motivation to use a Class D liner has been submitted to the DWS but a response from the DWS is still pending. Taking into consideration the results of the groundwater modelling, the classification of the waste rock as non-hazardous, as well as DWS's recent adoption of a risk-based approach for residue deposits liners, it is reasonable to assume that a Class D liner and the WUL will be approved.
GNR 704 exemption	Tshipi Borwa Mine does not require exemption in terms for GNR 704.
NEMWA	
Waste management licence (WML)	Non-mineralised waste A WML is not required. General and hazardous wastes generated at Tshipi Borwa Mine are stored in dedicated waste storage areas and removed from site for recycling or disposal at landfill sites. Mine residues Existing mine residue stockpiles and deposits at the mine are managed in accordance with the approved 2009 EMP and are therefore regarded as lawful in terms of the

Type of Approval	Description
	NEMWA. None of the changes in the volume and footprint of the waste rock dumps, ore stockpiles and soil stockpiles covered in the 2017 EMP1 amendment triggered listed waste activities requiring a WML in terms of NEMWA. If the National Environmental Management Laws Amendment Bill of 2017 is enacted in its current form, mine residues will no longer require a WML (refer Section 2.3 on environmental legislation governing the mining industry in South Africa).
NEMAQA	
Air emission licence (AEL)	Not required for Tshipi Borwa Mine.
NHRA	
Permit for removal or relocation of graves and artefacts	As part of 2017 EMP1 amendment, an independent heritage specialist re-confirmed that there are no historical or archaeological sites and no permits are required.
NEMBA and NCNCA	
Protected tree and plant removal permits	Some protected trees had to be removed due to establishment of infrastructure approved in terms of the EMP. These removals were undertaken in the terms of plant removal permits NCK505042011 and NCK13/10/14/20. Tshipi Borwa Mine currently holds permit NCU6530516 for the planned clearance of protected trees located in an area earmarked for expansion of the mining pit in a northern direction. The permit is valid until 23 May 2018. Where additional areas need to be cleared at the mine, as part of the establishment of EMP approved infrastructure, the necessary permits need to be obtained from DAFF.

17.3 Environmental Compliance Management

Overall environmental management performance and compliance with relevant environmental legislation and the requirements and/or conditions of the various environmental approvals have been verified through a number of audits, including:

- EA inspection report (2013);
- 2009 EMP performance assessment report (2012);
- 2009 EMP performance assessment reports (2014);
- Environmental legal compliance audit (2015);
- External WUL audit (2015); and
- GN 704 Regulations audit (2016).

The status of non-compliances and corrective actions taken in response to these audits were reviewed in a recent report entitled:

- Review of non-compliances and corrective actions taken in response to previous audit findings and associated authorisation conditions (SLR, October 2017).

Due to its narrow focus on past non-conformances and the status of associated corrective actions, the October 2017 review report is not regarded as a WUL audit. Annual WUL audits are required and a follow up audit is therefore overdue. Key compliance management maters are discussed in Table 40.

Table 40: Environmental compliance management

Compliance Requirement	Description
All Environmental Legislation	
Government non-compliance directives	Tshipi did not report any non-compliance directives on environmental management matters in the past three years.
Claims	Tshipi did not report any claims with regards to environmental management matters.
NEMA and MPRDA	
EMP and EA	Not all activities listed in terms of the NEMA EIA Regulations were covered in the EA that was granted in 2009. The gaps have been addressed through the 2017 EMP1 amendment and EA granted on 31 January 2018. The October 2017 review report did not identify material non-compliance issues but provided certain recommendations that are currently being addressed.
Final (end of planned life of mine) closure planning	A preliminary mine closure plan was completed by SLR for the mine in July 2017. The plan is largely in accordance with the 2015 financial provisioning regulations for financial provision but needs to be updated to be fully compliant with the regulations by February 2019.
Annual rehabilitation plan	The mine needs to develop and submit an annual rehabilitation plan, with budgets and details of rehabilitation backlogs, to the DMR by February 2019 in order to comply with the financial provisioning regulations.
Risk assessment and identification of residual impacts	In terms of the financial provisioning regulations, the results of a risk assessment to identify actual and potential residual impacts, and the costs associated with managing these risks and impacts, need to be submitted to the DMR by February 2019. Both the 2017 EMP1 amendment and the preliminary mine closure report by SLR stated that no residual risks were anticipated. However, the groundwater specialist assessment

Compliance Requirement	Description
	completed by SLR in July 2017 predicted that as mining progresses and the open pit becomes deeper, a cone of groundwater drawdown will develop as a result of passive ingress of groundwater into the open pit and pit dewatering. The cone of drawdown will reach a maximum extent of 5.5km to the east and 8.3km to the west of the pit at the end of mining. Third parties within the cone of depression may experience a drop in groundwater levels. There is a possibility that dewatering at Tshipi Borwa Mine and the surrounding mining could reduce the contribution of groundwater to the sub surface flow of the Vlermuisleegte, a nearby ephemeral steam, but due to its ephemeral nature there are no third parties that are reliant on the water from the stream. The groundwater assessment predicted that once mining and dewatering stop and backfilling of the open pits takes place, the water levels will start recovering, and 75 years later the impacts will be mainly around Mamatwan and UMK mines, with Tshipi Borwa Mine having no significant contribution to the cone of drawdown. Since the impact of groundwater drawdown will remain for years after mining has ceased and it could be regarded as potential residual impact. A detailed groundwater modelling study is underway to evaluate different mine pit backfill scenarios on long-term groundwater levels and to verify the results of the July 2017 groundwater assessment. The costs of mitigating the impacts over time, which could include the supply of an alternative water supply of equivalent water quality and quantity to third party water users, will have to be included in the financial provisions for managing potential residual impacts by February 2019. The groundwater specialist assessment also predicted that the worst case unmitigated groundwater contamination impacts would not affect third-party water users. As such the impact is not regarded as a residual impact for which costs have to be provided. It should be noted that continuing with the open pit, or developing an underground operation from the base of an open pit, represent the most likely way of sustaining the operation.
Calculation of closure and rehabilitation liabilities	Closure and rehabilitation costs, using current independent contractor rates as at December 2016, have been calculated for immediate closure of the mine (current liabilities) and for planned end of life closure at (future liabilities). The costs were submitted to the DMR as an addendum to the 2017 EMP1 amendment report. Further details are provided below in the Section on Closure and Rehabilitation.
Financial provisions	Currently, the LoM plan allocates R10 million per year for environmental trust fund contributions. The total current value of trusts and guarantees is R27 million. If the financial provisioning regulations were to be amended to substantially reflect the draft changes issued for comment in November 2017, Tshipi Borwa Mine will have to put in place financial provisions based on a three-year forecast of future liabilities. The costs as calculated by SLR were extrapolated to determine the amount to be provided for different closure scenarios (refer Table 41 below).
Vibrations and air blasts	Tshipi Borwa Mine is committed to ensure that blast designs do not exceed 12.7mm/s at third party infrastructure and that air blasts are kept below 130 dB in accordance with best practise.
NWA	
WUL	The 2017 review report did not identify material issues but the following recommendations were made: • Annual external WUL audits to be undertaken. • Installation of flow meters to be completed. • Water use efficiency to be investigated and a water conservation plan to be developed. • Improvements to the hazardous substances storage. • Upgrades to the storm water management system.
Water monitoring	Pre-mining baseline groundwater quality results indicate that prior to the establishment of the Tshipi Borwa Mine, groundwater quality had been influenced by anthropogenic pollution from farming and surrounding mining activities. Current groundwater quality data indicates that elevated levels of TDS, EC, Chloride and Nitrate are consistent with baseline conditions.
NEMWA	
Waste classification and registration	Non-mineralised waste Tshipi Borwa Mine is registered with the South African Waste Information System as a hazardous waste generator (for non-mineralised waste). Mine residues Classification of the of waste rock dumps is discussed in the Section on WULs for NWA Section 21 water uses above.

Compliance Requirement	Description
NEMAQA	
Air quality monitoring, dustfall and ambient air quality standards	Tshipi has a monthly dust fallout monitoring programme in accordance with the approved 2009 EMP. Dust fallout limits at the most of the monitoring points are compliant with applicable industrial and residential dust fall rates but exceedances of the alert threshold of 1200mg/m^2/day and the permitted frequency of exceedance have been noted at two monitoring points.
NEMBA	
Biodiversity plans and offsets	The biodiversity action plan needs to be updated and the need for a biodiversity offset is to be investigated.
Control of alien and invasive species	A report on alien and invasive species has been completed but its recommendations still needs to be implemented.
Protected trees and plants	A permit is in place. No compliance issues reported.

17.4 Closure and Rehabilitation

As discussed in Section 17.2, the approved 2009 EMP makes provision for complete backfilling of the mine pits. Given the low agricultural potential of the land, this requirement appears to be unrelated to the management and mitigation of the environmental risks or impacts identified in the 2009 EIA and EMP but rather motivated by the fact that there would sufficient waste rock and overburden material to fill all mine pits.

The long-term mine plan for Tshipi was updated by VBKOM in July 2017 and the closure and rehabilitation costs were subsequently reassessed by SLR. It was found that engineering and mine safety considerations such as the minimum working size of the mine pit to allow safe operations and newly adopted safe slope angles for backfilled material, and the associated limitations for concurrent backfill and rehabilitation of the open pits, are resulting in a backfill 'bottleneck' that will bring about unavoidable and increasing rehabilitation backlogs over time. The size of the mine pit will increase over the LoM resulting in potentially prohibitive and excessive costs for complete backfilling of the final voids at the time of planned mine closure.

Closure and rehabilitation costs, using current independent contractor rates for December 2016 (including VAT), as calculated by SLR for different mine closure scenarios, are presented in Table 41.

Table 41: Rehabilitation and Closure Scenarios

	Closure and Rehabilitation Liabilities		
	Excluding backfill of final void	**Backfill of final void to 50mbgl**	**Complete backfill of final void**
Current liability / premature closure (December 2016)	R 109 718 823	R 334 047 933	R 835 690 168
Three-year forecast for DMR financial provisions (extrapolated based on closure scenarios calculated by SLR)	R 129 268 333	R 1 209 225 002	R 1 682 822 750
Future liability at the end of the planned life of the mine (+28 years)	R 189 846 853	R 3 029 586 748	R 4 504 538 400

The long-term costs associated with either complete backfilling or backfilling to 50mbgl appears to be excessive in relation to the LoM Plan. Tshipi has indicated that it intends to engage with the DMR to amend the open pit rehabilitation commitments in the approved 2009 EMP from complete backfilling to a form of partial backfilling.

Continuing to mine the open pit, or developing an underground operation from the base of an open pit, represents the most likely way of maintaining the operation and its associated economic benefits beyond the current LoM plan. Complete backfilling would render this impossible, and the cost of complete backfilling, together with the cost of developing a new underground mining operation from surface, would likely sterilise the remaining Mineral Resources.

A separate EMP amendment (EMP2), and possibly a WUL amendment, will be required. Specialist environmental assessments will have to investigate long-term and residual impacts of the proposed strategy, such as:

- Potential for the formation of a pit lake (if backfill is not done to above the predicted groundwater table), long-term drop in groundwater levels due to evaporative water losses, future water use charges, and secondary impacts on agricultural potential production and third-party livelihoods.
- Risks associated with additional surface disposal of waste rock and overburden, particularly in terms of the potential for long-term dust generation if a sustainable cover cannot be maintained due to low rainfall, low soil fertility and lack of sufficient topsoil.

The planned change to the open pit rehabilitation strategy will have to be motivated based on a full risk assessment and cost/benefit analysis of the following factors:

- Environmental factors such as the significance of residual impacts and the potential to offset residual impacts, impacts on the end land use objectives, and the value of ecosystem services;
- Financial feasibility, including the cost of sterilising Mineral Resources with potential for future open-pit or underground mining;
- Engineering and mine safety requirements, such as the minimum working size of the mine pit to allow safe operations, safe slope angles for backfilled material, and the associated limitations for concurrent backfill and rehabilitation.

Although detailed work has not yet been undertaken, in The Mineral Corporation's view, Tshipi should be able to provide a compelling motivation for not undertaking complete backfilling, and given the low agricultural potential of the affected area, put in place feasible mitigation measures (including compensation and/or offsets) for residual impacts resulting from a change to the rehabilitation strategy.

Should Tshipi not receive approval of EMP2 and a supporting WUL amendment, provision would need to be made for the future liability of complete backfill of the all mine voids, as per the requirements of the approved 2009 EMP.

17.5 Summary of Key Environmental Risks

A summary of the key environmental risks is provided in Table 42.

Table 42: Key Environmental Risks

Type of risk	Description
Approval of WUL amendment (for water uses associated with EMP1)	
Minor risk:	A WUL is needed for water uses triggered by the activities covered in the 2017 EMP1 amendment and DWS has to approve the design of the liner for the planned new waste rock dump. A motivation for a Class D Liner was submitted to the DWS. Taking into consideration the results of the groundwater modelling, the classification of the waste rock as non-hazardous, as well as DWS's recent adoption of a risk-based approach for design residue deposits, it is reasonable to assume that a Class D liner and the WUL will be approved.
Approval of EMP2 (Closure and Rehabilitation Costs and Sterilisation of Mineral Resources)	
Material risk:	The approved 2009 EMP commits Tshipi Borwa Mine to completely backfill all mine pits. Reassessment of closure and rehabilitation costs based on the July 2017 long-term mine plan for Tshipi indicates that rehabilitation costs associated with complete backfilling of mine pits as well as backfilling to 50mbgl are excessive in relation to the LoM Plan and the low agricultural potential of the area. In addition, complete backfilling will sterilise Mineral Resources with potential for future open-pit or underground mining beyond the current LoM Plan. An EMP amendment (EMP2), and possibly a supporting WUL amendment, will be required to change the rehabilitation strategy for the open mine pits. Approval of this amendment is materially important to Tshipi Borwa Mine. Should Tshipi not receive approval of EMP2, provision would need to be made for the future liability of complete backfill of the all mine voids, as per the requirements of the approved 2009 EMP.
Mitigation:	Continue with work on EMP2, including stakeholder engagement and public participation. Develop alternative strategies for rehabilitation of the open mine pits, based on the end land use objectives. Complete specialist environmental assessments to investigate the long-term and residual impacts of alternative rehabilitation strategies, particularly the potential for the formation of a pit lake, evaporative water losses and water use charges, and subsequent changes to groundwater availability, agricultural potential and production. Calculate the costs associated with mitigation of residual impacts. Undertake a full risk assessment and cost/benefit analysis of environmental factors, engineering and mine safety requirements, financial feasibility, and potential for sterilising Mineral Resources with potential for future open-pit or underground mining. Complete EIA and EMP amendment, including: a motivation for not undertaking complete backfilling; and an assessment of the need and desirability of the proposed strategy for rehabilitation of the open mine pits.
High residual risk after mitigation:	Given the low agricultural potential and production of the area, and the potential for sterilising Mineral Resources with potential for future open-pit or underground mining beyond the current LoM Plan, it is reasonable to assume that an alternative rehabilitation strategy will be approved. The details of the final rehabilitation strategy and the costs to implement mitigation (including compensation and/or offsets) for changes to the residual impacts are still to be determined.

17.6 Concluding Remarks

The original EMP for Tshipi Borwa Mine was approved in 2009 in terms of the MPRDA and an EA was granted under the NEMA in the same year. An EA application and EMP amendment (EMP1) for various design changes was submitted in 2017 and authorisation was granted in January 2018. A WUL amendment process is underway, for water uses that are covered in the 2017 EMP1 amendment. Given that no unacceptable risks or impacts have been identified in the EIA and supporting specialist impact assessments, it is reasonable to assume that the WUL amendment will be granted.

A separate EMP amendment (EMP2), and possibly a supporting WUL amendment, will be required for the planned amendment of the open mine pit rehabilitation strategy to accommodate partial pit backfilling instead of complete backfilling as per the requirements of the approved 2009 EMP.

A recent reassessment of rehabilitation costs associated with backfilling of open pits indicated excessive costs in relation to the life of mine plan. Not obtaining approval of EMP2 represents the only material risk identified with respect to environmental matters.

However, Tshipi Borwa Mine should be able to provide a compelling motivation for not undertaking complete backfilling, and given the low agricultural potential of the affected area and likelihood of continued mining beyond the current LoM Plan, put in place feasible mitigation measures (including compensation and/or offsets) for residual impacts resulting from a change to the rehabilitation strategy. The cost of complete backfilling, together with the cost of developing a new underground mining operation from surface, would likely sterilise the remaining Mineral Resources. This issue is discussed further in Section 23.4.

18 SOCIAL

18.1 Introduction

The social licence to operate (SLO) can be described as the recognition or approval by local communities and stakeholders of the mining operations. The concept has evolved from the notion of Corporate Social Responsibility and is based on the idea that mining companies need not only government permission but also social permission to mine.

18.2 Social and Labour Plan

In South Africa the SLO has to some extent been formalised in terms of the Social and Labour Plan (SLP) executed in conjunction with the mining right. An SLP is a legally binding document, which is enforceable by the DMR which governs how companies address Human Resources Development (HRD), Local Economic Development (LED), housing and downscaling and retrenchment.

Tshipi Mine's SLP was approved on the date of execution of the mining right on the 07 April 2010. It ran for a period of 5 years and a new SLP was submitted to the DMR for the period 2014 - 2018.

During the original SLP period from 2010 – 2015, Tshipi received two notices in terms of Section 93 of the MPRDA:

- October 2015 (commitment with regards to HRD and management of downscaling)
- 25 February 2016 (management of downscaling and retrenchment in terms of the establishment of a future forum and consultation).

Both Section 93 notices were responded to timeously by Tshipi, and no further feedback has been received from the DMR.

On the 19 August 2015, the DMR approved the new Tshipi SLP. A breakdown of the SLP financial provision is provided in Table 43.

Table 43: Breakdown of the SLP financial provision

	2014 (R)	2015 (R)	2016 (R)	2017 (R)	2018 (R)
Human Resources development	4.2m	3.6m	3.8m	4.0m	4.2m
Local Economic Development	3m	3.3m	3.6m	4.0m	4.4m
Total	**7.2m**	**6.9m**	**7.4m**	**8m**	**8.6m**

The current SLP expires 31 December 2018 and a new SLP will be submitted for the period 2019 – 2023.

18.3 Community

The Tshipi Mine is situated in the Joe Morolong Local Municipality in the Northern Cape Province of South Africa and contributes to the John Taolo Gaetsewe District Municipality. Tshipi has informed The Mineral Corporation that the relationships with the surrounding communities are at acceptable and cordial levels and constant formal and informal engagements have been and will continue to be undertaken by the Mine.

There have been road closures by the community and the related community forums, at the main road leading towards a number of mining operations in the vicinity in which Tshipi is situated. It is understood that the road closures were not directed at the Tshipi operation, but rather directed at a lack of employment opportunities for the community by the mines.

18.4 Labour

At Tshipi's inception, the prominent labour union was the National Union of Mine workers (NUM) and in September 2014 Tshipi signed a two-year wage agreement with NUM, ending February 2016. At the beginning of 2015, NUM suffered resignations in membership in favour of the Association of Mineworkers and Construction Union (AMCU), which by June 2015 was declared majority at the work place.

Tshipi has informed The Mineral Corporation that currently the relationship with labour continues to be effective with outcome based engagements and that the current wage agreement was achieved without any work stoppage.

18.5 Concluding remarks

The Mineral Corporation has not identified any material concern with regards to Tshipi's compliance with its SLP commitments, or its relationships with employees or neighbouring communities.

19 MINE HEALTH AND SAFETY MANAGEMENT

19.1 Health and Safety performance (FY2018)

There has been a significant improvement in the Mine's safety performance since the inception of the Mine with the main indicators showing a significant improvement over the last six years. This is laudable when considering the increasing levels of activity on the Mine over the previous year. Table 44 and Table 45 summarise the Mine's safety statistics. In addition, no Section 54 safety stop notices were issued to the mine over the last 12 months.

Table 44: Safety rates

Year	Lost Time Injury Rate	Total Recordable Injury Frequency Rate
FY2013	0.44	2.23
FY2014	0.29	2.49
FY2015	0.14	3.09
FY2016	0.11	0.94
FY2017	0.45	1.31
FY2018	0.02	0.96

Table 45: Injury Numbers

	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018
Lost Time Injuries	3	3	1	3	2	1
Non-Lost Time Injuries	17	26	45	16	5	8

19.2 The risk management process

Section 11 of the Mine Health and Safety Act (MHSA) requires that an operational risk assessment be carried out to identify hazards, assess the health and safety risks to which employees may be exposed whilst they are at work. The significant hazards so identified should be recorded and the risks assessed.

A Hazard Identification Risk Assessment (HIRA) has been undertaken at the Mine, to identify the hazards associated with processes, occupations and tasks related to the operation.

A number of key risk activities were identified at the mine and placed on a risk assessment register where the degree of risk was assessed in terms of consequence, likelihood and initial risk rating.

As part of the Risk Assessment process risk mitigating actions, procedures and training are suggested and the degree of risk is re-evaluated. To enhance the final outcomes additional recommendations are made such as improving communication.

The Mineral Corporation could identify no flaws in the Risk Assessment approach adopted at Tshipi Mine.

19.3 Key outcomes of the risk assessment process

As an example of the outcomes of the Risk Assessment process the following lists the key mining risks identified with suggested control mitigations. It should be noted this is not an exhaustive list and more detail can be found in the Mine's "Line of Fire" Study and Assessment document. A high level summary of the document's content with regards to the mining operations can be found in Table 46.

The Mineral Corporation has reviewed the full "Line of Fire" Study and Assessment document and has found it to be comprehensive and reflects industry best practice with regards to identifying risks and recommending mitigating actions.

Table 46: Summary of Key Risk Assessments

Number	Activity	Key Controls
1	Travelling with vehicles on access / haul roads	No pedestrian traffic
		Properly designed roads
		Set Speed limits
2	Positioning of hauling equipment for loading	Set minimum clearance distances between equipment
		Warning signage
		Positive radio communication
		Traffic control
		Use of Proximity Detection System (PDS)

Number	Activity	Key Controls
3	Loading with an excavator	Excavator approved by Resident Engineer
		No loading of large boulders
		Set minimum clearance distances between equipment
		Positive radio communication
		Warning signage
4	Drilling activities	Drill rig approved by Resident Engineer
		Set minimum clearance distances between equipment and pedestrians
		Positive radio communication
		Warning signage
		Active dust suppression
5	Blasting activities	Blast signed off by 3.1 appointee
		Safe blasting radius set
		Competent certificated blasting ticket holders utilised
		Positive radio communication
		Warning signage
		Contraband restrictions
		Limited contiguous activities
		Evacuation procedures enforced
		Properly supervised clearance procedure
		Limited pit access
6	Feeding primary crusher	Equipment approved by Resident Engineer
		Proper traffic control
		Positive radio communication
		Warning signage
		Limited pedestrian traffic
		Enforced speed limits
		Dust suppression
7	Tipping material on top of RoM pad with dump truck	Equipment approved by Resident Engineer
		PDS installed
		Positive radio communication
		Warning signage
		Proper traffic control
		Limited pedestrian traffic
8	Dozing activities	Equipment approved by Resident Engineer
		PDS installed
		Positive radio communication
		Warning signage
		Proper traffic control
		Limited pedestrian traffic
		Not to operate in blind spots

19.4 Safety, health and environmental policy

The Mine has a health and safety policy that contains the key elements that one would expect for an operation of this nature. The policy was revised in July 2016 and consists of the following key elements:

- A mission statement highlighting the key safety goals;
- Policy review frequencies;
- Objectives and target review frequencies;
- Key risks identified through the Risk Assessment process;
- Required safety behaviours;
- Safety training requirements;
- Safety and environmental objectives; and
- Communication requirements with regards to publishing the policy throughout the operations and communities surrounding the operation.

19.5 Findings from 2018 site visit

Through discussions with the Mine's staff, the current Risk Assessment register is once again to be fully audited during 2018 and corrected where required, especially focusing on the effectiveness of the mitigating measures identified during the baseline Risk Assessment.

Through observation and discussion, the current safety record on the mine is generally reflecting the effectiveness of Risk Assessment process, safety policies and codes of practice. This is further reinforced by the fact the mine has not experienced any safety stoppages, by the DMR, over the last 24 months.

19.6 Concluding remarks

The Mineral Corporation could identify no flaws with regards to the approach adopted at Tshipi Mine with regards to the development of the Risk Assessment register and the implementation of the mitigation controls it recommends. The mines safety performance aligns with some of the industry's best performers.

In addition the current health and safety policy appears to be effective and generally aligns with industry practice.

20 MARKET STUDIES AND ECONOMIC CRITERIA

20.1 Introduction and Context

The principal end-use for manganese ore, after conversion to either silico-manganese or ferro-manganese alloys, is as a critical input to the global steel manufacturing industry which produced approximately 1.6Bt of raw steel in 2017 (World Steel Association, 2017).

China (848Mt), Japan (104Mt), India (100Mt) and the United States (82Mt) represent the top four steel producing countries in 2017, contributing some 61% to current global steel production, (World Steel Association, 2017). It is noteworthy that this level of steel production represents only 70% utilisation of the installed 2.3Bt global steel production capacity, arising from a decade of unprecedented steel production capacity expansion largely in Asia.

While the bulk of the world's manganese alloy is produced in China and India, in support of their domestic steel production capacity, China's diminishing primary manganese ore supply is typically of low grade and is insufficient to meet domestic demand, while India relies on imported manganese ore feedstock to augment constrained domestic ore sources. Japan and the United states have no domestic manganese ore sources.

Subordinate applications for manganese include use in speciality alloys, batteries and chemicals.

Manganese ore is not exchange traded, and prices are largely determined by supply and demand dynamics linked to the global steel industry production levels. Manganese ore is priced in US Dollars per metric tonne unit (US$/mtu), and consequently ore grade is directly reflected in the price per tonne of ore.

South Africa is host to the largest global repository of in situ manganese mineralisation and accounts for nearly 30% of annual global mined production from open pit and underground mining operations (Figure 66)

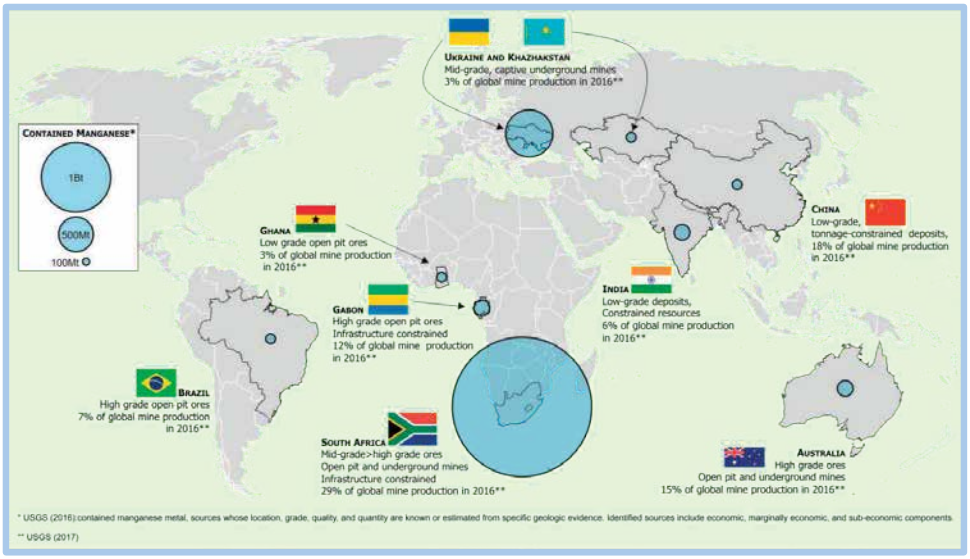


Figure 66: Global manganese mineralisation endowment and mine production (TMC research 2018, and USGS 2016, 2017)

20.2 Demand

The eighteen months to January 2018 have seen an extraordinary increase in demand and price for manganese ores. The pace of this change, whilst unexpected, must be attributed to the production-cut induced tightened supply environment of 2015 and Chinese restocking and some degree of Chinese port-stock trading arbitrage, which is perhaps reflecting the progressive shortening of ore sales quotation periods since 2009, as spot pricing and index-based ore sales contracts have become more common. The short term demand for manganese ore is likely to continue to be linked to the pace of Chinese restocking, underpinned in the longer term by sustained Chinese crude steel output. China's significance in this ore demand resurgence is illustrated in Figure 67.

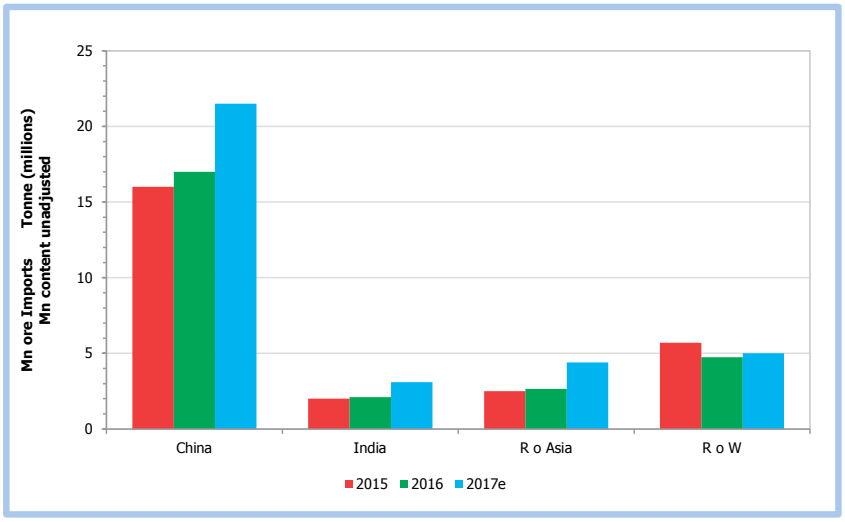


Figure 67 Manganese ore imports by jurisdiction, 2015-2017 (TMC research, 2018)

In the long term, manganese ore demand will continue to track the development of world steel production, with the observation that while manganese intensity of use in steel is expected to decline due to the increasing proportion of consumer-driven flat products in Asian steel production, manganese remains a primary input to steel manufacture which cannot be substituted. Furthermore, increased steel recycling has little impact on primary manganese demand due to its loss in the recycling process. The consistency of grade and quality established by South African manganese ores should continue to consolidate South Africa's role as the primary manganese ore supplier to the global steel industry.

20.3 Supply

In the face of an unprecedented ore demand and price collapse during 2015, global manganese ore producers throttled or idled considerable mining capacity. Production restarts during H2 2016, in response to resurgent market demand and volatile price recovery on the back of Chinese restocking, continued in 2017. Due to sustained high ore prices in 2017, ore production in South Africa is likely to eclipse its previous 2014 peak by as much as 10%. Elsewhere, ore production has also increased in 2017 due to the restart of the Woodie Woodie and Bootu Creek mines in Australia, and additional production expansions from jurisdictions such as Gabon and Ghana. Manganese ore export trends over the last three years are illustrated in Figure 68.

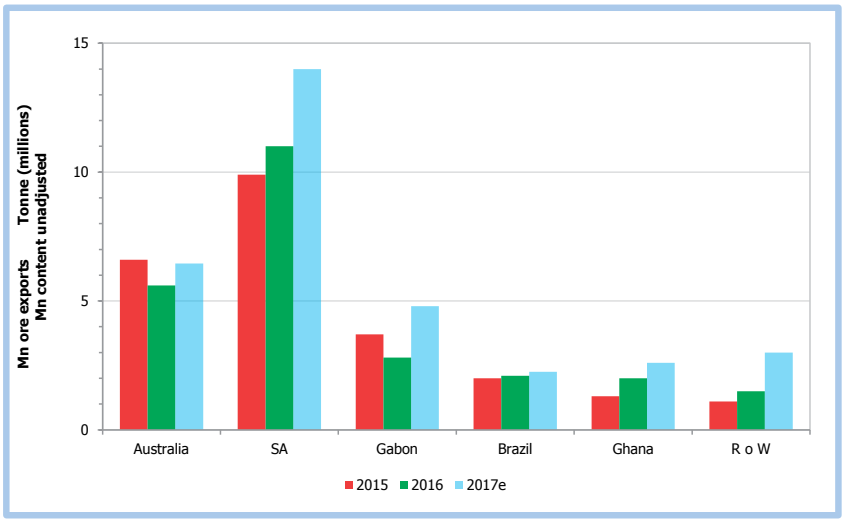


Figure 68: Manganese ore exports by jurisdiction, 2015-2017 (TMC research 2018)

In South Africa notwithstanding mining production headroom, mine-to-port product logistics and constraints thereon remain a key factor limiting national output. Incumbent producers with established logistics channels are well placed to respond to improved market demand as the consistency of South African manganese ore grade and quality is globally recognised.

20.4 Price History and Outlook

In mid-2016, manganese ore prices surged in response to a sharp drawdown of industry stock levels. These reflected substantial production cutbacks brought about by low prices over the previous year, in combination with logistical problems in South Africa and a resurgence of demand from China. In 2017, ore prices have remained high which has, in turn, supported elevated manganese alloy prices. While companies were, at first, reluctant to bring high-cost production back on line, sustained high price levels have boosted confidence and supply has increased substantially.

Figure 69 illustrates the US$ denominated Free on Board (FoB) price trends for 37% Mn manganese ore over the last 3 years. Record prices in Rand terms were achieved in late 2016. This was followed by a relatively sharp correction in the first quarter of 2017, with prices increasing again in the successive quarters of 2017.

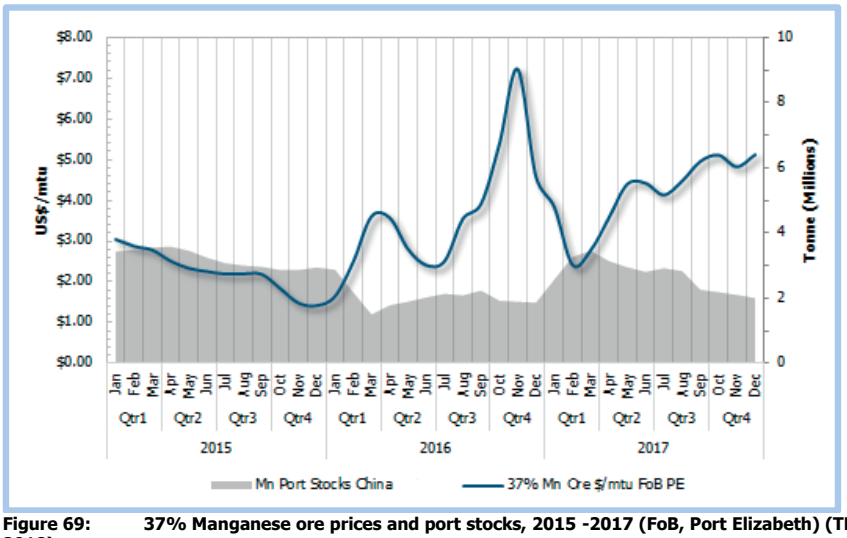


Figure 69: 37% Manganese ore prices and port stocks, 2015 -2017 (FoB, Port Elizabeth) (TMC research 2018)

It is understood that the rapid ore price recovery commencing during Q1 2016 was led by Chinese port-stock depletion which prompted some alloy producers to seek ore feedstock directly from mines. In a South African context, logistics disruptions during Q3 2016 exacerbated perceived ore scarcity and supported further ore price increases as South African miners re-engaged idled mining capacity and procured (more expensive) alternative transport and shipping options. Increased South African production during 2017 has yet to alleviate this perceived ore scarcity and ore prices have continued to be buoyant into 2018.

It is The Mineral Corporation's view that the long-term demand fundamentals underpinning primary manganese ore pricing are sound and will continue to be inextricably linked to the fortunes of the global steel industry. For most established ore producers, there are limited material technical constraints to sustained or expanded manganese ore production. Rather, product logistics and efficient transport infrastructure determine relative cost efficiency competitiveness and resilience as a feedstock supplier to the cyclical global steel business. The Tshipi Mine is well placed in this context.

Tshipi's multiple product marketing channels include a combination of take-or-pay off-take for OMT and Jupiter. Standard sales terms apply and price negotiations reflect prevailing market dynamics. The product logistic channels and throughput volumes utilized by Tshipi are discussed in Section 16.

Guided by the foregoing market review, The Mineral Corporation would consider the US$4.00/mtu (2018 terms) utilised for the pit optimisation described in Section 10 to be reasonable and generally aligned with the prices currently being attained which are in the range of US$3.00 to US$6.00/mtu (FoB), depending on product type and shipping arrangements. Therefore a long term FoB price range of US$3.50 to US$4.50/mtu (2018 terms) is considered a reasonable and conservative range within which to test the viability of the Ore Reserves.

The Mineral Corporation's view that this is a reasonable long-term forecast is premised on the following:

- South Africa is host to the largest global repository of in situ manganese mineralization and produced nearly 30% of global mine production of manganese ore in 2017, for which the principle end use is as an essential, non-recyclable input to the global steel manufacturing industry.
- Manganese ore is not exchange traded and its price is determined by supply and demand dynamics linked to global steel industry production levels.
- The consistency of grade and quality established by South African manganese ore has consolidated the country's position as the primary manganese ore supplier to the global steel industry. There are no alternative suppliers for ore with these characteristics elsewhere in the world.
- The Mineral Corporation sees no likelihood of a structural change in this circumstance for the duration of the LoM plan.

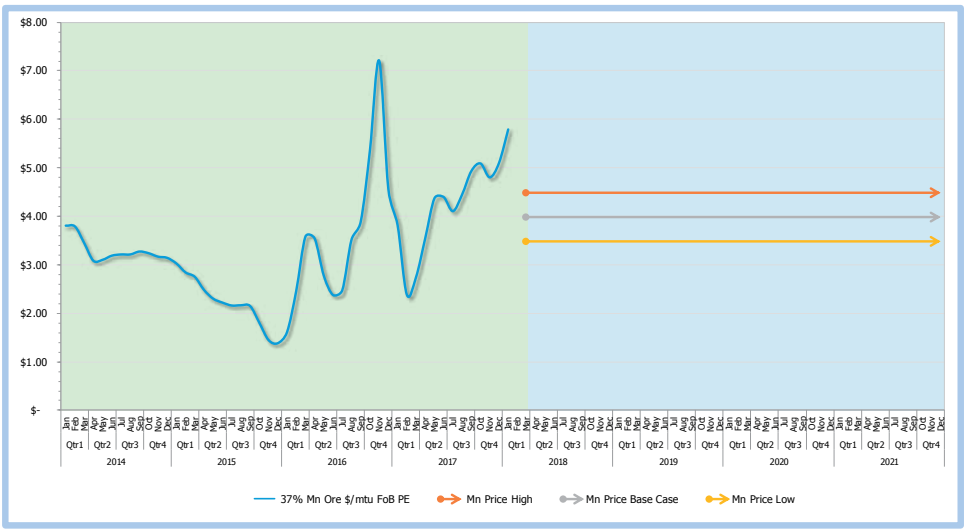


Figure 70: Price forecasts considered for Ore Reserve analysis (US$ denominated, January 2018 terms)

21 OPERATING COSTS

21.1 General

The operating costs utilised in the development of the optimisation process and the LoM Plan were largely based on YTD November 2017 actuals.

21.2 Mining Costs

The primary source of operating costs under mining activities is that associated with the mining contractor. The contractual mining rates are costed per bench and for the rock types listed below:

- Waste to dumps
  - Upper Kalahari;
  - Clay;
  - Lower Kalahari;
  - Banded iron stone; and
  - Dolomite.
- Ore
  - Mn ore to crusher; and
  - Mn ore to low grade stockpile.

The contractor cost as presented are inclusive of:

- Monthly fixed costs (P and G's);
- Diesel consumption (supplied by mine with consumption limits);
- Topsoil and sands removal to topsoil dump;
- Upper Kalahari removal to waste dumps;
- Clay removal to waste dumps;
- Lower Kalahari removal to waste dumps;
- Dolomite removal to waste dumps;
- BIF removal to waste dumps;
- Manganese (waste) to waste dumps;
- Graded Ore to crusher;
- Low grade ore to stockpiles;
- Grade control drilling as and when required; and
- Material haulage and rehandling at the crusher RoM as required.

All of the above are inclusive of the required drill, blast, load and haul activities, as and when required, and depending on material type. Furthermore, all mining fleet maintenance costs are included in the rate charged by the contractor. By utilising the annual mining scope and subsequent total costs, an annual R/t ore mined to crusher can be attained (total Rand cost/total ore tonnes mined). This detailed level of costing has been included in the optimisation process and thus lead to a relatively high degree of accuracy in terms of the outputs of the optimisation and subsequent scheduling process.

The contractor's costs are detailed for the first three years of the LoM Plan and thereafter extrapolated on the basis of the tonnage mined and the forecasted stripping ratio. Also accounted for is the reduction in waste load and hauling costs as waste is backfilled and not trucked to the various waste dumps.

In addition to the contractor mining costs the following costs are also included in the total mining cost:

- Key mining overhead costs inclusive of:
  - Diesel consumption of mining departments supervision LDVs etc;
  - Ore re-handling (at the plant); and
  - Road maintenance.

- Key MRM functions on the mine inclusive of the following costs:
  - Diesel for departmental LDVs;
  - Personal protective equipment;
  - Departmental consumables;
  - Facilities maintenance;
  - Geological drilling;
  - Consultant fees (Geotech and Planning); and
  - Software licences.

The LoM average mining cost in real terms (FY2018) is R220/t ore mined (R240/t ore delivered to the crusher after 9% losses) once accounting for savings due to waste backfilling from FY2029 onwards.

The mining costs in nominal terms for up to FY2020 are illustrated in Table 49, while Figure 72 illustrates the LoM costs in real terms. Overall the mining cost, particularly the contract mining cost (in real terms) remains fairly constant over the LoM, as there are no significant fluctuations in the amount of waste moved, as depicted in Figure 51.

21.3 Processing Costs

The processing costs utilised have been based on a negotiated figure for the operation of the new GP500s plant by AMC on a contract basis. The overall costs are budgeted to reduce due to the operation of the single secondary crushing and screening facility rather than a number of AMC owned and operated mobile crushing and screening facilities.

The total annual processing costs are predicted to reduce in spite of the high production tonnage planned as the double handling, contractor plant amortisation and mobile equipment costs reduce with the operation of the GP500s plant.

A further cost saving benefit will be realised with the installation and commissioning of the additional conveyors for the transport of the fines and lumpy products to the final stockpiles. This will further reduce the reliance on mobile machinery and will reduce double handling and associated costs, however this benefit has not been included in the LoM Plan forecasts presented in Figure 71.

The Mineral Corporation has reviewed the overall process operating cost per annum for the years 2014 to 2025, and compared this with tonnes processed per annum. This comparison is presented in Figure 71, from which it may be seen that the planned processing cost for the next seven year period reduces significantly as the benefits of the GP500s plant are realised.

The Mineral Corporation is of the opinion that subject to the ongoing maintenance and further installations which are planned, the operating costs for processing are reasonable. The processing operating costs in nominal terms for FY2018 to FY2020, as used in the LoM Plan, are shown in Table 49, and the real terms processing operating costs for the LoM are shown in Figure 72.

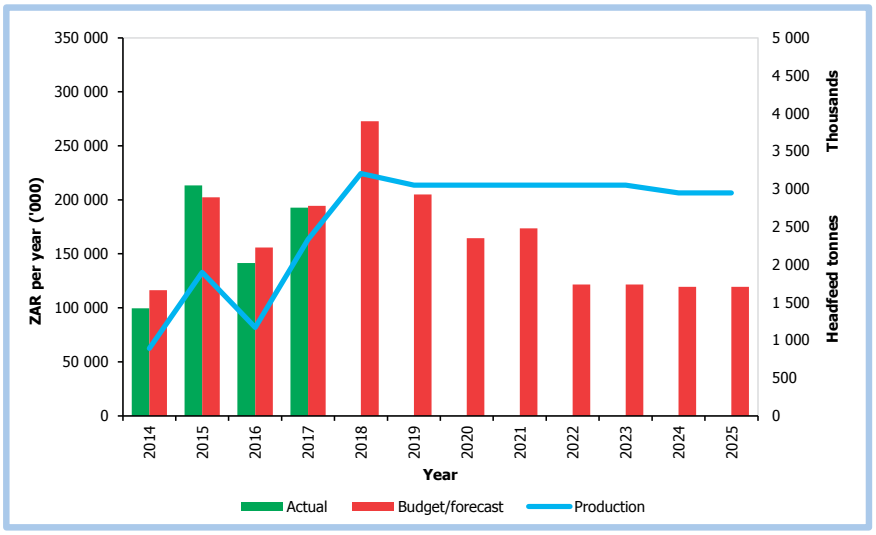


Figure 71: Historic and budget processing cost (2018 terms)

21.4 Logistics Costs

The total logistics cost estimate assumes that 73% of production will be transported by rail, and the balance is to be transported by road haul to port. Tshipi have made provision in the budget for rehandling of product where required and for all third party charges at warehouses, quality checks, port costs and agency costs.

The unit costs for railing and port, road and port, and shipping for FY2018-FY2020 are summarized in nominal terms in Table 47. Other logistics costs, over and above those included in Table 47, are summarized in Table 48.

Table 47: Product logistics costs (nominal terms)

	R/t FY18	R/t FY19	R/t FY20
Railing and Port			
PEBOT Bulk Lumpy	R 540	R 578	R 624
PECT Skiptainer Lumpy	R 541	R 578	R 625
PECT Fines	R 540	R 577	R 624
Durban Lumpy	R 583	R 624	R 674
Road and Port			
PEFPT	R 775	R 845	R 913
Durban	R 780	R 849	R 917
Shipping and Freight			
Average all ports	R 268	R 299	R 334

Table 48: Other logistics costs (average all ports, nominal terms)

	FY18	FY19	FY20
Surveys/ Inspections (Rand)	R 70 560	R 76 205	R 82 301
Overheads (Rand Millions)	R 33.4	R 36.2	R 39.1
Demurrage Provision (US$)	$360 000	$388 800	$419 904

21.5 Indirect Costs

Indirect costs account for costs not directly associated with operations and cover the following elements:

- Salaries (owners staff);
- Finance (software licences, insurances, consultants etc.);
- Human resources (staff transport, consultants etc.);
- SHEQ (safety, Health and Environmental associated costs);
- Engineering (mechanical spares, maintenance contracts etc.);
- Power generation (Diesel gensets);
- Social Economic Development (SLP and LED projects);
- General manager (security and cleaning contracts, site overheads); and
- Environmental provisions (rehabilitation).

21.6 Concluding Remarks

The Mineral Corporation is of the opinion that the various operating costs have been developed in sufficient detail and accuracy to be utilised in an assessment of the economic viability of the Ore Reserves.

Table 49 shows the costs in nominal terms for three years up to FY2020 and Figure 72 shows the costs in real terms. In real terms, it can be observed that the costs remain fairly constant apart from logistics costs which increase between years FY2019 and FY2022; this increase is primarily driven by pre-inflation escalation clauses in the current logistics contracts.

Table 49: Summary of operating costs (nominal terms)

Item	Units	FY 18	FY 19	FY20
Mining Cost	R/RoMt mined	R 251	R 261	R 270
Processing Cost	R/t processed	R 42	R 45	R 47
Indirect Costs	R/RoMt mined	R 105	R 112	R 118
Logistics, including shipping and freight, (average all channels)	R/tonne sold	R 1 006	R 1 085	R 1 246

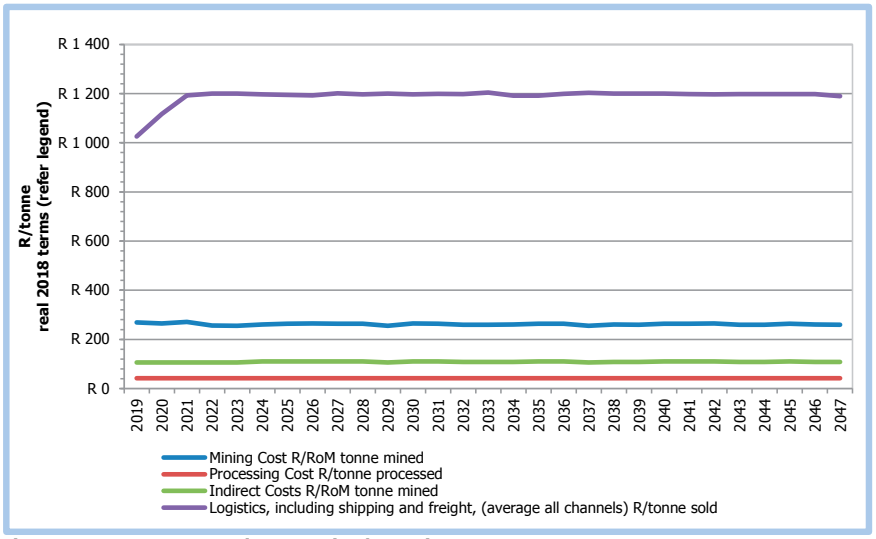


Figure 72: LoM Operating Costs (real terms)

22 CAPITAL COSTS

22.1 Introduction

The budgeted capital (inclusive of support services) costs consist of three specific types of capital; expansionary, primary for the first year of the LoM Plan (FY2019) and sustaining capital for the remainder of the LoM. As the mining operation is primarily driven by contractors, the quantum of mining capital is minimal, with the principal areas of spend budgeted for processing and infrastructure maintenance.

For the first twenty years of LoM, the capital is scheduled on an annual basis providing for replacement and refurbishment capital. Thereafter the FY2039 capital estimate is project forward for the remaining LoM. The capital estimate is revisited on an annual basis, during the budgeting process, and is adjusted as required.

22.2 Expansionary Capital

Expansionary capital contains funding for the Eskom connection (R60 million) and the conveyor connection to the stockpiles (R85 million). This capital is scheduled over a period of 18 months commencing in March 2018. The conveyor connection to the stockpiles includes; the GP500s feed conveyors from the primary crushed stockpiles, which will reduce the need for mobile machinery in this area, and the product conveyors from the GP500s plant to the finished product stockpile structure, which will reduce double handling of the products after screening.

22.3 Primary Capital

The key items budgeted for under this category are:

- Load out station automation;
- Energy management systems;
- High mast lighting;
- Security offices;
- Geological core cutter and splitter;
- Bioremediation facility;
- IT systems upgrade;
- SAGE phase 2 implementation;
- Management systems upgrade;
- Water supply upgrade;
- Storm water dam upgrade;
- Falling object protection under conveyors; and
- Relocation of ADT weighbridge.

The total budgeted primary capital is R26 million and is scheduled over a period of 12 months.

22.4 Sustaining Capital

The key items individually budgeted for under this category are:

- RoM feed bin upgrade;
- Primary crusher upgrades;
- Generator upgrades;
- Primary crusher conveyor belt replacements;
- Mine dewatering pump replacements;
- Final product material handling system refurbishment;
- Portable screening plant material handling refurbishment;
- Final connection to Eskom Grid;
- Security upgrade (lighting and camera's);
- Legal compliance;
- Communication systems upgrade; and
- Buildings refurbishment.

The total budgeted sustaining capital is R640 million (2018 terms) and is scheduled based on a work plan between the years FY2019 and FY2047 or over a period of 30 years.

22.5 Concluding Remarks

Considering the vast majority of the mining activities are driven by contractors, The Mineral Corporation is of the opinion that the various capital items and costs budgeted for are sufficient to ensure the sustainability of the operation in the longer term. In addition they have been developed in sufficient detail and accuracy to demonstrate the economic viability of the Ore Reserves. The total capital cost budgeted over the LoM Plan is R827 million (2018 terms), and is scheduled as per Figure 73.

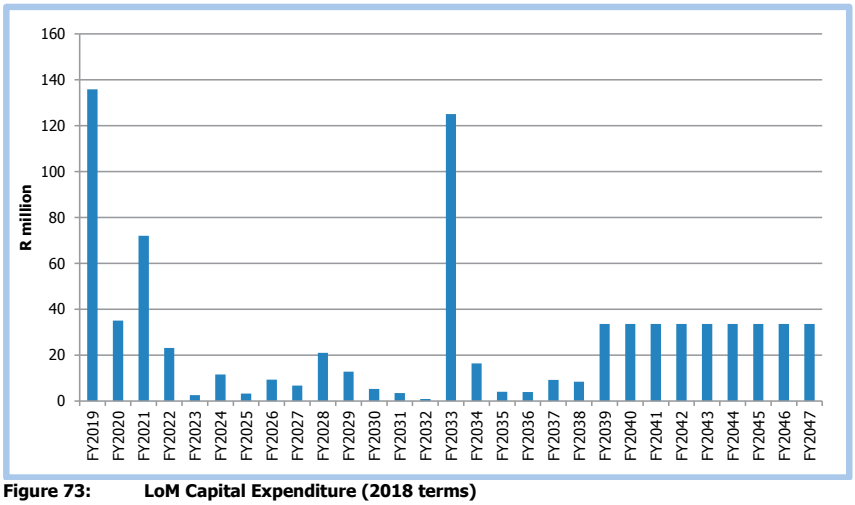


Figure 73: LoM Capital Expenditure (2018 terms)

23 ORE RESERVE ESTIMATE

23.1 Estimation and modelling techniques

23.1.1 *Mineral Resource estimate*

The Mineral Resource estimate used to derive the Ore Reserves is provided in Table 16. The Mineral Resources are reported inclusive of those Mineral Resources which have been converted into Ore Reserves. Only the Measured and Indicated portions of the Mineral Resource, which fall within the LoM, have been included in the Ore Reserve. No Inferred Mineral Resources have been included.

For the M, C, N and Supergene Zones, all of the Measured and Indicated Mineral Resources within the selected pit have been used in the LoM, and hence converted to Ore Reserves. Only that portion of the Z Zone which is planned to be added to the RoM tonnage in the LoM has been converted. No parts of the X or Y Zone have been converted to Ore Reserves.

23.1.2 *Reporting*

All of the Ore Reserves reported are derived from the Tshipi Mine open pit. No underground Ore Reserves have been declared and no material derived from planning into the Mamatwan area has been included in the Ore Reserve.

While the Mine does have surface stockpiles, the tonnage contained on the stockpiles has not been included in the Ore Reserve, as it would not add materially to the estimate. The Mine does not generate surface tailings, and hence the evaluation of tailings is not required.

The reference point for tonnage and grade estimates for the Ore Reserve statement is the delivery of mined ore to the RoM stockpiles.

23.1.3 *Modifying factors*

23.1.3.1 Mining right duration

As described in Section 3.1, there is a reasonable expectation that the mining right will be renewed and thus the fact that the current LoM Plan and Ore Reserve estimate extends to 2047, and beyond the duration of the current mining right is not considered a material issue.

23.1.3.2 Geological loss

All geological losses are accounted for in the Mineral Resource statement, and no additional geological losses have been applied to the Ore Reserves.

23.1.3.3 Mining loss

A loss of 9% has been applied to the Ore Reserve volumes and tonnage estimates. This loss takes into account mining losses, processing losses and mining dilution, and has been based on recent mining results.

23.1.3.4 Dilution

Mining dilution has not been applied to the Ore Reserves; however, the Mine has indicated that the mining loss has historically been sufficient to account for any dilution. The Mineral Corporation notes the robust volume and grade reconciliation between Mineral Resource model and the metallurgical plant (Section 7.11), which would support this view.

23.1.3.5 Processing loss

As the Mine sells both lumpy and fines, there are only insignificant processing losses. The mining loss of 9% is considered sufficient to account for any additional losses in processing.

23.1.3.6 Blending

Driven by market demand the aim of the scheduling process is to supply a constant grade of 36.5% Mn to the crusher, by continuous blending of the ore from the various work areas and primary zones namely the M, C, N and Supergene Zones. The lower grade Z Zone is also delivered to the RoM and is utilised to dilute the higher grade material to maintain the desired feed grade of 36.5%Mn.

Initially the required blending is developed in the long term mining plan where the primary mining focuses on the M, C, N and Supergene ore zones. The required quantity of the Z Zone is then scheduled separately and is added to the ore scheduled for delivery to the crusher to dilute the grade to the specified 36.5% Mn. Only that component of the Z zone which is utilised in the schedule has been converted to an Ore Reserve.

This mining schedule is taken and developed into a shorter term plan which, is used to drive the ore mined and blending requirements.

The Z Zone is mined separately and is delivered to its own stockpile on the crusher RoM. The M, C, N and Supergene are mined as a combined unit and delivered to their own stockpile on the same crusher RoM. Post sampling of these stockpiles, a blending plan is developed where controlled amounts of each stockpile are feed into the crusher so that the 36.5% Mn grade is maintained.

The effectiveness of this approach is demonstrated in Table 38 where over the last three years less than 1% of the consignments despatched didn't meet the final product specifications.

It should be noted that the X and Y ore zones, due to their lower grade, are mined as a unit and despatched to a Low Grade (LG) ore storage facility. This material is not converted from Mineral Resource to Ore Reserve.

The total planned RoM tonnes ore to crusher (excluding the LG) after 9% losses is 87Mt. The effective Mn% cut-off for the Ore Reserve is approximately 29% Mn.

23.1.4 *Economic Analysis*

23.1.4.1 Introduction and Methodology

An assessment of economic viability is a requirement for the conversion of Mineral Resources into Ore Reserves, and hence a discounted cash flow financial model (FM) has been prepared for that portion of the LoM identified as potential Ore Reserves.

This FM and its results should not be construed to be a valuation of the Mineral Assets.

Ungeared cash flows have been forecast and discounted back to a Net Present Value (NPV) using a range of real discount rates (7.5% to 12.5%). The DCF model start date is 1 January 2018 and the cash flow continues up to February 2047, to match the current LoM and the available Ore Reserves (86Mt). Movements in working capital (stores, debtors and creditors) have been provided for however, no unwinding of working capital has been incorporated at cash flow end (FY2047). Calculations have been done in nominal (inflated) money terms for more accurate treatment of carried forward balances (tax, royalties and working capital). The bottom line cash flow is restated in real 2018 money terms before discounting. All prior unredeemed capital has been exhausted and is set to zero. Forecast capital expenditure is applied to royalty and company tax calculations. No dividend withholding tax has been applied to cash flows available for distribution.

The FM is dependent on the accuracy of the assumptions underpinning the technical and economic inputs to the assessment, which are linked to the completeness of the information available at the time of this review. The FM is a forward-looking exercise intended to assess the economic viability of Ore Reserves only, and all outputs are hence reliant on assumptions which may not be established fact, being subject to revision as more detailed information becomes available and as circumstances change.

23.1.4.2 Source of Forecasts

The source of the production and sales quantities, operating, capital and closure cost forecasts in the Ore Reserve analysis FM is the LoM Plan. Total sales of lumpy and fines products to FY2047 comprise 86Mt. An average unit mining operating cost derived directly from the LoM Plan of R220/tonne mined (in 2018 real terms) and an average processing operating cost of R42/per feed tonne have been modelled for the purposes of this Ore Reserve analysis. Indirect fixed operating costs of R311m/annum and an annual provision for a closure cost has been added, which assumes that the final void will not be backfilled so as not to sterilise the considerable Mineral Resources that are currently outside the LoM Plan. The capital cost budget, including sustaining capital, was incorporated as provided in the LoM Plan (R827m in 2018 money terms).

Revenue inputs for this economic analysis have been determined as follows:

- Base inflation rates of 2% (US CPI) and 5.5% (SA CPI) have been applied. This long-term forecast of US inflation is considered reasonable in the context of the United Sate's Federal Reserve's Federal Open Market Committee statement on Longer Run Goal and Monetary Policy Strategy (adopted effective January 24, 2012, as amended effective January 2018), in which the Committee states that

the inflation rate over the longer run is primarily determined by monetary policy, and reaffirms its judgment that inflation at the rate of 2%, as measured by the annual change in the price index for personal consumption expenditure, is most consistent over the longer run with the Federal Reserve's statutory mandate. The South African long term forecast inflation figure is supported by The South African Reserve Bank's (SARB) inflation target policy in which an explicit inflation target range of between 3% and 6% has been set, with linked monetary policy implementation to achieve this target directly. The SARB quarterly bulletin of December 2017 presents Q3 2017 consensus forecasts of long term South African inflation in the range of 5.4% to 6%, and on which basis the long term assumption of 5.5% applied by The Mineral Corporation is considered reasonable.

- The Rand:US$ exchange rate forecast is centred on a base case assumption of R13.00:US$1.00, within the range R12.00:US$1.00 to R14.00:US$1.00, reflecting a number of public domain views of South Africa's macro-economic circumstances and long-term exchange rate forecasts.
- The Mineral Corporation's determination of a long term forecast base case manganese ore price average of US$4.00/mtu over the LoM, with sensitivities between $3.50/mtu and US$4.50/mtu is premised on the following:
    - South Africa is host to the largest global repository of in situ manganese mineralization and produced nearly 30% of global mine production of manganese ore in 2017, for which the principle end use is as an essential, non-recyclable input to the global steel manufacturing industry.
    - Manganese ore is not exchange traded and its price is determined by supply and demand dynamics linked to global steel industry production levels.
    - The consistency of grade and quality established by South African manganese ore has consolidated the country's position as the primary manganese ore supplier to the global steel industry. There are no alternative suppliers for ore with these characteristics elsewhere in the world.
    - The Mineral Corporation sees no likelihood of a structural change in this circumstance for the duration of the LoM plan.

Manganese ore price and exchange rate scenarios above have been set as shown in Table 50, and used to derive grade-adjusted landed cost, insurance, freight based (CIF) manganese ore price to calculate revenue.

Table 50: Ore Reserve Economic Analysis: Manganese Ore price and Rand:US$ exchange rate assumptions

Scenario	Manganese US$/mtu FoB Port Elizabeth	Manganese US$/mtu CIF	Rand:US$ Exchange Rate
High	$4.50	$5.18	R14.00
Base	$4.00	$4.68	R13.00
Low	$3.50	$4.18	R12.00

For the purposes of an economic analysis of Ore Reserves, the Competent Persons consider these price and exchange rate forecast assumptions to be reasonable in the context of the comprehensive manganese market summary and outlook contained in Section 20, analysis of Tshipi Borwa Mine's achieved sales data, historic average manganese prices and currency exchange rates, and consensus macro-economic opinion and outlook.

23.1.4.3 Results

The consolidated results of the FM for Ore Reserve analysis at a range of real discount rates are contained in Table 51.

Table 51: Ore Reserve FM Results (Rand denominated)

Scenario	Mn Price US$/mtu FoB PE	Rand:$	NPV units	Real Discount Rate		
				7.50%	10%	12.50%
High	$4.50	R 14.00	R million	R 25 136	R 20 359	R 16 994
Base	$4.00	R 13.00	R million	R 16 246	R 13 183	R 11 024
Low	$3.50	R 12.00	R million	R 8 410	R 6 858	R 5 763

For the purposes of sensitivity illustration only, Table 52 presents the two variable sensitivity of an $NPV_{10\%}$ case to changes in both manganese price and exchange rate.

Table 52: Ore Reserve FM sensitivity to exchange rate and Mn price (NPV $_{10\%}$ results are Rand million denominated)

Rand Exchange Rate	Mn Price (US$/mtu)		
	US$3.50	US$4.00	US$4.50
R12.00	R 6 826	R 10 584	R 14 443
R13.00	R 8 998	R 13 183	R 17 381
R14.00	R 11 205	R 15 797	R 20 320

Based on these results, which are not be construed as a Mineral Asset valuation, the Competent Persons conclude that the LoM which supports the Ore Reserves at Tshipi Borwa Mine is economically mineable at the long term price range identified in the Market Review (US$3.50 to US$4.50/dmtu, FoB). This price range appears to exceed that required for cash cost break even and to also exceed the additional requirements for items such as tax, capital, closure costs and a return on capital over the full LoM. In addition, the Mine has shown the ability to flexibly adjust its production rate, and costs, as the market dictates.

23.1.5 *Classification criteria*

All Measured Mineral Resources within the LoM have been converted to Proved Ore Reserves and all Indicated Mineral Resources have been converted to Probable Ore Reserves. No Inferred Resources have been converted to Ore Reserves.

23.2 Ore Reserve Statement

The Ore Reserve statement as at 31 December 2017 is shown in Table 53.

Table 53: Ore Reserve Statement (31 December 2017)

	Zone	Tonne	Mn (%)	SG
Proved	Z	2 913 000	31.62	3.59
	M	12 181 000	38.01	3.77
	C	24 379 000	36.47	3.68
	N	7 410 000	34.36	3.65
	SUPER	766 000	37.03	3.51
	Sub-total	**47 649 000**	**36.25**	**3.69**
Probable	Z	3 265 000	32.12	3.56
	M	9 230 000	38.20	3.75
	C	21 749 000	36.83	3.68
	N	4 517 000	33.86	3.65
	Sub-total	**38 761 000**	**36.41**	**3.68**
Total		**86 410 000**	**36.32**	**3.69**

Tonnes are rounded down to 1 000t

23.3 Reconciliation with previous Ore Reserve Statement

The most recent previous estimate was the 31 December 2016 Ore Reserve estimate, as shown in Table 54. Reconciliation between the two is shown in Table 55.

Table 54: Ore Reserve estimate (31 December 2016)

	Zone	Tonne	Mn (%)	SG
Proved	Z	3 457 000	31.89	3.65
	M	11 776 000	38.22	3.72
	C	20 814 000	36.46	3.55
	N	6 272 000	35.68	3.54
	SUPER	2 423 000	34.72	3.48
	Sub-total	**44 744 000**	**36.37**	**3.6**
Probable	Z	1 932 000	31.92	3.64
	M	4 031 000	38.63	3.69
	C	7 821 000	36.98	3.57
	N	2 052 000	34.74	3.45
	Sub-total	**15 838 000**	**36.49**	**3.59**
Total		**60 583 000**	**36.40**	**3.60**

Table 55: Reconciliation between 31 December 2016 and 31 December 2017 Ore Reserve

	Zone	Tonnes	Mn (%)	SG
Proved	Z	-544 000	-0.3	-0.06
	M	405 000	-0.2	0.05
	C	3 565 000	0.0	0.13
	N	1 138 000	-1.3	0.11
	SUPER	-1 657 000	2.3	0.03
	Sub-Total	**2 905 000**	**-0.1**	**0.09**
Probable	Z	1 333 000	0.2	-0.08
	M	5 199 000	-0.4	0.06
	C	13 928 000	-0.2	0.11
	N	2 465 000	-0.9	0.20
	Sub-Total	**22 923 000**	**-0.1**	**0.09**
Total		**25 827 000**	**-0.1**	**0.09**

The total Ore Reserves have increased by some 25.8Mt. The majority of this was in the Probable category, and was as a result of Inferred Mineral Resources being upgraded to Indicated Mineral Resources, after the 2017 exploration campaign. Mining depletion during the period was approximately 3.3Mt.

23.4 Risk Assessment

The Mineral Corporation has undertaken a risk assessment on the Tshipi Borwa Mine and its associated LoM Plan. The risks have been categorised as being material, or minor in nature. The following risks, and their associated mitigation, are considered to be material:

- EMP amendments: Tshipi needs to make a number of changes to its approved EMP. The most material of these relates to the commitment to not leave a final void post mine closure. Should Tshipi be unable to amend the EMP to reflect only partial filling of the void, the Mine's closure provision will have to be increased to the levels as recommended by SLR and funded from FY2019 onwards. To support the amendment process, a study has been commissioned to access the remaining Mineral Resources either from a decline system developed out of the open pit void (deferring final void filling) or once the void has been filled, via a vertical shaft system (located outside the open pit).
- Manganese price volatility: The manganese price has seen considerable volatility over the previous number of years. Lower than anticipated manganese prices would have a material impact on the business. In this regard, Tshipi has a relatively high variable cost component in mining, process and logistics, and has shown that in the past it has been possible to flexibly adjust product volumes, as dictated by the market; and
- The reliability and cost associated with product logistics: Given the importance of the product logistics costs to Tshipi's overall cost, increases in road, rail or shipping costs would have a material impact on the business. Product logistics is a key management focus area, and Tshipi has demonstrated a robust and flexible product logistics plan.

The following risks are considered to be minor in nature:

- Unanticipated geological conditions: While the Measured and Indicated Mineral Resources are informed by sufficient drilling to justify their respective classifications, and to identify major geological features, smaller scale faults or changes in dip could impact mining operations. Tshipi has budgeted for additional infill drilling ahead of the current mining face, to mitigate this risk;
- Lower than expected grade to crusher: Instances of grade under-performance have been observed in 2017, relative to the anticipated product specifications. These instances can be caused by a lower than anticipated in-situ grades, unanticipated mining dilution or a lack of adequate grade control. This can be compounded by the fact that there is less high grade Supergene ore available. The Mine has initiated steps to improve its grade control and reconciliation processes.
- Laboratory performance: The on-site laboratory is utilised for exploration drilling, grade control and product analyses. The Mineral Corporation observed that the laboratory was under pressure, as a result of increased throughput, and the unavailable of certain equipment. Tshipi will need to manage this risk by adequately resourcing the on-site laboratory.
- Under-performance of the mining contractor in terms of not meeting the planned material movements: The mining contract is actively managed, and the mining contractor has demonstrated their capability over the last twelve months in terms of meeting the planned volumes, particularly the production build-up from 1.8Mtpa to in excess of 3Mtpa;
- Under-performance by the fixed or mobile processing equipment, or the contractor operating the equipment, will pose a risk to the sustainability of the LoM, specifically the planned tonnages and lumpy yields: The replacement processing plant, currently undergoing final commissioning, will before

the end of FY2018, replace one of the contractor plants on site. Once in full operation it is likely to improve both cost and reliability of the current processing infrastructure. The expected benefits of this have been partially incorporated into the LoM in FY2019, with the full benefit only being accounted for from FY2020 onwards;

The Mineral Corporation is satisfied that Tshipi's management is aware of all of the above risks, and has mitigation measures in place, or is actively pursuing strategies to minimise the impact of the risks on the mining and processing operations at the Mine.

24 INTERPRETATION AND CONCLUSIONS

The Tshipi Borwa Mine is a maturing mining, processing and product logistics operation, operating in South Africa. While the South African operating environment, particularly with respect to mining and environmental legislation is dynamic, Tshipi has demonstrated, through its project development and operating track record, to be able to manage these complexities.

Tshipi has all the necessary mining, environmental and social permits required to continue operations. Various design changes occurred subsequent to the approval of the original EMP in 2009. These changes have been addressed through an amendment process (EMP1), which has been granted. A WUL amendment process is still underway, but given that no unacceptable risks or impacts have been identified in the EIA and supporting specialist impact assessments, it is reasonable to assume that the WUL amendment will be granted.

A separate EMP amendment process (EMP2) will be required for the planned amendment of the open mine pit rehabilitation strategy to accommodate partial pit backfilling instead of complete backfilling as per the requirements of the approved 2009 EMP. Not obtaining approval of EMP2 represents the only material risk identified with respect to environmental matters. Tshipi should be able to provide a compelling motivation for not undertaking complete backfilling as the cost of complete backfilling, together with the cost of developing a new underground mining operation from surface, would likely sterilise the remaining substantial Mineral Resources.

The Mine exploits the LMO, a laterally continuous manganese deposit, within the Kalahari Manganese Field. The LMO is on average 37.5m thick, and generally has a shallow dip to the northwest. The LMO is subdivided into six sub-zones termed N, C, M, Z, Y, X from the base to the top. The presence of the LMO throughout the mining right area has been confirmed by extensive drilling.

Mineral Resource estimates have been undertaken for all six zones within the LMO, as well as a zone of Supergene enriched mineralisation. Several phases of exploration drilling support the Mineral Resources estimates, the data for which is has been validated and found suitable for use. There is limited protocol and QAQC information from the boreholes obtained from the neighbouring Mamatwan Mine. However, public domain descriptions indicate that exploration protocols at Mamatwan Mine are similar to Tshipi, and as a result of their location, these holes have limited influence on the Mineral Resource estimates. Mineral Resource classification is based on drillhole spacing, which is considered to be appropriate for the nature and style of mineralisation, and it is noted that a geostatistical classification would have resulted in a materially similar result.

Ore Reserves estimates are informed by the LoM Plan, which is supported by detailed technical assessments, including geohydrology, geotechnical, optimisation, mine design and scheduling, and a detailed budgeting process. As a mine in operation, these assessments are updates undertaken on an annual basis, and are informed by actual results. All Modifying Factors are understood in sufficient detail to warrant the classification as Ore Reserves. Only those parts of the Measured and Indicated Mineral Resource which are planned to be mined and sold during the LoM Plan have been converted to Ore Reserves and the LoM is not dependent on any Inferred Mineral Resources. The LoM which supports the Ore Reserves at Tshipi Borwa Mine is considered to be economically mineable at the long term price range identified in the Market Review (US$3.50 to US$4.50/dmtu, FoB). This price range appears to exceed that required for cash cost break even and to also exceed the additional requirements for items such as tax, capital, closure costs and a return on capital over the full LoM.

The waste rock disposal approach utilises a combination of backfill and waste dumps. At present, the LoM makes provision for only partial filling of the final void. The decision to fill the final void at the end of the LoM will be dependent on the outcome of an underground access study and approval of the planned EMP2 amendment.

The mining operation at Tshipi is undertaken by an established contractor. The Mine achieved, and has maintained, a significant ramp-up in mining production during 2017, and it is considered likely that the contractor will be able to maintain the ore and waste volumes anticipated in the LoM Plan, which is maintained at current levels.

The ore processing is also primarily undertaken by contractors. While the processing plant was able to process the increased tonnages required in 2017, this was utilising mobile/semi-mobile secondary crushing and screening and the commissioning of the new GP500s plant should result in productivity, quality and cost improvements. The product quality has generally been of an acceptable quality.

The Mine's generators provide reliable power to the operation, albeit at a high cost. The decision to connect to the ESKOM grid is timeous and should be expedited to realise the cost savings. The generators will continue to provide good back up power should there be national or regional power outages.

Off-site product logistics are a key component in the achievement of the LoM plan, in that they make-up a large component of the Mine's operating cost, and the multiple channels to market require planning and management. Although other logistics routes have been utilised in the past, the LoM assumes that the following routes are utilised:

- Bulk rail to the Port Elizabeth Bulk Ore Terminal;
- Rail to Port Elizabeth Container Terminal;
- Road haul to Port Elizabeth Fresh Produce Terminal;
- Rail to Durban, and
- Road haul to Durban

Of Tshipi's current 3.0Mtpa production, 1.8Mtpa is covered under the original MECA II agreement with TFR. The renewed MECA II agreement, signed in February 2018, has an increased allocation of 2.1Mtpa. Tshipi have planned on 1.9Mtpa, assuming a 91% strike rate, which is in line with historical performance. The company thus has a robust and flexible product logistics management chain, which is covering the current production volumes well, and is competitively priced. The Mineral Corporation is satisfied that the mine rail loading facility can handle the planned volumes and that the mine is capable of loading the required number of road trucks. Road access at the mine will deteriorate with the planned road transportation loading, which is the responsibility of the Provincial Road Authority.

Operating costs have been developed in sufficient detail and accuracy to be utilised in an assessment of the economic viability of the Ore Reserves. The most important operating cost is the cost of product logistics, shipping and freight. Mining, processing and indirect operating costs are less material, and are relatively constant in real terms over the LoM. As a primarily contractor driven mining and processing operation, capital costs are modest, and are considered to be sufficient to sustain the operation.

There are no risks identified which would prevent the declaration of Mineral Resources and Ore Reserves. The risks identified which are potentially material are the manganese price, the potential additional financial provision which would be required should the planned EMP2 amendment not be approved, and the potential for logistics costs to increase. Other minor risks identified are discussed in Section 23.4.

The Mineral Corporation is satisfied that Tshipi is aware of all of the risks, and has mitigation measures in place, or is actively pursuing strategies to minimise the impact of the risks on the mining and processing operations.

25 AUDITS AND REVIEWS

25.1 Mineral Resource Audit

A Peer Review of Tshipi's 2016 Mineral Resource model was completed by The Mineral Corporation in October 2016.

25.1.1 *Scope*

The scope of the Peer Review included the following:

- The robustness of the geological database which informed the estimates;
- Geological structural interpretation;
- Selection of evaluation cuts for the mineralised zones;
- Treatment of anomalous data;
- Statistical and geostatistical analysis;
- Grade estimation methodologies;
- Mineral Resource classification methodology;
- Depletion;
- Reconciliation (resource model to geological data);
- Reconciliation (resource model to production information); and
- Suitability of Mineral Resource reporting to SAMREC Code reporting compliance.

25.1.2 *Findings*

The key findings of the review were as follows:

- The Mineral Corporation did not identify any fatal flaws in the 2016 Mineral Resource model or the resulting Mineral Resource estimates and found that the model can be considered suitable for mine planning;
- It was found that two of the material issues identified should be resolved before finalising or reporting the Mineral Resources and upon rectification of those issues, the estimates would be sufficiently robust to support the declaration of SAMREC Code-compliant Mineral Resources;
- It was identified that detail and clarity on a number of aspects would need to be added to the Mineral Resource Report to satisfy the SAMREC Code requirements.

The Mineral Corporation notes that the material issues identified were corrected prior to the declaration of the Mineral Resources contained in this report, and that the findings with regards to the Mineral Resource Report have been superseded by the compilation of this report by this report.

26 QUALIFICATIONS OF COMPETENT PERSON(S) AND OTHER KEY TECHNICAL STAFF

26.1 Competent Person: Mineral Resources

The Mineral Resource estimates in this report are signed-off by Mr. Stewart Nupen. His qualifications are as follows:

- University of Pretoria, Gordon Institute of Business Science, MBA, 2011-2012;
- University of the Witwatersrand, Graduate Diploma in Engineering (Distinction), 2010;
- University of Cape Town, BSc (Hons) Geology, 1996-1999;

Membership of Professional Societies:

- Registered with the South African Council for Natural Scientific Professions (Pr Sci Nat Number 400174/07);
- Member of the Southern African Institute of Mining and Metallurgy;
- Fellow of the Geological Society of South Africa.

Mr Nupen has 19 years' experience in the mining industry, and has worked in the area of Mineral Resource estimation on manganese operations in the KMF, since 2008

26.2 Competent Person: Ore Reserves

The Ore Reserves estimates in this report are signed-off by Mr. Jonathan Buckley. His qualifications are as follows:

- Camborne School of Mines, Camborne, England, BSc (Hons) Mining Engineering, 1986;
- University of Strathclyde, Glasgow, Scotland, MSc Petroleum Engineering, 1987;

Membership of Professional Societies:

- Fellow of the Southern African Institute of Mining and Metallurgy – Membership No. 700328; and
- Registered with the Engineering Council of South Africa (Pr Eng).

Mr Buckley has more than 30 years' of experience in the mining industry, in both open pit and underground mining, and has extensive experience on projects and operations in the KMF.

27 COMPETENT PERSONS CONSENT FORMS

Competent Person's Consent Form
Pursuant to the requirements of ASX Listing Rule 5.6, 5.22 and 5.24 and clause 9 of the JORC Code 2012 Edition
(Written Consent Statement)

Report Name

COMPETENT PERSONS REPORT ON TSHIPI É NTLE MANGANESE MINING (PTY) LIMITED'S TSHIPI BORWA MANGANESE MINE

JUPITER MINES LIMITED

DATE

Statement

I, Stewart Robert Quentin Nupen confirm that I am the Competent Person for the Report and:

- I have read and understood the requirements of the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012 Edition).
- I am a Competent Person as defined by the JORC Code 2012 Edition, having five years' experience that is relevant to the style of mineralisation and type of deposit described in the Report, and to the activity for which I am accepting responsibility.
- I am registered with the South African Council for Natural Scientific Professionals (Pr Sci Nat Number 400174/07); a member of the Southern African Institute of Mining and Metallurgy; and a Fellow of the Geological Society of South Africa which are 'Recognised Professional Organisations' ("RPOs") included in the list promulgated by ASX.
- I have reviewed the Report to which this Consent Statement applies.
- I am a director of The Mineral Corporation and have been engaged by Jupiter Mines Limited to prepare the documentation for a Competent Persons Report on Tshipi é Ntle Manganese Mining (Pty) Limited's Tshipi Borwa Manganese Mine on which the Report is based, for the period ended December 2017.

I have disclosed to the reporting company the full nature of the relationship between myself and the company, including any issue that could be perceived by investors as a conflict of interest.

I verify that the Report is based on and fairly and accurately reflects in the form and context in which it appears, the information in my supporting documentation relating to Exploration Targets, Exploration Results and Mineral Resources and Ore Reserves.

Consent

I consent to the release of the Report and this Consent Statement by the directors of:

JUPITER MINES LIMITED

Signature of Competent Person	:	Date:
Professional Memberships: South African Council for Natural Scientific Professionals. Member of the Southern African Institute of Mining and Metallurgy. Fellow of the Geological Society of South Africa.		*Membership Number:* (Pr Sci Nat Number 400174/07) (SAIMM Number 8138) (GSSA Number 964668)
Signature of Witness:		Witness Name and Place:

Competent Person's Consent Form
Pursuant to the requirements of ASX Listing Rule 5.6, 5.22 and 5.24 and clause 9 of the JORC Code 2012 Edition
(Written Consent Statement)

Report Name

COMPETENT PERSONS REPORT ON TSHIPI É NTLE MANGANESE MINING (PTY) LIMITED'S TSHIPI BORWA MANGANESE MINE

JUPITER MINES LIMITED

DATE

Statement

I, Jonathan Anthony Buckley confirm that I am the Competent Person for the Report and:

- I have read and understood the requirements of the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012 Edition).
- I am a Competent Person as defined by the JORC Code 2012 Edition, having five years' experience that is relevant to the style of mineralisation and type of deposit described in the Report, and to the activity for which I am accepting responsibility.
- I am a Fellow of the Southern African Institute of Mining and Metallurgy – Membership No. 700328; and Member of the Engineering Council of South Africa (Pr Eng) which are 'Recognised Professional Organisations' ("RPOs") included in the list promulgated by ASX.
- I have reviewed the Report to which this Consent Statement applies.
- I am a full time consultant working for The Mineral Corporation and have been engaged by Jupiter Mines Limited to prepare the documentation for a Competent Persons Report on Tshipi é Ntle Manganese Mining (Pty) Limited's Tshipi Borwa Manganese Mine on which the Report is based, for the period ended December 2017.

I have disclosed to the reporting company the full nature of the relationship between myself and the company, including any issue that could be perceived by investors as a conflict of interest.

I verify that the Report is based on and fairly and accurately reflects in the form and context in which it appears, the information in my supporting documentation relating to Exploration Targets, Exploration Results, Mineral Resources and Ore Reserves.

Consent

I consent to the release of the Report and this Consent Statement by the directors of:

JUPITER MINES LIMITED

Signature of Competent Person : Date:

Professional Memberships:
Fellow of the Southern African Institute of Mining and Metallurgy.
Member of the Engineering Council of South Africa (Pr Eng).

Membership Number:
(SAIMM Number 700328)

(Pr Eng. Number 20090049)

Signature of Witness:

Witness Name and Place:

28 GLOSSARY AND ABBREVIATIONS

GLOSSARY	DEFINITION
Airborne LiDAR survey	A survey technique that uses lasers and sensors mounted in a fixed wing aircraft, drone or helicopter, to accurately measure the distance from the aircraft to ground features and thence to produce a topographic map.
Assay	Equivalent to analysis.
Bixbyite	A manganese iron oxide mineral with chemical formula: $(Mn,Fe)_2O_3$.
Braunite	A silicate mineral containing both divalent and trivalent manganese, with the chemical formula: $Mn^{2}+Mn^{3}+_{6}[O_8|SiO_4]$.
Bulk Density	A measurement of the density of heaped materials which takes into account the spaces between particles in the heap.
Bulk sample	A large sample which is generally processed through a small-scale plant.
Capex	Capital Expenditure
Competent Person	A Competent Person is a minerals industry professional who is a Member or Fellow of The Australasian Institute of Mining and Metallurgy, or of the Australian Institute of Geoscientists, or of a 'Recognised Professional Organisation' (RPO), as included in a list available on the JORC and ASX websites. These organisations have enforceable disciplinary processes including the powers to suspend or expel a member. A Competent Person must have a minimum of five years relevant experience in the style of mineralisation or type of deposit under consideration and in the activity which that person is undertaking. If the Competent Person is preparing documentation on Exploration Results, the relevant experience must be in exploration. If the Competent Person is estimating, or supervising the estimation of Mineral Resources, the relevant experience must be in the estimation, assessment and evaluation of Mineral Resources. If the Competent Person is estimating, or supervising the estimation of Ore Reserves, the relevant experience must be in the estimation, assessment, evaluation and economic extraction of Ore Reserves.
Competent Person's Report	A report on the technical aspects of a project or mine prepared by a Competent Person (CP). The contents are determined by nature/status of the project/mine being reported and may include a techno-economic model as appropriate for the level of study.
Cross section	A diagram or drawing that shows features transected by a vertical plane drawn at right angles to the longer axis of a geological feature.
Cut-off	A physical or quality parameter used to define the limits of a Mineral Resource.
Diamictite	A type of lithified sedimentary rock that consists of unsorted to poorly sorted terrigenous sediment containing particles that range in size from clay to boulders, suspended in a matrix of mudstone or sandstone.
Diamond drilling	A drilling method in which the rock is cut by a diamond-impregnated bit in order to extract cylindrical core. Equivalent to "core drilling".
Dilution	Low or zero grade (waste) material that is mined during the course of mining operations and thereby forms part of the Ore Reserve
Dip	The angle that a structural surface e.g. a seam surface, makes with the horizontal, measured perpendicular to the strike of the surface.
Dyke	A tabular body of intrusive igneous rock, cross-cutting the host strata.
Dwyka Group	A stratigraphic unit in Southern Africa believed to be of glacial origin and occurring between the pre-Karoo Basement and the coal-bearing Ecca Group.
Fault	A fracture surface or zone of fractures in earth materials along which there has been vertical and/or horizontal displacement or movement of strata on opposite sides relative to one another.
Feasibility Study	A Feasibility Study is a comprehensive technical and economic study of the selected development option for a mineral project that includes appropriately detailed assessments of applicable Modifying Factors together with any other relevant operational factors and detailed financial analysis that are necessary to demonstrate at the time of reporting that extraction is reasonably justified (economically mineable). The results of the study may reasonably serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project. The confidence level of the study will be higher than that of a Pre-Feasibility Study.
Footwall	The ground below a fault or seam.
Geological Loss	A factor applied to the tonnage component of a Mineral Resource estimate, to account for anticipated losses, due to geological features, such as faults or dykes.
Graben	A depressed block of land bordered by parallel faults.
Hanging wall	The ground above a fault or seam.
Hausmannite	A complex oxide of manganese containing both divalent and trivalent manganese. The formula can be represented as $Mn^{2}+Mn^{3}+_{2}O_4$. The mineral belongs to the spinel group and forms tetragonal crystals. Hausmannite is a brown to black metallic mineral with Mohs hardness of 5.5 and a specific gravity of 4.8.
Horst	A raised fault block bounded by normal faults or graben.
Indicated Mineral Resource	An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine

GLOSSARY	DEFINITION
	planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes, and is sufficient to assume geological and grade (or quality) continuity between points of observation where data and samples are gathered. An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Ore Reserve.
Inferred Mineral Resource	An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade (or quality) are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade (or quality) continuity. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to an Ore Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.
In situ	Generally used with reference to the reporting of Mineral Resources or Ore Reserves to indicate a volume or tonnage undisturbed in the ground.
Jacobsite	A manganese iron oxide mineral in the spinel group and forms a solid solution series with magnetite. The chemical formula is $MnFe_2O_4$ or with oxidation states and substitutions: $(Mn^2+,Fe^2+,Mg)(Fe^3+,Mn^3+)_2O_4$.
Jaspilite	A chemical rock formed similar to chert, but is generally rich in iron.
JORC Code	The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. The code provides minimum standards for public reporting for companies listed on the Australian and New Zealand stock exchanges.
Kutnahorite	A rare calcium manganese carbonate mineral with magnesium and iron. Kutnahorite is a member of the dolomite group and forms a series with dolomite and with ankerite. The end member formula is $CaMn^2+(CO_3)_2$.
Laminae	A small scale sequence of fine layers that occurs in sedimentary rocks.
Licence, Permit, Right, Lease or similar entitlement	Any form of license, permit, right or lease, or other entitlement granted by the relevant Government in accordance with its mining legislation that confers on the holder certain rights to explore for or extract minerals (or both) that may be contained in the designated area.
Life of Mine	Duration of time that it will take to extract accessible material.
Life of Mine Plan	A design and financial/economic study of an existing operation in which appropriate assessment have been made of existing geological, mining, social, governmental, engineering, operational, and all other Modifying Factors, which are considered in sufficient detail to demonstrate that continued extraction is reasonably justified. The term is not defined in the JORC Code, and in this report, the definition in the SAMREC Code has been utilised.
Lithology	The general physical characteristic of a rock
Lutite	A fine-grained sedimentary rock, which is composed of silt-size sediment, clay-size sediment, or a mixture of both.
Material	For the purpose of the Mineral Asset Valuation, guidance for the determination of Materiality as provided in the VALMIN Code has been utilised "An amount that is equal to or greater than 10% may be presumed to be Material unless there is evidence or a convincing argument to the contrary; an amount that is equal to or less than 5% may be presumed to not be Material unless there is evidence or a convincing argument to the contrary.
Mineral Resource	A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade (or quality), and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade (or quality), continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling. Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories.
Measured Mineral Resource	A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes, and is sufficient to confirm geological and grade (or quality) continuity between points of observation where data and samples are gathered. A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proved Ore Reserve or under certain circumstances to a Probable Ore Reserve.
Mine Design	A framework of mining components and processes taking into account such aspects as

GLOSSARY	DEFINITION
	mining methods used, access to the ore body, personnel and material handling, ventilation, water, power, and other technical requirements, such that mine planning can be undertaken.
Mine Planning	Production planning and scheduling, within the Mine Design, taking into account aspects such as geological structures and associated infrastructure and other constraints.
Mine residue deposit	Any mine residue stockpile remaining at the termination, cancellation or expiry of a prospecting right, mining right, mining permit, exploration right or production right.
Mine residue	Waste resulting from exploration, mining, quarrying, and physical and chemical treatment of minerals.
Mine residue stockpile	Any debris, discard, tailings, slimes, screening, slurry, waste rock, foundry sand, mineral processing plant waste, ash or any other product derived from or incidental to a mining operation and which is stockpiled, stored or accumulated within the mining area for potential re-use, or which is disposed of, by the holder of a mining right, mining permit or, production right or an old order right (MPRDA).
Modifying Factors	Modifying Factors are considerations used to convert Mineral Resources to Ore Reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors.
Opex	Operating expenditure.
Ore Reserve	An Ore Reserve is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified. The reference point at which Reserves are defined, usually the point where the ore is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.
Overburden	The layers of regolith and rock covering a seam.
Ovoid	Something that is shaped like an egg.
Percussion drilling	A destructive drilling technique in which the drill bit is "hammered" through the rock using a pneumatic piston. The compressed air cleans the rock fragments (chips) from the bit surface and transports them to surface.
Pre-Feasibility study	A Preliminary Feasibility Study (Pre-Feasibility Study) is a comprehensive study of a range of options for the technical and economic viability of a mineral project that has advanced to a stage where a preferred mining method, in the case of underground mining, or the pit configuration, in the case of an open pit, is established and an effective method of mineral processing is determined. It includes a financial analysis based on reasonable assumptions on the Modifying Factors and the evaluation of any other relevant factors which are sufficient for a Competent Person, acting reasonably, to determine if all or part of the Mineral Resources may be converted to an Ore Reserve at the time of reporting. A Pre-Feasibility Study is at a lower confidence level than a Feasibility Study.
Probable Ore reserve	A Probable Ore Reserve is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying Factors applying to a Probable Ore Reserve is lower than that applying to a Proved Ore Reserve.
Proved Ore reserve	A Proved Ore Reserve is the economically mineable part of a Measured Mineral Resource. A Proved Ore Reserve implies a high degree of confidence in the Modifying Factors.
Public reports	Public Reports are reports prepared for the purpose of informing investors or potential investors and their advisers on Exploration Results, Mineral Resources or Ore Reserves. They include, but are not limited to, annual and quarterly company reports, press releases, information memoranda, technical papers, website postings and public presentations.
Recognised Professional Organisation	The list of Professional Organisations recognised by JORC. These organisations have enforceable disciplinary processes, including the powers to suspend or expel a member.
Relative Density	The ratio of the density of a material to the density of water. Equivalent to Specific Gravity.
Reverse Circulation	A style of drilling in which the return flow of compressed air or water, with the rock chips, is directed up the drill rods rather than between the drill rods and the side of the borehole.
Rhodochrosite	A manganese carbonate mineral with chemical composition $MnCO_3$. In its (rare) pure form, it is typically a rose-red colour, but impure specimens can be shades of pink to pale brown.
Rhythmites	A rhythmite consists of layers of sediment or sedimentary rock which are laid down with an obvious periodicity and regularity.
SAMREC Code	The South African Code for Reporting of Exploration Results, Mineral Resources and Mineral Reserves. The code sets out minimum standards, recommendations and guidelines for the public reporting of Exploration Results, Mineral Resources and Mineral Reserves in South Africa. (SAMREC Code, 2016).
SAMVAL Code	The South African Code for The Reporting of Mineral Asset Valuation. (SAMVAL Code, 2016).
Stripping Ratio	The ratio of ore mined to total material mined, including ore. It can be measured in terms of volume, or tonnage.

GLOSSARY	DEFINITION
Strike	The orientation of the line of intersection of a plane e.g. a seam surface or fault, with a horizontal plane.
Supergene enrichment	A process that occurs relatively near the surface as opposed to a deep hypogene process. The process includes the predominance of meteoric water circulation with concomitant oxidation and chemical weathering.
Tetraborate	An anhydrous compound.
Unconformity	A surface of contact between two groups of unconformable strata.
Variogram	A description of the spatial continuity of data.

ABBREVIATION	DESCRIPTION
bcm	Bank cubic metres
B.Sc.	Bachelor of Science degree
B.Sc. (Hons)	Bachelor of Science degree, with Honours
C	Celsius
Cl	Chlorine
cm	Centimetre
CPR	Competent Person's Report
°	Degrees
°C	Degrees Centigrade
DC	Direct current
DENC	Department of Environment and Nature Conservation
DMR	Department of Mineral Resources
DWS	Department of Water Affairs and Sanitation
E	East
EA	Environmental Authorisation
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan or Environmental Management Programme
FoB	Free on Board
FoR	Free on Rail
GPS	Global Positioning System
Ha	Hectare
HQ	Diamond drill equipment which produces core with a nominal diameter of 63.5mm
JORC	Joint Ore Reserves Committee
kHz	Kilohertz
km	Kilometre
kV	Kilovolts
l	litre
lcm	Loose cubic metres
LiDAR	Light Detection and Ranging
LoM	Life of Mine
m	Metre
M	Million
MBA	Master of Business Administration degree
mm	Millimetre
mamsl	Metres above mean sea level
mbgl	Metres below ground level
MPRDA	Mineral and Petroleum Resources Development Act (Act 28 of 2002)
MR	Mining Right
M.Sc.	Master of Science degree
Mt	Million tonnes
Mtpa	Million tonnes per annum
MW	Megawatt
N	North
N/A	Not Applicable
NEMA	National Environmental Management Act 107 of 1998
NEMAQA	National Environmental Management: Air Quality Act 39 of 2004
NEMBA	National Environmental Management: Biodiversity Act 10 of 2004
NEMWA	National Environmental Management: Waste Act (Act 59 of 2008
NCNCA	Northern Cape Nature and Environmental Conservation Act 9 of 2009
NHRA	National Heritage Resources Act 25 of 1999
NOPR	New Order Prospecting Right
NQ	Diamond drill equipment which produces core with a nominal diameter of 47.6mm
No	Number
NWA	National Water Act 36 of 1998
P	Phosphorus
%	Percentage
PR	Prospecting Right
Pr.Eng.	Professional Engineer, registered in terms of the Engineering Profession Act 406 of 2000
Pr.Sci.Nat.	Professional Natural Scientist, registered according to the South African Council of Natural Scientific Professions
QA/QC	Quality Assurance and Quality Control
R	South African Rands
RC	Reverse Circulation
RD	Relative Density
RoM	Run of Mine
ROP	Recognised Professional Organisation
S	South
SACNASP	South African Council for Natural Scientific Professions, governed by the SACNASP Act (Act 27 of 2003)

ABBREVIATION	DESCRIPTION
SAMREC	South African Mineral Resource Committee
SAMVAL	The South African Mineral Asset Valuation Committee
"	Seconds
SG	Specific Gravity
S&LP	Social and Labour Plan
t	Tonne / tonnes
TFR	Transnet Freight Rail
TMC	The Mineral Corporation
TNW	Diamond drill equipment which produces core with a nominal diameter of 60.0mm
US$	United States dollars
UTM	Universal Transverse Mercator
W	West
WML	Waste Management Licence
WUL	Water Use Licence

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APPENDIX 1: JORC TABLE 1

Section 1: Sampling Techniques and Data		Section in CPR
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.	Section 6.3 Section 6.4
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).	Section 6.2
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.	Section 6.2.1.4
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.	Section 6.2.1.3
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. 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.	Section 6.3 Section 6.4
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.	Section 6.4 Section 6.5
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.	Section 6.7

Section 1: Sampling Techniques and Data		Section in CPR
Criteria	JORC Code explanation	Commentary
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.	Section 6.2.1.2 Section 7.2.1
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.	Section 6.2.1.5 Section 7.2.5
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.	Section 6.2.1.1 Section 6.2.1.2
Sample security	The measures taken to ensure sample security.	Section 6.3.1.2 and Section 6.7
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	Section 25

Section 2: Reporting of Exploration Results		Section in CPR
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.	Section 1.9 Section 2 Section 3.1 Section 3.2 Section 4.1 Section 4.3 Section 17.1
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Section 6.1 Section 6.2
Geology	Deposit type, geological setting and style of mineralisation.	Sections 5
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 exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Sections 6 Sections 6.1 Sections 6.2 Sections 7.2.4 The location of drillholes is adequately described on plans

Section 2: Reporting of Exploration Results		Section in CPR
Criteria	JORC Code explanation	Commentary
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.	Section 7.2.2 Section 7.2.5 Section 7.2.6 Not applicable
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').	Section 7.2.5 Section 7.2.7 Section 7.2.10
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.	Section 7.2.3 Section 7.2.10 Section 7.2.11 Section 7.3 Section 7.6.4
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.	Not applicable; individual intersections are not 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.	Other exploration data is not material The results of metallurgical testwork is no longer relevant given the operating history
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.	Section 6.8 The CP is not aware of any material information that has not been divulged in this report

Section 3: Estimation and Reporting of Mineral Resources		Section in CPR
Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. Data validation procedures used.	Section 6.7
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits. If no site visits have been undertaken indicate why this is the case.	Section 1.2 Section 6.5 and Section 6.7 Section 8.6 Section 9.6 Section 12.7 Section 19.5

Section 3: Estimation and Reporting of Mineral Resources		Section in CPR
Criteria	JORC Code explanation	Commentary
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit. Nature of the data used and of any assumptions made. The effect, if any, of alternative interpretations on Mineral Resource estimation. The use of geology in guiding and controlling Mineral Resource estimation. The factors affecting continuity both of grade and geology.	Section 7.1 Section 7.2.2 Section 7.2.3
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	Section 7.2.3
Estimation and modelling techniques	The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used. The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data. The assumptions made regarding recovery of by-products. Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation). In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. Any assumptions behind modelling of selective mining units. Any assumptions about correlation between variables. Description of how the geological interpretation was used to control the resource estimates. Discussion of basis for using or not using grade cutting or capping. The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Section 7.2 Section 7.3 Section 7.4 Section 7.5 Section 7.6 Section 7.7 Section 7.8 Section 7.9 Section 7.10 Section 7.11
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Not applicable
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Section 7.2.2
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	Sections 7.4.1
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	Sections 7.4.2
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental	Section 17

Section 3: Estimation and Reporting of Mineral Resources		Section in CPR
Criteria	JORC Code explanation	Commentary
	impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples. The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit. Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Section 6.6
Classification	The basis for the classification of the Mineral Resources into varying confidence categories. Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). Whether the result appropriately reflects the Competent Person's view of the deposit.	Section 7.6 Section 7.7 Section 7.8
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	Section 25
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Section 7.6.4 Section 7.11

Section 4: Estimation and Reporting of Ore Reserves		Section in CPR
Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve. Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	Section 7.9
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits. If no site visits have been undertaken indicate why this is the case.	Section 8.6 Section 9.6 Section 12.7 Section 19.5
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves. The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is	Section 8.7 Section 9.7 Section 10 Section 11

Section 4: Estimation and Reporting of Ore Reserves		Section in CPR
Criteria	JORC Code explanation	Commentary
	technically achievable and economically viable, and that material Modifying Factors have been considered.	Section 12
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	Section 23.1.3.6
Mining factors or assumptions	The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design). The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc. The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling. The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate). The mining dilution factors used. The mining recovery factors used. Any minimum mining widths used. The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion. The infrastructure requirements of the selected mining methods.	Section 8 Section 9 Section 10 Section 11 Section 11.4 Section 12 Section 23.1.3
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation. Whether the metallurgical process is well-tested technology or novel in nature. The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied. Any assumptions or allowances made for deleterious elements. The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole. For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	Section 14
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	Section 17 Section 11
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	Section 13 Section 15 Section 16
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study. The methodology used to estimate operating costs. Allowances made for the content of deleterious elements. The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products. The source of exchange rates used in the study. Derivation of transportation charges. The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc. The allowances made for royalties payable, both Government and private.	Section 21 Section 22 Section 23.1.4

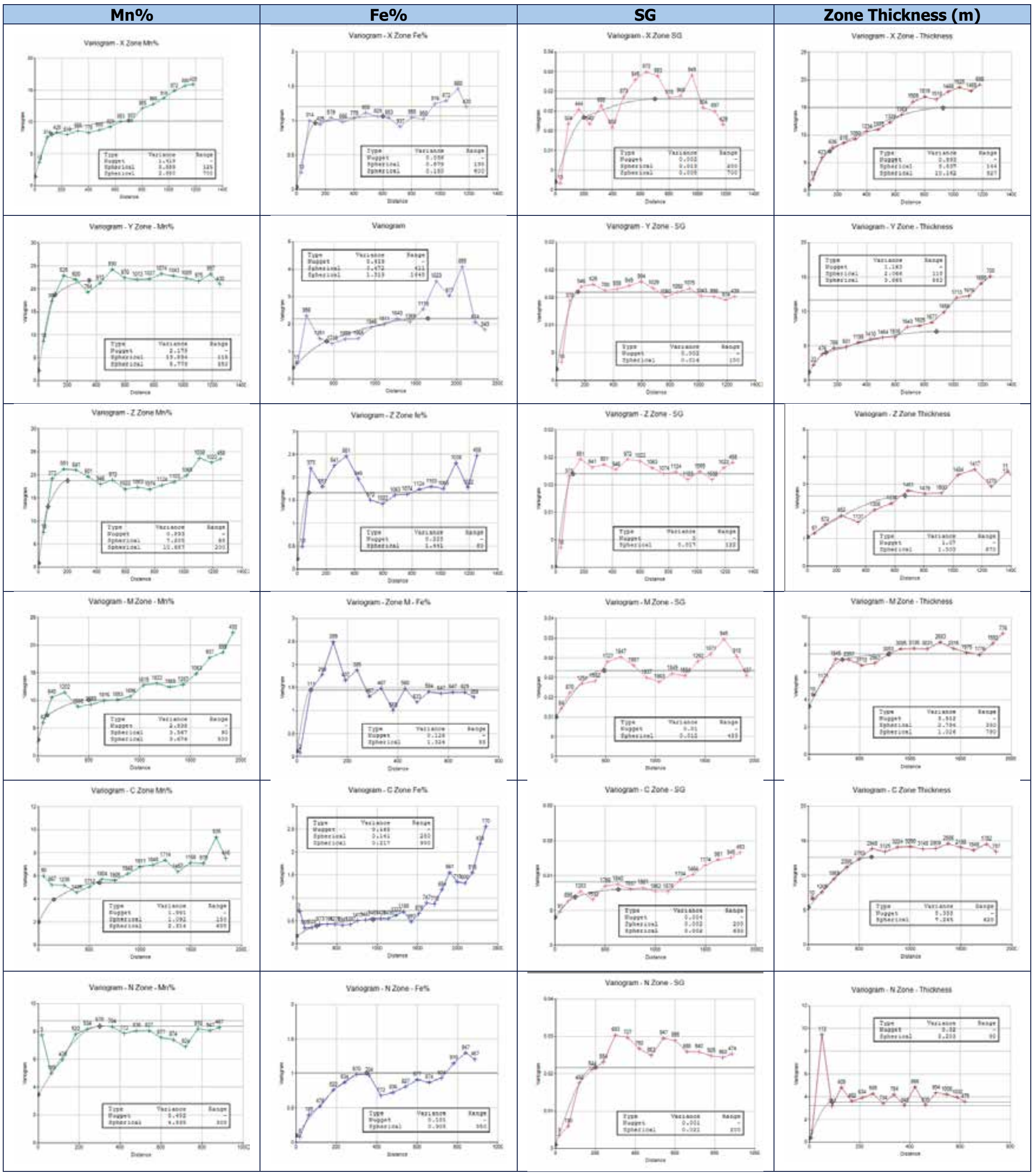
Section 4: Estimation and Reporting of Ore Reserves		Section in CPR
Criteria	JORC Code explanation	Commentary
Revenue factors	The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc. The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Section 20 Section 23.1.4
Market assessment	The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future. A customer and competitor analysis along with the identification of likely market windows for the product. Price and volume forecasts and the basis for these forecasts. For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	Section 16.4 Section 20 Section 23.1.4 Not applicable
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc. NPV ranges and sensitivity to variations in the significant assumptions and inputs.	Section 23.1.4
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Section 18
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves: Any identified material naturally occurring risks. The status of material legal agreements and marketing arrangements. The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	Section 23.4 Section 4 Section 3
Classification	The basis for the classification of the Ore Reserves into varying confidence categories. Whether the result appropriately reflects the Competent Person's view of the deposit. The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	Section 23
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	Section 25
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate. The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage. It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Section 23 Section 24

Section 5: Estimation and Reporting of Diamonds and Other Gemstones		Section in CPR
Criteria	JORC Code explanation	Commentary
NOT APPLICABLE		

x

APPENDIX 2: VARIOGRAMS

Mn%	Fe%	SG	Zone Thickness (m)



APPENDIX 2 CYIP INDEPENDENT GEOLOGIST'S REPORT

Independent Geologist's Report on the Central Yilgarn Iron Project, Western Australia

Report Prepared for

Jupiter Mines Limited

Report Prepared by

srk consulting

SRK Consulting (Australasia) Pty Ltd

JUP014

February 2018

Independent Geologist's Report on the Central Yilgarn Iron Project, Western Australia

Jupiter Mines Limited

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SRK Project Number JUP014

February 2018

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Michael Cunningham.

The Directors

Jupiter Mines Limited

Level 10

16 St Georges Terrace

Perth WA 6000

Dear Directors

Jupiter Mines Limited, henceforth known as "Jupiter" or the "Company" the "Client", has commissioned SRK Consulting (Australasia) Pty Ltd (SRK) to provide an Independent Geologist's Report (IGR) on Jupiter's Central Yilgarn Iron Project (CYIP) exploration assets located in Western Australia.

It is SRK's understanding that Jupiter is considering a list on the Australian Securities Exchange (ASX) and this IGR is to be included in the Company's Prospectus.

Jupiter proposes to lodge the Prospectus with the Australian Securities and Investment Commission (ASIC) during Q1 2018.

The key mineral assets to be considered in this IGR comprise Jupiter's 100% interest in the Mt Mason and Mt Ida iron ore deposits located in the Central Yilgarn of Western Australia. Furthermore, Jupiter have informed SRK that the mineral assets being the focus of the IGR are limited to the established resources in the Mt Mason and Mt Ida projects (CYIP). The Company has advised SRK that it is not appropriate to report on any other mineral assets.

As at 7 February 2018, SRK reports the following with respect of Jupiter (on a 100% basis):

- Mt Mason: Mineral Resources of approximately 5.9 Mt of hematite grading 60.1% Fe
- Mt Ida: Mineral Resources of approximately 1.85 Bt grading 29.5 Fe%.

This IGR presents the following key Technical Information as at the Effective Date (defined below):

- Mineral Resource statements (January 2018, SRK) reported in accordance with the terms and definitions of the JORC Code (2012)
- Summaries of scoping study (Mt Ida) and feasibility study (Mt Mason).

Certain units of measurements and technical terms defined in the JORC Code are defined in the list of abbreviations included in this IGR.

Unless otherwise stated, all statistics presented are on a 100% basis.

Standard of the Report

This IGR has been prepared to the standard of, and is considered by SRK to be, a Technical Assessment Report under the guidelines of the 2015 edition of the Australasian Code for the Public Reporting of Technical Assessments and Valuations of Mineral Assets (VALMIN Code). The VALMIN Code incorporates the 2012 Edition of the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code).

In addition, this IGR has been prepared in accordance with the relevant requirements of the Listing Rules of the ASX and relevant ASIC Regulatory Guidelines.

Statement of independence

Neither SRK nor any of the authors of this IGR have any material present or contingent interest in the mineral assets considered or the outcome of this IGR, nor do they have any pecuniary or other interest that could be reasonably regarded as being capable of affecting their independence or that of SRK. SRK has no prior association with the Company concerning the mineral assets that are the subject of this Report. SRK has no beneficial interest in the outcome of the technical assessment being capable of affecting its independence. SRK's fee for completing this IGR is based on its normal professional daily rates plus reimbursement of incidental expenses. The payment of that professional fee is not contingent upon the outcome of the IGR.

Information basis of this IGR

For the preparation of this IGR, Jupiter has made all relevant information held by the Company, available to SRK. SRK has supplemented this information, where necessary, with information from its own geological databases, or information available within the public domain. The principal sources of information are included in a reference list (Section 8). The IGR includes information available up to the date of this IGR. Jupiter has stated that all information provided may be presented in the IGR and that none of the information is regarded as being confidential.

Activities undertaken as part of this assignment included an upgrade of Mineral Resource estimates for the Mt Ida and Mt Mason projects – these were previously estimated by SRK in 2011 and 2012 – in accordance with the reporting guidelines of the JORC Code (2012 edition). SRK conducted background research, including searches of government datasets and public domain data sources. The work included a review of Jupiter's proposed exploration program and budget.

Legal matters

SRK has not been engaged to comment on any legal matters. SRK notes that it is not qualified to make legal representations in regard to the ownership and legal standing of the patents, non-patents and State permits that are the subject of this IGR. SRK has not attempted to confirm the legal status of the tenements with respect to acquisition or joint venture agreements, permits, local heritage or potential environmental or land access restrictions. Instead, SRK has relied on information provided by Jupiter. SRK has prepared this IGR on the understanding that all the tenements of Jupiter are currently in good standing.

SRK understands that the current ownership status and legal standing of the tenements are dealt with in a separate Solicitor's Report prepared by Jackson McDonald.

Warranties and Indemnities

Jupiter has warranted in writing to SRK that full disclosure has been made of all material information and that, to the best of its knowledge and understanding, such information is complete, accurate and true.

As recommended by the VALMIN Code, Jupiter has provided SRK with an indemnity under which SRK is to be compensated for any liability and/or any additional work or expenditure resulting from any additional work required:

- which results from SRK's reliance on information provided by Jupiter or to Jupiter not providing material information; or
- which relates to any consequential extension workload through queries, questions or public hearings arising from this Jupiter.

Consulting fees

SRK's estimated fee for completing this IGR is based on its normal professional daily rates plus reimbursement of incidental expenses. The fees are agreed based on the complexity of the assignment, SRK's knowledge of the assets and availability of data. The fee payable to SRK for this engagement is estimated at approximately A$25,000. The payment of this professional fee is not contingent upon the outcome of the IGR.

Consents

SRK consents to this IGR being included, in full, in the Company's IPO, in the form and context in which the technical assessment is provided, and not for any other purpose.

SRK provides this consent on the basis that the technical assessments expressed in the Summary and in the individual sections of this Report are considered with, and not independently of, the information set out in the complete Report and the Cover Letter.

SRK confirms that to the best of its knowledge and belief (having taken all reasonable care to ensure that such is the case), the information contained in the IGR is in accordance with the facts and does not omit anything likely to affect the import of such information.

SRK confirms that nothing has come to its attention to indicate any material change to any matters reported in the IGR.

SRK confirms that it has reviewed the information contained elsewhere within the Prospectus relating to the information contained within the IGR and confirms that the information presented is accurate, balanced, complete and not inconsistent with the IGR.

Yours faithfully

SRK Consulting (Australasia) Pty Ltd

Michael Cunningham, MAIG, MAusIMM

Principal Consultant (Geology)

16 February 2018

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Disclaimer

The opinions expressed in this Competent Person's Independent Geological Report (IGR or Report) have been based on the information supplied to SRK Consulting (Australasia) Pty Ltd by Jupiter Mines Limited (Jupiter or Company). The opinions in this Report are provided in response to a specific request from the Company to do so. SRK has exercised all due care in reviewing the supplied information. Whilst SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this Report apply to the site conditions and features as they existed at the time of SRK's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report, about which SRK had no prior knowledge nor had the opportunity to evaluate.

List of Abbreviations

Term	Meaning
Acid	An igneous rock with more than 63% SiO_2
AIG	Australian Institute of Geoscientists
Allochthonous	A deposit or formation that originated at a distance from its present position
Andesite	A pale coloured volcanic rock with 52% - 63% SiO_2
Antiform	The opposite of a synform in that the strata is folded with the strata convex upwards
Archaean	A geological eon, 4,000 to 2,500 million years ago
asl	Above sea-level
ASIC	Australian Securities and Investment Commission
ASX	Australian Securities Exchange
AusIMM	The Australasian Institute of Mining and Metallurgy
Au	gold
Autochthonous	A deposit or formation formed in its present position
Basalt	A dark-coloured volcanic rock with 45% - 52% SiO_2
BIF	Banded Iron Formation (also known as banded ironstone formations) are distinctive units of sedimentary rock that are almost always of Precambrian age. A typical banded iron formation consists of repeated, thin layers (a few mm to a few cm in thickness) of silver to black iron oxides, either magnetite (Fe_3O_4) or hematite (Fe_2O_3), alternating with bands of iron-poor shales and cherts, often red in colour, of similar thickness, and containing microbands (sub-mm) of iron oxides.
Breccia	Fragmented rock
Bt	Billion tonnes
Cainozoic	A period of geological time (1.5 million years ago to 65.5 million years ago)
Calc-alkaline	A group of igneous rocks, common in volcanic arcs, high in calcium and potassium
cm	Centimetre
Cretaceous	A period of geological time (65.5 million years ago to 145.5 million years ago)
CYIP	Central Yilgarn Iron Projects
Fe	Iron
DD	Diamond core drilling
Diorite	An intrusive igneous rock with similar composition to andesite
DSO	Direct Shipping Ore
Dyke	A narrow tabular intrusive rock body
Epigenetic	A mineral deposit that formed later than the enclosing rocks
Fault	A fracture in earth materials, along which the opposite sides has been displaced parallel to the plane of the movement
g/t	Grams per tonne
Ga	Billions of years ago
Geophysics	The study of the Earth using quantitative physical methods to measure its electrical conductivity, gravitational and magnetic fields
Gossan	Intensely oxidised, weathered or decomposed rock usually the upper and exposed part of an ore deposit or mineral vein
Granite	An acid intrusive rock
Granodiorite	A type of granitic rock with abundant feldspar

Term	Meaning
Granulite	An equigranular coarse grained metamorphic rock
Greenstone belt	Precambrian supracrustal rocks that include komatiite, basalt, andesite, and sedimentary rocks.
GSWA	Geological Survey of Western Australia
Hematite	Hematite, also spelled as haematite, is an iron oxide mineral and is widespread in rocks and soilshttps://en.wikipedia.org/wiki/Hematite - cite_note-:0-5. It is coloured black to steel or silver-grey, brown to reddish brown, or red. It is mined as the main ore of iron. Huge deposits of hematite are found in banded iron formations.
Hydrothermal breccia	A breccia formed by explosion of superheated water migrating from depth to the surface
Hydrothermal Fluid	Upward flowing fluids originating from igneous or metamorphic geological events
Hypogene	Formed from water ascending from within the earth
Igneous	An igneous rock formed entirely within the Earth's crust
Induced Polarisation (IP) survey	A geophysical survey method to measure the electrical property of rocks in the Earth
Intrusive	An igneous rock formed entirely within the Earth's crust
JORC Code	Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves
Jupiter	Jupiter Mines Limited
km	Kilometre
Ma	Millions of years ago
Magmatic	Formed from molten rock
Magnetite	Magnetite is a mineral and one of the main iron ores. Magnetite is ferrimagnetic; it is attracted to a magnet and can be magnetised to become a permanent magnet itself. It is the most magnetic of all the naturally-occurring minerals on Earth.
Meta-	A prefix used to indicate the precursor rock type of a metamorphic rock
Metamorphic rock	A rock altered by temperature and pressure within the earth
MINDEX	Mine and Mineral Deposits
Mineral Resource	A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade (or quality) and quantity that there is reasonable prospect for eventual economic extraction. The location, quantity, grade (or quality), continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge including sampling. Mineral Resources are sub-divided in order of increasing geological confidence into Inferred, Indicated and Measured categories.
Mineralisation	Geological occurrence of mineral of potential economic interest
mm	Millimetre
Mt	million tonnes
ppb	Parts per billion
ppm	Parts per million
Plutonic	An igneous rock crystallised at depth in the earth's crust
Porphyry-epithermal	Mineral deposits of the porphyry-epithermal mineral system which are associated with magmatism resulting in the formation of ore from hydrothermal fluids
Precambrian	The Precambrian is the earliest period of Earth's history. It spans from the formation of Earth about 4.567 billion years ago to the beginning of the Cambrian Period about 541 million years ago, when hard-shelled creatures first appeared in abundance.
Proterozoic	The time-period extending from 2,500 Ma to 541 million years ago

Term	Meaning
Pyrite	A mineral of iron sulphide (FeS_2)
Quartz	A silicon mineral SiO_2
Quartz-vein	Planar occurrences of quartz infilling fractures in the rock at a late stage of metamorphic activity and formed from hydrothermal fluid deposition
RC	reverse circulation
ROM	Run-of-mine
Sample	The removal of a small amount of rock pertaining to the deposit, which is used to estimate the grade of the deposit and other geological parameters.
Sericite	A mineral composed of fine-grained white mica
Shear zone	Structural deformation of rock by shearing stress under brittle-ductile or ductile conditions at depths in high pressure metamorphic zones
Silicified	A rock altered by addition of quartz
Siltstone	A fine-grained granular sedimentary rock
SRK	SRK Consulting (Australasia) Pty Ltd
Subduction	A geological process whereby oceanic rocks are thrust beneath other rocks (either continental or oceanic)
Supergene	Formed at or near the Earth's surface
Synform	The opposite of an antiform in that the strata are folded with the strata convex downwards
Syngenetic	Relating to a mineral deposit formed at the same time as the enclosing rock
Tenement	A general term for a Prospective, Exploration and/or Mining Lease.
Tholeiite	A type of basalt commonly formed on the ocean floor
VALMIN Code	Australasian Code for Public Reporting of technical assessments and valuations of mineral assets
Volcanic	Formed by or associated with a volcano
Volcaniclastic	Debris or rock formed from volcanic eruptions
VTEM	Versatile Time Domain Electromagnetic survey, a geophysical survey technique
Weathered Rock	Rock which has been broken down by the influence of water and air and which becomes softened and partially decomposed

Executive Summary

Jupiter Mines Limited (Jupiter or the Company) has commissioned SRK Consulting (Australasia) Pty Ltd (SRK) to provide an Independent Geologist Report (IGR) on Jupiter's 100% owned Mt Ida magnetite and Mt Mason DSO hematite projects in the Central Yilgarn of Western Australia, collectively known as the Central Yilgarn Iron Project (CYIP) or for the purpose of this IGR, the Mineral Assets.

The purpose of SRK's IGR is to provide an independent assessment of the technical data and merits of the CYIP, as well as to comment on the exploration strategy proposed by Jupiter.

The CYIP is located in the Shire of Menzies, Western Australia (latitude 29° 10' 45" S and longitude 120° 20' 50" E, datum WGS84). It comprises a coherent tenement package consisting of:

- two Mining Leases (collectively covering an area of approximately 6,760 ha)
- 23 Miscellaneous Licences (collectively covering an area of approximately 316,578 ha)
- three General Leases (collectively covering an area of approximately 10,981 ha).

The CYIP is located within the Menzies region of Western Australia. The Mt Ida project can be accessed by travelling east from Perth to the historical mining town of Kalgoorlie along the Great Eastern Highway for 593 km, or via a 1-hour flight from Perth. The Mt Ida project lies ~12 km due southwest of the historic Copperfield goldfield and is 120 km west of the regional town of Leonora. The Mt Mason project is approximately 5 km northwest of Mt Ida and is located on the Perrinvale pastoral lease.

Jupiter froze future expenditure on the CYIP, in November 2012, and the CYIP has remained on care and maintenance since then.

Jupiter continues to meet its minimum expenditure obligations on the tenements with a view to protecting the value of the earlier work for potential future development.

Jupiter advised that no fieldwork or technical studies that could be considered material to the Mt Ida project have been conducted since November 2012

SRK carried out a detailed technical review of Jupiter's two resources which form the CYIP, and does not find any significant risks that would have an impact on the geological interpretation. The Mineral Resource estimates are deemed by SRK to be supported by reasonable assumptions and are reported to a sufficient quality standard JORC Code (2012 edition) to satisfy the requirements of the Listing Rules of the Australian Securities Exchange (ASX) and the Australian Securities and Investment Commission (ASIC) Regulatory Guides.

SRK understands that no further work is planned for the CYIP until market conditions become favourable. As such, the Company has not prepared an exploration budget, and for this reason, SRK has not been able to comment on the reasonableness of any future work.

SRK considers the reported Mineral Resources at the CYIP are of a sufficient quantum to support future feasibility studies, and makes no recommendation to increase the resource base through further exploration efforts.

1 Introduction

1.1 Background

SRK Consulting (Australasia) Pty Ltd (SRK) was requested by Jupiter Mines Limited (Jupiter or the Company) to prepare an Independent Geologists' Report (IGR) in accordance with the Listing Rules of the Australian Securities Exchange (ASX) and the Australian Securities and Investment Commission (ASIC) Regulatory Guides.

This IGR is addressed to the Directors of Jupiter. SRK understands that Jupiter is seeking admission of the Company's securities on the ASX and that this IGR will be included as part of initial placement offering (IPO) documentation to be published by Jupiter (Prospectus). For the purposes of the ASX Listing Rules, SRK is responsible for this IGR forming part of the Prospectus. SRK declares that it has taken all reasonable care to ensure that the information contained in this IGR is, to the best of its knowledge, in accordance with the facts, and that it contains no omission likely to affect its import and no material change has occurred from 18 January 2018 to 13 February 2018 that would require any amendment to the IGR.

This IGR presents the following key Technical Information as at the Effective Date (defined below):

- Overview of the geological setting of Jupiter's Central Yilgarn Iron Project (CYIP) comprising the Mt Ida magnetite project and the Mt Mason DSO hematite Project and the associated mineralisation
- Outline of historical and recent exploration work undertaken at the CYIP
- Mineral Resource statements reported in accordance with the terms and definitions of the JORC Code (2012)
- SRK's opinion on the exploration and development potential of the CYIP
- Summary of the key technical risks and opportunities
- Commentary on the appropriateness of Jupiter's budgeted work programs.

Certain units of measurements, abbreviations and technical terms are defined in the glossary of this IGR. Unless otherwise explicitly stated, all quantitative data as reported in this IGR are reported on a 100% basis.

1.1.1 Reporting Standard

This IGR has been prepared to the standard of, and is considered by SRK to be, a Technical Assessment Report under the guidelines of the 2015 edition of the Australasian Code for the Public Reporting of Technical Assessments and Valuations of Mineral Assets (VALMIN Code).

The VALMIN Code incorporates the 2012 edition of the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves as published by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia (JORC Code).

In compliance with Clause 19 of the JORC Code, which states that "for significant projects the reporting of all criteria of sections 1 and 2 of Table 1 on an 'if not, why not' basis is required, preferably as an appendix)", the required sections are included in Appendix A.

1.1.2 Reliance on SRK

SRK is responsible for this IGR and for all the Technical Information that has been directly extracted from the IGR and reported in the Prospectus to be released by the Company in connection with the proposed ASX listing and to be dated around the same date as the IGR.

SRK declares that it has taken all reasonable care to ensure that the information contained in the IGR and included in the Prospectus is, to the best of its knowledge, in accordance with the facts and contains no omission likely to affect its import.

SRK confirms that the presentation of information contained elsewhere in the Prospectus which relates to information in the IGR is accurate, balanced and not inconsistent with the IGR.

SRK considers that its opinion must be considered as a whole and that selecting portions of the analysis or factors considered by it, without considering all factors and analyses together, could create a misleading view of the process underlying the opinions presented in this IGR. The preparation of a IGR is a complex process and does not lend itself to partial analysis or summary.

SRK has no obligation or undertaking to advise any person of any development in relation to the mineral assets which comes to its attention after the date of this IGR or to review, revise or update the IGR or opinion in respect of any such development occurring after the date of this IGR.

1.2 Base Technical Information, Effective Date and Publication Date

The base Technical Information date, and the Effective Date of the IGR is 13 February 2018 (Effective Date). The Technical Information contained in this IGR has been prepared as at the Effective Date.

SRK is not aware that any material change has occurred since the Effective Date. This includes, inter alia, no material changes to the Technical Information as reported in this IGR.

1.3 Verification and Validation

This IGR is dependent upon technical, financial and legal input. In respect of the Technical Information as provided by the Company and taken in good faith by SRK, and other than where expressly stated, any figures presented have not been independently verified by means of re-calculation.

However, SRK has conducted a review and assessment of all material technical issues likely to influence the Technical Information included in this IGR, which included the following:

- An examination of the historical data made available by the Company with respect to the CYIP
- Previous site visits by SRK personnel over a 3-year period from 2009 to 2012
- Mineral Resource estimates of the Mt Ida magnetite project and Mt Mason hematite project (by SRK)
- Enquiry of key project and head office personnel of Jupiter during Q1 2018 with respect to the Mineral Assets and other related matters
- An examination of historical information for financial reporting periods ended 31 December 2015 through to 31 December 2017
- An examination, review, and, where appropriate, identification of the key technical risks and opportunities as they relate to the Technical Information reported herein.

Accordingly, Jupiter has provided technical data (geological information, assay information, exploration programs) to SRK for the purpose of this review and for inclusion in the IGR. SRK confirms that it has performed all necessary validation and verification procedures deemed necessary and/or appropriate by SRK in order to place an appropriate level of reliance on such Technical Information.

1.4 Limitation, Reliance on Information, Declaration, Consent and Cautionary Statements

1.4.1 Limitations

The Technical Information presented here within relies on assumptions regarding certain forward-looking statements. These forward-looking statements are estimates and involve a number of risks and uncertainties that could cause actual results to differ materially. The projections as presented and discussed herein have been proposed by Jupiter's management and cannot be assured; they are necessarily based on economic assumptions, many of which are beyond the control of the Company. Unless otherwise expressly stated, all the opinions and conclusions expressed in this IGR are those of SRK.

1.4.2 Reliance on Information

SRK has relied upon the accuracy and completeness of technical, financial and legal information and data furnished by or through Jupiter.

Jupiter has confirmed to SRK that, to its knowledge, the information provided by it (when provided) was complete and not incorrect or misleading in any material respect. SRK has no reason to believe that any material facts have been withheld. While SRK has exercised all due care in reviewing the supplied information, SRK does not accept responsibility for finding any errors or omissions contained therein and disclaims liability for any consequences of such errors or omissions.

SRK's assessment of exploration results for the Mineral Assets is based on information provided by Jupiter throughout the course of Jupiter's investigations, which in turn reflect various technical and economic conditions prevailing at the date of this IGR. These conditions can change significantly over short periods of time. Should these conditions change materially, the assumptions could be materially different in such changed circumstances.

This IGR specifically excludes all aspects of legal issues, marketing, commercial and financing matters, insurance, land titles and usage agreements, and any other agreements and/or contracts Jupiter may have entered into.

This IGR includes technical information, which requires subsequent calculations to derive subtotals, totals and weighted averages. Such calculations may involve a degree of rounding and consequently introduce an error. Where such errors occur, SRK does not consider them to be material.

Technical Reliance

SRK places reliance on the Company and its technical representatives that all technical information provided to SRK as at the Effective Date is accurate.

Financial Reliance

In considering all financial aspects relating to Jupiter's mineral assets, SRK has placed reliance on the Company that the following information is appropriate as at the Effective Date (defined below):

- Operating expenditures as included in the Company's development strategy and exploration programs
- Capital expenditures as included in the Company's development strategy and exploration programs
- All statutory and regulatory payments as may be necessary to execute the Company's development strategy and exploration programs.

The financial information referred to above has been prepared under the direction of Melissa North, Chief Financial Officer, on behalf of the Board of Directors of the Company.

Legal Reliance

In consideration of all legal aspects relating to Jupiter's mineral assets, SRK has placed reliance on a separate Solicitor's Report prepared by Jackson McDonald that the following are correct as of the Effective Date (defined below) and remain correct until the Publication Date (defined below):

- Save as disclosed in the Prospectus, the Company Directors are not aware of any legal proceedings that may have any influence on the rights to explore, develop and mine the minerals present within and associated with the Company's mineral assets.
- The legal owners of all mineral and surface rights have been verified.
- Save as expressly mentioned in the Risk Factors of the main body of the Prospectus, no significant legal issue exists which would affect the likely viability of the exploration and production licences as reported herein.

1.4.3 Declaration

SRK will receive a fee of approximately A$25,000 for the preparation of this IGR in accordance with normal professional consulting practices. This fee is not dependent on the findings of this IGR and SRK will receive no other benefit for the preparation of this IGR. Neither SRK nor any of the authors have any pecuniary or other interests that could reasonably be regarded as capable of affecting its ability to provide an unbiased opinion in relation to the mineral assets opined upon by SRK and reported herein.

Neither SRK nor the Competent Persons (as identified below) who are responsible for authoring this IGR, nor any Directors of SRK have at the date of this report, nor have had within the previous two years, any shareholding in the Company, the Mineral Assets, or any other economic or beneficial interest (present or contingent) in any of the assets being reported on. SRK is not a group, holding or associated company of the Company. None of SRK's partners or officers are officers or proposed officers of any group, holding or associated company of the Company.

Further, no Competent Person involved in the preparation of this IGR is an officer, employee or proposed officer of the Company or any group, holding or associated company of the Company. Consequently, SRK, the Competent Persons and the Directors of SRK consider themselves to be independent of the Company, its directors, and senior management.

In this IGR, SRK provides assurances to the Board of Directors of the Company, in compliance with the Reporting Standard that the exploration potential of the mineral assets as provided to SRK by Jupiter and reviewed and, where appropriate, modified by SRK, are reasonable, given the information currently available.

1.4.4 Public Reporting

SRK will give its written consent to the inclusion of this IGR in the Prospectus (Public Report) and all of the information to be contained in the Prospectus which has been extracted directly from this IGR in the form and context which it appears in this IGR.

1.5 Indemnities provided by the Company

Jupiter has warranted, in writing to SRK, that full disclosure has been made of all material information and that, to the best of its knowledge and understanding, such information is complete, accurate and true. As recommended by the VALMIN Code, Jupiter has provided SRK with an indemnity under which SRK is to be compensated for any liability and/or any additional work or expenditure resulting from any additional work required:

- which results from SRK's reliance on information provided by Jupiter or from Jupiter not providing material information; or
- which relates to any consequential extension workload through queries, questions or public

hearings arising from this IGR.

1.6 Qualifications of Consultants and Competent Persons Consent

The SRK Group comprises over 1,200 staff, offering expertise in a wide range of mining and resource engineering disciplines with 45 offices located on six continents. The SRK Group prides itself on its independence and objectivity in providing clients with resources and advice to assist them in making crucial judgment decisions. For SRK this is assured by the fact that it holds no equity in either client companies/subsidiaries or mineral assets.

SRK has a demonstrated track record in undertaking independent assessments of resources and reserves, project evaluations and audits, Competent Person's Reports, Mineral Resource and Ore Reserve Compliance Audits, Independent Valuation Reports and independent feasibility evaluations to bankable standards on behalf of exploration and mining companies and financial institutions worldwide. SRK has also worked with a large number of major international mining companies and their projects, providing mining industry consultancy service inputs. SRK also has specific experience in commissions of this nature.

This IGR has been prepared based on a technical and economic review by a team of consultants sourced from SRK's offices in Australia. These consultants have extensive experience in the mining and metals sector and are members in good standing of appropriate professional institutions. The consultants comprise specialists in the fields of: geology and resource estimation; mining engineering; metallurgy and project evaluation (hereinafter the "Technical Disciplines").

The Competent Persons who have reviewed the assets as reported by Jupiter are:

- Mt Mason: Dr Michael Cunningham, BSc(Hons), PhD (Geology), GradCert (Geostatistics), MAusIMM, MAIG
- Mt Ida: Mr Rodney Brown, BSc (Geology), MGAA, MAusIMM.

Both Dr Cunningham and Mr Brown are full-time employees and Principal Consultants of SRK Consulting (Australasia) Pty Ltd. Dr Cunningham is a member of the Australian Institute of Geoscientists (AIG) and both Dr Cunningham and Mr Brown are members of The Australasian Institute of Mining and Metallurgy. Dr Cunningham is a Geologist with over 15 years' experience in the mining industry, including operational experience in gold, iron, graphite, uranium, silver, lead, and zinc and as such qualifies as a Competent Person as defined in the JORC Code (2012). Both Dr Cunningham and Mr Brown have sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration, and to the activity which they are undertaking, to qualify as Competent Persons in terms of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012) and are Specialist Practitioners as defined in the 2015 edition of the Australasian Code for Public Reporting of Technical Assessments and Valuations of Mineral Assets (VALMIN Code 2015).

Both Dr Cunningham and Mr Brown consent to the inclusion of this IGR in the Prospectus, and of the matters contained in this IGR based on their information in the form and context in which they appear.

The Competent Person who has overall responsibility for the peer review of this IGR is Karen Lloyd, BSc (Hons), MBA, FAusIMM, who is an Associate Principal Consultant at SRK. Ms Lloyd is a Fellow of the AusIMM and has 22 years' experience in the mining and metals industry and also has been involved in the preparation of Competent Person's Reports comprising technical evaluations of various mineral assets internationally during the past 10 years. She has sufficient experience that is relevant to the activity which she is undertaking to qualify as a Competent Person as defined in the JORC Code (2012) and a Specialist Practitioner as defined in the VALMIN Code (2015).

Table 1-1 provides a summary of the designated Competent Persons/ Specialist Practitioners involved in the completion of this IGR.

Table 1-1: Responsibility table summarising the Competent Persons and key contributors

Competent Persons					
Competent Person	**Position / Company**	**Responsibility**	**Independent of Jupiter**	**Date of last site visit**	**Professional designation**
Michael Cunningham	Principal Consultant (Geology & Resources)/ SRK Consulting (Australasia) Pty Ltd	Competent Person for Mt Mason Mineral Resource estimate, and overall IGR	Yes	August 2011	BSc (Hons), PhD, MAusIMM, MAIG
Rodney Brown	Principal Consultant (Resource Evaluation)	Competent Person for Mt Ida Mineral Resource estimate	Yes	April 2012	BSc (Hons), MAusIMM, MAIG
Karen Lloyd	Associate Principal Consultant (Project Evaluation)/ SRK Consulting (Australasia) Pty Ltd	Peer review	Yes	None	BSc (Hons), MBA, FAusIMM,

2 Overview of Jupiter

2.1 Introduction

Jupiter Mines Limited is an unlisted mineral resource company focused on the exploration and development of iron deposits in Western Australia. It was incorporated on 20 August 2003 and has its head offices in Perth, Western Australia. The Company was previously listed on the ASX from 23 December 2004 to 14 January 2014 under the ticker code, JMS.

The current ownership structure of Jupiter is summarised in Figure 2-1.

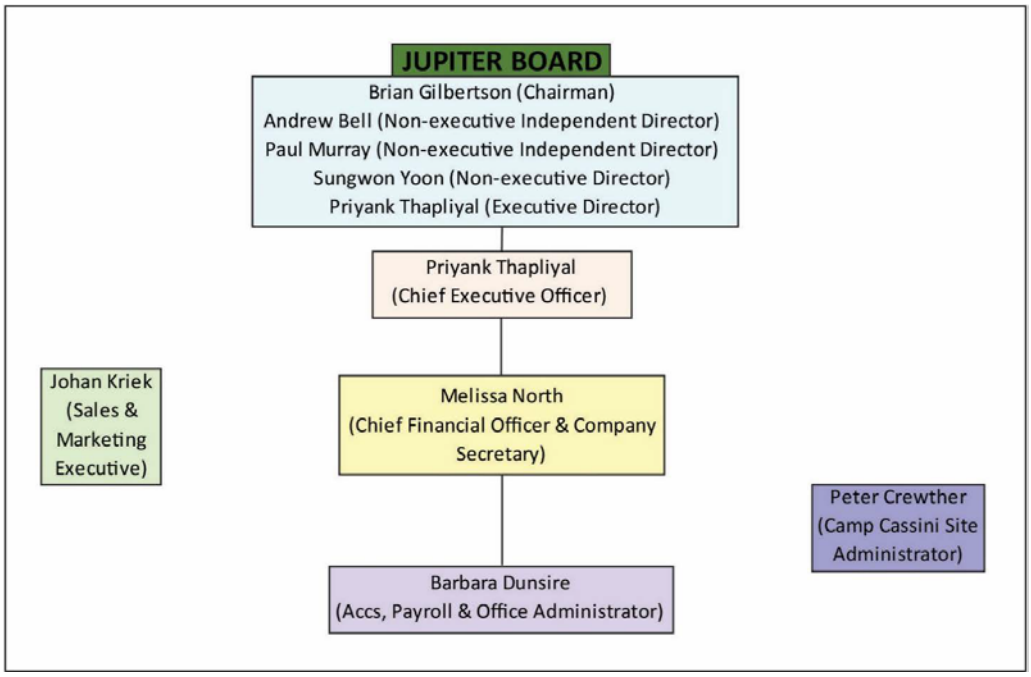

Figure 2-1: Company ownership structure

2.2 Company strategy

Through detailed exploration, Jupiter has assembled a series of contiguous mining, exploration and genera -purpose tenures in Western Australia. The Company is now seeking to list on the ASX to broaden its shareholder base and provide a liquid market for the exchange of Jupiter's securities.

The CYIP includes an exploration camp; equipment has been on care and maintenance since 2012. No work is currently being undertaken at CYIP, except that which is required for monitoring and statutory reporting requirements.

SRK understands that a future work program for CYIP will be developed further to admission of its securities on the ASX, and that Jupiter's focus is currently on its joint venture interest (49%) in the Tshipi Kalahari Manganese Mine to provide cashflow to the Company.

3 Central Yilgarn Iron Project

3.1 Project description

Jupiter's 100%-owned CYIP is located in the Shire of Menzies, Western Australia (latitude 29° 10' 45" S and longitude 120° 20' 50" E, datum WGS84). It comprises a coherent tenement package comprising the following:

- Two Mining Leases (collectively covering an area of approximately 6,760 ha);
- 23 Miscellaneous Licences (collectively covering an area of approximately 316,578 ha)
- Three General leases (collectively covering an area of approximately 10,981 ha).

A camp has been constructed to accommodate exploration initiatives on the leases, and this has been on care and maintenance since the close of the 2011 field season. No other infrastructure exists on any of the leases.

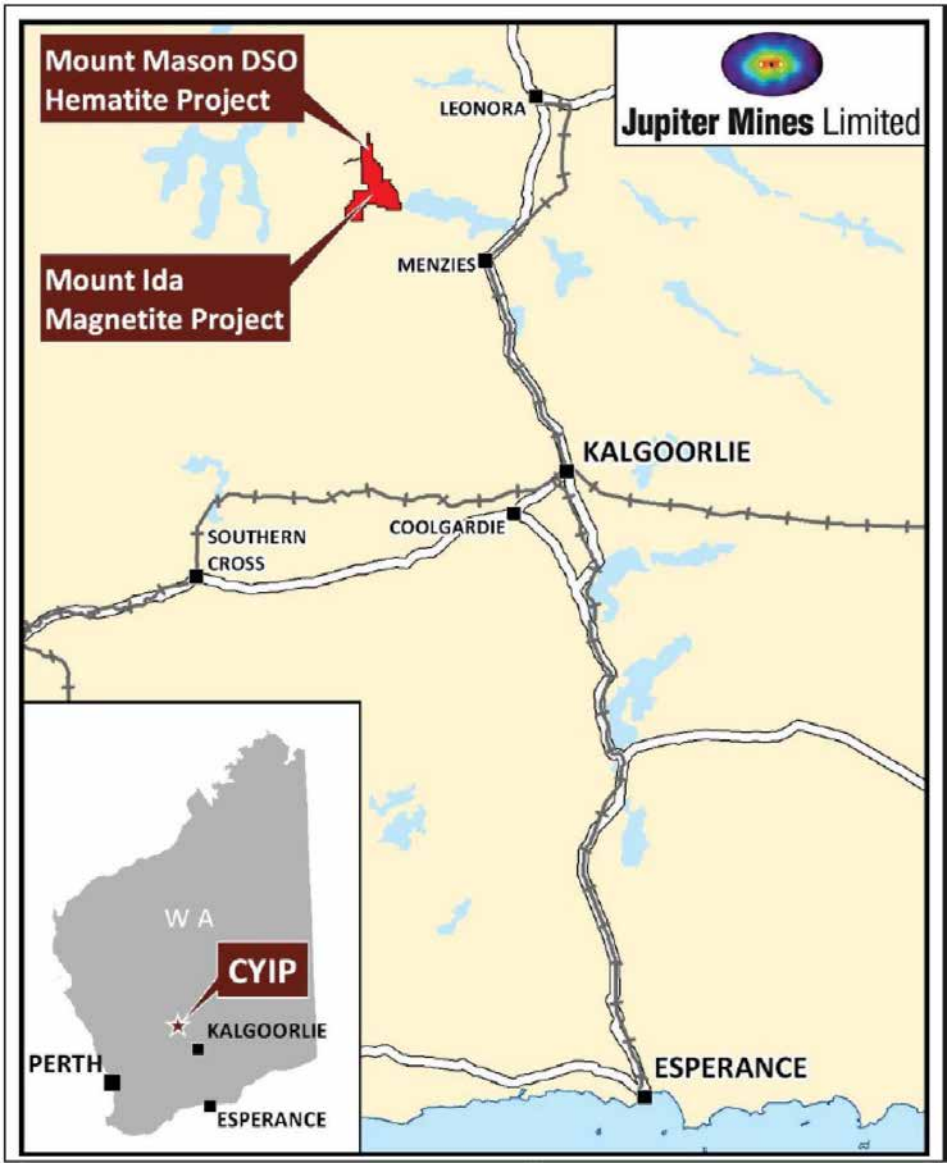

Figure 3-1: Location of Central Yilgarn Iron Project

3.2 Access

The CYIP is located within the Shire of Menzies in Western Australia. The Mt Ida project is accessed by travelling a distance of 133 km on the sealed Goldfields Highway from Kalgoorlie to Menzies (population 108 in 2016), and then approximately 130 km northwest of Menzies along the gazetted unsealed Sandstone–Menzies Highway. The Mt Ida project is accessible by a wide, well graded bush track that passes through the abandoned Bottle Creek Mine (Figure 3-1).

The Mt Mason project is approximately 5 km northwest of Mt Ida and is located on the Perrinvale pastoral lease. Mt Mason is accessible by a narrow, rough bush track that passes through the Metzke Find area.

The CYIP licences are located in the Copperfield District of the North Coolgardie Mineral Field and lie on map sheet SH 51-5 Menzies. The 1:100,000 map sheet for the area is the Mt Mason sheet.

3.3 Topography, climate and vegetation

3.3.1 Topography

The topography of the Yilgarn Craton generally comprises low relief and elevation Figure 3-2. Elevations rise from sea level along the west coast to ~1 km in the northeast. Topographic ridges and valleys tend to have a northwest–southeast trend in the east and then, crossing the main drainage divide, this changes to northeast–southwest in the west (the Darling Range).

The geomorphology consists of a dominant NW–SE striking banded iron formation (BIF) ridge, rising ~50 m above the surrounding sand and weathered granite plains to the west. The Mt Ida Range extends approximately 30 km, striking in an NW–SE direction. The Mt Ida project, Exploration Licence E29/560, covers a 7 km portion of the Mt Ida Range. This section of the range forms a prominent topographic feature, extending up to 577 m above sea level surrounding weathered granite plains to the west (~350 m above sea level). The licence area at Mt Mason is located around the Mt Mason Trig which rises some 60 m above the adjacent sand plan to the west. The iron deposit is part of the east backslope of the prominent scarp that is formed by the BIF units that lie on the eastern side of the licence area.

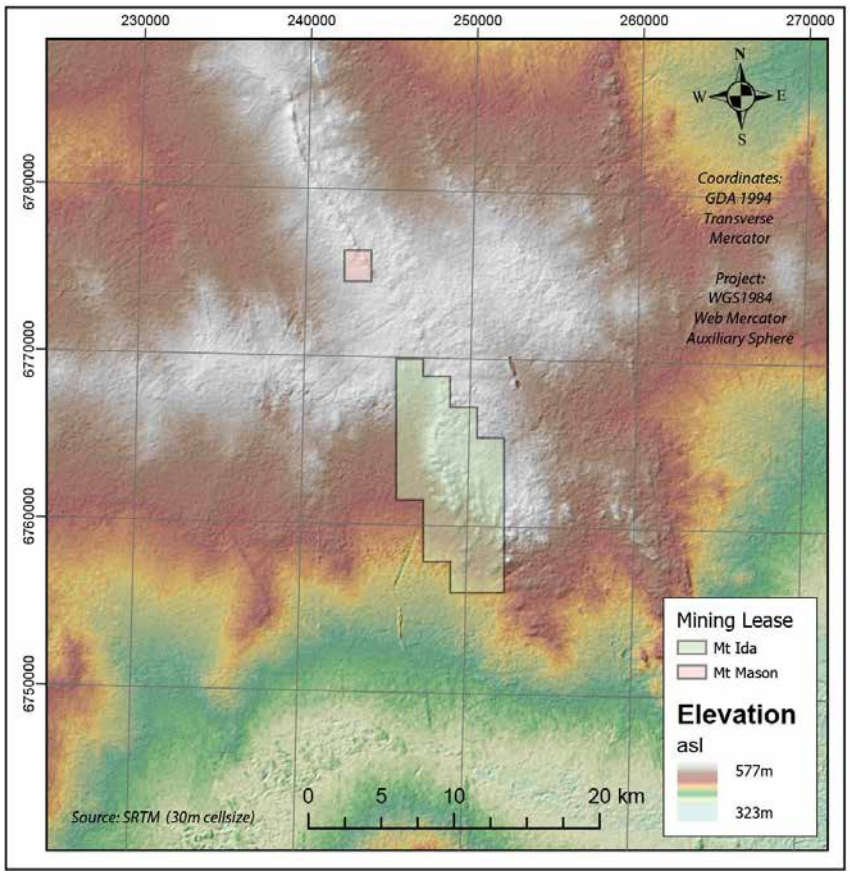

Figure 3-2: Topography map of the Yilgarn Craton

3.3.2 Climate

The regional climate varies from a semi-continental Mediterranean climate with relatively cool, wet winters, contrasted by hot and dry summers in the southwest and much of the coastal area, to semi-arid and desert conditions in the east. The CYIP lies within semi-arid and desert zones.

The region is characterised by its high summer temperatures, cool to cold winters and an average rainfall of less than 33 mm per annum. On an annual basis, rainfall is erratic, sporadic and either associated with winter cold front events or tropical cyclone rain-bearing depressions during the summer months.

3.3.3 Vegetation

The CYIP as two main distinct vegetation types:

- BIF areas and iron ore mineralisation on the eastern and central portion of the licence are covered by dense mulga and eucalypt scrub
- Sand plain and granitic areas to the west are covered by spinifex and acacia shrubs.

Figure 3-3: Example of vegetation on BIF - Mt Ida (looking northwest)

3.4 Tenure and title – Western Australia

3.4.1 Exploration and permitting

The rules and guidelines for defining and applying for mineral tenements in Western Australia are detailed in the following publications available from the Government of Western Australia Department of Mines and Petroleum website:

1 Marking Out and Applying for Mining Tenements

2 Exploration Licences Graticular Boundary System.

Exploration Licences do not need to be marked out on the ground. However, Mining and Prospecting Leases, not on prescribed land, are marked out as follows:

- A post projecting at least 1 m above the ground is fixed firmly in the ground as close as practicable to each corner or angle of the land.
- Two clearly identifiable trenches or rows of stones at least 1 m long must extend from each post in the general direction of the boundary lines.
- The notice of marking out in the Form No. 20 in the First Schedule is fixed firmly to one of the posts, selected as the datum post.

Where the land adjoins other land in respect of which the same person or company is seeking, or holds, a mining tenement, common posts and trenches or rows of stones may be used for marking out each parcel of land. Applications for mining tenements must be made in Form No. 21 "Application for Mining Tenement" and lodged at the office of the Mining Registrar of the mineral field in which the land is situated, within 10 days of marking out. Application fees together with the first year's rent are payable on lodgement of a mining tenement application. Additionally, a A$5,000 security, filed with Form No. 32, must be lodged with the mining registrar within 28 days of filing the application.

Additionally, Exploration Licence Applications (ELAs) must be accompanied by a statement specifying the following information:

- Proposed method of exploration
- Details of the proposed work program
- Estimate of proposed expenditure on the licence
- Applicant's technical and financial resources.

Applications for Mining Leases must be accompanied by either:

- a Mining Proposal (MP); or
- a mineralisation report containing the details in Section 74(7) and accompanied by a supporting statement to include details in Section 74(1a).

Additional requirements of the applicant are described in the Department of Mines and Petroleum publications mentioned above.

3.4.2 Environmental and permitting

The Mining Approvals process in Western Australia is subject to a number of legislative frameworks. The main approval frameworks for the CYIP will be under the *Environmental Protection Act 1986* (*EP Act*, Part IV and Part V) and the *Mining Act 1978*. Depending on the water source, supporting approval under the *Rights in Water and Irrigation Act 1914* may also be required.

The main regulatory authorities include the Office of the Environmental Protection Authority (OEPA), Department of Mines and Petroleum, Department of Water and Department of Environment Regulation. At present, there are two options for the primary environmental approval process and discussions with OEPA are currently underway to determine the most appropriate option.

Primary environmental approval includes:

- Option A - *EP Act* Part IV Environmental Impact Assessment (EIA) – this is an assessment of the mine's potential impacts to environmental factors identified by the EPA; or
- Option B - *EP Act* Part V Native Vegetation Clearing Permit (NVCP).

Secondary approvals are required in addition to the primary environmental approval. To some extent, these can be processed in parallel with the primary approval. Works Approval and Mining Act

Approvals cannot be granted until the primary environmental approval is granted, and includes:

- *EP Act* Part V Works Approval, which identifies environmental impacts and management strategies to gain approval to construct and commission equipment, and licence/ registration (approval to operate)
- *Mining Act 1978* approval, which includes a Mining Proposal (MP) detailing how the mine will operate, and a Mine Closure Plan (MCP) detailing how the mine will be managed in the lead up to closure and relinquishment, as well as during periods of temporary or unplanned closure
- Under the *Rights in Water and Irrigation Act 1914* (Regulating Authority - Department of Water), approval to construct and operate a bore field, may be required.

Once the results have been reported to an acceptable level, the approval process will initiate with the filing of an s38 referral under Part IV of the *EP Act* – this will determine whether the primary environmental approval will proceed under Option B (NVCP) or Option A (EIA), which assumes an Assessment of Proponent Information (API) level of assessment that will exclude a public comment period.

3.4.3 Status of Jupiter's tenure

Jupiter's tenure in relation to the CYIP comprises the following:

- Two Mining Leases
- 23 Miscellaneous Licences
- Three General Purpose Leases.

The CYIP tenure is detailed in Table 3-1.

Table 3-1: Tenure granted and owned by Jupiter (100%)

Tenement	Name	Applied	Granted	Expiry	*Area (ha)	Commitment (A$)	Rent (A$)
G29/21	Mt Mason	22/05/2009	23/03/2010	22/03/2031	95	-	1,482.00
L29/116	Mt Mason	7/06/2012	3/01/2013	2/01/2034	25.48	-	405.60
L29/117	Mt Mason	7/06/2012	7/12/2012	6/12/2033	90.14	-	1,419.60
L29/118	Mt Mason	7/06/2012	9/11/2012	8/11/2033	11.67	-	187.20
L29/119	Mt Mason	28/08/2012	30/07/2013	29/07/2034	52.76	-	826.80
L29/120	Mt Mason	30/09/2012	7/02/2013	6/02/2034	21,720.05	-	10,860.50
L29/121	Mt Mason	30/09/2012	30/07/2013	29/07/2034	64.31	-	1,014.00
L29/123	Mt Mason	25/11/2012	26/03/2013	25/03/2034	23.13	-	374.40
L29/132	Mt Mason	17/06/2016	8/11/2016	7/11/2037	300.52	-	4,695.60
M29/408	Mt Mason	6/02/2006	28/11/2007	27/11/2028	300.65	30,100.00	5,297.60
G29/22	Mt Ida	11/01/2011	6/09/2012	5/09/2033	9,631.00	-	150,243.60
L29/100	Mt Ida	11/01/2011	11/11/2011	10/11/2032	775	-	12,090.00
L29/106	Mt Ida	18/03/2011	20/06/2012	19/06/2033	119.44	-	1,872.00
L29/122	Mt Ida	30/09/2012	3/04/2014	2/04/2035	6,590.72	-	3,295.50
L29/131	Mt Ida	12/02/2015	17/12/2015	16/12/2036	542	-	8,455.20
L29/78	Mt Ida	1/09/2009	24/06/2010	23/06/2031	6,341.00	-	3,170.50
L29/79	Mt Ida	12/01/2010	24/08/2010	23/08/2031	6,886.00	-	3,443.00
L29/81	Mt Ida	13/05/2010	12/09/2011	11/09/2032	26,020.34	-	13,010.50

Tenement	Name	Applied	Granted	Expiry	*Area (ha)	Commitment (A$)	Rent (A$)
L29/99	Mt Ida	12/11/2010	24/02/2012	23/02/2033	64,550.49	-	32,275.50
M29/414	Mt Ida	11/01/2011	25/11/2011	24/11/2032	6,459.50	646,000.00	113,696.00
G37/36	Leonora	3/04/2009	17/01/2011	16/01/2032	358.62	-	5,600.40
L36/214	Leonora	5/09/2012	17/06/2013	16/06/2034	19,703.86	-	9,852.00
L36/215	Leonora	20/10/2012	1/08/2013	31/07/2034	29,849.54	-	14,925.00
L36/216	Leonora	20/10/2012	1/08/2013	31/07/2034	17,632.43	-	8,816.50
L36/217	Leonora	20/10/2012	1/08/2013	31/07/2034	5,882.25	-	2,941.50
L37/203	Leonora	3/05/2010	27/06/2011	26/06/2032	68,952.89	-	34,476.50
L57/45	Mt Magnet	5/09/2012	19/08/2013	18/08/2034	8,703.48	-	4,352.00
L57/46	Mt Magnet	5/09/2012	5/12/2014	4/12/2035	31,741.86	-	15,871.00

The Mt Mason and Mt Ida Mineral Resources are located on Mining Leases M29/408 and M29/414 respectively.

Further to a transportation study undertaken during feasibility studies, Jupiter has applied for a number of Miscellaneous Licences (Table 3-2). These are required for hauling iron ore from Mt Mason to the rail siding at Yunndaga. The Miscellaneous Licences include L29/117 and L29/123, which is near Menzies, and connects the road on G29/22 (and L29/106) to the Sandstone–Menzies Road.

Table 3-2: Purpose of Miscellaneous Licences

Applicable Tenements	Purpose
L29/106, L29/116, L29/117, L29/118, L29/119, L29/121, L29/123	Road
L29/120, L29/122, L29/78 L29/79, L29/81, L29/99, L36/214, L36/215, L36/216, L36/217, L37/203, L57/45, L57/46	Search for groundwater
L29/100, L29/131, L29/132	Multiple purposes

In addition, Jupiter obtained the following General Purpose Leases:

- G29/22, which is within the Mt Mason area and abuts the southern boundary of M29/408.
- G29/21, G37/36, G29/23: located approximately 6.5 km south of the town of Menzies is "Yunndaga". G29/21 covers an area of approximately 2.1 km x 300 m between Leonora–Kalgoorlie rail line and the Goldfields Highway.

Jupiter will need to secure additional General Purpose Leases should the CYIP be advanced to development status.

The regional location of Jupiter's tenure is shown in Figure 3-4 and the tenements making up the CYIP are shown in Figure 3-5.

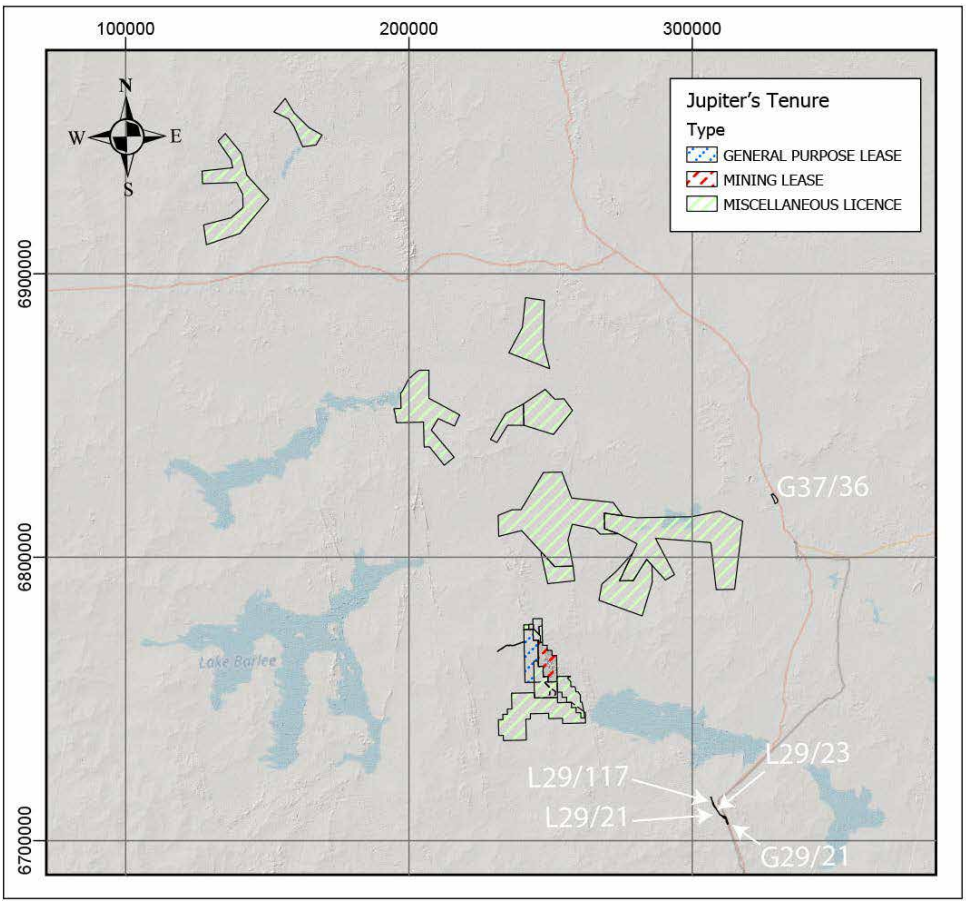

Figure 3-4: Jupiter's regional mineral tenure

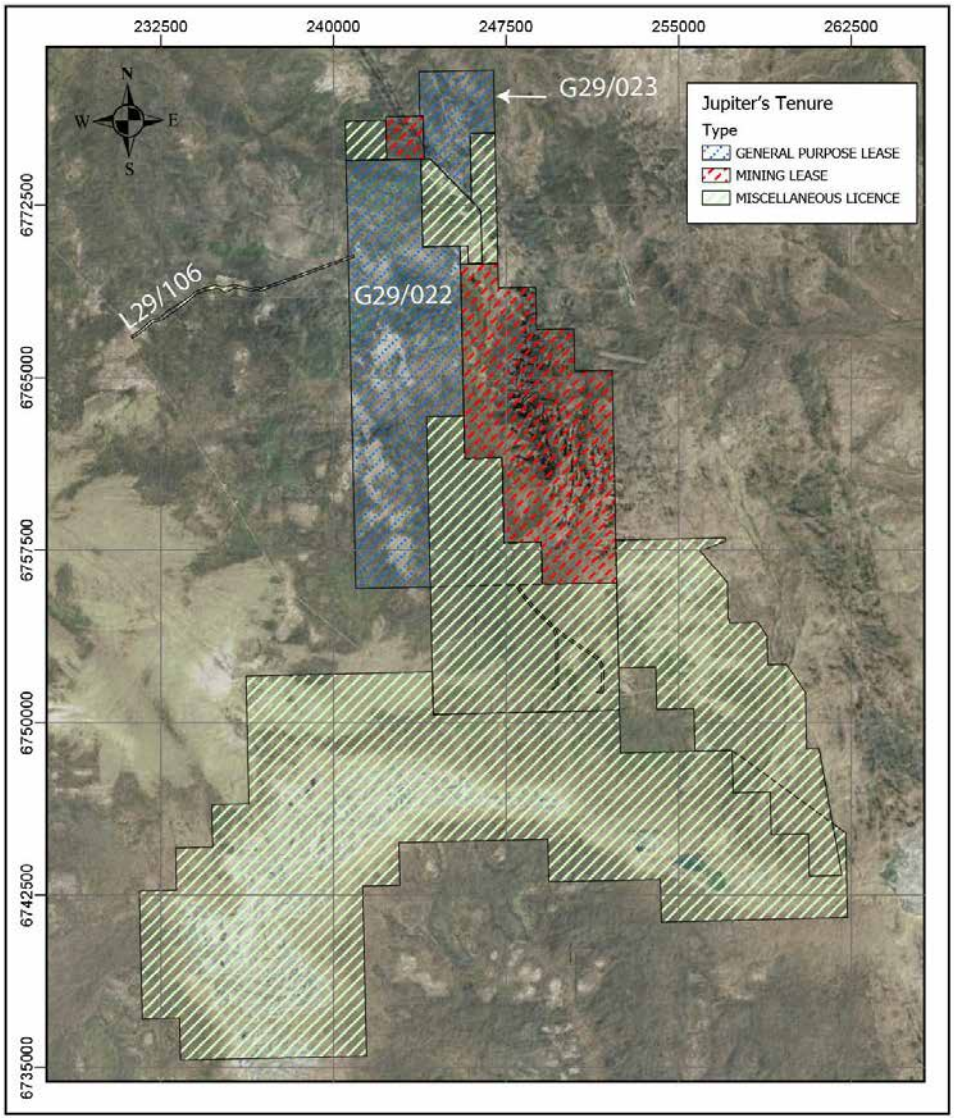

Figure 3-5: Mineral tenure the CYIP

3.5 Geological Framework

The CYIP is located in the Yilgarn Craton, a classic Archaean-aged granite-greenstone terrane (Windley, 1995), as shown in Figure 3-6. The Yilgarn Craton is a globally significant mineralised area for gold, nickel and aluminium. It also hosts major deposits of base metal mineralisation, e.g. iron ore, zinc and copper, and exotic resources such as tantalum-lithium, vanadium, uranium and rare earth elements (Blewett et al., 2010a). It contains mineral deposits such as the world-class gold mines at Kalgoorlie and nickel deposits at Kambalda.

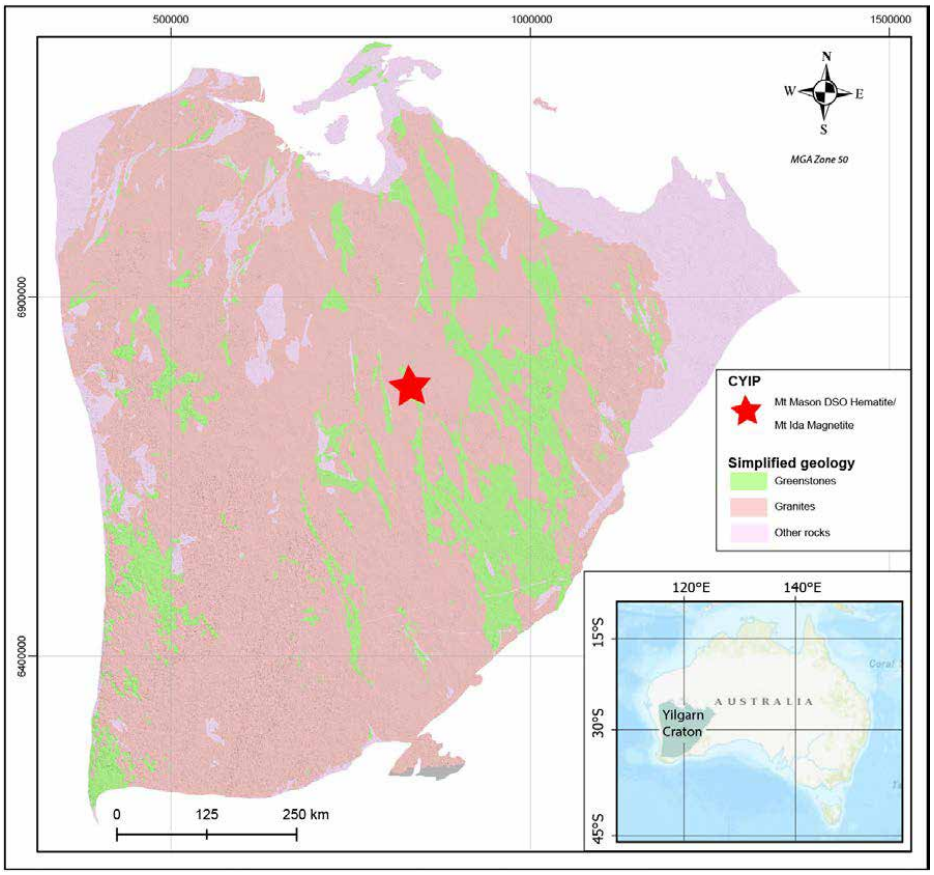

Figure 3-6: CYIP overlain on greenstone belts of the Yilgarn Craton

The Yilgarn Craton comprises a combination of metavolcanic and metasedimentary rocks that were intruded by, and deformed around, numerous granitoid intrusive bodies. Collectively, these basement rocks range in age from approximately 3,050 - 2,600 Ma (Czarnota et al., 2010a). Previous workers have subdivided the Yilgarn Craton into a series of major provinces and terranes (Gee et al., 1981; Myers, 1990; Swager et al., 1990; Barley et al., 2002; and Cassidy et al., 2006), as shown in Figure 3-7.

The ±2,700 Ma Norseman–Wiluna Greenstone Belt comprises accumulations of ultramafic, mafic and felsic volcanic units overlain by sedimentary rocks. Following the evolution of this volcanosedimentary pile, it was intruded by a variety of rock types ranging from mafic intrusive to various types of granitic rocks. Synchronous with granitic plutonism, the supracrustal sequence was subjected to three major deformational events associated with compressional tectonics, leading to fold deformation and associated shearing and faulting.

The Narryer and South-West Terranes are located on the western margin of the Yilgarn Craton and are primarily composed of granitoids and granitic gneiss. Rocks of the Narryer Terrane have been dated at between 3,730 Ma and 2,600 Ma.

To the east, the Youanmi, Kalgoorlie, Kurnalpi and Burtville terranes are characterised by broadly north trending greenstone belts. These terranes are separated by extensive granitoid intrusions and granitic gneiss, as well as regionally significant fault zones.

The Kalgoorlie, Kurnalpi and Burtville terranes comprise the Eastern Yilgarn Craton (EYC) and are defined on the basis of their geochemistry, volcanic facies and age of volcanism, ranging from ~2,940 Ma to 2,660 Ma. The EYC includes 17 world-class gold deposits hosting in excess of 100 t of gold (Robert et al., 2005). The EYC region is considered a mature exploration region, with gold discovery and production spanning more than a century.

Each of the terranes within the EYC records at least two periods of volcanic activity, with the main activity commencing around 2,715 Ma. The terranes have been further subdivided into domains (Figure 3-7) that define distinct blocks of tectonostratigraphy bounded by interconnected fault systems (Swager et al., 1992; Swager, 1997; Liu et al., 2001; Champion, 2006). From west to east, the main east dipping faults are:

- Ida Fault Zone
- Ockerburry Fault Zone
- Hootanui Fault Zone.

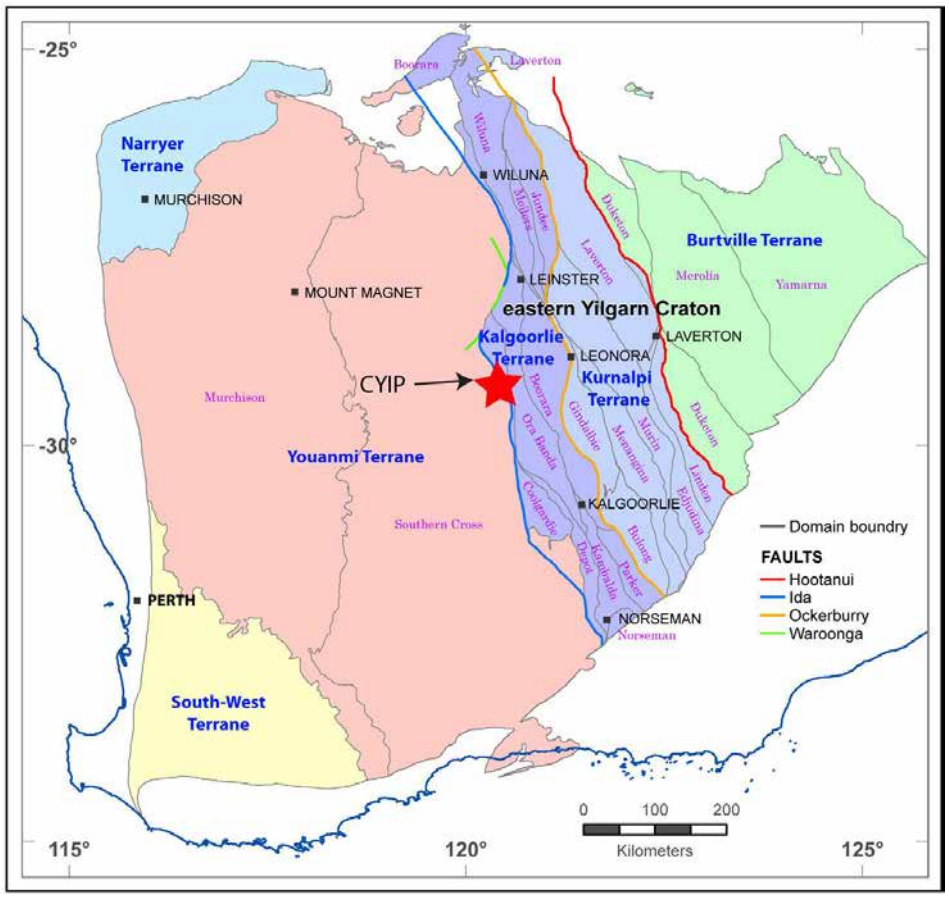

Figure 3-7: Geological terranes and domains of the Yilgarn Craton

Source: Czarnota et al. (2010) after Cassidy et al. (2006).

In general, the terranes young to the east, with the greenstone successions in the Kalgoorlie Terrane hosting the youngest volcaniclastic sequences (Barley et al., 2002, 2003).

3.5.1 Geological/ mineralisation framework

The CYIP is located within the Mt Ida Greenstone Belt (Figure 3-8). The regional geology of the Mt Ida Greenstone Belt is summarised from Wyche (2003).

The north-south trending Ida Fault forms a prominent structural feature of the Mt Ida Greenstone Belt and marks the boundary between the Southern Cross and Eastern Goldfields Granite–Greenstone Terranes.

The western part of the greenstone belt is characterised by abundant metabasalt, BIF, and subordinate ultramafic rocks and metagabbro. The Ballard Fault, at the eastern contact between greenstones and gneissic and granitoid rocks, is thought to be the northern extension of the Zuleika Shear.

The most extensive area of greenstones of the Southern Cross Granite–Greenstone Terrane in the Mt Ida Greenstone Belt is in the north, in the poorly exposed area around Mt Mason. Here, shallow to steep, east-dipping units of BIF, with intercalated mafic rocks, are structurally overlain by a very poorly exposed succession that appears to be dominated by metamorphosed mafic volcanic rocks, but includes gabbroic and ultramafic rocks.

The western part of the Mt Ida Greenstone Belt has been extensively intruded by monzogranite, and most of the greenstones of the Southern Cross Granite–Greenstone Terrane may have been removed. The eastern part of the Mt Ida Greenstone Belt is dominated by metamorphosed mafic and ultramafic volcanic rocks that are typical of the Kalgoorlie Terrane succession. The prominent komatiitic units in this greenstone belt have been folded and faulted, and the original stratigraphic succession has been extensively disrupted. The ultramafic rocks are underlain and overlain by mafic volcanic and intrusive rocks, including tholeiitic and komatiitic basalts. Although locally intruded by felsic porphyry, there are no felsic volcanic rocks in this greenstone belt.

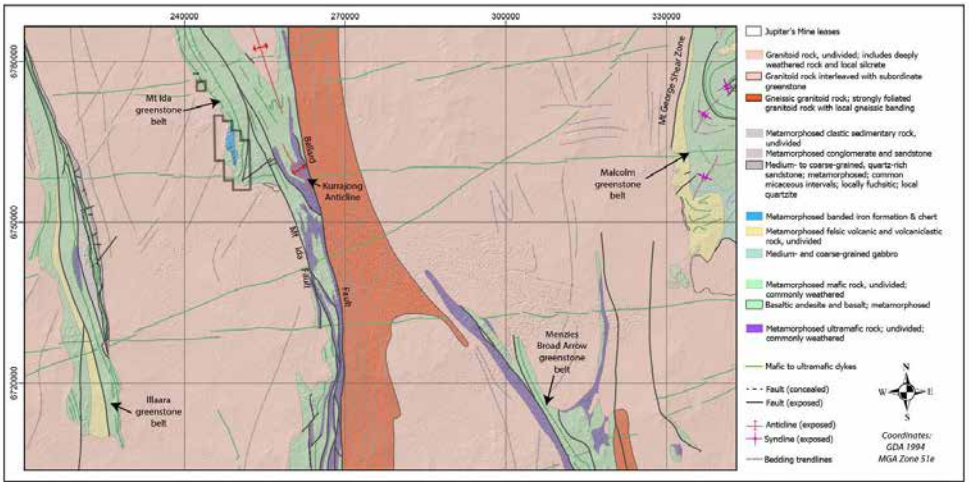

Figure 3-8: Regional geological map of CYIP iron ore deposits

Source: Menzies (Sheet SF 50-8) 1:250,000 map sheet; Roy Hill (Sheet SF 51-05) 1: 250,000 map sheet (Wyche, 2003)

3.5.2 Banded iron formation (magnetite)

The Mt Ida deposit is associated with primary magnetite mineralisation hosted by BIF. BIF occurs in Proterozoic rocks, ranging in age from 1.8 Ga to 2.6 Ga. These correlate with peaks in iron sedimentation between ~2.6 Ga and 2.3 Ga and again from ~1.90 Ga to 1.85 Ga. Their deposition is linked to geochemical and environmental evolution of Earth, the Great Oxidation Event at ca. 2.4 Ga.

The main hypothesis is that BIF formed in sea water as the result of oxygen released by photosynthetic cyanobacteria. The oxygen then combined with dissolved iron in the Earth's oceans to form insoluble iron oxides, which precipitated out, forming a thin layer on the ocean floor, which may have been anoxic mud (forming shale and chert). Each band is similar to a varve, to the extent that the banding is assumed to result from cyclic variations in available oxygen. It is unclear whether these BIFs were seasonal, followed some feedback oscillation in the ocean's complex system or followed some other cycle. It is assumed that initially the Earth started with vast amounts of iron and nickel dissolved in the world's acidic seas. As photosynthetic organisms generated oxygen, the available iron in the Earth's oceans precipitated out as iron oxides. At a suspected tipping point where the oceans became permanently oxygenated, small variations in oxygen production produced periods of free oxygen in the surface waters, alternating with periods of iron oxide deposition.

They are composed of alternating layers of iron-rich material (commonly magnetite) and silica (chert). Each layer is relatively thin, varying in thickness from 1 mm to several centimetres (Figure 3-9).

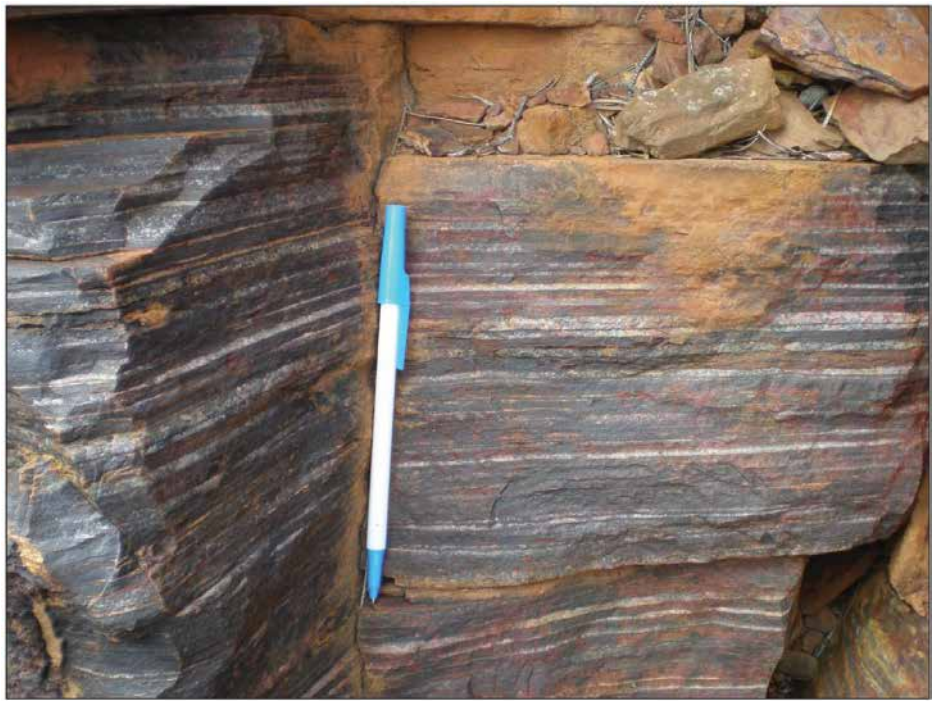

Figure 3-9: BIF – magnetite and cherty layering from Mt Ida

3.5.3 Banded iron formation (hematite)

After the initial deposition of BIF, the deposits are often further enriched in iron by either of two mechanisms – the hematite mineralisation recognised in the project area is believed to have formed by enrichment of the iron content of BIFs, or the alteration of magnetite to hematite by the passage of iron-rich water through the systems (Figure 3-10).

Figure 3-10: BIF (hematite) with cross cutting hematite composite vein – example from Mt Mason

3.6 Exploration by previous owners

3.6.1 Mt Mason

The existence of a hematite deposit at Mt Mason has been known since its discovery in 1912 by H W B Talbot. Talbot refers to the mineralisation in GSWA Bulletin 45 as "*a large mass of fine iron ore*". Superficial exploration for iron ore and pigment has occurred since then.

The Geological Survey of Western Australia library files provide some information about the grades and tonnages of low phosphorus hematite suitable for steel making. Russell et al. (1970) on behalf of BHP in 1970 took five surface samples which gave a composite grade of 62.8% Fe with 0.042% P.

In 1978, Kalgoorlie Southern Goldmines surveyed a grid, cut some access tracks, mapped part of Mt Mason and drilled 20 shallow percussion holes for iron pigment. No quantitative analyses for iron were recorded for these holes, but general descriptions of the cuttings were recorded.

Walsh (2005)* carried out surface mapping (Figure 4-3) and sampling of Mt Mason in April 2005, which resulted in an estimate of the potential for iron ore and a plan for further work on the tenement comprising a review of aerial photography and magnetic surveys, an environmental survey and drilling.

A Mineral Resource estimate was completed in August 2006 on the first nine holes drilled into the deposit. Based on the reverse circulation (RC) program of drill testing and the mapped outcrop of hematite mineralisation, an Inferred Resource estimate (JORC Code, 2004) was completed. Intersection widths used in the calculations based on a >55% Fe cut-off were used in the calculation. A three-dimensional model of the >55% Fe based on a set of cross section interpretations linking the surface hematite expression was created.

*Walsh (2005) has not consented to the use of its report in this report.

The 55% Fe mineralisation shape was then used in a block model which had a cell size of 10 m north–south, 5 m east–west and 2 m vertically. The ore shape was used to constrain an estimate of the grades using an inverse distance to the power of 2 methods, spherical, planar search out to 60 m radius. An average density of 3.5 t/m^3 was used to estimate tonnage. The Mt Mason Inferred Resource was estimated on this basis.

During July 2007, a second drilling program was carried out on Mt Mason and other potential mineralised targets. This 12-hole program tested the due east down dip and the north striking extent of the hematite mineralisation as well as some BIF targets. Using this new data, Hardrock Mining Consultants completed a Mineral Resource estimate (JORC Code, 2004) in October 2007. The resource was deemed to remain open to the northeast and south after the program.

Hardrock Mining Consultants completed an update to the Mineral Resource estimate (JORC Code, 2004), based on further drilling in 2008.

3.6.2 Mt Ida

SRK is not aware of any significant exploration programs conducted by other parties prior to Jupiter's involvement in 2007, or of the existence of other datasets that may be directly relevant to the information described in this IGR.

3.7 Exploration by Jupiter Mines

Jupiter took over ownership of the Mt Ida and Mt Mason deposits in 2007, and since then, has conducted detailed exploration and studies as outlined below:

- Geological mapping
- Rock chip sampling
- Remote sensing
- Geophysical surveys
- Topographic LiDAR survey
- Drilling of RC and diamond (DD) holes
- *Resource Modelling and Mineral Resource estimates
- Scoping and *feasibility studies.

*Previous feasibility studies were reported in accordance with the guidelines of the JORC Code (2004 edition).

Further details are provided in Section 4 (Mt Mason) and Section 5 (Mt Ida).

3.7.1 Geology

A first phase of 1:5,000 scale geological mapping was undertaken in 2008 across the main Mt Ida project area where the geology is dominated by BIF sequences. This mapping focused on the western scarp and southeastern limb of the 'central' Mt Ida area, where BIF horizons appear be thickest and also the most altered. Mapping traverses were perpendicular to strike and were completed every 500 m along strike. Geological mapping of the 'northern' and 'southern' areas of Mt Ida were also documented during this period of field mapping – again focused on mapping of along-strike extensions of the main BIF unit identified along the western margin.

A second phase of 1: 5,000 scale mapping was completed on the southeastern limb of the 'central' Mt Ida area, focused on ground validation of the interpreted geology, particularly lithological contacts, from the first phase mapping exercise. Potential along-strike extensions of these units were also

investigated. Further investigation of the northern section of 'central' Mt Ida unveiled a BIF horizon that was wider than anticipated.

During 2009 - 2010, Jupiter commissioned SRK to conduct a structural mapping program at Mt Ida, focusing on the mineralised BIF. The mapping examined the relationships that may influence the scale and continuity of the mineralisation. The structural mapping interpretation indicates that Mt Ida has undergone internal folding on a local scale in the central area. The study found that the eastern side of the BIF system is controlled by a major fault.

3.7.2 Rock chip sampling

During 2009, a broad-spaced rock chip channel sampling program was undertaken along the strike length of the western scarp in the 'central' portion of Mt Ida deposit. The thickest outcrop exposure and most stratigraphically representative of the BIF units on the western side of Mt Ida Central was sampled. A total of 145 samples were taken from 16 selected sites spaced approximately 500 - 700 m apart. This rock chip sampling returned average grades of 34% Fe, 48% SiO_2, 0.29% Al_2O_3, 0.049% P and 1.8% loss on ignition at 1000°C (LOI 1000).

3.7.3 Remote sensing

A low-level aerial photography survey was completed in August 2012 by Fugro Spatial Solutions Pty Ltd over the entire Mt Ida project area. This data was used for aerial photo interpretation of the BIF ridges. It was particularly useful when draped on the natural surface digital terrain model (DTM) with a vertical exaggeration of 10. The BIF ridges and depressions which are indicative of mafic volcanics were readily interpreted and digitised. This imagery was also used for lineament analysis and several major quartz veins were evident in this imagery, as were areas of strong folding and faulting.

3.7.4 Resource modelling

During 2010, a conceptual target study was carried out by BM Geological Services (BMGS) based on previous exploration work. A large magnetite target was recognised to be associated with the aeromagnetic highs positioned along the prominent Mt Ida Range.

SRK conducted Mineral Resource estimation for Mt Mason and Mt Ida in accordance with the JORC Code (2004 edition) reporting guidelines. SRK updated the Mineral Resources for Mt Ida (Brown 2018) and Mt Mason (Cunningham 2018) in accordance with the JORC Code (2012 edition) reporting guidelines in January 2018, as per the requirements of the ASX Listing Rules and the ASIC Regulatory Guides.

3.8 Nearby deposits

The main iron deposit nearest the CYIP is the Mt Bevan magnetite deposit to the northwest of Mt Mason (Figure 3-11).

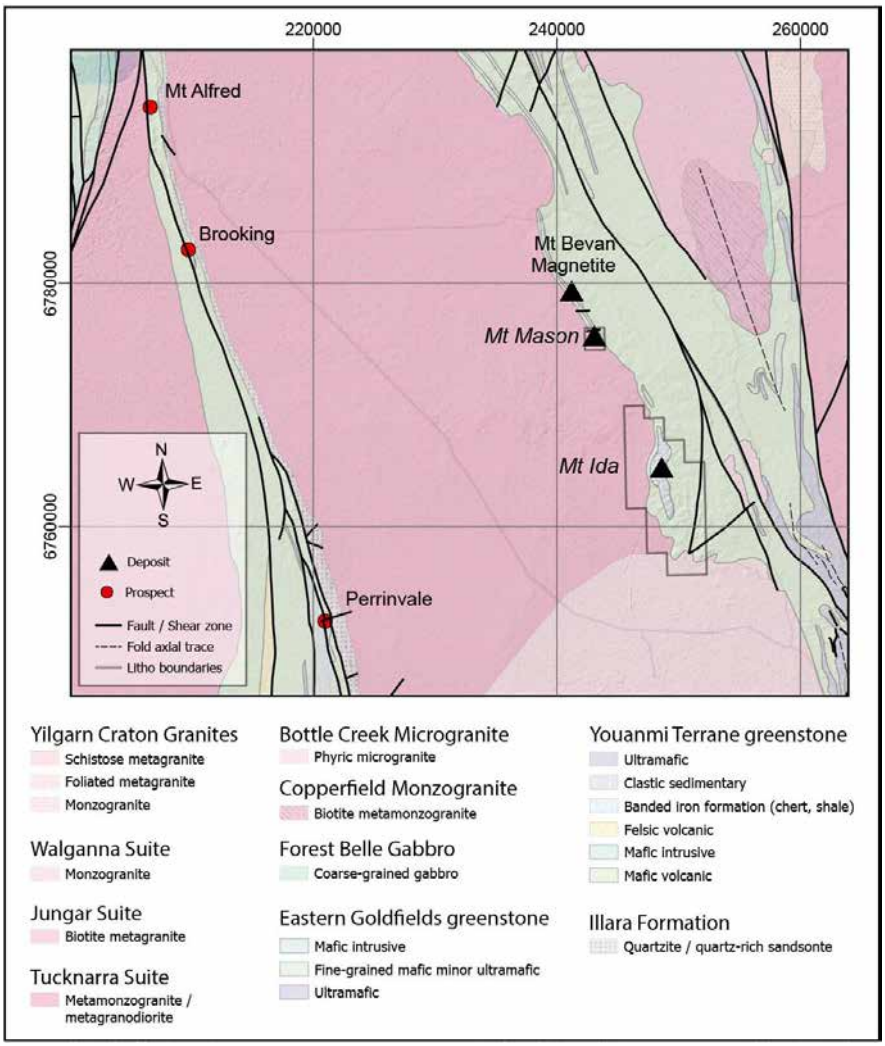

Figure 3-11: Nearby deposits over simplified geology

Note: Rocks within the Eastern Goldfields and Youanmi Terrane greenstones are metamorphosed.

3.8.1 Mt Bevan deposit

The Mt Bevan deposit is located approximately 4 km north-northwest of Mt Mason in tenement E29/510 – a joint venture between Hawthorn Resources Ltd and Legacy Iron Ore Ltd (Legacy). The deposit is hosted within the same Mt Ida Greenstone Belt as the Mt Ida magnetite and Mt Mason hematite deposits. The magnetite mineralisation occurs in folded BIF units that are interlayered with metamorphosed mafics. The BIFs form a prominent scarp along the western edge of the deposit, and dip shallowly to the east.

The defined mineralisation extends more than 10 km along strike, with a down-dip length exceeding 500 m. Resources have been defined in three shallow-dipping and sub-parallel BIF units, separated by thin mafic units. The combined thickness of the BIF unit is approximately 100 m, and the deepest intersection is approximately 300 m below the surface.

Legacy reported an updated Mineral Resource estimate for Mt Bevan in December 2013 in accordance with the reporting guidelines of the JORC Code (2012 edition).

The Mt Bevan Mineral Resource was reported as:

- Indicated: ~332 Mt (in situ total) at 34.7% Fe; 44.18% in situ magnetic (material expected to report to the magnetic fraction, as estimated from Davis Tube Mass recovery) at 30% Fe; concentrate 142 Mt at 68%
- Inferred: ~847 Mt (in situ total) at 35% Fe; 45.7% in situ magnetic at 30.8% Fe; concentrate 387 Mt at 67.5%

3.8.2 Other prospects

There are a number of other iron prospects approximately 30 km west situated along the Youanmi Terrane Greenstone Belt. Similar to Mt Ida, Mt Mason and Mt Bevan deposits, these prospects lie along a north-northwest greenstone belt, forming a topographic a thin topographic ridge that rises above the low relief of the surrounding granitic complexes.

The tenements that contain the Perrinvale, Brooking and Mt Alfred prospects have recently changed ownership, and the main exploration focus has switched from iron to gold.

The Mt Alfred prospect was previously held by Jupiter and is now owned by Toucan. The Mt Alfred prospect was drilled in 2010; the program included 11 RC angled drill holes for a total of 1,195 m. The drill program intercepted magnetite BIF units of varying downhole intercept widths from a few metres to over 136 m. Drilling confirmed that magnetite BIF persisted at depth and that the iron grade is generally between 25% Fe and 35% Fe.

3.9 Nearby mines

Koolyanobbing is an open pit iron ore operation located 54 km NNE of the town of Southern Cross, Western Australia (Figure 3-12). It consists of the Koolyanobbing, Mt Jackson and Windarling (temporarily on hold) mines. Iron ore is mined by Koolyanobbing Iron Pty Ltd, a subsidiary of Cliffs Natural Resources Inc. (Cliffs) of Cleveland, Ohio. Ore is railed to port at Esperance where it is shipped to markets in Asia. As at 2016 year end, Ore Reserves totalled 42.7 Mt grading 59.5%, with Cliffs producing 11.8 Mt (FCX Report, Cliffs Natural Resources Inc., 2016).

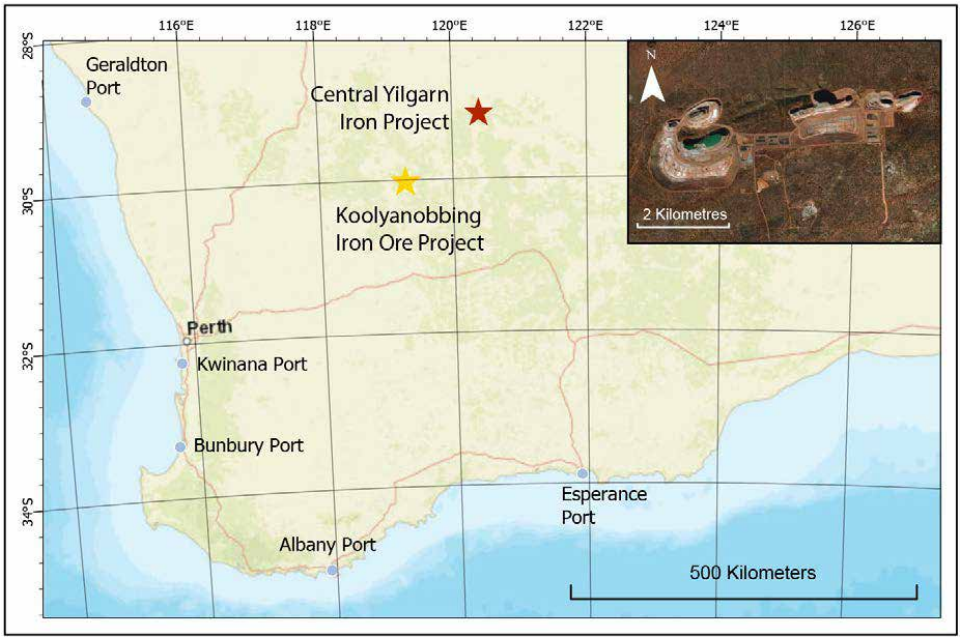

Figure 3-12: Nearby Koolyanobbing operations; inset shows footprint of open pit operations

3.10 Exploration camp

Jupiter has an existing 40-man accommodation village (Camp Cassini or "camp"), located approximately 4.7 km south of Mt Mason. The resource area is linked to the camp via the Menzies Road, which bypasses the camp to the north and west. The camp is located approximately 1 km south of the haul road via an unsealed access road.

3.11 Site visits by SRK

SRK was historically involved with technical studies on both deposits from 2009 to 2013.

The Competent Person (Michael Cunningham, SRK) conducted mapping and undertook a QA/QC site visit to the Mt Ida deposit. A site visit to Mt Ida was conducted by the Competent Person for the Mineral Resource sign-off (Rod Brown, SRK) on 4 - 5 October 2012. The site visit included an examination of the local geology and drill samples, an inspection of the RC drilling and sampling handling activities, and discussions with site personnel on field procedures employed.

Jupiter has informed SRK that no additional exploration has been conducted at Mt Mason and Mt Ida since release of the previous Mineral Resource estimates for both deposits in February 2012 and October 2012 respectively. Therefore, no recent site visit was deemed necessary in support of the current IGR.

4 Mt Mason Project

The January 2018 Competent Person's Report for Mt Mason (Cunningham, 2018) was used as the primary source of information for this review. This was supplemented by previous resource estimates and exploration reports, as well as digital data provided by Jupiter.

4.1 Location, access and topography

The Mt Mason project is centred at latitude 29º 07' 25" S and longitude 120º 20'30" E, and is comprised of a single Mining Lease (M29/408). The Mt Mason project is located on the Perrinvale pastoral lease and can be accessed either from the northeast or from the southwest along rudimentary tracks.

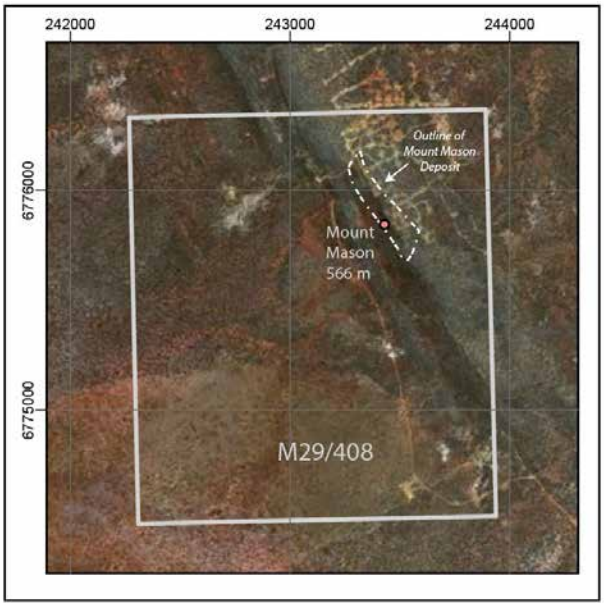

Figure 4-1: Mining Lease tenement over Mt Mason deposit

The topography of the Yilgarn Craton in the Midwest and Goldfields regions of Western Australia is characterised by a series of prominent ridges of BIF (Brooking Hills) and irregular low ironstone hills with stony lower slopes (Mt Bevan) that run in an approximate north–south direction.

The local topography of Mt Mason is a BIF ridgeline dipping to the east, with a ridge face to the west. The height of the ridge is in the order of 580 m above sea level, and 150 m above the plains to the west. The topography was electronically captured via a LiDAR survey in 2011 (Figure 4-2). Generally, local ridges and valleys have a north–northwest trend, with higher elevations drained by relatively small ephemeral creeks.

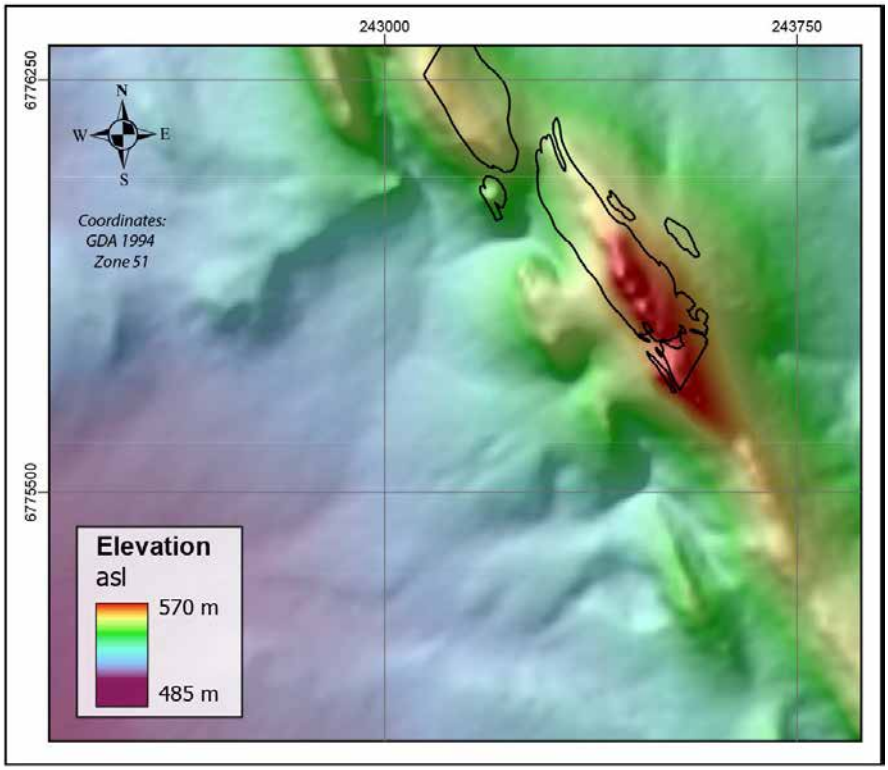

Figure 4-2: Topographic relief of the Mt Mason project

Source: Lidar Survey (Jupiter, 2011).

4.2 Prospect geology and mineralisation

The units outcropping in the Mt Mason area include BIF with minor associated shales and rare chert bands. Basalts and dolerites outcrop along the central area of the lease on the western side of the main scarp, and granites in the southwest corner of the lease are typically overlain by a sand plain.

BIF units strike NNW and dip towards the east at angles of 20° to 60°. BIF units at Mt Mason are cut by a WNW striking fault dipping at 80° towards the north. A distinct zone of brecciation and quartz veining associated with these fault cross-cuts the BIF units. Weathering associated with this fault resulted in a substantial body of massive to bedded hematite. The hematite body outcrops over an approximate strike length of 600 m and width of 150 m. At the southern end of the hematite body, another NNW strike fault may cut the BIF, although there is no strong field evidence for this. This was interpreted as an alteration boundary with minor displacement.

The Mt Mason portion of M29/408 has been mapped in detail by Jack Walsh. This mapping recognised outcropping massive hematite, “shaley hematite” zones, iron rich BIF, iron poor BIF and “Canga’ ores that form the prominent Mt Mason hill and immediately surrounding areas. This type of deposit is similar to those in the Koolyanobbing and Mt Windarling areas to the south and west of the project.

Hematite mineralisation is believed to have formed by enrichment of the iron content of BIF and alteration of magnetite to hematite by the passage of iron-rich water through the system. Enrichment is localised and little is known about its controls. Hematisation generally appears to be bounded by shale units, which themselves, in some cases, are partially mineralised. Faults and folding have been

identified as possible important controls in fluid flow. The boundary between "hematised" and BIF units can be sharp (over 1 m) or gradational (several metres). Generally, the whole mineralised sequence dips between 20º and 60º to the east Figure 4-3). The base of the hematised BIF overlies undifferentiated dolerite and mafic rocks.

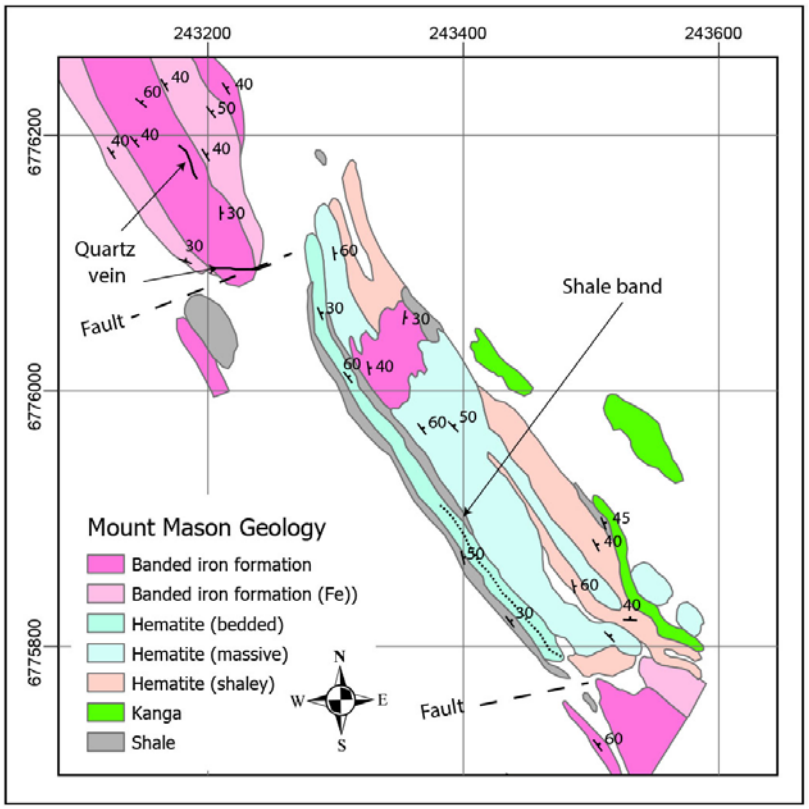

Figure 4-3: Mapped BIF over Mt Mason

Source: After Walsh (2005).

The enrichments are localised and little is known about the distribution of enrichment or the controls of the enrichment. Faults and folding may be important in the localising of the fluids and their passage. The boundaries between "hematised" and BIF rocks can be sharp (over 1 m) or gradational, i.e. over several metres. It has been observed in this district that if the Fe grade falls below 57%, the rock composition then equates with BIF. Limonite and goethite are ubiquitous in the district both as surface coatings and more massive habit occurrences. Re-cemented hematite rubble deposits termed "Canga" deposits exist downslope on Mt Mason.

The northern portion of the deposit is covered by sediments associated with drainage and weathering profiles related to Cainozoic laterite that are recognised in the region of the mineralisation.

Drilling by Jupiter and the adjacent landholder to the north, Hawthorn Resources Limited, identified several cross faults which appear to terminate the hematite mineralisation to the north. These faults may have been the main feature determining pathways for the mineralising fluids.

As the drilling of this deposit has mostly been carried out using vertical RC drilling, the relationship of the hematite-rich rocks, the shales and the unmineralised BIF has not been determined with any certainty, nor has the dip of the sequence. Generally, the hematisation appears to be bounded by

shale units, which are partly mineralised themselves in some instances. However, the good surface outcrop of the mineralisation around Mt Mason has enabled a plausible interpretation of the strike and continuity aspects of the mineralisation to be made.

4.3 Previous work

Drilling at Mt Mason took place in 1978, 2006 to 2008, and 2011 (Table 4-1). The collar locations for holes drilled after 1978 were surveyed by independent surveyors, while the collar locations for holes drilled in 1978 were picked up with a handheld GPS. The 1978 holes did not form part of the sample data for estimation purposes.

Table 4-1: Summary of historical drilling at Mt Mason

Year	Drill type	BHID	Count	Average length (m)	Total length drilled (m)
1978	Percussion	MM01 - MM20	20	8	164
2006	RC	MMRC101 - MMRC109	9	60	543
2007	RC	MMRC110 - MMRC121	12	63	759
2008	RC	08RCMM001 - 08RCMM18; 08RCMM998 - 08RCMM999	20	85	1,693
2011	RC	11MMRC001 - 11MMRC008; 11MMRC010 - 11MMRC015	14	63	1,814
	DD	11MMDH001 - 11MMDH015; 11MMDH017 - 11MMDH024; 11MMDH027; 11MMDP001 - 11MMDP003	28	58	806
		Total	**103**	**-**	**5,779**

A resource estimate was completed in August 2006 on the first nine holes drilled into the deposit. Based on the RC program of drill testing and the mapped outcrop of hematite mineralisation, an Inferred Resource estimate (JORC Code, 2004) was completed. Intersection widths used in the calculations, based on a >55% Fe cut-off, were used in the calculation. A three-dimensional model of the >55% Fe based on a set of cross section interpretations linking the surface hematite expression was made. The 55% Fe mineralisation shape was then used in a block model which had a cell size of 10 m north–south, 5 m east–west and 2 m vertically. The ore shape was used to constrain an estimate of the grades using an inverse distance to the power of 2 methods, spherical, planar search out to 60 m radius. An average density of 3.5 t/m^3 was used to estimate tonnage. The Mt Mason Inferred Resource was estimated on this basis.

During July 2007, a second drilling program was carried out on Mt Mason and other potential mineralised targets. This program of 12 holes tested the due east down dip and to the north strike extent of the hematite mineralisation as well as some BIF targets. Using this new data, Hardrock Mining Consultants completed a Mineral Resource estimate (JORC Code, 2004) in October 2007. The resource was deemed to remain open both to the northeast and south after the program.

Hardrock Mining Consultants completed an update to the Mineral Resource (JORC Code, 2004) based on further drilling in 2008. In 2011, a further 830 m of RC and 1,689 m of DD were obtained, and SRK was completed its update to the Mineral Resource reporting (in accordance with the JORC Code, 2004 edition) in February 2012.

In March 2011, Jupiter announced the completion of a scoping study and Preliminary Economic Assessment (PEA) on Mt Mason. The study was based on a 4-year mine life, with the open pit contract operation mining 1.5 Mtpa direct shipping ore (DSO) hematite. The base case capital cost was A$76 million, and cash costs were projected at A$51.08/t. The study indicated robust economics and

a full feasibility study was completed at the end of 2012.

Baseline surveys were completed to assist in establishing a regional context for an environmental impact assessment. Jupiter submitted a Mining Proposal for the Mt Mason deposit, and an assessment by the Department of Mines and Petroleum was commenced in 2013.

Jupiter suspended optimisation of the Mt Mason Feasibility Study at the end of 2014, and froze future expenditure on the project, citing poor economic conditions. The project has remained on care and maintenance since then.

SRK understands that recommencement of feasibility studies will be subject to improving market conditions and a port solution being secured.

Jupiter continues to meet its minimum expenditure obligations on the tenements with a view to protecting the value of the earlier work for potential future development.

Jupiter advised that no fieldwork or technical studies that could be considered material to the Mt Mason project have been conducted since the end of 2014.

Figure 4-4 illustrates the various drill campaigns by year in the period between 1978 and 2011.

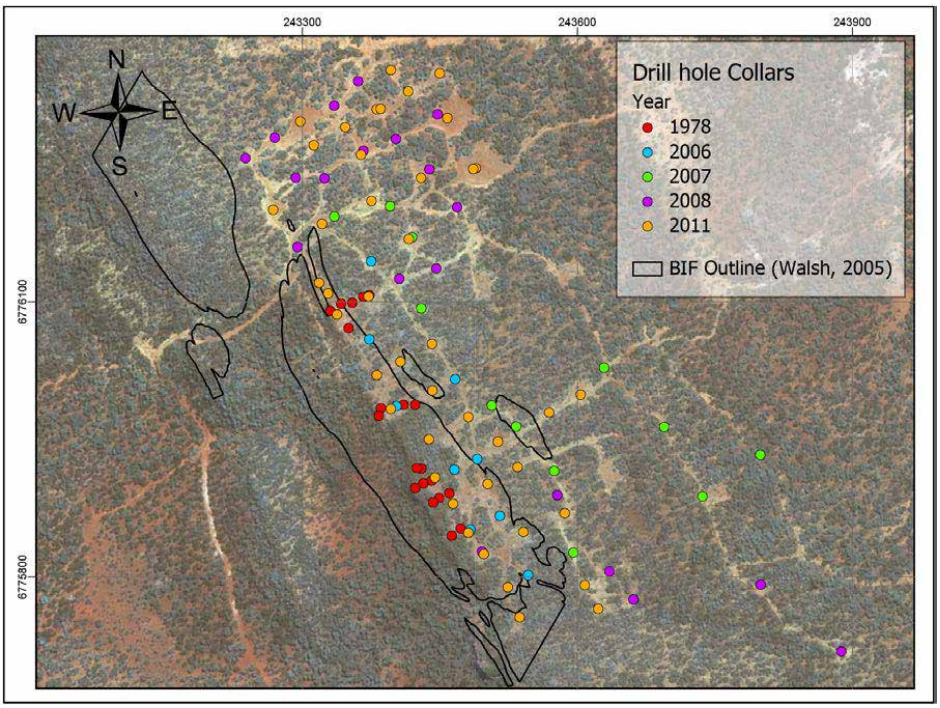

Figure 4-4: Mt Mason – drill collars coloured by year of drilling

4.4 Recent work

SRK prepared the current Mt Mason Mineral Resource estimate in accordance with JORC Code (2012) in January 2018 (Cunningham 2018). The estimate is reported at a cut-off grade of >55% Fe, and includes internal waste. Internal waste at >55% Fe is located in a single waste band with thickness <3 m and is assumed not to be selectively mineable. Internal waste contributes less than 0.5% t to the overall resource as stated in Table 4-2.

Detailed descriptions of the various study components for the Mineral Resource estimate is presented in Appendix A: JORC Code (2012) – Table 1.

Table 4-2: Mt Mason Mineral Resource breakdown by classification (100% basis) - January 2018

Classification	Tonnes	Fe (%)	SiO_2 (%)	Al_2O_3 (%)	P (%)	S (%)	CaO (%)	MgO (%)	LOI (%)
Measured	4,800,000	60.3	7.37	2.90	0.05	0.01	0.03	0.04	2.63
Indicated	1,080,000	59.4	10.41	3.47	0.06	0.01	0.03	0.05	2.55
Inferred	320,000	58.4	14.10	4.37	0.08	0.01	0.03	0.06	2.88
Total Measured + Indicated	5,900,000	60.1	7.92	3.01	0.05	0.01	0.03	0.04	2.62

The Mineral Resource was estimated within constraining wireframe surfaces based on geological limits of the mineralised and internal waste units. Internal non-mineralised units have been accounted for. The grades and tonnes have been rounded to reflect the degree of uncertainty related to the estimate.

4.5 Sensitivity assessment

The sensitivity of Fe mean grade and grade-tonnage to Fe cut-off grade for the Mineral Resources classified as Measured-Indicated is presented in Figure 4-5. The tonnage increases from 3 Mt to 8.7 Mt when the cut-off grade is decreased from 60% Fe to 50% Fe. This is a three-fold increase in total tonnage for a 10% decrease in cut-off grade, indicating that a small change in economic cut-off (currently reported at 55% Fe) will result in a substantial change in grade-tonnage.

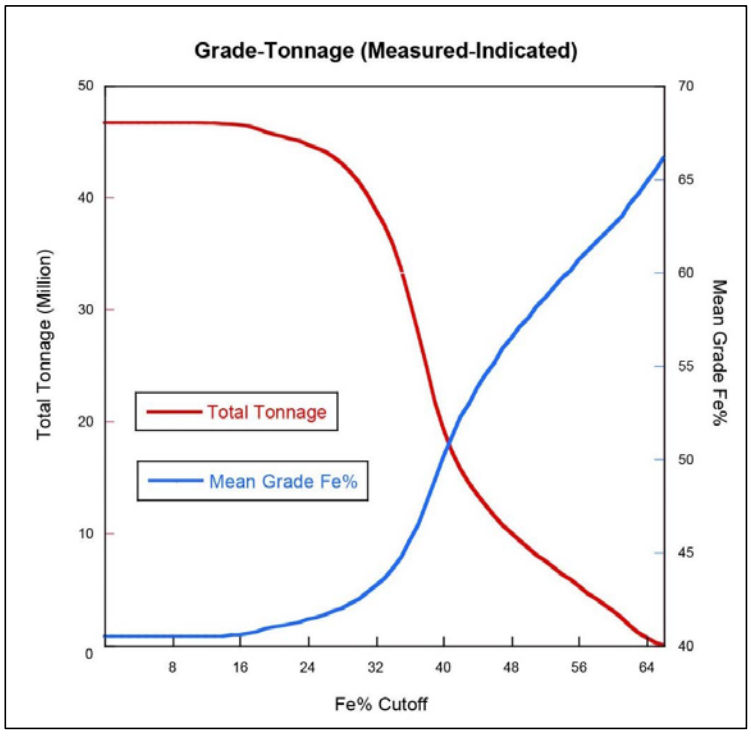

Figure 4-5: Sensitivity of mean grade and total tonnage to cut-off grade for Measured-Indicated classification

5 Mt Ida Project

The January 2018 Competent Person's Report for Mt Ida (Brown, 2018b), was used as the primary source of information for this review. This was supplemented by previous resource estimates and exploration reports, as well as digital data provided by Jupiter.

5.1 Location, access and topography

The Mt Ida project is centred at latitude 29º 13' 15" S and longitude 120º 24'50" E, and comprises a single Mining Lease (M29/414). Details of tenements are provided in Section 3.4 and illustrated on Figure 5-1. The Mt Ida project area is accessible via he bituminised Goldfields Highway from Kalgoorlie to Menzies, and then approximately 130 km northwest of Menzies along the gazetted unsealed Sandstone–Menzies Highway, followed by minor tracks in the project area.

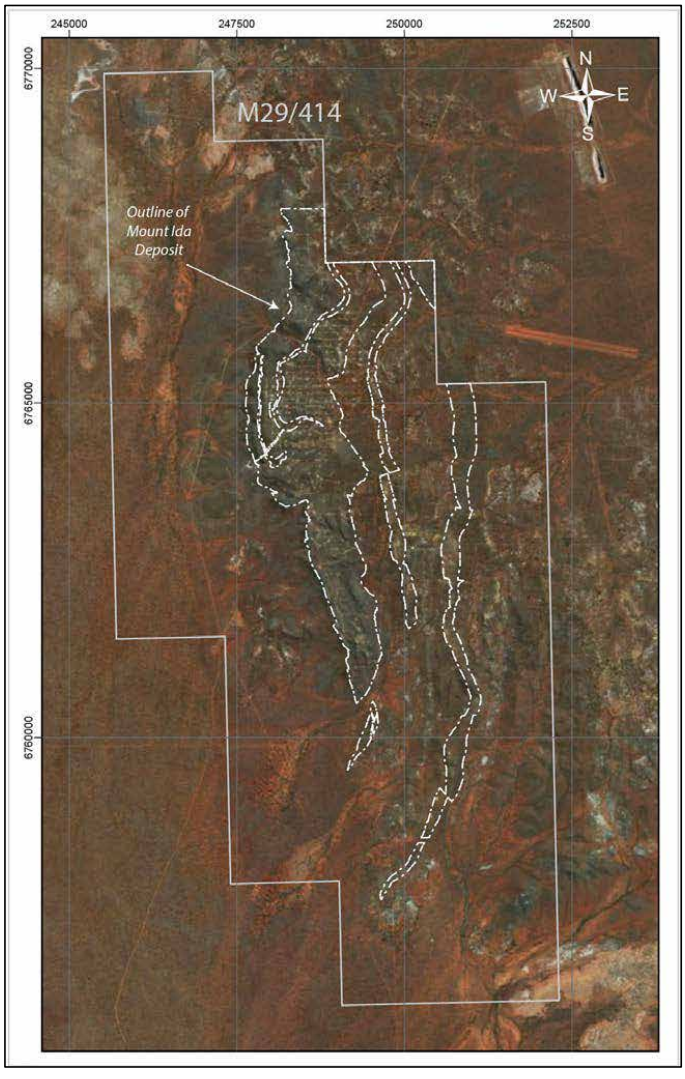

Figure 5-1: Mining Lease tenement over Mt Ida deposit

Figure 5-2: Example of BIF escarpment overlooking flat-lying granitic terrain

The topographic relief ranges from ~400 m above sea level to 600 m above sea level (Figure 5-2). The geomorphology consists of a dominant NW–SE striking BIF ridge, with surrounding sand and weathered granite plains to the west. The project area rises ~60 m above the adjacent sand plain to the west.

The Mt Ida project covers a 30 km strike length of the Mt Ida Range, striking in a northwest–southeast direction. This section of the range forms a prominent topographic feature, standing above the surrounding weathered granite plains to the west.

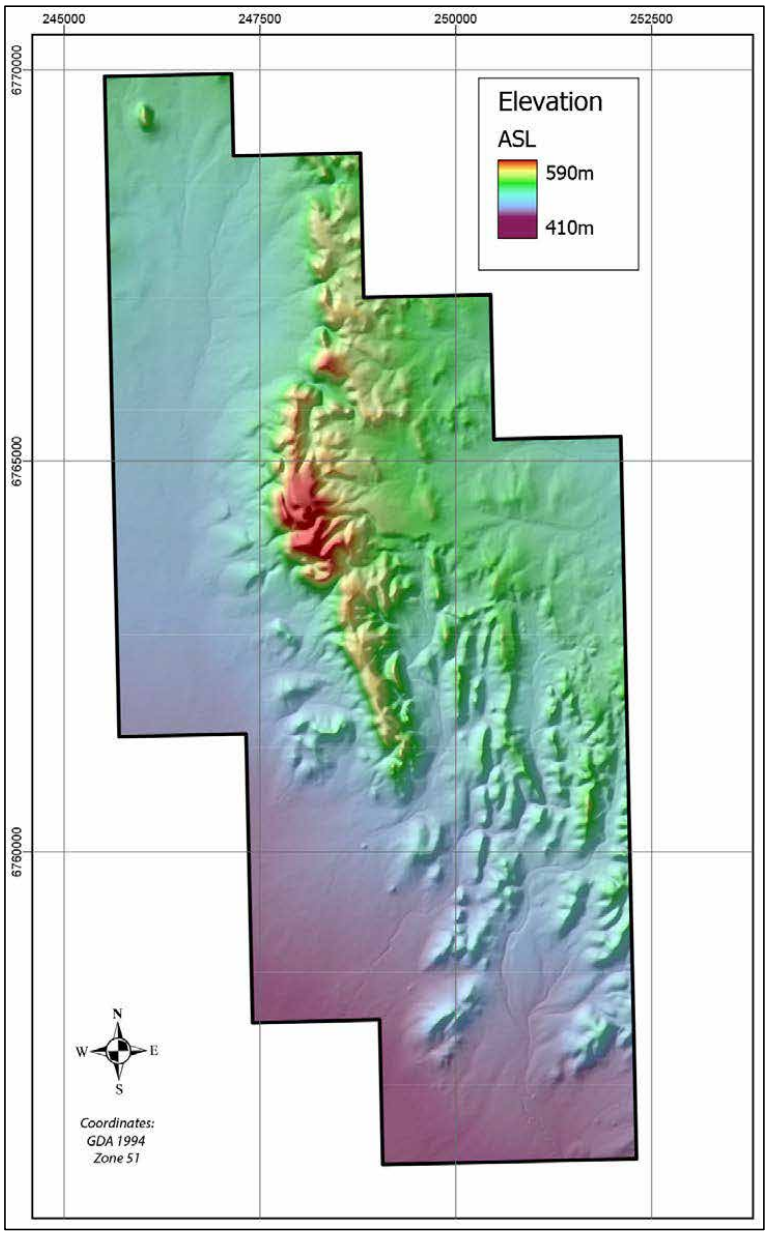

Figure 5-3: Topography of the Mt Ida project

Source: LiDAR survey (2011)

5.2 Prospect geology and mineralisation

The Mt Ida project is located in the Copperfield District of the North Coolgardie Mineral Field. It is covered by the 1:250,000 geology sheet SH 51-5 Menzies and the 1:100,000 geology sheet 2939 Mt Mason. The generalised stratigraphic sequence consists of alternating cycles of NNW trending ultramafic to mafic volcanics, separated by sedimentary units consisting of BIF, carbonaceous shale and chert. The metamorphic grade is amphibolite facies.

The deposit is hosted within the Mt Ida Greenstone Belt, with fine-grained magnetite mineralisation occurring in a series of sub-parallel folded BIF units that are interlayered with metamorphosed mafics. It is characterised by the Mulgabbie Formation, an ancient Achaean formation that is dominated by BIF outcrops. Minor associated shales and rare chert bands are also evident, while basalts and dolerites outcrop along the central area of the lease on the western side of the main scarp. The sand plain, which is developed in the southwestern corner of the lease, is typically found over heavily weathered granitoids. The area of interest is underlain by ultramafic units, which are possibly the source of magnetite mineralisation occurring across the site.

On the western side of the main scarp, the BIF units are relatively uniform, generally striking NNW and dipping at angles of 20° to 80° to the east (Figure 5-4). The northern and south-eastern areas of the 'central' Mt Ida area appear to be heavily folded, with multiple episodes of deformation evident. These are characterised by variable and often erratic bedding plane directions. Significant faults dissecting BIF ridges are evident along the strike length of Mt Ida, typically trending NE–SW and E–W.

BIF horizons have undergone variable degrees of alteration. Thick BIF horizons with broad zones of weak to moderately enriched magnetite, hematite and/or goethite mineralisation are not uncommon. In areas of high deformation, BIF units have typically undergone significant crustal and secondary enrichment, leading to relatively higher levels iron mineralisation. The BIF horizons cross-cut by structural features such as faults, shear zones and dilatational fault-jog features have been identified as conduits for iron mineralisation, and warrant further exploration.

The Mt Ida stratigraphy is characterised by a series of moderately dipping BIF units, interbedded with ultramafic horizons. With BIF units typically dipping to the east at between 20º - 40º, the narrow ultramafic horizons are generally less than 30 m in thickness. Erratic bedding orientations proximal to major fault zones suggest drag folding has significantly influenced the geology of Mt Ida. The magnetite BIF units at Mt Ida have a plunge of approximately 20º to the NNE and a dip of 30° - 40° to the ENE. Regional folding over the project area has resulted in localised crustal thickening of the BIF units. The axial plane of this folding also trends NNE and is responsible for the overall plunge of the deposit. The zone of magnetite mineralisation appears to be associated with an antiform fold hinge, with an axial plane trending NNE. Mineralisation appears to plunge between 10° and 20° parallel to the axial plane.

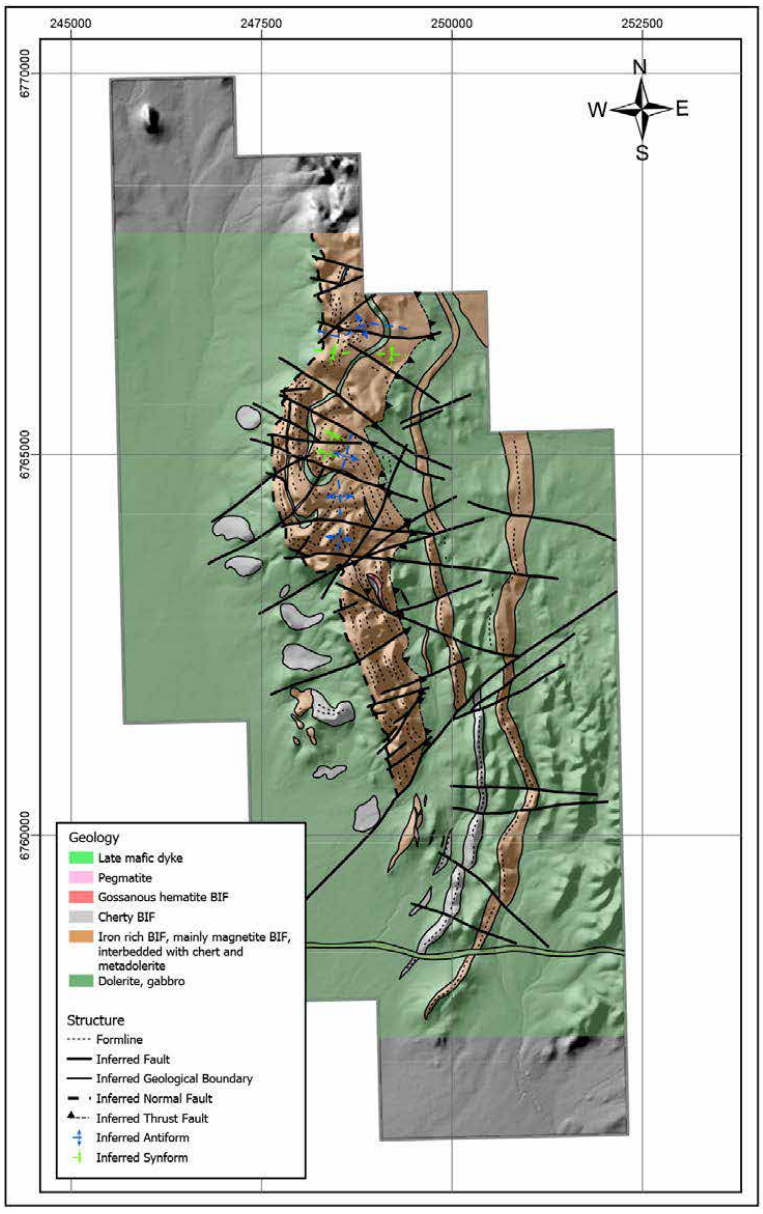

Figure 5-4: Geology and major structures of the Mt Ida project

5.3 Previous work

5.3.1 Geophysical surveys

Jupiter has conducted some geophysical surveys over Mt Ida including a gravity survey (2008), aeromagnetic survey (2011), and LiDAR survey (2011). An example of high resolution aeromagnetic data over Mt Ida is presented in Figure 5-5. This shows a major strike swing in the Mt Ida Fault on the western flank of the BIF where it swings from northwest to north and then northwest again over a 5 km strike length. This has resulted in an area of 'pop-up' topography resulting in thrusting, folding and

thickening of the BIF units. This was confirmed by ground-truthing during SRK's mapping campaign in 2010.

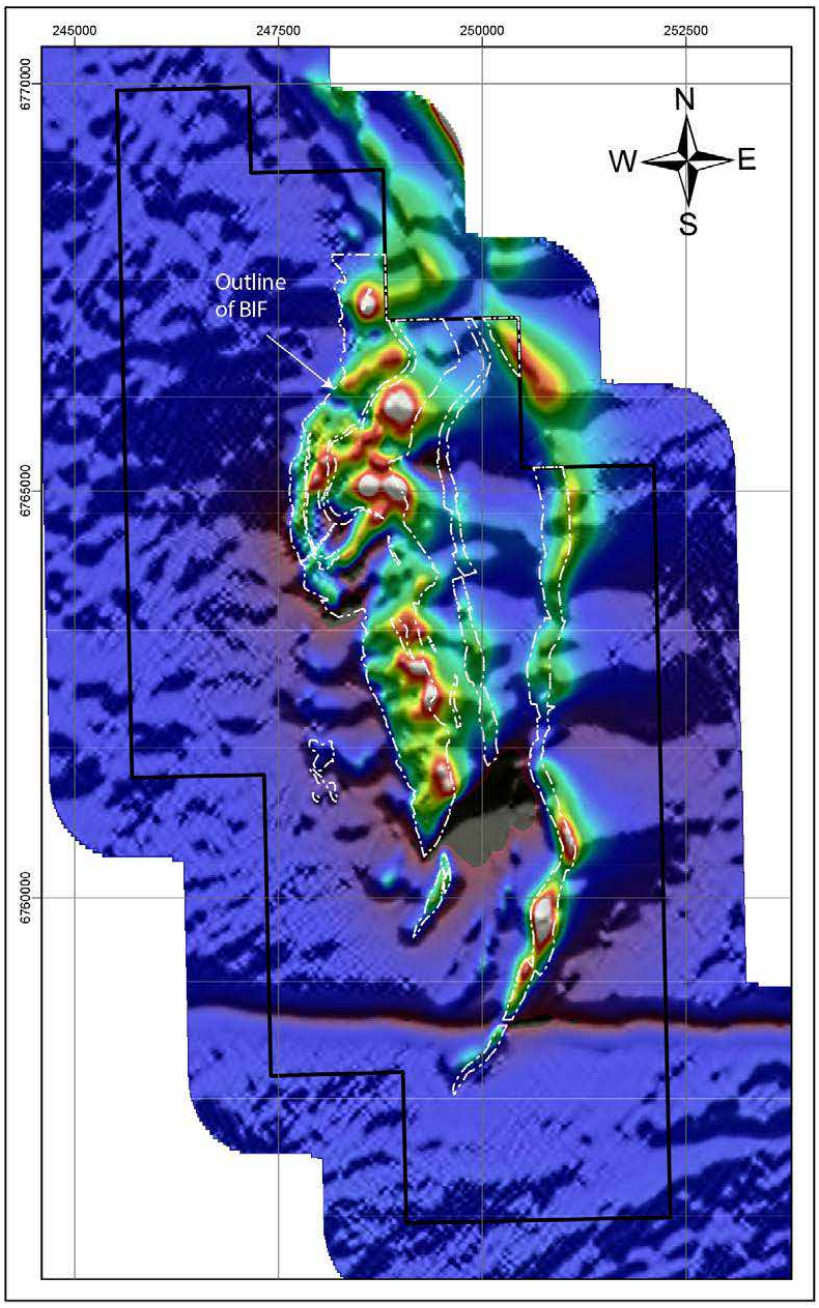

Figure 5-5: Magnetic survey data over Mt Ida project

Notes: A: Total Magnetic Intensity; B: Analytical gain.

5.3.2 Drilling

The Mt Ida exploration database contains a total of 465 holes, comprising 99,308 drill metres. This is the result of a number of drilling programs completed by Jupiter between 2007 until late 2012. The majority of the drilling was conducted using RC drilling equipment, supplemented by some diamond core (DD) drilling, and several RC holes with diamond tails (RC/DDH).

The historical drill quantities are summarised in Table 5-1.

Table 5-1: Drill data summary

Hole Type	Holes	Metres
RC	425	89,189
Diamond	31	9,164
RC/DDH	3	955
Total	**459**	**99,308**

Figure 5-6 presents drill hole coverage by year. Most of drilling was undertaken in 2011 within the main Central zone of Mt Ida.

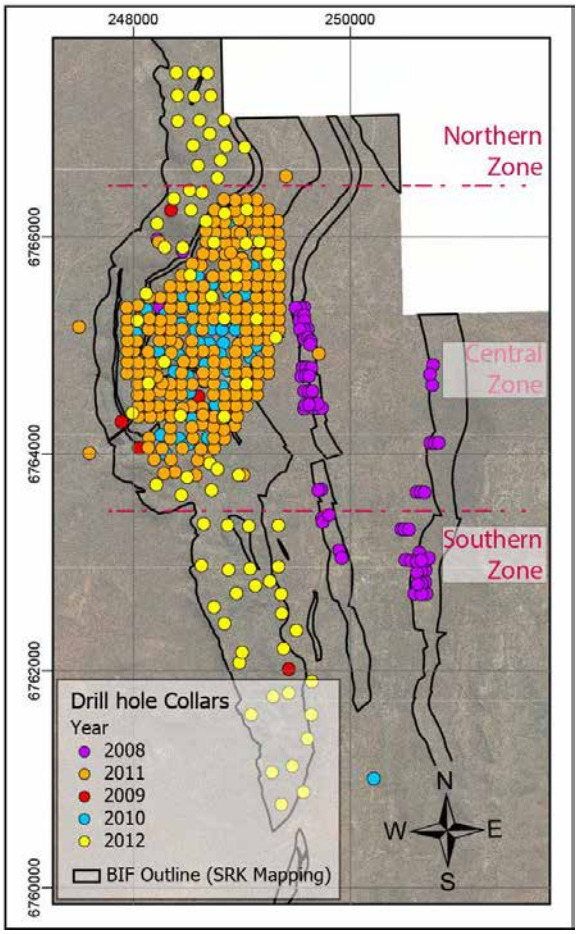

Figure 5-6: Mt Ida – collars coloured by year of drilling and showing main zones

5.4 Geological model

Whilst the Mt Ida deposit exhibits some regional variation in geological characteristics, the deposit zonation (South, Central, and North) is based on exploration focus and drill coverage, and the zone boundaries do not coincide with any specific changes in the geology.

The defined mineralisation in the South Zone extends for approximately 3 km along strike and is over 1 km wide. Resources have been defined in seven shallow-dipping and sub-parallel BIF units. The average unit thickness is approximately 25 m, and the deepest intersection is approximately 340 m below the surface.

The defined mineralisation in the North Zone has been identified over a strike extent of approximately 1 km and a width exceeding 600 m. Resources have been defined in a single BIF unit only (other BIF units have been identified in the region, but the number of intersections in drill holes is insufficient for resource delineation). The average unit thickness is approximately 40 m, and the deepest intersection is approximately 250 m below the surface.

The defined mineralisation in the Central Zone extends for approximately 3 km along strike and is over 1.5 km wide. Resources have been defined in 11 shallow-dipping and sub-parallel BIF units, with the deepest being approximately 340 m below the surface. The average unit thickness is approximately 40 m, but in places, intercepts exceeding 100 m have been encountered.

In March 2011, Jupiter announced the completion of a scoping study and PEA on the Mt Ida deposit. The study was based on a 20-year mine life with the open pit contract operation mining 25 Mtpa run-of-mine (ROM) ore to produce 10 Mtpa of magnetite concentrate, at a grade in excess of 68% Fe (silica content of 4.5%, low levels of impurities). The base case capital cost was A$1,583 million, and cash costs were projected at A$62.78/Mt of concentrate free on board (FOB). The study demonstrated robust economics and a full feasibility study was planned, the completion of which was expected at the end of 2012.

5.5 Feasibility studies

5.5.1 Process plant design

The process plant design was commenced as part of an economic feasibility study in Q1 2012, with scenario analysis and process optimisation.

The process flow sheet and layouts were finalised and the process plant capital estimation was underway by the end of Q2 2012.

5.5.2 Metallurgical testwork

The first phase of high pressure grinding rolls (HPGR) testing was completed in Q2 2012 with the ore demonstrating a consistent response to the HPGR process. Phase 1.5 of the testwork program was commenced in April 2012, and pilot plant testwork was commenced during Q2 2012. All testwork programs for the feasibility study were completed during Q3 2012.

During Q3 2012, a DD drilling program commenced to obtain PQ core samples for detailed pilot plant metallurgical testwork. This program was completed in Q4 2012 and SRK understands that the samples are being retained for future testwork.

5.5.3 Infrastructure

Potential infrastructure providers for gas lateral pipelines and/or gas-fired power stations were identified, and proposals were sought for contribution to the feasibility study in Q1 2012. During Q2 2012, these providers were commissioned to undertake the key components of the feasibility study

and commenced the work in Q3 2012.

A number of revisions were undertaken to optimise the general mine layout, waste dumps, tailings management facility, process plant and supporting infrastructure in Q1 2012. This optimisation work was finalised in Q2 2012.

Planning commenced in Q2 2012 on the regional groundwater exploration program. During Q3 2012, work commenced with the identification of targets and planning for geophysical gravity surveys over those targets. Geophysical gravity surveys and planning for the drilling of these targets identified from the surveys were also undertaken in Q4 2012.

5.5.4 Mine planning

During Q3 2012, preliminary optimisation work was undertaken using conceptual costs, process recoveries and a mineralisation block model to determine a conceptual ultimate pit shell. Analysis of this shell identified the potential for developing cutbacks to delay waste stripping while accessing the higher-grade portions of the mineralisation early in the schedule.

5.5.5 Site layout

In Q3 2012, the mine layout, including a ROM pad, gyratory primary crusher, processing plant, waste rock landform, tailings management facility (two cells) and supporting infrastructure was finalised. The supporting infrastructure included a gas-fired power station, concentrate rail load-out facility and rail loop, accommodation camp, sealed airstrip, gas lateral pipeline from the Goldfields Gas Pipeline, rail line from Menzies, desalination plant and mine access roads.

5.5.6 Geotechnical site investigations

In 2012, the Phase 1 geotechnical investigations were completed.

5.5.7 Environmental and permitting

Baseline surveys were completed in 2012 to assist in establishing a regional context for an environmental impact assessment.

5.5.8 Study status

Jupiter froze future expenditure on the project in November 2012, citing an increase to the cost environment and depressed metal prices. The project has remained on care and maintenance since November 2012.

Jupiter continues to meet its minimum expenditure obligations on the tenements with a view to protecting the value of the earlier work for potential future development.

SRK assisted Jupiter in the Mt Ida Feasibility Study up until November 2012.

Jupiter advised that no fieldwork or technical studies that could be considered material to the Mt Ida project have been conducted since this time.

SRK believes the reported resources at CYIP are of a sufficient quantum to support future feasibility studies, and makes no recommendation to increase the resource base through further exploration efforts.

5.6 Recent work

SRK prepared the current Mt Ida Mineral Resource estimate in accordance with the JORC Code (2012) in January 2018 (Brown, 2018) (Table 5-2).

An overview of the resource estimation procedures is presented in Appendix C - JORC Code (2012) – Table 1.

Table 5-2: Mt Ida Mineral Resource estimates - January 2018

Central Zone based on Unweathered BIF with a 10% Magnetic Fe block grade cut-off											
Zone/ Class	**Material**	**Tonnes x10^6**	**Fe (%)**	**SiO_2 (%)**	**Al_2O_3 (%)**	**CaO (%)**	**P (%)**	**S (%)**	**LOI (%)**	**MgO (%)**	**MnO (%)**
Central	In situ Total	1,062	30.23	48.47	1.88	2.70	0.07	0.28	-0.56	3.00	0.07
Indicated	In situ Magnetic	38.45%	25.64	2.64	0.02	0.07	0.01	0.09	-1.14	0.05	0.01
	Concentrate	409	66.69	6.86	0.05	0.17	0.01	0.23	-2.97	0.12	0.02
Central	In situ Total	169	27.03	51.68	2.40	2.92	0.07	0.31	-0.43	3.33	0.10
Inferred	In situ Magnetic	32.12%	21.31	2.34	0.02	0.06	0.01	0.10	-0.96	0.05	0.01
	Concentrate	54	66.34	7.28	0.05	0.17	0.02	0.32	-2.98	0.15	0.02
Central	In situ Total	1,231	29.79	48.91	1.95	2.73	0.07	0.28	-0.54	3.05	0.08
Total	In situ Magnetic	37.58%	25.05	2.60	0.02	0.06	0.01	0.09	-1.12	0.05	0.01
	Concentrate	463	66.65	6.91	0.05	0.17	0.01	0.24	-2.97	0.12	0.02

South and North Zone based on Unweathered BIF with a 10% Magnetic Fe block grade cut-off											
Class	**Material**	**Tonnes x10^6**	**Fe (%)**	**SiO_2 (%)**	**Al_2O_3 (%)**	**CaO (%)**	**P (%)**	**S (%)**	**LOI (%)**	**MgO (%)**	**MnO (%)**
South	In situ Total	567	28.63	49.92	2.35	3.47	0.07	0.36	-0.65	2.76	0.09
Inferred	In situ Magnetic	34.26%	22.93	2.26	0.02	0.07	0.01	0.17	-1.02	0.05	0.01
	Concentrate	194	66.93	6.60	0.06	0.21	0.02	0.50	-2.96	0.14	0.03
North	In situ Total	48	31.63	48.82	1.54	2.20	0.07	0.12	-0.84	2.07	0.06
Inferred	In situ Magnetic	42.36%	28.32	2.97	0.01	0.07	0.01	0.04	-1.32	0.05	0.02
	Concentrate	20	66.85	7.02	0.03	0.16	0.02	0.09	-3.11	0.13	0.05
Nth + Sth	In situ Total	615	28.86	49.84	2.28	3.37	0.07	0.34	-0.67	2.71	0.09
Total	In situ Magnetic	34.89%	23.35	2.32	0.02	0.07	0.01	0.16	-1.04	0.05	0.01
	Concentrate	214	66.92	6.64	0.05	0.20	0.02	0.46	-2.98	0.14	0.04

Combined Central, South and North Zones based on Unweathered 10% BIF with a Magnetic Fe block grade cut-off											
Zone/ Class	**Material**	**Tonnes x10^6**	**Fe (%)**	**SiO_2 (%)**	**Al_2O_3 (%)**	**CaO (%)**	**P (%)**	**S (%)**	**LOI (%)**	**MgO (%)**	**MnO (%)**
Central	In situ Total	1,062	30.23	48.47	1.88	2.70	0.07	0.28	-0.56	3.00	0.07
Indicated	In situ Magnetic	38.45%	25.64	2.64	0.02	0.07	0.01	0.09	-1.14	0.05	0.01
	Concentrate	408	66.69	6.86	0.05	0.17	0.01	0.23	-2.97	0.12	0.02
Central	In situ Total	784	28.47	50.24	2.31	3.28	0.07	0.34	-0.62	2.84	0.09
Inferred	In situ Magnetic	34.29%	22.91	2.32	0.02	0.07	0.01	0.15	-1.02	0.05	0.01
	Concentrate	269	66.81	6.77	0.05	0.20	0.02	0.43	-2.98	0.14	0.03
Central	In situ Total	1,846	29.48	49.22	2.06	2.95	0.07	0.30	-0.58	2.94	0.08
Total	In situ Magnetic	36.68%	24.48	2.50	0.02	0.07	0.01	0.11	-1.09	0.05	0.01
	Concentrate	677	66.74	6.83	0.05	0.18	0.01	0.31	-2.97	0.13	0.03

6 Risks and Opportunities

In SRK's opinion, the reported resources at the CYIP are of sufficient quantum to support future feasibility studies, and makes no recommendation to increase the resource base through further exploration efforts. Some of the study work, including a detailed assessment of the quality assurance data, had not been completed at the time of project termination in November 2012. This has likely impacted upon the Mineral Resource classifications for the estimates in some parts of the Mt Ida deposit.

Further potential opportunities are available between Jupiter and other Yilgarn iron ore producers, either in the form of joint venture or other transaction.

7 Concluding Remarks

SRK has carried out a detailed technical review of Jupiter's two resources which form the CTIP, and does not find any significant risks that would impact the geological interpretation. The Mineral Resource estimates are deemed by SRK to be supported by reasonable assumptions and are reported to a sufficient quality standard JORC Code (2012) to satisfy the requirements of the ASX Listing Rules and the ASIC Regulatory Guides.

SRK understands that no further work is planned for the CYIP until market conditions change. As such, Jupiter has not prepared an exploration budget, and SRK has not been able to determine the reasonableness of any future work.

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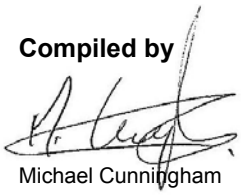

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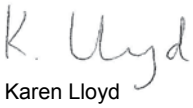

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Appendices

Appendix A: Table 1 - JORC Code 2012
Mt Mason deposit

JORC Code, 2012 Edition – Table 1

Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as downhole 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 (e.g. '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 (e.g. submarine nodules) may warrant disclosure of detailed information.	• The Mt Mason Resource Estimate comprises several drill campaigns and various sampling programs (Table 4-1) in main body of report). **Percussion sampling**: • Holes drilled in 1978 were not used in the estimation, but descriptions for geological purposes were used. **RC sampling:** • RC drilling occurred in 2006 to 2008 and 2011. • The complete sample was collected and passed through a three-tiered Jones riffle splitter, producing a 12.5% and 87.5% split. The 12.5% split was collected in a single, pre-numbered, calico sample bag and the reject 87.5% split was retained in a plastic bag. The drilling contractor supplied the labour to collect the splits and place them in the sample bags provided. The bags were attached to the respective splitter chutes at the commencement of the sample interval. At the completion of each metre of drilling, the samples (retention and calico bag) were removed from the chutes and left adjacent to the drill hole in rows of 20, i.e. 20 m length of hole. The calico bag was tied and secured at this stage. Less than 10 samples were wet samples. The chip size was uniformly small (<10 mm). • Earlier drill programs (2006 and 2008) samples were collected on 2 m intervals or 4 m intervals, but then on 1 m (2011). • When collecting the samples, the sampler or geologist cross checked the sample numbers with the hole depths to ensure correct labelling and correlation, inserted certified reference materials (CRMs) and took duplicates samples for QA/QC. Sample collection took place, at most, within 24 hours of the hole being drilled, but was generally carried out on the same day. • All samples for submission were placed immediately on collection into large plastic sacks (7 - 10 samples per sack). The sack was sealed and labelled with identifying numbers and destination. The sacks were subdivided into lots of 20 sacks. The program produced 4 lots of sacks. All sacks were palletised at the Perrinvale Station homestead and dispatched as a single batch by a courier service from Leonora to the laboratory in Perth. • Nominal split sizes were approximately 3.5 kg. **Diamond drilling (DD) sampling: (2011)** • After logging, mark-up, and photographing core (wet and dry), the core (when oriented) was aligned in the core saw so that it cut ~2 cm to the lower side of the orientation line (side opposite to where downhole tick and other information is written). Once cut, the half piece of sample that does not have information written on is bagged in calico and sent for testing, whereas the other half is replaced in the core tray. • Core samples were terminated at lithological boundaries and sampling interval lengths ranged from ~0.1 m to >1.2 m.

Criteria	JORC Code explanation	Commentary
		Additional drilling: • An additional 4 PQ diamond holes were drilled in 2012 for geotechnical purposes only and SRK is not aware of any sampling or assaying associated with these geotechnical drill holes.
Drilling techniques	• Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. 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.).	• For RC: A Unimog-mounted Ingersoll-Rand model HR2 drill was set up with 825 cfm @ 400 psi air compressor operating a 120 mm RC hammer. • For DD: Terra Drilling, a Kalgoorlie based contractor, used a Terra Rig 1 fitted with HQ3 and PQ3 coring equipment.
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.	• For the pre-2011 drill programs, no records of drill chip recovery were kept. However, it is noted that two holes have sections where no samples were collected and according to information provided by Jupiter, this was due to "driller error". Jupiter re-sampled holes 08MMRC001 and 08MMRC002 from the retention half core and these assay results were used in the resource estimates. **RC** • The holes were drilled with all samples being collected via the RC system. A minor amount of bypass from the stuffing box at the collar occurred. Dust rejection from the cyclone was minimised by careful use of water injection while drilling. Some holes required the use of a foaming agent to assist in lifting cuttings and maintaining hole wall stability. Only minor amounts of water were intersected in the holes and only a few samples were collected in a wet state. The complete individual sample were not weighed, but all sample reject was collected in retention bags stored at the drill site in a sequential manner, in the event that further sampling be warranted. • Each metre of RC drilling was represented by a green bag of residual sample, along with a primary and a duplicate sample in a separate calico bag. The RC rigs used for this program were fitted with the equivalent cone splitters setup to distribute sampling material as follows: – A 37.5% representative sample into the green bag – A 12.5% representative sample into the primary calico bag – A 12.5% representative sample into the duplicate calico bag – A 37.5% representative waste sample, discharged onto the ground • The onsite geologist always checked for an uneven distribution of sample according to the above percentages. • The following key information on field sample quality for RC drilling was recorded on the 'Sampling' sheet: – Sampling moisture (classified as Wet, Moist or Dry) – Sample recovery (classified as <50%, 50%-70%, 70%-90%, 90%-100% or >100%). • It was the responsibility of the geologist assigned to rig supervision and logging of a hole to record this information. The recovery percentages were estimated from the contents of the residual sample in the green bag.

Criteria	JORC Code explanation	Commentary
		DD • Triple tubing was used to maximise recovery. • For measuring core loss, two methods were used. The **first** method was done during the 1 m marking process, to avoid duplicating work and to ensure agreement between the methods. This involves recording the following data for each drill run: – Depth From (metres) – Depth To (metres) – Actual core measurement (metres). • This data is recorded on the 'DH Recovery' sheet of the logging file, from which a number of additional fields were calculated, including 'Recovery' and 'Core Loss'. • The **second** method of recording core loss was within the Lithology log itself. Every section of core loss was recorded as a separate interval in the lithology log, and all fields left empty apart from 'Lithcode' in which 'C/L' was entered. For example, given an interval (0 - 2 m) with consistent geology of Banded Iron – Hematite (BIH), but with an interval of core loss between 1.2 m and 1.4 m, three separate intervals were recorded as follows: – 0 - 1.2 m = BIH, along with its descriptive fields – 1.2 - 1.4 m = C/L – 1.4 - 2.0 m = BIH, along with its descriptive fields. • There is no relationship between sample recovery and grade.
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.	• RC logging is based on descriptions of drill chip samples. Logging was carried out by several geologists over the various drilling campaigns. Jupiter introduced a company logging schema, commencing with the 2008 drilling program. This schema had some inconsistencies with the previous schema. For the purpose of this resource estimation update, the lithological summary logs were simplified in accordance with the schema used in the initial 2006 and 2007 drilling programs. The lithological assignments applied considered the whole rock assay information. This was particularly important in locating shaley units. A digital colour photograph of chip tray(s) for each hole was taken. Each interval was described in terms of rock type, weathering and colour. These records were entered onto paper logs and then into an MS Access database. • The weathering stage – Highly Weathered (HW), Medium Weathered and Fresh (FR) – was also logged, with the base of HW and top of FR corresponding to 'base of complete oxidation' and 'top of fresh rock' respectively. • Logging of DD and RC in 2011 included recording of lithocode, colour, chip shape, grain size, hardness, texture, mineralogy, weathering, and sample moisture. • Handheld Niton XRF and magnetic susceptibility data were collected for the 2011 drill samples. Data were digitally captured in a field Toughbook™ computer. A combination of the geological logs, XRF and magnetic susceptibility data was then used to select sample intervals to be sent to the laboratory for testing.

Criteria	JORC Code explanation	Commentary
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. • 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.	• Each drill hole had a sub-sample taken for each 1 m interval that was retained in a numbered and labelled chip tray. • RC samples were logged and sampled by wet-sieving. DD core was first marked up and oriented prior to being cut in half using a drill saw. • During the 2008 RC sampling, a duplicate sample was taken from the drill cuttings at a frequency of 1 in 30. These samples were subject to the same processing and assaying methods as normal samples. Later, a field split duplicate sample was taken at a rate of 1 in 20 samples. The duplicate was taken from the retention bag using the spear method. A site standard was also included at a rate of 1 in 20 samples. • Three iron ore CRMs were used in the 2008 campaign at a minimum rate of one per drill hole. • CRMs and Duplicates were also used in the 2006 and 2007 campaign at a rate of 1 in 20. • Prior to 2011, no blank samples were submitted. • For 2011 sampling, a suite of six iron ore CRMs (sourced from Geostats Laboratories) were used. CRMs and Duplicates were inserted into the sample stream at a rate of 1 in 25. • Sample sizes in relation to grain size were appropriate for Mineral Resource estimation purposes.
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 (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	• From 2006, ALS Chemex, a NATA-accredited laboratory in Perth, which has a comprehensive internal QA/QC system, was used. On providing the assay results, the laboratory simultaneously provides the results of its internal QA/QC. • Whole rock determinations were made using XRF techniques on a fused disk of the sample. • Both laboratory-inserted and client-inserted QA/QC material results are checked to ensure they fall within the required control limits for the project. In the case of the Mt Mason study, the limit is three standard deviations (3SD) from the accepted value for the CRMs. • Table 4-3 (in main body of report) summarises the QA/QC reviews for each campaign. **QA/QC 2011** • Data quality for the 2011 drilling campaign was assessed by Stewart (2011) of Dextral Geological Services, and by Binoir (2011) of SRK. A total of 67 field standards and 80 field duplicates were submitted. No blanks were submitted. The standards used are summarised in the following table.

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>Standard</th><th>Al_2O_3%</th><th>Fe (%)</th><th>SiO_2 (%)</th><th>P%</th><th>LOI (%)</th><th>Supplier</th><th>Source Material</th><th>Certification</th><th>Assay Method</th></tr>
<tr><td>GIOP-014</td><td>3.56</td><td>61.40</td><td>5.27</td><td>0.040</td><td>2.35</td><td>Geostats</td><td>Murchison</td><td>4 Labs</td><td>XRF</td></tr>
<tr><td>GIOP-015</td><td>4.06</td><td>50.70</td><td>20.10</td><td>0.030</td><td>1.31</td><td>Geostats</td><td>Murchison</td><td>4 Labs</td><td>XRF</td></tr>
<tr><td>GIOP-017</td><td>3.28</td><td>58.50</td><td>6.13</td><td>0.060</td><td>6.20</td><td>Geostats</td><td>Pilbara</td><td>4 Labs</td><td>XRF</td></tr>
<tr><td>GIOP-064</td><td>2.56</td><td>56.32</td><td>8.03</td><td>0.037</td><td>5.53</td><td>Geostats</td><td>Pilbara</td><td>5 Labs</td><td>XRF</td></tr>
<tr><td>GIOP-078</td><td>2.48</td><td>57.83</td><td>5.02</td><td>0.040</td><td>8.97</td><td>Geostats</td><td>Pilbara</td><td>5 Labs</td><td>XRF</td></tr>
<tr><td>GIOP-090</td><td>1.63</td><td>65.62</td><td>2.44</td><td>0.159</td><td>1.25</td><td>Geostats</td><td>Pilbara</td><td>5 Labs</td><td>XRF</td></tr>
</table>

Five standards were found to be the result of field swaps and were corrected in the database
Standards returning values outside of 3SD of the mean for a specific element were considered to have failed. Individual standards containing more than three failed elements (out of Al_2O_3, Fe, SiO_2, P and LOI) were considered a failed standard. Based on these criteria, 96% of the standards passed. This included results from GIOP-014, which had an 80% failure rate. The use of this standard was discontinued due to its poor performance and it was subsequently removed from the database. Removal of GIOP-014 from the dataset subsequently resulted in a 100% pass rate for standards.
Field duplicates were included in sample submissions to monitor field sampling practices. The performance of field duplicates was measured using Relative Paired Difference Plots, Scatter Plots and Q-Q Plots. A single data entry error was found and corrected prior to the review. Scatter plots for all elements showed regression coefficients >0.95. Fe assays had a regression coefficient of 0.99, with 94% of data falling within 10% of the expected value. Both SiO_2 and Al_2O_3 had a regression coefficient of 0.99, with 79% and 74% of data falling within 10% of the expected value respectively. P and LOI showed a lower rate of repeatability, with 70% and 69% of the data falling within 10% of the expected values. Q-Q plots indicate that most elements show no significant bias between the original and the duplicate sample, which suggests that the laboratory's calibration is accurate. Relative paired difference plots highlighted the calibration variance between Fe and the other four major elements, with Fe having the greatest amount of bias, but displaying the least amount of spread. Fe had a bias towards the original sample at values close to the lower detection limit, with the bias trending towards the duplicate at higher values. Al_2O_3 displays the greatest amount of spread, suggesting that the calibration of the XRF instrument was not optimised for Al_2O_3. Two duplicates failed four of the five analyses and are considered failed duplicates. JMS00800 appears to be a duplicate of JMS00798, and may be the result of an accidental field swap, although this is not conclusive as some analyses do not exactly match the original sample JMS00798. JM01300 appears to match JMS01305 and may be the result of a laboratory swap during sample preparation.

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Criteria	JORC Code explanation	Commentary
		QA/QC 2008 • QA/QC protocols were reviewed by Milton (2009). No samples were flagged as having failed QA/QC and all data was incorporated in the February 2009 Inferred Mineral Resource estimate. • Three iron ore standards were used – GIOP8, 15 and 17 – and control charts show assayed values against expected value and limits of 2SD. All samples, except one, fell within acceptable limits. • Field duplicate samples were collected at a frequency of 1 in 30 from RC chip samples. These samples were subjected to the same processing and assaying methods as normal samples. The regression analysis indicates that the precision of the results is within acceptable levels. **QA/QC 2007** • QA/QC protocols are briefly reviewed by Milton (2007). No samples were flagged as having failed QA/QC and all data was incorporated into the October 2007 Inferred Mineral Resource estimate. QA/QC consisted of field duplicates and standard reference materials. On providing the assay results, the laboratory simultaneously provided the results of its internal QA/QC. Both laboratory-inserted and Jupiter-inserted QA/QC material results were checked by Jupiter to ensure they fell within the required control limits of 3SD from the expected value. QA/QC results were reviewed graphically in a time sequence by Jupiter to identify any systemic bias. Duplicate samples were reviewed to provide insight into sampling processes and identify any homogeneity issues. **QA/QC 2006** • Jupiter's contract database administrator, rOREdata, supplied SRK with assay results and control charts for standards as well as results for duplicate analysis. Standards were considered to have failed when falling outside 3SD from the expected value. Less than 2% of assayed standards fell outside of control limits. • Duplicates were considered to have failed if the difference between original and duplicate assays was >20%. Of the 18 duplicate samples, one duplicate had an Fe assay falling outside the 20% limit and a further three duplicates had SiO_2 and/or Al_2O_3 assays falling outside of the 20% limit. • Overall, SRK is satisfied that acceptable levels of accuracy and precision have been established for Mineral Resource estimation purposes.
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.	• The digital data is held in an MS Access database. Data used in this estimation were collected by Jupiter and provided to SRK in MS Access format (Mt Mason_20111208.mdb). • Hardcopy and digital data was supplied by the laboratory and filed as project files and electronically with all previous project data. • Samples collected pre-2009 that showed economic grades of mineralisation were submitted to a second laboratory for analysis. The results of these analyses verified the original assays. • All activities relating to sampling and assaying have been carried out by qualified, professional independent person(s) or companies not related to Jupiter, but contracted to complete specific tasks. No other specific independent verification has been undertaken. • SRK was supplied original assay sheets for 2011 drilling and sampling program only. • The use of twinned holes to verify data has not been done.

Criteria	JORC Code explanation	Commentary
		• No adjustments to the assay data have been made.
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.	• The collar positions for drill holes drilled in 1978 were picked up with a handheld GPS. • Jupiter engaged a licensed surveyor, Dave Heyhoe, during December 2008 to pick up all drill hole collars, geographical features (tracks and survey points) and to carry out a gridded survey to provide Australian Height Datum data for a more detailed contour plan of the area. • Drill hole collars for the 2011 campaign were surveyed using differential Real Time Kinematics Differential GPS, with an elevation accuracy of 1.5 m. • All coordinates were recorded in UTM, GDA 94 zone 51 systems.
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.	• The first drilling campaign by Jupiter was designed to close off the Mt Mason mineralisation to the north and east, and to test several targets previously recognised in preliminary mapping by Walsh (2006). The spacing and location of the holes were largely restricted to existing tracks or areas that had been investigated by a botanist and approved for minimal clearing by the Department of Environment and Conservation (DEC). The generally flat to moderate east or west dipping nature of the main potential units enabled the use of vertical drilling for evaluating the extent of mineralisation. This also simplified the clearing requirements and the type of drill rig that can be used. The spacing of the target drill holes were not designed to adhere to a regular grid, but vegetation clearing conditions. • The drilling testing of Mt Mason was largely constrained by environmental considerations and was initially restricted to old tracks and cleared areas. The 2008 program was further restricted by fauna (Malleefowl) considerations. This has resulted in a pattern of drilling that is not entirely a regular grid pattern, but is loosely a 50 m by 50 m pattern. • All drilling pre-2011 was vertical, and sampling through mineralisation has been on 1 m lengths. • A total of 43 inclined holes were drilled in 2011. • 2 m composites were taken in some areas of low grade or unmineralised materials. Holes that intersected significant areas of unmineralised rock were not sampled. • No sample compositing was undertaken.
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.	• Surface mapping and drilling results indicate a strong strike direction control with mineralisation extending down dip. While the vertical drill hole orientation for pre-2011 drilling was adequate for Inferred Mineral Resource estimation, in order to increase classification and confidence of mineralisation, holes in the 2011 campaign were drilled near orthogonal to north-northwest strike and shallow to moderate dips of 20° to 60° to the east. • A total of 43 holes have downhole surveys, and 20 inclined holes do not. The downhole survey data was reviewed and the deviation in both bearing and dip investigated. The change in bearing and dip is relatively small for inclined holes; the change in bearing is significant for vertical holes, although the changes in dip remain small. This is to be expected for vertical holes where a very small deflection can result in a significant change in bearing. • While vertical drilling may have introduced some sampling bias, most of the inclined holes were drilled west-southwest, near orthogonal to the north-northwest strike of BIF units, and at dips of between 85° and 50° from the horizontal. Mineralised units have shallow to moderate dips of 20° to 60° to the east.

Criteria	JORC Code explanation	Commentary
		• Overall, sampling bias is minimal and is taken into account in the classification of the Mineral Resource estimate.
Sample security	• The measures taken to ensure sample security.	• Little is known about sample security pre-2011. For the 2011 campaign, field technicians were responsible for ensuring that the samples were taken from the correct piece of core and from the correct intervals, and that the core was sampled exactly to the interval marks. Cost code and hole numbers were not annotated on the items to be sent to the laboratory and all details were written on the copies of the submission sheets retained by Jupiter. Individual samples were placed in poly-weave bags, secured with cable ties and shipped to the laboratory for analysis. A record of all samples shipped was retained by the geologist sending the sample shipment. Sample submission sheets were filled out by the geologist by creating a sample submission number. The sheet was copied and the hole ID in the 'Internal Use Only' box was filled in. The sheet was then placed in a plastic sleeve and in the sample submissions folder, ready for the next courier pick-up.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• SRK conducted a thorough review of drilling 'Standard Operating Procedures', and 'Sampling and QA/QC Protocols' prior to the 2011 drill campaign. • No independent audit or review of sampling techniques and data has been undertaken.

Section 2 Reporting of Exploration Results

(Criteria listed in Section 1 also apply to this section.)

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.	• The main deposit falls within Mining Lease M29/408 which is wholly owned by Jupiter Mines Limited, was granted on 25 November 2011 and expires on 24 November 2032. The tenement is bounded by Hawthorn Resources' tenement E29/510 (Exploration) to the north and the Jupiter tenement G29/022 (General) to the south. • The Mt Mason tenement is within the buffer zone of a Priority Ecological Community, commonly known as the Banded Iron Formation (BIF). However, clearing of the main native vegetation type required for the project is estimated to be <0.5% of pre-European extent and therefore considered insignificant in the Murchison Bioregion regional context. • The main environmental risk for the project relates to nationally significant threatened species; predominantly Malleefowl. Although there is currently unlikely to be any direct impact to this species, the project will be referred for assessment under the *EPBC Act* for potential impacts, and subsequent management conditions will need to be implemented.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	• The existence of a deposit of hematite at Mt Mason has been known since 1912 when H W B Talbot discovered it. Talbot refers to the mineralisation in GSWA Bulletin 45 as "*a large mass of fine iron ore*". Superficial exploration for iron ore and pigment has occurred since then. • The Geological Survey of Western Australia library files provide some information on the grades and tonnages of low phosphorus hematite suitable for steel making, including the details of five surface samples which gave a composite grade of 62.8% Fe, with 0.042% P. • In 1978, Kalgoorlie Southern Goldmines surveyed a grid, cut some access tracks, mapped part of Mt Mason and drilled 20 shallow percussion holes for iron pigment. No quantitative analyses for iron were recorded for these holes, but general descriptions of the cuttings were recorded. • J F Walsh carried out surface mapping and sampling of Mt Mason in April 2005, which resulted in an estimate of the potential for iron ore and a plan for further work on the tenement comprising a review of aerial photography and magnetic surveys, an environmental survey and drilling. • A resource estimate was completed in August 2006 on the first nine holes drilled into the deposit. Based on the RC program of drill testing and the mapped outcrop of hematite mineralisation, an Inferred Mineral Resource estimate was completed. Intersection widths used in the calculations were based on >55% Fe cut-off. A 3D model of the >55% Fe, based on a set of cross section interpretations linking the surface hematite expression, was made. The 55% Fe mineralisation shape was then used in a block model which had a cell size of 10 m north south, 5 m east west and 2 m vertically. The ore shape was used to constrain an estimate of the grades using an inverse distance to the power of 2 methods, spherical, planar search out to 60 m radius. An average density of 3.5 t/m^3 was used to estimate tonnage. On this basis, the Mt Mason Inferred Mineral Resource was estimated.

Criteria	JORC Code explanation	Commentary
		• During July 2007, a second drilling program was carried out at Mt Mason and potential other mineralised targets. This program of 12 holes tested the due east downdip and to the north strike extent of the hematite mineralisation, as well as some BIF targets. In October 2007, Hardrock Mining Consultants completed a Mineral Resource estimate in accordance with the JORC Code (2004), using this new data. The resource remained open both to the northeast and south after the program. • An update to the Mineral Resource was estimated by Hardrock Mining Consultants (in accordance with the JORC Code (2004), based on further drilling in 2008. • SRK used further drilling (RC and DD) to report an updated Mineral Resource in February 2012 in accordance with the JORC Code (2004).
Geology	• Deposit type, geological setting and style of mineralisation.	• The Mt Mason iron ore deposit occurs within the Mt Ida Greenstone Belt. The Ida Fault forms a prominent structural feature of the Mt Ida Greenstone Belt and marks the boundary between the Southern Cross and Eastern Goldfields Granite–Greenstone Terranes. • The Mt Mason area was mapped in detail by Jack Walsh (2005). This mapping recognised outcropping massive hematite, “shaly hematite” zones, iron-rich BIF, iron-poor BIF and “Canga” ores that form the prominent Mt Mason hill and immediately surrounding areas. This type of deposit is like those in the Koolyanobbing and Mt Windarling areas to the south and west of Mt Mason. • Underlying rocks of the lease area are Archean in age and are considered part of the Mulgabbie Formation. The main units outcropping in the area are BIF with minor associated shales and rare chert bands. Basalts and dolerites outcrop along the central area of the lease on the western side of the main scarp, granites in the southwest corner of the lease are typically overlain by a sand plain. • BIF units strike NNW and dip towards the east at angles of 20° to 60°. BIF units at Mt Mason are cut by a WNW-striking fault dipping at 80° towards the north. A distinct zone of brecciation and quartz veining associated with this fault cross-cuts the BIF units. Weathering associated with this fault resulted in a substantial body of massive to bedded hematite. The hematite body outcrops over an approximate strike length of 600 m and width of 150 m. At the south end of the hematite body, another NNW strike fault may cut the BIF, although field evidence is not strong. SRK interpreted this identified fault as an alteration boundary with minor displacement. • Hematite mineralisation is believed to have formed by enrichment of the iron content of BIF and alteration of magnetite to hematite by the passage of iron-rich water through the system. Enrichment is localised and little is known about its controls. Hematisation generally appears to be bounded by shale units which themselves in some cases are partially mineralised. Faults and folding have been identified as possible important controls in fluid flow. The boundary between “hematised” and BIF units can be sharp (over 1 m) or gradational (several metres). Generally, the whole mineralised sequence dips between 50° and 60° to the east. The base of the hematised BIF overlies undifferentiated dolerite and mafic rocks. There is re-cemented hematite rubble termed “Canga” deposit downslope of Mt Mason, whilst the northern portion of the deposit is covered by sediments.

Criteria	JORC Code explanation	Commentary
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 • downhole 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 exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	• No new Exploration Results are reported. This report relates to Mineral Resources only.
Data aggregation methods	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. 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.	• No new Exploration Results are reported. This report relates to Mineral Resources only.

Criteria	JORC Code explanation	Commentary
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 downhole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	• No new Exploration Results are reported. This report relates to Mineral Resources only.
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.	• No new Exploration Results are reported. This report relates to Mineral Resources only.
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.	• No new Exploration Results are reported. This report relates to Mineral Resources only.
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.	• No new Exploration Results are reported. This report relates to Mineral Resources only.

Criteria	JORC Code explanation	Commentary
Further work	• The nature and scale of planned further work (e.g. 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.	• No new Exploration Results are reported. This report relates to Mineral Resources only.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td>Database integrity</td><td>• Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.
• Data validation procedures used.</td><td>• Jupiter took responsibility for data collection and supplied the database for Mt Mason to SRK in MS Access format (Mt Mason_20111208.mdb). The cut-off date for all data is 8 December 2011. A summary of the database tables is shown below:
<table>
<tr><th>Table</th><th>Description</th><th>Records</th></tr>
<tr><td>Collar</td><td>Collar coordinate data for drill holes</td><td>111</td></tr>
<tr><td>Assay</td><td>Drill hole XRF assay data
(including 1151 SG via pycnometer and 211 SG bulk measurements)</td><td>4,547</td></tr>
<tr><td>Survey</td><td>Downhole survey data (gyro and collar)</td><td>669</td></tr>
<tr><td>MM_Litho</td><td>Lithology codes</td><td>3,015</td></tr>
<tr><td>MM_Bulk_Density</td><td>Bulk density data for BHID 11MMDH028</td><td>22</td></tr>
<tr><td>MM_Niton_Field_Magsus</td><td>Handheld XRF readings (including 806 field magnetic susceptibility readings)</td><td>2,416</td></tr>
<tr><td>MM_RQD_Coreloss</td><td>RQD numbers and recorded core loss</td><td>1,618</td></tr>
</table>
• SRK reviewed and validated the database, noting a small number of errors. These validation errors and corrective action taken (Table 4-2 in main body of report).
<table>
<tr><th>Hole-ID</th><th>Validation error</th><th>Status</th></tr>
<tr><td>08RCMM019
08RCMM020
11MMRC009
11MMDH016
11MMDH029</td><td>Planned, but not drilled</td><td>Holes removed from database</td></tr>
<tr><td>11MMDH025
11MMDH026
11MMDH028</td><td>Incorrect collar co-ordinates in collar table</td><td>Hole removed from database</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>Hole-ID</th><th>Validation error</th><th>Status</th></tr>
<tr><td>MMRC107
MMRC117
08RCMM012
08RCMM013
11MMDH024
11MMDH026
11MMDH028</td><td>Blank records in assay table</td><td>Records removed from database</td></tr>
</table>
SRK is satisfied that the Mineral Resource Statement is based on an appropriately comprehensive process of checking by Jupiter. SRK did not detect any obvious errors.
</td></tr>
<tr><td>Site visits</td><td>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.
If no site visits have been undertaken indicate why this is the case.</td><td>Several SRK consultants visited site from 2010 to 2012. The Competent Person conducted mapping and a QA/QC site visit to the adjacent Mt Ida deposit. Jupiter informed SRK that no additional exploration has been conducted at Mt Mason since release of the previous Mineral Resource estimate in February 2012. Therefore, no site visit to Mt Mason has been undertaken by SRK since November 2011.</td></tr>
<tr><td>Geological interpretation</td><td>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.
Nature of the data used and of any assumptions made.
The effect, if any, of alternative interpretations on Mineral Resource estimation.
The use of geology in guiding and controlling Mineral Resource estimation.
The factors affecting continuity both of grade and geology.</td><td>SRK constructed a 3D geology model which forms one of the inputs to the Mineral Resource block model. The geological model captures the geology at a scale appropriate for the anticipated large tonnage bulk mining, and takes the geologically viable scales of mining selectivity into consideration:
North Zone: This is the main DSO hematite body and is structurally constrained by a NNE trending fault to the west and an NE trending alteration boundary to the east.
South Zone: Predominantly unaltered BIF with “pockets” of high-grade hematite generally close to surface.
Canga: Detrital deposit formed by the weathering and transportation of underlying North Zone and South Zone units, which contains elevated iron proximal to North Zone units, but is generally high in detrital elements.
Internal waste: Four internal shale units within the North and South zones termed Waste A, B, C and E.
External waste: Undifferentiated waste material outside of the North and South zones.
There is a high confidence level in the geological interpretation of the mineral deposit. It is well modelled from logging codes and the geological modeller conducted a 3-day site visit which addressed and rectified some inconsistencies in logging and field magnetic susceptibility data.
There appears to be limited scope for alternative interpretations. It is considered unlikely that alternative interpretations would have a substantial impact on the Mineral Resource estimate, due to the generally close spacing of the data points and the tabular nature of the BIF units.</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
		• Hematisation generally appears to be bounded by shale units which themselves, in some cases, are partially mineralised. Faults and folding have been identified as possible important controls in fluid flow. The boundary between "hematised" and BIF units can be sharp (over 1 m) or gradational (several metres). Generally, the whole mineralised sequence dips between 50° and 60° to the east. The base of the hematised BIF overlies undifferentiated dolerite and mafic rocks. • The mineralised zones were treated having hard boundaries during grade estimation, while the oxidation boundaries were treated as soft boundaries, due to their gradational nature. • The major factor affecting the continuity of both grade and geology is faulting. Mineralisation is bounded in the north by a major WNW fault dipping 80° towards the north. A distinct zone of brecciation and quartz veining associated with this fault cross-cuts the BIF units. Weathering associated with this fault resulted in a substantial body of massive to bedded hematite. Mineralisation is bounded in the south by NNW striking fault. BIF units strike NNW and dip towards the east at angles of 20° to 60°. These fault surfaces were treated as hard boundaries during estimation.
Dimensions	• The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	• The hematite body outcrops over an approximate strike length of 600 m and width of 150 m. The depth of the orebody was modelled down to 350 m RL or approximately 200 m vertical relief. • Boundary analysis was carried out to determine the nature of geological boundaries. Soft boundaries ranging between 1 m and 3 m were applied to all boundaries, with the exception of the bottom contact of the Canga, and major faults bounding the North and South zones. • A summary of applied boundaries is given in in main body of report.
Estimation and modelling techniques	• The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen, include a description of computer software and parameters used. • The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data. • The assumptions made regarding recovery of by-products.	• Estimates ware carried for all domains for: – Grades of Fe, SiO_2, Al_2O_3, P, CaO, MgO, S and LOI – Density • Estimation methods included: – Ordinary Kriging (OK), which was used for all North and South zones for Fe, SiO_2 and Al_2O_3 grades – Inverse distance squared, used in Canga and Waste domains as well as for P, CaO, MgO, S and LOI grades within North and South zones, and Density. • In undertaking the OK estimates, blocks size, discretisation, number of samples and searches were optimised for Fe so that blocks in the best drilled areas will have an unbiased estimate, i.e. the slope of regression Z|Z* is close to 1. The method follows that set out by Vann et al (2003). The results of the Kriging neighbourhood analysis were applied to other Kriged grades. • The predominant assay sample length was 1 m and the flagged data was composited to 1 m lengths using the geological domains to control the compositing. Domaining was described in the section on geological interpretation. Basic statistics between composited and uncomposited data compared well, indicating the selected composite length to be appropriate. • To optimise block size, a series of different block sizes were Kriged and the results of a single well-informed block and poorly informed block reviewed. A parent block size of 25 (X) x 25 (Y) x 6 (Z) was selected. • To optimise the number of discretisation points, blocks were Kriged with a series of different discretisation points and the results of a single well-informed block and a poorly informed block reviewed. A discretisation of 3 (X) x 3 (Y) x 3 (Z) was selected.

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td>

Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).
In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.
Any assumptions behind modelling of selective mining units.
Any assumptions about correlation between variables.
Description of how the geological interpretation was used to control the resource estimates.
Discussion of basis for using or not using grade cutting or capping.
The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.

</td><td>

To optimise the number of samples informing a single block, a series of Kriging estimations were run with a variable number of samples and the results of a single well-informed block and a poorly informed block reviewed. A maximum number of 30 samples were selected for Fe in the North Zone, SiO_2 in both North and South zones and Al_2O_3 in the North Zone. A maximum number of 50 samples were selected for Fe and 60 for Al_2O_3 in the South Zone.
A number of Kriging estimations each with different search distances were run to optimise the search volumes. The results of a single well-informed block and a poorly informed block were reviewed, and the selected searches are summarised below:

<table>
<tr><th rowspan="2">Domain</th><th rowspan="2">Variable</th><th colspan="3">Search distance</th><th colspan="2">Kriging efficiency</th><th colspan="2">Slope of Regression</th><th colspan="2">Sum negative Kriging weights</th></tr>
<tr><th>1</th><th>2</th><th>3</th><th>Well informed</th><th>Poorly informed</th><th>Well informed</th><th>Poorly informed</th><th>Well informed</th><th>Poorly informed</th></tr>
<tr><td>31</td><td>Fe</td><td>90</td><td>50</td><td>30</td><td>86.55</td><td>-12.48</td><td>0.99</td><td>0.40</td><td>2.0</td><td>0.0</td></tr>
<tr><td>31</td><td>SiO_2</td><td>130</td><td>50</td><td>30</td><td>91.48</td><td>18.63</td><td>1.00</td><td>0.64</td><td>2.8</td><td>5.5</td></tr>
<tr><td>31</td><td>Al_2O_3</td><td>80</td><td>50</td><td>20</td><td>83.89</td><td>-1.09</td><td>1.00</td><td>0.49</td><td>0.9</td><td>0.0</td></tr>
<tr><td>32</td><td>Fe</td><td>180</td><td>90</td><td>40</td><td>84.46</td><td>45.64</td><td>0.99</td><td>0.91</td><td>0.5</td><td>0.9</td></tr>
<tr><td>32</td><td>SiO_2</td><td>200</td><td>110</td><td>60</td><td>92.02</td><td>57.99</td><td>0.99</td><td>0.94</td><td>0.4</td><td>1.4</td></tr>
<tr><td>32</td><td>Al_2O_3</td><td>120</td><td>60</td><td>30</td><td>81.18</td><td>3.59</td><td>0.99</td><td>0.56</td><td>0.2</td><td>0.0</td></tr>
</table>

A sub-cell model was constructed with each sub-cell containing the same geological, density and grade sub-domain as the flagged drill hole data. The block model parameters are defined in main body of report.
Estimation was performed using Datamine™ software and checked using Isatis™ software. A number of Kriging estimations each with different search distances were run to optimise the search volumes.
A three-pass search strategy was used, with a discretisation of 3 by 3 by 3, and variable radii depending on the element being estimated and the domain.

For Fe estimation in the main BIF domain, the first search used an initial radius of 180 x 90 x 40 m. For Fe estimation in the enriched BIF domain (North zone, adjacent major fault), the first search used an initial radius of 90 x 50 x 30 m. The second and third passes used a multiplied factor of 2 (double) and 5 respectively. A minimum of 10 and maximum of 30 composites was used for all search passes
The search ellipsoid strikes at 300° and dips 20° toward the east.

A number of previous estimates were generated by Hardrock Mining Consultants (pre-2011) and SRK in 2012 (JORC Code, 2004 edition). The new estimates take these earlier estimates into account. No mining has taken place and accordingly there are no production records for use in reconciliation.
Mt Mason is considered primarily a hematite (DSO) project, with Al_2O_3, CaO, LOI, MgO, P, S and SiO_2 as by-products. Although no metallurgical testwork has been done, ProMet Engineers conducted a study based on its internal database and previous experience with this style of mineralisation. ProMet concluded that testwork would be required to investigate the metallurgical characteristics and viability of processing.

</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
		• A strong correlation exists between Fe_2O_3 and SiO_2, moderate between Fe_2O_3 and Al_2O_3 and CaO, and weak with all other elements. No assumptions regarding correlation between variables were made during estimation, and each element was estimated independently. • A description of how the geological interpretation was used to control the resource estimation was given in the section on geological interpretation. • No grade cutting or capping was applied because the grade distributions are not strongly skewed, as indicated by relatively low coefficients of variation. • The quality of estimates was validated by several methodologies: – The number of negative Krig weights, Kriging efficiency and slope of regression of the estimation was reviewed and found to be satisfactory. – The block model was visually validated in cross sections as well as swath plots of the mean composite sample grade vs block model grade by northing and elevation. These plots were constructed for the North and South zones as well as the Canga domain, and in most cases showed a good correlation between sample grades and estimated block grades. – No reconciliation data is available because no mining has taken place.
Moisture	• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	• Tonnages are estimated on a dry basis, and moisture content has not been determined.
Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	• The Mt Mason Mineral Resource estimate is reported at a cut-off grade of Fe >55%. • The cut-off grade was chosen on the basis of providing reasonable prospects for eventual economic extraction given a multitude of factors, including modelling by ProMet Engineers, long term market prices, and mining and processing costs. • SRK and the Competent Person have elected to maintain a cut-off of Fe >55% for consistency with the previous estimates and to maintain a conservative basis for the current estimate.

Criteria	JORC Code explanation	Commentary
Mining factors or assumptions	• Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	• The proposed mining method is currently assumed to be all open pit. The estimates include allowance for mining dilution in that the parent block size is 25 x 25 x 3 m and it may be possible to mine the resources more selectively than this. • Internal waste at >55% Fe is located in a single waste band with thickness <3 m and is assumed not to be selectively mineable. Internal waste contributes less than 0.5% tonnes to the overall resource.
Metallurgical factors or assumptions	• The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	• Ore processing testwork was conducted on three PQ diamond drill core samples to determine whether highly mineralised sections required beneficiation and if so, to what extent, to meet a product specification of high iron and low silica and alumina and to conduct drop tests on anticipated “as mined” core sample lengths to determine a lump fines ratio. • The feed grade is expected to be 59.9% Fe and should increase to 61.8% Fe after removal of the LOI – this value indicates the level of irreducible impurities in the ore – nominally 9%, which is not considered unreasonable. • The proposal is to produce two products – lump and fines. Testwork showed that both lump and fines meet the criteria for DSO without beneficiation.

Criteria	JORC Code explanation	Commentary
Environmental factors or assumptions	• Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	• Flora and vegetation surveys established that the condition of the vegetation in the proposed disturbance area is overall very good to excellent and no declared rare flora or threatened ecological communities were recorded in the area • The proposed clearing of vegetation will result in the loss of some individuals from the local area; however, the impact will not be great enough to remove whole communities or populations. Most of the species and communities recorded during this survey are widespread throughout the Murchison Bioregion and therefore the loss of a small proportion from this area will not be significant. • Areas where the possible new *Drosera sp.* are known to occur should be avoided until better sample material can be collected and provided to the WAHERB, for identification and determination of its conservation status. • The following generic recommendations arise from the flora survey: – Any disturbance/ clearing must be minimised in extent to reduce the loss of individuals and impact on populations – Weed control measures must be implemented and followed during and after construction activities – A rehabilitation plan should be developed so that areas are progressively rehabilitated as soon as they are no longer required; – Driving restrictions should be implemented, ensuring that off-road driving is minimised – All staff should be educated on the importance of fire prevention, and equipment provided for use in the event of fire. • In terms of subterranean fauna, the likelihood of *stygofauna* within the Mt Mason project area is low due to the few instances of water intersection. *Troglofauna*, on the other hand, have the potential to occur in the BIF ranges and hence should be surveyed according the EPA Guidance Statement No. 54A • The distribution of the Federally-listed Malleefowl occurs over the project area and this rare species may still occur within the habitats present (Outback Ecology Services, 2007). Two Malleefowl mounds have recently been recorded within the project area. For mining approvals, a full vertebrate fauna survey would be required, based on the Level 2 Survey described in EPA (2004). • Sulphide content is low, so acid mine drainage is unlikely to be a significant problem. • Overall, Jupiter has undertaken a number of environmental baseline studies in order to support the approvals process. Studies and communication with regulators demonstrated that environmental impacts will be managed to legislative requirements.

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td>Bulk density</td><td>• Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.
• The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.
• Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</td><td>• For the purpose of the Mineral Resource estimate, the bulk densities in the assay table were used to estimate in situ bulk densities for the Mt Mason deposit. A total of 24 diamond drill holes were sampled for bulk density determinations. All bulk densities were calculated using a displaced water technique. Bulk density sample lengths ranged from 0.1 m to 1.4 m, with the average interval being 0.7 m.
• Due to the limited number of bulk density data points in the internal and external waste units, these were combined into an external waste domain and an internal waste domain for the purpose of estimating densities. The density statistics for the five density domains are shown below:
<table>
<tr><th>Density domain</th><th>Count</th><th>Min</th><th>Max</th><th>Mean</th><th>Var</th><th>SD</th></tr>
<tr><td>External waste</td><td>41</td><td>1.97</td><td>4.09</td><td>3.22</td><td>0.31</td><td>0.56</td></tr>
<tr><td>Internal waste</td><td>11</td><td>2.38</td><td>3.59</td><td>3.04</td><td>0.18</td><td>0.43</td></tr>
<tr><td>Canga</td><td>10</td><td>3.38</td><td>3.83</td><td>3.60</td><td>0.02</td><td>0.14</td></tr>
<tr><td>North Zone</td><td>28</td><td>3.19</td><td>4.71</td><td>4.21</td><td>0.16</td><td>0.40</td></tr>
<tr><td>South Zone</td><td>34</td><td>3.01</td><td>4.07</td><td>3.54</td><td>0.08</td><td>0.28</td></tr>
</table>
• Dry bulk density at Mt Mason is primarily controlled by the concentration of heavy minerals (hematite, goethite). In situ density measurements were interpolated to give each block a density estimate:
– A three-pass search spheroid with diameter of 100 m was used for density interpolation (Inverse Distance) using the five domains. The second pass used double the distance of the first, and the third used a multiplied factor of 8 and 7 for domains 1 to 3 and 4 to 5 respectively.
• Density interpolated values were used to estimate tonnage in the resource models.</td></tr>
</table>

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td>Classification</td><td>• The basis for the classification of the Mineral Resources into varying confidence categories.
• Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).
• Whether the result appropriately reflects the Competent Person's view of the deposit.</td><td>• The classification of the Mineral Resource is based on the following factors:
– Quality of the estimate (Kriging efficiency and slope of regression)
– Data quality (data quality is reasonable throughout the deposit)
– Data quantity (drill density)
– Geological continuity (geological continuity is well established from surface mapping and drilling)
– Grade continuity (variograms for Fe, SiO_2 and Al_2O_3 show a low nugget and long ranges indicating good grade continuity).
• As geological continuity is well established and data quality reasonable, the grade estimation parameters were used to classify the deposit.
• Classification of each block in the Mineral Resource model was based on:
– Slope of regression
– Kriging efficiency
– Number of samples used to estimate the block
– Search volume in which the block was estimated.
• A quality factor was assigned to each of three variables, Fe, SiO_2 and Al_2O_3, for each of the three mineralised domains – North, South and Canga. The quality factor was determined by summing the number of points assigned to the slope of regression, Kriging efficiency, number of samples and the search volume for each of the estimated grade variables. The final block quality factor constituted the mean of the three individual quality factors.
• The block quality factors were reviewed against data quality and quantity, geological continuity and grade continuity and the Mineral Resource classified as shown below.
<table>
<tr><th>Material</th><th>Measured</th><th>Indicated</th><th>Inferred</th></tr>
<tr><td>Canga</td><td>-</td><td>>4</td><td>>1</td></tr>
<tr><td>North Zone</td><td>>9</td><td>>5</td><td>>2</td></tr>
<tr><td>South Zone</td><td>>9</td><td>>5</td><td>>2</td></tr>
<tr><td>Internal Waste</td><td>>4.4</td><td>>3.5</td><td>>0</td></tr>
</table>
• The results of the classification strategy were visually reviewed and deemed appropriate. Internal waste was included in the classification, as it is SRK's opinion that some of this material will not be selectively mineable.
• The reported Mineral Resources appropriately reflect the Competent Person's view of the Mt Mason deposit.</td></tr>
<tr><td>Audits or reviews</td><td>• The results of any audits or reviews of Mineral Resource estimates.</td><td>• Internal SRK peer review has been undertaken and no material issues were identified.</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
Discussion of relative accuracy/ confidence	• Where appropriate, a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. • The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. • These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	• The relative accuracy and confidence level in the Mineral Resource estimate are considered to be in line with the generally accepted accuracy and confidence of the nominated Mineral Resource categories. This has been determined on a quantitative and, to a lesser extent, a qualitative basis, and is based on the Competent Person's experience with similar BIF deposits in Australia and Asia. The factors that could affect the relative accuracy and confidence of the estimate include: – The completeness and accuracy of the database, particularly holes missing downhole surveys, and – The accuracy of the historic assay methods • The Competent Person is of the opinion that the scope for variations is minimal, and if any, the impact on the Mineral Resource estimate is unlikely to be significant. • The estimate is local in the sense that it is specific to sub-cell and parent model blocks of a size considered appropriate for local grade estimation. • The tonnages relevant to technical and economic analysis are those classified as Measured and Indicated Mineral Resources. • No production data is available as the deposit currently remains unmined.

Appendix B: Table 1 - JORC Code 2012
Mt Ida deposit

Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. 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 (e.g. '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 (e.g. submarine nodules) may warrant disclosure of detailed information.	The datasets used for the Mt Ida Mineral Resource estimation were derived from drilling programs conducted by Jupiter Mining Limited (Jupiter) from 2007 to 2012. The programmes included both reverse circulation (RC) and diamond core (DDH) drilling. The database that Jupiter compiled for the study contains 459 drill holes, comprising 425 RC holes equating to 89,189 m of drilling, and 34 DDH holes, equating to 10,119 m of drilling. Over 95% of the RC samples were collected at 1 m intervals, with the remainder collected over 2 m or 4 m intervals. For each interval, a split typically weighing 3.5 kg was collected via a cone splitter fitted to the rig's cyclone underflow. The diamond core samples were usually terminated at lithological boundaries. Within individual geological zones, the samples were collected on a range of interval lengths up to 7 m, with the majority on nominal lengths of 3 m, 4 m, and 5 m, Sample preparation and laboratory testwork was performed by ALS Perth and Bureau Veritas Perth. Sample preparation included oven-drying, coarse crushing, riffle splitting, and pulverising. A 20 g split was pulverised to p80 25 µm and submitted for Davis Tube testing. Head grade and concentrate grade analyses were conducted using fused-bead XRF for major oxides and thermogravimetric analysis (1000 C) for LOI.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. 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.).	The data used for resource estimation were derived from samples collected using RC and Diamond core drill rigs. Several different RC rigs were used for the various programs, but most RC rigs were fitted with 120 mm face-sampling button bits, with the samples collected via rig-mounted cone splitters. The diamond core rigs were equipped with HQ3 coring equipment. Some PQ3 holes were also drilled for metallurgical and geotechnical evaluation.
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.	Core recovery estimates were performed and recorded during logging. Jupiter employed experienced project geologists to supervise the RC and diamond drilling programs, and best industry practices, pertaining to drill control and sample extraction, are understood to have been conducted. However, no quantitative sample recovery data were collected. Jupiter planned to assess whether preferential material loss may have occurred by comparing the DDH and RC data. This data was not completed at the time of project termination. This uncertainty has been considered when assigning resource classifications to the estimates.

Criteria	JORC Code explanation	Commentary
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.	All drill holes used for resource estimation were geologically logged to a level of detail deemed sufficient to enable the delineation of geological domains appropriate to support Mineral Resource estimation and classification. RC sample logging was performed on wet-sieved chips collected from each interval, with lithology, colour, and weathering information recorded. Handheld XRF and magnetic susceptibility data were also collected for some programs. These results were used to assist with geological interpretation, but were not used directly for resource estimation. Geotechnical logging was performed on some of the diamond core samples. All diamond and RC intervals were geologically logged. The logging datasets comprise a mix of qualitative and quantitative data. The core samples and the sieved rock chip specimens were photographed for most programs.
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. 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.	Most of the RC samples were collected over 1 m intervals. The entire sample from each interval was passed through a cone splitter mounted to the cyclone underflow, with a 3.5 kg split taken as the primary sample. Sample preparation included oven-drying, coarse crushing, riffle splitting, and pulverising. A 20 g split was pulverised to p80 – 25 um and submitted for Davis Tube Recovery testing. Quality control field procedures included the collection and insertion of field duplicates (~1 in 40), and coarse crushed blanks. SRK is not aware of any studies that may have been conducted to demonstrate the suitability of the sample crush and split size combinations. However, the field duplicate datasets do not indicate significant bias or precision issues. The core samples used for resource estimation were geologically logged and photographed, with half-core samples submitted for laboratory testing. Core recovery estimates were included in the logging data.

Criteria	JORC Code explanation	Commentary
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 (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Geochemical analyses were performed on splits taken from both the full sample and from the DT concentrate. Major oxide determination was conducted using fused-bead XRF, and included the following analytical suite: Al_2O_3, CaO, Fe, MgO, MnO, P, S, and SiO_2. LOI was determined using thermogravimetric analysis and reported at 1000 °C. Mass recovery was based on dry DTR sample weights. In addition to the field QA/ QC procedures described above, standards, laboratory repeats, and independent laboratory checks were used for quality control. The QA/ QC data did not indicate significant issues with the laboratory testwork.
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.	Both Jupiter and SRK personnel compared the assay data to the geological logs and sample data. Given the nature of the mineralisation and the general uniformity of grade distributions within the BIF units, the resource estimates are not considered to be sensitive to the results for individual sample intervals. SRK is not aware of any holes that may have been drilled expressly for hole twinning purposes. Jupiter's drill data were stored in an acQuire database, which was managed by the company's database administrator. An audit of the database content and procedures was conducted by an independent consultant in 2012, with no significant issues reported. Jupiter provided the survey and drill hole logging data to SRK in Access database format. The original laboratory certificates were also provided as locked PDFs. SRK imported the files into Datamine Studio for merging and validation, which included numerical range checks on survey and interval data, and visual checks. All assay data were accepted into the database as supplied by the laboratory, with no adjustments applied.
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.	All survey data are reported according to MGA94 Zone 51 with elevations based on AHD. The topographic surface data for the Mt Ida region were collected from a LiDAR survey conducted by Fugro from 6 to 11 August 2011. The data were provided as a 5 m gridded digital elevation model, with a reported horizontal accuracy of 0.5 m and vertical accuracy of 0.13 m The drill hole collars for the 2007 and 2008 campaigns were surveyed with a handheld Garmin 60 GPS. The horizontal accuracy was reported to be approximately 5 m, but the vertical accuracy was not stated. Jupiter advised that the drill hole collars for the 2009 and 2010 campaigns were surveyed using differential GPS, but the accuracy is not known. The drill hole collars for the 2011 and 2012 campaigns were surveyed using RTK DGPS, with an elevation accuracy of 1.5 m (datum accuracy). Downhole survey data are available for approximately 60% of the holes. No downhole surveys were undertaken for the 2007 and 2008 drilling, and only one (1) hole was surveyed in 2009. A total of seven (7) holes were surveyed in 2010, but Jupiter advised that the data for some of these may not be reliable. Approximately 90% of the 2011 holes and 70% of the 2012 holes were surveyed using gyroscopic equipment, with readings collected every 5 - 10 m.

Criteria	JORC Code explanation	Commentary
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.	The drilling was performed on section lines oriented approximately parallel to the MGA94 grid. A nominal drill spacing of 100 m x 100 m was used in the Central zone, and a nominal spacing of 200 m x 200 m in the North and South zones. The spacing is generally uniform in the Central zone, but irregular in parts of the North and South zone. The variography indicate grade continuity up to several hundred metres, with 80% of the total sill usually reached within 300 m. The majority of the samples were collected on 1 m intervals. For grade estimation, the samples were composited to 5 m downhole intervals, with composites terminated at lithological boundaries.
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.	All of the RC drill holes are vertical. Most of the diamond holes are angled between 60° - 70°. The majority of diamond holes are oriented to the west, with several oriented east, and a few to the north and the south. The BIF units dip at a shallow angle to east, meaning that the majority of the holes intersect the mineralised zone at close to perpendicular.
Sample security	The measures taken to ensure sample security.	The drilling programs were performed under the supervision of Jupiter employees who retained responsibility for the sample security up until despatch to the laboratory. On arrival, the laboratory checked the samples against the submission forms. Assay results were provided electronically in CSV format, and laboratory certificates were provided in locked PDF format.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	Jupiter commissioned an independent consultant to audit the laboratory QA/ QC procedures, density determination, and the Jupiter database in 2012. SRK is not aware of any other audits of the field procedures or data that may have been conducted.

Section 2 Reporting of Exploration Results

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.	The main deposit falls within Mining Lease M29/414 which is wholly owned by Jupiter Mines Limited, was granted on 11 January 2011 and expires on 24 November 2032.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The datasets provided to SRK were sourced from drilling programs conducted by Jupiter from 2007 through to 2012. Jupiter advised that no field work has been conducted since 2012. SRK is not aware of any significant exploration programs conducted by other parties prior to Jupiter's involvement in 2007, or of the existence of other datasets that may be directly relevant to the Mt Ida Mineral Resource estimates described in the report.
Geology	Deposit type, geological setting and style of mineralisation.	The Mt Ida iron deposit is located in the Yilgarn region of Western Australia, approximately 100 km northwest of Menzies. The deposit is hosted within the Mt Ida Greenstone Belt, with fine-grained magnetite mineralisation occurring in a series of sub-parallel folded banded iron formation (BIF) units that are interlayered with metamorphosed mafics. The BIFs form a prominent scarp along the western edge of the deposit, and dip shallowly to the east.
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 exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	No exploration results are reported for this study.

Criteria	JORC Code explanation	Commentary
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. 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.	No exploration results are reported for this study.
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 (e.g. 'down hole length, true width not known').	No exploration results are reported for this study.
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.	No exploration results are reported for this study.
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.	No exploration results are reported for this study.
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.	SRK is not aware of any material exploration datasets that are additional to those used in the Mineral Resource estimates.

Criteria	JORC Code explanation	Commentary
Further work	The nature and scale of planned further work (e.g. 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.	SRK is not aware of plans that Jupiter may have for further exploration work in the project area.

Section 3 Estimation and Reporting of Mineral Resources

Criteria	JORC Code explanation	Commentary
Database integrity	• Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. • Data validation procedures used.	The assay and survey data were provided to Jupiter in electronic form and imported into the Jupiter acQuire exploration database. The database was audited by an independent consultant in 2012. The data were provided to SRK in an Access database. SRK imported the files into Datamine Studio for merging and validation, which included numerical range checks on survey and interval data, library code lists, and visual checks. Spot checks were conducted against the laboratory certificates.
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	A site visit was conducted by SRK Consultant, Michael Cunningham, on 13 – 17 April 2012. The visit included the inspection of the geology (including some traverse mapping), the spot checking of RC chip and core logging, and the spot checking of collar coordinates. A site visit was conducted by Rod Brown, SRK Consultant and the Competent Person for Mineral Resource sign-off) on 4 – 5 October 2012. The visit included an examination of the local geology and drill samples, an inspection of the RC and core samples, and discussions with site personnel on field procedures.
Geological interpretation	• Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit. • Nature of the data used and of any assumptions made. • The effect, if any, of alternative interpretations on Mineral Resource estimation. • The use of geology in guiding and controlling Mineral Resource estimation. • The factors affecting continuity both of grade and geology.	The geological interpretation is considered consistent with datasets and field observations, as well as with the broadly accepted understanding within the mining community of the regional geology. The interpretation, which includes the delineation of several sub-parallel BIF lenses, was prepared using a combination of geological logging and geochemical data, as well as surface mapping and geophysical data. The BIF lenses have been used as estimation domains. The domain boundaries are clearly defined in the geochemical datasets, and domain geometry is relatively predictable. The lenses were interpreted in cross-section and linked to form wireframe solids. In places, the alternating BIF and mafic zones are relatively thin, and the linking of alternative drill intercepts could result in equally plausible interpretations. However, it is considered that this would not result in significant tonnage or grade differences.
Dimensions	• The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	The mineralisation has been defined over a strike extent of approximately 7 km. Exploration and resource delineation initially focussed on the central part of the deposit, with a later focus on the south and north extensions. This timing and focus resulted in the preparation of separate models for south, central and north parts of the deposit. The zone boundaries do not reflect any specific changes in the geology. The defined mineralisation in the South zone extends for approximately 3 km along strike and is over 1 km wide. Resources have been defined in seven (7) shallow-dipping and sub-parallel BIF units. The average unit thickness is approximately 25 m, and the deepest intersection is approximately 340 m below the surface. The defined mineralisation in the North zone has been identified over a strike extent of approximately 1 km and a width exceeding 600 m. Resources have been defined in a single BIF unit only (other BIF units have been identified in the region, but they have been intersected by insufficient drill holes for resource delineation). The average unit thickness is approximately 40 m, and the deepest intersection is approximately 250 m below the surface.

Criteria	JORC Code explanation	Commentary
		The defined mineralisation in the Central zone extends for approximately 3 km along strike and is over 1.5 km wide. Resources have been defined in eleven (11) shallow-dipping and sub-parallel BIF units, with the deepest being approximately 340 m below the surface. The average unit thickness is approximately 40 m; however, in places, intercepts exceeding 100 m have been encountered.
Estimation and modelling techniques	• The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used. • The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data. • The assumptions made regarding recovery of by-products. • Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation). • In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. • Any assumptions behind modelling of selective mining units. • Any assumptions about correlation between variables. • Description of how the geological interpretation was used to control the resource estimates. • Discussion of basis for using or not using grade cutting or capping. • The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	The Mineral Resource estimates were prepared using conventional block modelling and geostatistical estimation techniques. The data assessment and model preparation was primarily completed using Datamine Studio®, and Supervisor® software. The model for the Central zone was completed in August 2012. The model was updated in December 2012 to include the South and North zones. However, because there was minimal new data in the vicinity of Central zone, and hence minimal change to the model, the Central Zone resource estimates were not restated. Kriging neighbourhood analyses (KNA) studies were used to assess a range of parent cell dimensions, and a size of 50 m x 50 m x 5 m (XYZ) was considered appropriate given the drill spacing, grade continuity characteristics, and the expected mining method. Sub celling was invoked to enable the BIF wireframe volumes to be accurately reproduced. The majority of the original samples were collected on 1 m intervals, and these were composited to 5 m intervals within each estimation domain. Probability plots were used to assess for outlier values, and grade cutting was not considered necessary. The discretised parent cell grades were estimated using ordinary block kriging. The domain wireframes were used as hard boundary estimation constraints. Search orientations and weighting factors were derived from variographic studies. A multiple-pass estimation strategy was invoked, with KNA used to assist with the selection of search distances and sample number constraints. Extrapolation was limited to approximately half the nominal drill spacing. The extrapolation distance was approximately 75 m in the Central zone, and 100 m in the North and South zones. The model grades were estimated using both the DTC (Davis Tube Concentrate) and head grade data. Because the DTC results have variable sample support (mass recovery), a new set of variables was calculated for each composite to facilitate the inclusion of concentrate grades into the model. These variables represent the in situ grade of the material that is expected to report to the magnetic fraction. Cells that did not receive an interpolated grade were assigned default grades equivalent to the composite grade averages for the domain Model validation included: • Visual comparisons between the input sample and estimated model grades • Global and local statistical comparisons between the sample and model data • An assessment of estimation performance measures.

Criteria	JORC Code explanation	Commentary
Moisture	• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	The resource estimates are expressed on a dry tonnage basis, and in situ moisture content has not been estimated. A description of density data is presented below.
Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	A cut-off grade of 10% Magnetic Fe has been used for resource reporting (this is the in situ Fe grade of the material that is expected to report to the magnetic concentrate). This cut-off grade clearly discriminates between BIF and mafic material, and the preliminary metallurgical testwork indicates that there is a reasonable level of confidence that a marketable concentrate can be produced from the BIF material. A grade-tonnage assessment indicates minimal change to mass recovery or concentrate grades if the cut-off grade is increased to 20%.
Mining factors or assumptions	• Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	Preliminary mining studies indicate that ore will likely be extracted using conventional selective open pit mining methods, which includes hydraulic excavator mining, and dump truck haulage. Mining dilution assumptions have not been factored into the resource estimates.
Metallurgical factors or assumptions	• The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	It is proposed that the Mt Ida material will be used as feedstock for the production of a magnetite concentrate. Preliminary metallurgical testwork commissioned by Jupiter indicates that there is a reasonable level of confidence in the amenability of the Mt Ida material to processing using conventional grinding and magnetic separation techniques. The preliminary metallurgical test results and the DTR results indicate acceptable mass recoveries, and acceptable levels of Fe and contaminants in the concentrate.

Criteria	JORC Code explanation	Commentary
Environmental factors or assumptions	• Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	It is anticipated that material included in the resource will be mined under the relevant environmental permitting, which will be defined as a part subsequent studies. The characterisation of contamination potential is expected to be completed during a PFS or DFS and factored into waste rock storage design. The Mount Ida magnetite deposits occur in a geological setting that is likely to contain asbestiform minerals. Fibrous material has been observed in some core samples, and is expected to be present as fine-grained actinolite in the mafic waste units, as well as coarser- grained material in millimetre width veins along joint and fault planes. In 2012, Jupiter submitted 324 samples for XRD/SEM analyses; however, SRK is unaware of whether this study was completed prior to project termination.
Bulk density	• Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples. • The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit. • Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	The density datasets were derived from bulk density measurements acquired from downhole geophysical logging, as well as from water immersion laboratory tests conducted on core samples. The geophysical logging dataset contained a total of 209,626 measurements acquired from 93 drill holes. The laboratory dataset contained a total of 1,733 results acquired from 22 holes. A strong correlation was observed between density and total Fe. A regression equation derived from this correlation was used to estimate the density for each cell from the estimated Fe grade. The mean model density is approximately 3.6 t/m^3. A detailed comparison of the density data acquired from downhole geophysical surveys with the water immersion test data had not been completed at the time of project termination. This has been taken into consideration when assigning classifications to the resource estimates.

Criteria	JORC Code explanation	Commentary
Classification	• The basis for the classification of the Mineral Resources into varying confidence categories. • Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). • Whether the result appropriately reflects the Competent Person's view of the deposit.	The resource classifications have been applied based on a consideration of the confidence in the geological interpretation, the quality and quantity of the input data, the confidence in the estimation technique, and the likely economic viability of the material. Of these, drill spacing and data quality are considered to be the controlling factors on classification. The average drill spacing in Central zone is approximately 100 m with a uniform coverage apart from in the peripheral areas. A nominal drill spacing of 200 m has been used in the South and North zone, however the coverage is quiet irregular. Geological continuity appears to be well defined in the 100 m spaced data, and the variography indicates useful grade continuity ranges of at least 300 m. A significant amount of quality assurance data has been collected; however, at the time of the study termination at the end of 2012, a detailed assessment had not been completed. A preliminary assessment did not indicate any significant issues with the reliability of the data for resource estimation. Based on the above considerations, a classification of Indicated Resource has been assigned to the Central zone estimates in the regions with uniform drill coverage. A classification of Inferred has been assigned to remaining Central, South, and North zone estimates Only material interpreted as BIF has been assigned a resource classification and included in the resource inventory.
Audits or reviews	• The results of any audits or reviews of Mineral Resource estimates.	SRK is not aware of any independent audits or reviews have been conducted on the most recent resource estimates.
Discussion of relative accuracy/ confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. • The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. • These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	The resource estimates have been prepared and classified in accordance with the guidelines that accompany the JORC Code (2012), and no attempts have been made to further quantify the uncertainty in the estimates. A detailed compilation of the quality assurance data has not yet been completed, although the preliminary assessment did not highlight any significant concerns with the data. To date, no work has been completed to investigate the likelihood of grade bias due to possible preferential material loss in the RC samples. A detailed comparison of the densities derived from downhole geophysical logging against other density test procedures has not yet been completed. In November 2012, the surveying contractor identified an elevation discrepancy of 1 m in the survey data. This was considered to have minimal impact on the resource estimates and classification, and no adjustments were applied. The resource quantities should be considered as regional or global estimates only. The accompanying models are considered suitable to support mine planning studies, but are not considered suitable for production planning, or studies that place significant reliance upon the local estimates.

SRK Report Client Distribution Record

Project Number: JUP014

Report Title: Independent Geologist's Report on the Central Yilgarn Iron Project, Western Australia

Date Issued: 16 February 2018

Name/Title	Company
Ms Melissa North	Jupiter Mines Limited

Rev No.	Date	Revised By	Revision Details
0	7/02/2018	Michael Cunningham	Draft Report
1	14/02/2018	Rod Brown	Revised Draft Report
2	16/02/2018	Rod Brown	Final Report

APPENDIX 3

SIGNIFICANT ACCOUNTING POLICIES

1. INTRODUCTION

The following is a summary of the significant accounting policies used in the preparation of the Historical Financial Information with respect to the Company, that is set out in the Prospectus.

2. PRINCIPLES OF CONSOLIDATION

The Historical Financial Information incorporates the assets, liabilities and results of entities controlled by Jupiter Mines Limited at the end each reporting year. A controlled entity is any entity over which Jupiter Mines Limited has the power to govern the financial and operating policies so as to obtain benefits from its activities. Control will generally exist when the parent owns, directly or indirectly through subsidiaries, more than half of the voting power of an entity. In assessing the power to govern, the existence and effect of holdings of actual and potential voting rights are considered.

All inter-Group balances and transactions between entities in the Consolidated Group have been eliminated on consolidation. Accounting policies of subsidiaries have been changed where necessary to ensure consistency with those adopted by the parent entity.

3. INTERESTS IN JOINT VENTURES

The Group acquired an interest in Tshipi é Ntle, a joint venture entity, in October 2010. The Group's accounting policy for joint ventures was considered by the Directors as part of the deliberation on the Tshipi é Ntle acquisition and had not been formally considered or articulated previously.

Associates are those entities over which the Group is able to exert significant influence but which are not subsidiaries.

A joint venture is an arrangement that the Group controls jointly with one or more other investors, over which the Group has rights to a share of the arrangement's net assets rather than direct rights to underlying assets and obligations for underlying liabilities.

Investments in associates and joint ventures are accounted for using the equity method.

Any goodwill or fair value adjustment attributable to the Group's share in the associate or joint venture is not recognised separately and is included in the amount recognised as investment.

The carrying amount of the investment in associates and joint ventures is increased or decreased to recognise the Group's share of the profit or loss and other comprehensive income of the associate and joint venture, adjusted where necessary to ensure consistency with the accounting policies of the Group.

Unrealised gains and losses on transactions between the Group and its associates and joint ventures are eliminated to the extent of the Group's interest in those entities. Where unrealised losses are eliminated, the underlying asset is also tested for impairment.

4. INCOME TAX

The income tax expense (revenue) for the year comprises current income tax expense (income) and deferred tax expense (income).

Current income tax expense charged to profit or loss is the tax payable on taxable income. Current tax liabilities (assets) are measured at the amounts expected to be paid to (recovered from) the relevant taxation authority.

Deferred income tax expense reflects movements in deferred tax asset and deferred tax liability balances during the year as well unused tax losses.

Current and deferred income tax expense (income) is charged or credited outside profit or loss when the tax relates to items that are recognised outside profit or loss.

Except for business combinations, no deferred income tax is recognised from the initial recognition of an asset or liability, where there is no effect on accounting or taxable profit or loss.

Deferred tax assets and liabilities are calculated at the tax rates that are expected to apply to the year when the asset is realised or the liability is settled and their measurement also reflects the manner in which management expects to recover or settle the carrying amount of the related asset or liability.

Deferred tax assets relating to temporary differences and unused tax losses are recognised only to the extent that it is probable that future taxable profit will be available against which the benefits of the deferred tax asset can be utilised.

Where temporary differences exist in relation to investments in subsidiaries, branches, associates and joint ventures, deferred tax assets and liabilities are not recognised where the timing of the reversal of the temporary difference can be controlled and it is not probable that the reversal will occur in the foreseeable future.

Current tax assets and liabilities are offset where a legally enforceable right of set-off exists and it is intended that net settlement or simultaneous realisation and settlement of the respective asset and liability will occur. Deferred tax assets and liabilities are offset where: (a) a legally enforceable right of set-off exists; and (b) the deferred tax assets and liabilities relate to income taxes levied by the same taxation authority on either the same taxable entity or different taxable entities where it is intended that net settlement or simultaneous realisation and settlement of the respective asset and liability will occur in future years in which significant amounts of deferred tax assets or liabilities are expected to be recovered or settled.

5. EXPLORATION AND EVALUATION EXPENDITURE

The application of Jupiter's accounting policy for exploration and evaluation expenditure requires judgment in determining whether it is likely that future economic benefits are likely either from future exploitation or sale or where activities have not reached a stage which permits a reasonable assessment of the existence of ore reserves. The determination of a JORC mineral resource or ore reserve is itself an estimation process that requires varying degrees of uncertainty depending on sub-classification and these estimates directly impact the point of deferral of exploration and evaluation expenditure. The deferral policy requires management to make certain estimates and assumptions about future events or circumstances, in particular whether an economically viable extraction operation can be established. Estimates and assumptions made may change if new information becomes available. If, after expenditure is capitalised, information becomes available suggesting that the recovery of expenditure is unlikely, the amount capitalised is written off in the Statement of Profit or Loss and Other Comprehensive Income in the year when the new information becomes available.

6. LEASES

Leases of fixed assets where substantially all the risks and benefits incidental to the ownership of the asset, but not the legal ownership that is transferred to entities in the Consolidated Group, are classified as finance leases.

Finance leases are capitalised by recognising an asset and a liability at the lower of the amounts equal to the fair value of the leased property or the present value of the minimum lease payments, including any guaranteed residual values. Lease payments are allocated between the reduction of the lease liability and the lease interest expense for the year.

Leased assets are depreciated on a straight-line basis over the shorter of their estimated useful lives or the lease term.

Lease payments for operating leases, where substantially all the risks and benefits remain with the lessor, are recognised as expenses in the years in which they are incurred.

Lease incentives under operating leases are recognised as a liability and amortised on a straight-line basis over the lease term.

7. FINANCIAL ASSETS

Recognition and initial measurement

Financial assets and financial liabilities are recognised when the entity becomes a party to the contractual provisions to the instrument. For financial assets, this is equivalent to the date that the Company commits itself to either the purchase or sale of the asset (i.e. trade date accounting is adopted).

Financial instruments are initially measured at fair value plus transaction costs, except where the instrument is classified "at fair value through profit or loss", in which case transaction costs are expensed to profit or loss immediately.

Classification and subsequent measurement

Finance instruments are subsequently measured at fair value, amortised cost using the effective interest rate method, or cost.

Amortised cost is the amount at which the financial asset or financial liability is measured at initial recognition less principal repayments and any reduction for impairment, and adjusted for any cumulative amortisation of the difference between that initial amount and the maturity amount calculated using the effective interest method.

Fair value is determined based on current bid prices for all quoted investments. Valuation techniques are applied to determine the fair value for all unlisted securities, including recent arm's length transactions, reference to similar instruments and option pricing models.

The effective interest method is used to allocate interest income or interest expense over the relevant period and is equivalent to the rate that discounts estimated future cash payments or receipts (including fees, transaction costs and other premiums or discounts) through the expected life (or when this cannot be reliably predicted, the contractual term) of the financial instrument to the net carrying amount of the financial asset or financial liability. Revisions to expected future net cash flows will necessitate an adjustment to the carrying value with a consequential recognition of an income or expense item in profit or loss.

The Group does not designate any interests in subsidiaries, associates or joint venture entities as being subject to the requirements of accounting standards specifically applicable to financial instruments.

(a) Loans and receivables

Loans and receivables are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market and are subsequently measured at amortised cost.

Loans and receivables are included in current assets, where they are expected to mature within 12 months after the end of the reporting period.

(b) Held-to-maturity investments

Held-to-maturity investments are non-derivative financial assets that have fixed maturities and fixed or determinable payments, and it is the Group's intention to hold these investments to maturity. They are subsequently measured at amortised cost.

Held-to-maturity investments are included in non-current assets where they are expected to mature within 12 months after the end of the reporting period. All other investments are classified as current assets.

(c) Available-for-sale financial assets

Available-for-sale financial assets are non-derivative financial assets that are either not suitable to be classified into other categories of financial assets due to their nature, or they are designated as such by management. They comprise investments in the equity of other entities where there is neither a fixed maturity nor fixed or determinable payments.

They are subsequently measured at fair value with changes in such fair value (i.e. gains or losses) recognised in other comprehensive income (except for impairment losses and foreign exchange gains and losses). When the financial asset is derecognised, the cumulative gain or loss pertaining to that asset previously recognised in other comprehensive income is reclassified into profit or loss.

Available-for-sale financial assets are included in current assets where they are expected to be sold within 12 months after the end of the reporting period. All other financial assets are classified as

non-current assets.

(d) Financial liabilities

Non-derivative financial liabilities (excluding financial guarantees) are subsequently measured at amortised cost.

Impairment of Financial Assets

At the end of each reporting period, the Group assess whether there is objective evidence that a financial asset has been impaired. A financial asset or a group of financial assets is deemed to be impaired if, and only if, there is objective evidence of impairment as a result of one or more events (a "loss event") having occurred, which has an impact on the estimated future cash flows of the financial asset(s).

In the case of available-for-sale financial assets, a significant or prolonged decline in the market value of the instrument is considered to constitute a loss event. Impairment losses are recognised in profit or loss immediately. Also, any cumulative decline in fair value previously recognised in other comprehensive income is reclassified to profit or loss at this point.

In the case of financial assets carried at amortised cost, loss events may include: indications that the debtors or a group of debtors are experiencing significant financial difficulty, default or delinquency in interest or principal payments; indications that they will enter bankruptcy or other financial reorganisation; and changes in arrears or economic conditions that correlate with defaults.

For financial assets carried at amortised cost (including loans and receivables), a separate allowance account is used to reduce the carrying amount of financial assets impaired by credit losses. After having taken all possible measures of recovery, if management establishes that the carrying amount cannot be recovered by any means, at that point the written-off amounts are charged to the allowance account or the carrying amount of impaired financial assets is reduced directly if no impairment amount was previously recognised in the allowance account.

When the terms of the financial assets that would otherwise have been past due or impaired have been renegotiated, the Group recognises the impairment for such financial assets by taking into account the original terms as if the terms have not been renegotiated so that the loss events have occurred are duly considered.

Impairment of Non-Financial Assets

At each reporting date, the Group reviews the carrying values of its tangible and intangible assets to determine whether there is any indication that those assets have been impaired. If such an indication exists, the recoverable amount of the asset, being the higher of the asset's fair value less costs to sell and value in use, is compared to the asset's carrying value. Any excess of the asset's carrying value over its recoverable amount is expensed to the statement of comprehensive income.

Where it is not possible to estimate the recoverable amount of an individual asset, the Group estimates the recoverable amount of the cash-generating unit to which the asset belongs.

Impairment testing is performed annually for goodwill and intangible assets with indefinite lives.

8. EMPLOYEE BENEFITS

Provision is made for the Company's liability for employee benefits arising from services rendered by employees to the reporting date. Employee benefits that are expected to be settled within one year have been measured at the amounts expected to be paid when the liability is settled. Employee benefits payable later than one year have been measured at the present value of the estimated future cash outflows to be made for those benefits. Those cash flows are discounted using market yields on national government bonds with terms to maturity that match the expected timing of cash flows.

9. CASH AND CASH EQUIVALENTS

Cash and cash equivalents include cash on hand, deposits held at call with banks, other short-term highly liquid investments with original maturities of three months or less, less credit card facilities used. Bank overdrafts are shown as short-term borrowings in liabilities.

10. TRADE AND OTHER RECEIVABLES

Trade receivables, which generally have 30 day terms, are recognised initially at fair value and subsequently measured at amortised cost using the effective interest method, less an allowance for impairment.

Collectability of trade receivables is reviewed on an ongoing basis at an operating unit level. Individual debts that are known to be uncollectible are written off when identified. An impairment provision is recognised when there is objective evidence that the Group will not be able to collect the receivable.

11. REVENUE AND OTHER INCOME

Revenue from the sale of goods is recognised when significant risks and rewards of the saleable product have transferred to the customer. Risks and rewards are considered passed to the customer upon delivery to the customer's control. This generally occurs when the product is physically transferred onto a vessel.

Revenue from inventory sales is measured at fair value of consideration received/receivable. Revenue is stated after deducting sales taxes, duties and levies.

The price is determined on a provisional basis at the date of sale (cost insurance and freight). Adjustments to the sale price may occur based on variances in the metal or moisture content of the ore up to the date of final pricing. The period between provisional invoicing and final pricing is typically between 2 and 3 months. Accordingly, the fair value of the original revenue and associated receivable is adjusted each reporting period by reference to the best estimate of the actual metal and moisture content. The changes in fair value are recorded as an adjustment to revenue.

Interest revenue is recognised using the effective interest rate method, which, for floating rate financial assets, is the rate inherent in the instrument.

All revenue is stated net of the amount of goods and services tax (**GST**).

12. GOODS AND SERVICES TAX (GST)

Revenues, expenses and assets are recognised net of the amount of GST, except where the amount of GST incurred is not recoverable from the Australian Taxation Office (**ATO**).

Receivables and payables are stated inclusive of the amount of GST receivable or payable. The net amount of GST recoverable from, or payable to, the ATO is included with other receivables or payables in the statement of financial position.

Cash flows are presented on a gross basis. The GST components of cash flows arising from investing or financing activities which are recoverable from, or payable to, the ATO are presented as operating cash flows included in receipts from customers or payments to suppliers.

13. TRADE AND OTHER PAYABLES

Trade and other payables are carried at cost and due to their short time nature they are not discounted. They represent liabilities for goods and services provided to the Group prior to the end of the financial period that are unpaid and arise when Jupiter becomes obliged to make future payments in respect of the purchase of these goods and services. The amounts are unsecured and are usually paid within 30 days of recognition.

14. CRITICAL ACCOUNTING ESTIMATES AND JUDGMENTS

The Directors evaluate estimates and judgments incorporated into the financial report based on historical knowledge and best available current information. Estimates assume a reasonable expectation of future events and are based on current trends and economic data, obtained both externally and within the Group.

(a) Key estimates – Impairment of non-financial assets

The Group assesses impairment at each reporting date by evaluating conditions specific to the Group that may lead to impairment of assets. Where an impairment trigger exists, the recoverable amount of the asset is determined.

(b) Key judgements – Exploration and evaluation expenditure

The Group's accounting policy for exploration and evaluation expenditure results in certain items of expenditure being capitalised for an area of interest where it is considered likely to be recoverable by future exploitation or sale or where the activities have not reached a stage which permits a reasonable assessment of the existence of ore reserves. This policy requires management to make certain estimates and assumptions as to future events and circumstances, in particular whether an economically viable extraction operation can be established. Any such estimates and assumptions may change as new information becomes available. If, after having capitalised the expenditure under the policy, a judgement is made that recovery of the expenditure is unlikely, the relevant capitalised amount will be written off to the statement of comprehensive income.

15. FOREIGN CURRENCY TRANSLATION

(a) Functional and presentation currency

The functional and presentation currency of Jupiter and its subsidiaries is Australian dollars ($). The presentation and functional currency for the interest in Tshipi is the South African Rand.

The results are translated into Australian dollars for disclosure in Jupiter's consolidated accounts.

Non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rate as at the initial transaction. Non-monetary items measured at fair value in a foreign currency are translated using the exchange rates at the date when the fair value was determined.

(b) Translation of interest in joint venture functional currency to presentation currency

The results of the South African joint venture interest are translated into Australian dollars using an average rate over the period of the transactions. Assets and liabilities are translated at exchange rates prevailing at reporting dates.

APPENDIX 4

MATERIAL CONTRACTS RELEVANT TO TSHIPI É NTLE'S OPERATIONS

Tshipi é Ntle has entered into various agreements for the conduct of its operations, which are described below:

1. MINING SERVICES AGREEMENT

Tshipi é Ntle entered into a mining services agreement with Aveng Moolmans Proprietary Limited (Aveng) in terms of which Aveng is independently contracted to undertake various mining services. The current term of the agreement ends on 31 August 2020 and may be renewed for a further 6 months by Tshipi é Ntle giving Aveng 3 months' prior notice of such renewal.

Aveng is remunerated on a "dry rates" basis pursuant to agreed rates, which are subject to periodic adjustment to account for: (i) fluctuations in fixed costs, labour, parts and bulk explosives; (ii) circumstances where work required to be undertaken by Aveng does not have a corresponding rate in the payment schedule; and (iii) where changes in applicable laws during the contract period require modification of Aveng's equipment.

Quarterly and annual production plans are subject to adjustment, at the sole discretion of Tshipi é Ntle, provided that Aveng is given 3 months' written notice in respect of changes in the production plan in excess of 15% for any quarter.

As a result of Tshipi é Ntle giving notice to Aveng of a variation requiring Aveng to deliver a volume of material in excess of 115% of the agreed production plan, the parties executed an addendum dated 14 August 2017, in terms of which the parties agreed to a variation of the production plan, equipment supplied and rates to be charged by Aveng with effect from 1 November 2016. Tshipi é Ntle is entitled to terminate this variation on 3 months' written notice to Aveng, which termination will reinstate the original production plan, equipment supplied and rates. During the variation period, the fixed management fee payable by Tshipi é Ntle to Aveng is ZAR3,399,857.86.

The parties have agreed that, in respect of the period 1 September 2015 to 31 August 2017, no contractual claims exist between them in terms of the agreement.

Aveng's liability in terms of the agreement is limited to the higher of 10% of the agreement's total value and Aveng's insurance cover, save in the case of gross negligence, fraud or wilful misconduct by Aveng. Neither of the parties is liable for consequential losses incurred by the other party and both parties indemnify each other against losses incurred in terms of the agreement.

Tshipi é Ntle may terminate the agreement on 90 days' written notice and either party may terminate the agreement if the other party is in default and fails to remedy the default within the prescribed period. Upon termination of the agreement, Tshipi é Ntle is entitled to purchase Aveng's equipment, and all fixed facilities will automatically transfer to Tshipi é Ntle.

2. NEW SEMI-FIXED ORE PROCESSING PLANT

Tshipi é Ntle entered into an agreement with African Mining and Crushing SA Proprietary Limited (AMC) for the development of a new semi-fixed ore processing plant (Plant) at its Borwa Mine. The agreement was in the form of the Federation Internationale des Ingenieurs-Conseils (FIDIC) Conditions of Contract for EPC/ Turnkey Projects, First Edition, 1999 (Silver Book) amended by the parties under licence from FIDIC (Contract). In terms of the Contract, and following the issuance of the Acceptance Certificate C6 - Final Handover (C6 Certificate) on 19 February 2017, risk and responsibility in the Plant rests with Tshipi é Ntle.

Notwithstanding that Tshipi é Ntle has taken over the Plant for its use and carries risk therein generally, the following on-going AMC obligations and warranties are notable:

(a) in respect of any patent defects in the Plant, AMC remains responsible for the rectification thereof until the issuance of the Performance Certificate (PC) (a period of 2 years following the issuance of the C6 Certificate);

(b) in respect of latent defects in the Plant, AMC remains responsible for the rectification thereof for a period of 5 years following the issuance of the PC;

(c) any defect warranties given to AMC by its subcontractors/ suppliers that survive the latent defect liability period referred to above are to be transferred to Tshipi é Ntle, alternatively if they are not capable of transfer, AMC is to remain responsible therefor until such period expires;

(d) when carrying out defect rectification works during the periods referenced under paragraphs (a) and (b) above, AMC will again assume risk and responsibility in the Plant during this time;

(e) notwithstanding the issuance of the C6 Certificate: (i) 5% of the contract price has been retained by agreement as security; or (ii) at AMC's election, a guarantee has been issued to Tshipi é Ntle in lieu of the 5% retention. This amount acts as security for breach by AMC during the patent defects notification period, after which time the retention money is to be released or the guarantee will fall away; and

(f) the Contract contains minimum performance requirements which the Plant must adhere to. Should the Plant be unable to achieve its output specifications as a result of a deficiency in AMC's design and/or construction, Tshipi é Ntle will have recourse against AMC (subject to the AMC's overall cap on liability, being 100% of the Contract Price, or an amount of ZAR47,059,046.38).

Pending the conclusion of a written agreement, AMC has undertaken to process ore for a period of 3 years at an estimated price of ZAR28 per tonne.

3. TRAIN LOADING AND STOCKPILE MANAGEMENT SERVICE AGREEMENT

Tshipi é Ntle entered into a train loading and stockpile management service agreement with Motsi Civils and Plant Hire Proprietary Limited (Motsi) in terms of which Motsi provides train loading and stockpiling management related services to Tshipi é Ntle. The current term of the agreement terminates on 30 November 2018. The parties may, on or before such termination date, extend the term of this agreement in writing.

The services provided include: (i) loading stockpile management; (ii) loading of trains using front end loaders at 1,500tph; (iii) ensuring sufficient stock levels at all times to load the train using the rapid load terminal (RLT); (iv) loading one train per day, each day of the week, and occasionally two trains per day, depending on the operational requirements of the mine and on Transnet SOC Limited (Transnet) placing a train on the siding; (v) if using the RLT, loading the bulk train in less than eight hours and the skiptainer in less than 6 hours; and (vi) making various items of machinery and equipment available to Tshipi é Ntle.

Fees are payable to Motsi on a monthly basis using a specified schedule, which may increase in accordance with the prevailing South African Consumer Price Index.

Tshipi é Ntle is not liable for any losses incurred by Motsi in connection with the agreement, except to the extent that the loss is attributed to the fraud, default or negligence of Tshipi é Ntle. In addition, Tshipi é Ntle is not liable for any consequential losses that Motsi may incur in connection with the agreement.

Tshipi é Ntle may terminate the agreement on 30 days' written notice to Motsi and either party may terminate the agreement if the other party commits a default in terms of the agreement.

4. DEDICATED LOCOMOTIVE HIRE AND SERVICE AGREEMENT

Tshipi é Ntle with GPR Leasing Proprietary Limited (GPR Leasing) entered into a dedicated locomotive and service agreement, terminating on 28 February 2019. Tshipi é Ntle has the right to renew the agreement for a further period of one year on at least 3 months' written notice to GPR Leasing prior to expiry of the agreement or any subsequent renewal period. Tshipi é Ntle has the right to terminate the agreement in the event of an interruption or unavailability of the services subsisting for a period of 5 consecutive days or 10 days in any quarter. Either party has the right to terminate the agreement for any reason by giving 3 months' written notice to the other party.

In terms of the agreement, GPR Leasing undertakes to provide a dedicated locomotive and a suitably qualified dedicated operator and fitter to Tshipi é Ntle to operate the locomotives at Tshipi Borwa Siding 243175 Mamathwane.

GPR Leasing is liable for the cost of delivery of the locomotive to the site and redelivery to GPR Leasing's factory, unless such redelivery is on request of Tshipi é Ntle and not due to a breach of warranty by GPR Leasing.

Tshipi é Ntle is required to pay a fee of ZAR683,500 (excluding VAT) monthly in arrears, escalating annually in renewal periods with reference to the South African Producer Price Index and the cost of labour. Further, Tshipi é Ntle is required to manage, co-ordinate and supervise GPR Leasing's operations, fulfil the role of traffic planner on site and provide workshop facilities.

In the event of accidents, derailments or other emergencies, GPR Leasing will, at its expense and on a 24/7 basis, provide emergency back-up services for the locomotive operations.

GPR Leasing warrants that: (i) the locomotives are capable of hauling 104 loaded CR wagons at a constant speed; and (ii) a 90% availability rate shall apply to both locomotives during the 12 hour Transnet Freight Rail allowable handling time, provided that if one locomotive fails to meet either warranty, it will not be a breach of warranty should an available locomotive cover the shortfall during a 12 hour Transnet Freight Rail allowable handling time. In the event of a breach of warranty, GPR Leasing shall have an opportunity to repair the locomotive in a set timeframe, failing which it must deliver an alternative locomotive to Tshipi é Ntle. Tshipi é Ntle shall pay the incurred costs relating to an alternative locomotive to GPR Leasing and GPR Leasing will in turn pay the entity that provided the alternative locomotive. Following such payment, Tshipi é Ntle has the right to a reduction in fees paid to GPR Leasing.

5. TRANSNET SERVICES AGREEMENT

In terms of its standard services agreement, Transnet provides: (i) freight rail services; (ii) port terminal stockpiling and loading services; and (iii) port terminal marine services to Tshipi é Ntle and defines Tshipi é Ntle's capacity allocation as a manganese exporter of manganese ore of certain specifications. The agreement terminates on the earlier of: (i) 31 March 2023; and (ii) the full commissioning of the Port of Ngqura terminal. Upon expiry, the agreement will automatically renew on a month-to-month basis and is terminable on 6 months' written notice.

Tshipi é Ntle has an allocated tonnage of 2.1 million tonnes per annum, including a temporary allocation, which is allocated from time to time as and when it becomes available. Transnet may recall the temporary allocation on a 6 months' notice period. Transnet may recall 20% of the allocation, excluding the temporary allocation, from time to time at its own discretion on 6 months' written notice. Transnet may also reduce the allocation given to Tshipi é Ntle if Tshipi é Ntle underutilises it.

In terms of the agreement, Tshipi é Ntle's ore will be exported through: (i) the Port Elizabeth bulk terminal; (ii) the Saldanha multi-purpose terminal; or (iii) the Port Elizabeth multi-purpose terminal. Transnet may at its discretion re-allocate Tshipi é Ntle to a different channel on 6 months' written notice to Tshipi é Ntle.

The tariff payable by Tshipi é Ntle is an all-inclusive tariff (excluding VAT) calculated per tonne which excludes port, dock, towage, licensing and associated charges. The tariff escalates with reference to the South African Producer Price Index, electricity costs, diesel costs and Transnet labour costs.

Standard additional fees relating to delays and screening charges are payable by Tshipi é Ntle.

Tshipi é Ntle is required to deliver 95% of the allocated tonnage, whilst Transnet is required to deliver 90% of the defined services. Where a party fails to meet its required delivery requirements, Transnet will be liable for penalty payments and Tshipi é Ntle will be liable for take or pay charges, with cancellation permissible in certain circumstances.

Although market fluctuations in the exchange rate and export prices of manganese will not constitute a force majeure event, the parties undertake to discuss market fluctuations and agree a

way forward. Transnet agrees to provide a credit facility to Tshipi é Ntle, with Tshipi é Ntle providing an on demand written guarantee depending on the credit rating of Tshipi é Ntle, with such credit rating being determined by Transnet.

Transnet is not liable for loss, harm or damage of the manganese ore belonging to Tshipi é Ntle or transported on its behalf unless due to the negligence or wilful misconduct of Transnet. Each party indemnifies the other for losses due to a breach of the agreement. Neither party is liable for consequential, special, indirect or economic loss. Tshipi é Ntle's take or pay penalties are limited in terms of a formula with reference to 90% of the prevailing tariff per tonne for services, disruptions, allocated tonnage and tonnes supplied. Transnet performance penalties are limited in terms of a formula with reference to 60% of the prevailing tariff per tonne for services, disruptions, allocated tonnage and tonnes supplied by Tshipi é Ntle, shipping delays and the tonnage it has guaranteed to deliver.

6. WATER SUPPLY AGREEMENT

Tshipi é Ntle entered into a bulk water supply and service agreement with Sedibeng Water Board (Sedibeng). The current term of the agreement ends on 1 September 2020 and thereafter Tshipi é Ntle may renew the agreement for further periods of one year each, upon one month's notice prior to expiry of the initial period and each renewal period thereafter.

In terms of the agreement, Sedibeng provides Tshipi é Ntle with bulk potable water, in compliance with the relevant laws regarding the quality thereof, from the Vaal Gamagara Water Supply Scheme at the specified take-off point. Sedibeng is responsible for maintaining the required water meters at supply points.

Tshipi é Ntle is charged for the water supplied to it, monthly in arrears, in accordance with an agreed tariff, which is to be revised by Sedibeng annually. Tshipi é Ntle must purchase a minimum of 160,000 cubic metres per financial year, which amount is to be reviewed annually and adjusted if agreed by the parties, and is authorised to purchase up to 200,000 cubic metres of water per annum. Tshipi é Ntle is billed for this minimum quantity and any over payment in respect of this amount will be rectified in the June account of each year.

Each party indemnifies the other against claims for damages or losses arising from the negligence or wilful act of the other.

7. SUPPLY OF PETROLEUM PRODUCTS AGREEMENT

Tshipi é Ntle entered into an exclusive fuel supply agreement with Chevron South Africa Proprietary Limited (Chevron) for the supply of 500 ppm and 50 ppm sulphur diesel. The agreement terminates on 28 February 2020 and may be renewed at Tshipi é Ntle's sole discretion for further periods of one year each.

In terms of the agreement, Tshipi é Ntle is supplied diesel at a set discounted price, provided it purchases a minimum of 500 kilolitres per month. Should Tshipi é Ntle purchase less such volume, Chevron at its sole discretion, may claim any loss incurred or amend such discount. Chevron has the right to revise the discounts it provides on 60 days' written notice to Tshipi é Ntle. Diesel will be supplied, as specified by Chevron, either from Chevron's Cape Town refinery or Kroonstad depot. Diesel is transported to Tshipi é Ntle at Tshipi é Ntle's cost, by either: (i) a third party contracted by either party; or (ii) by Tshipi é Ntle itself.

Chevron is required to supply the diesel tanks, pumps, flow meters and safety equipment.

Tshipi é Ntle may obtain diesel from other sources should Chevron inform Tshipi é Ntle of its inability to supply the required products.

Tshipi é Ntle is required to maintain a stock control system, unless, amongst other things, the loss could have been prevented by reasonable care by Chevron.

Tshipi é Ntle uses equipment loaned to it by Chevron for fuel dispensing and storage. Tshipi é Ntle may make an offer to purchase such equipment from Chevron any time while the agreement is valid, or within a specified period of time after the agreement ends.

Tshipi é Ntle indemnifies Chevron against losses incurred in terms of the agreement unless Chevron is at fault. Neither party is liable for any consequential losses incurred by the other.

8. MANAGEMENT FEE ARRANGEMENTS

With effect from 1 March 2018, Tshipi é Ntle shall pay a monthly management fee of ZAR500,000 to each of: (i) Jupiter in compensation for the services carried out by Jupiter's appointed director, Priyank Thapliyal (Thapliyal); and (ii) Safika Resources Proprietary Limited (Safika) in compensation for the services carried out by Safika's appointed representative, Justin Pitt (Pitt), in consideration for services rendered to the board, the operating committee, the remuneration and nominations committee and the audit and risk committee (committees) of Tshipi é Ntle. Jupiter (acting through Thapliyal) and Safika (acting through Pitt) are responsible for devoting to Tshipi é Ntle such time as is necessary to attend meetings of the committees and the board. The arrangements shall continue until terminated by either party to such arrangement.

Jupiter is responsible for all costs and expenses associated with the service to be rendered by Thapliyal and Safika is responsible for all costs and expenses associated with the service to be rendered by Pitt.

APPENDIX 5

REGULATION OF COMPANIES & THE MINING INDUSTRY IN SOUTH AFRICA

1. INTRODUCTION

As a mining company, Tshipi é Ntle is subject to various mining, environmental, health and safety laws and regulations. Some of the principal laws and regulations which control the mining industry in South Africa are set out below.

2. THE COMPANIES ACT NO 71 OF 2008 (COMPANIES ACT)

The Companies Act is the primary legislation applicable to companies in South Africa. The Companies Act, amongst other things, governs the incorporation, registration, organisation and management of companies in all respects as well as defines the relationship between companies and their directors and stakeholders. The Companies Act repealed the prior Companies Act No 61 of 1973 in totality, subject to certain transitional arrangements such as the continued application of some of the provisions dealing with winding-up and liquidation of companies. Such provisions continue to apply until alternative legislation has been brought into force. The Companies Act introduced international corporate law concepts novel to South Africa some of which have not yet been tested by South African courts. Accordingly, there remain areas of contention and uncertainty in the application of the Companies Act.

Protection to minority shareholders

The Companies Act affords a number of protection mechanisms to minority shareholders to help ensure that the value of their shareholding is maintained relative to other shareholders in the same company and that notwithstanding their minority shareholding, the majority shareholders may not implement certain decisions without the necessary approval of the minority shareholders.

Minority shareholders holding more than 25% of the voting rights have the power to block certain actions of the company. In terms of section 65(11) of the Companies Act, a special resolution of the shareholders is required to: (i) amend the memorandum of incorporation of the company; (ii) ratify actions by the company or directors in excess of their authority; (iii) approve certain issues of shares or granting of rights (a) to directors, prescribed officers or related persons or (b) in excess of 30% of the voting rights of those shares or rights before such issue; (iv) authorise the board to grant financial assistance to directors, prescribed officers or related persons for the subscription of securities; (v) authorise buy-backs from directors, prescribed officers or related persons or in excess of 5% of the issued shares of a particular class of shares; (vi) authorise compensation for directors; (vii) approve the voluntary winding-up or winding-up of the company; (viii) approve deregistration upon transfer of the company's registration to a foreign jurisdiction; (ix) approve transactions including the disposal of all or the greater part of the assets or undertaking of the company, an amalgamation or merger or a scheme of arrangement ("Fundamental Transactions"); (x) revoke a previously adopted resolution that gave rise to dissenting shareholders appraisal rights; and (xi) any other matter requiring a special resolution in terms of the memorandum of incorporation of the company. A special resolution requires support of at least 75% of the voting rights exercised on that resolution to be adopted.

In terms of section 115 of the Companies Act, if a resolution adopting a Fundamental Transaction is opposed by at least 15% of the voting rights, a company may not proceed with the implementation of that Fundamental Transaction without the approval of a court.

Each shareholder of a private company has a pre-emptive right to be offered additional shares to be issued by the company, before any third party or existing shareholder, in proportion to its existing shareholding.

Shareholders holding at least 10% of the voting rights (or when required to in terms of the memorandum of incorporation of the company) entitled to be exercised in relation to a matter proposed to be considered at a meeting can require that a shareholders meeting is convened in terms of section 61 of the Companies Act. If the company fails to convene such meeting, a shareholder may apply to court for an order requiring the company to convene a meeting.

Section 161 of the Companies Act permits a shareholder to (in addition to any other remedies which may be available) apply for an order to (i) protect any of its rights as contained in, among others, the Companies Act, the memorandum of incorporation of the company, or any rule of the company; or (ii) to rectify any harm done to the shareholder by the company or any director as a result of an act or omission that contravened the Companies Act, the memorandum of incorporation of the company, or any rule of the company.

If an action of the company or a director or related person is oppressive or unfairly prejudicial to, or unfairly disregards, the interests of a shareholder, that shareholder may apply to court for relief in terms of section 163 of the Companies Act, with the court being empowered to make any interim or final order it deems fit.

Section 164 of the Companies Act provides an appraisal right mechanism (akin to a put right) to a dissenting shareholder who does not approve of certain proposed corporate actions (and who votes against the requisite resolution(s) necessary for such corporate action(s)) to require the company to pay it the fair value of its shares, which value may in certain cases be determined judicially. The appraisal right is triggered when a company undertakes a Fundamental Transaction proposed by a company, or where the company amends its memorandum of incorporation by altering the rights of shareholders in a materially adverse manner.

Section 165 of the Companies Act provides a derivative action that can be brought by a shareholder to protect the legal interests of the company. The section entitles, among others, a shareholder, to make a demand to the company to commence or continue legal proceedings to protect the interest of the company.

Section 20 of the Companies Act permits any shareholder to apply to court for an appropriate order to restrain the company from doing anything inconsistent with the memorandum of incorporation of the company or the Companies Act.

3. THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT NO 28 OF 2002 (MPRDA)

The right to prospect and mine for minerals is primarily regulated by the MPRDA, which replaced the Minerals Act No 50 of 1991 on 1 May 2004. The Department of Mineral Resources (**DMR**) is the national department tasked with implementing the MPRDA and regulating the mining industry.

The MPRDA, inter alia, regulates the prospecting, mining, optimal exploitation, processing and utilisation of minerals. It also provides for the rehabilitation of land disturbed by exploration and mining.

The MPRDA introduced a new system whereby South Africa's mineral and petroleum resources are the common heritage of all the people of South Africa, and the South African government became the custodian of all rights to mineral and petroleum resources.

Any party is entitled to apply to the DMR for a prospecting right or mining right on a first come first served basis provided that: (i) the applicant satisfies the relevant criteria stipulated in the MPRDA, (ii) no other person holds a prospecting right, mining permit or retention permit for the same mineral and land; and (iii) no prior application for rights has been accepted for the same mineral and land which remains to be granted or refused and, if these requirements are met, the DMR is obliged to accept and process the application.

A mining right or prospecting right is valid for the period specified in the right. Prospecting rights can be granted initially for a period of up to five years, and can be renewed only once, on application, for a further period not exceeding three years. The holder of a prospecting right granted under the MPRDA has the exclusive right to apply for and, subject to compliance with the requirements of the MPRDA, to be granted, a mining right in respect of the mineral and prospecting area in question. A mining right may be granted for a period not exceeding 30 years and can be renewed, upon application, for an unlimited number of further periods each not exceeding 30 years.

Amongst other requirements for the grant of a mining right, a social and labour plan, committing the mine to various social responsibilities (such as human resources development, local community and rural economic development and procedures in the event of a downscaling of operations and/or retrenchments) must be approved by the DMR.

The MPRDA provides that administrative processes must be conducted or administrative decisions must be taken within reasonable time and in accordance with the principles of lawfulness, reasonableness and procedural fairness and that these decisions must be given in writing and accompanied by written reasons.

Once rights are granted to applicants, the right must be executed in the form of a notarial deed and registered at the Mineral and Petroleum Titles Registration Office (**MPTRO**) in order for the right to be a limited real right enforceable against the third parties.

The MPRDA was amended by the Mineral and Petroleum Resources Development Amendment Act No 49 of 2008 (**First Amendment Act**), which came into effect on 7 June 2013 (save for certain transitional arrangements). Further amendments to the MPRDA were proposed by the Mineral and Petroleum Resources Development Amendment Bill, No 15 of 2013 (**MPRDB**). Although this Bill was rejected by the President and sent back to Parliament for further deliberation, a revised version of the MPRDB was passed by the National Assembly on 1 November 2016 and referred to the NCOP. It has not yet been approved or promulgated and there is no clear indication as to when the MPRDB will come into force.

If it does come into effect, the MPRDB will do the following:

(a) Substantially amend the MPRDA's beneficiation provisions. Pursuant to the MPRDB, the Minister will be obliged to:

  (i) initiate or promote the beneficiation of mineral resources in order to meet "national development imperatives"; and

  (ii) in consultation with the Minister of the relevant national departments, designate any mineral or mineral product for local beneficiation and publish such conditions required to ensure the security of supply of such mineral, for domestic beneficiation.

  For this purpose the Minister will be empowered to set the percentages, quantities, qualities and timelines under which a mining company must supply designated minerals to domestic manufacturers. Designated minerals must be sold to such beneficiators at either the "mine gate price" or an "agreed price". The MPRDB does not make it clear that the former is equivalent to market value.

(b) Abolish the "first-in, first-assessed" principle which has been part of South African mining law for over a century (and reflects international best practice). The Minister will in future, by notice in the South African Government Gazette, invite applications for prospecting or mining rights in respect of any area of land. Unless such an application is gazetted, no applications for such rights may be sought.

4. BLACK ECONOMIC EMPOWERMENT IN THE SOUTH AFRICAN MINING INDUSTRY

The MPRDA seeks to facilitate participation by historically disadvantaged South Africans (**HDSAs**) in mining ventures. Complying with the Broad-Based Black Economic Empowerment (**B-BBEE**) requirements and HDSA regime set by the South African government is a prerequisite for the grant of prospecting and mining rights. Every application for a mining right under the MPRDA must demonstrate that the granting of such right will:

(a) substantially and meaningfully expand opportunities for HDSAs, including women, to enter the mineral and petroleum industry in order to benefit from the exploitation of the nation's mineral and petroleum resources; and

(b) promote employment and advance the social and economic welfare of all South Africans.

Pursuant to the MPRDA, the Minister developed a charter and scorecard for the mining industry which came into force in 2004 (**Mining Charter**). The Mining Charter required that mining companies achieved 15% HDSA ownership of mining assets by 2009 and required that mining companies achieve a minimum target of 26% HDSA ownership of mining assets by 2014. The Mining Charter and its scorecard were amended by the Minister on 13 September 2010 (**Revised Mining Charter**).

The objectives of the Revised Mining Charter, which is designed to effect sustainable growth and meaningful transformation of the mining industry include, inter alia: the promotion of equitable access to the nation's mineral resources to all the people of South Africa; to expand opportunities for HDSAs to enter the mining and minerals industry and benefit from the exploitation of the nation's resources; and to promote sustainable development and growth of the mining industry. The Revised Mining Charter embraces a range of criteria against which prospecting and mining rights applications are measured. These criteria include issues such as human resources development, employment equity, procurement, community and rural development and the ownership of mining assets by HDSAs.

On 15 June 2017, under the auspices of section 100(2)(a) of MPRDA, the Minister published the 'Broad Based Black-Economic Empowerment Charter for the South African Mining and Minerals Industry, 2017' (**2017 Mining Charter**).

The Chamber of Mines (**CoM**) brought an application to review and set aside the Minister's decision to publish the 2017 Mining Charter (**Review**). The CoM also brought an urgent application to interdict the Minister, his delegates and officials, the DMR, and its officials from implementing and applying the 2017 Mining Charter *"in any way, directly or indirectly"* pending the finalisation of the Review. The CoM also sought a declaratory order suspending the repeal of the scorecard for the 2017 Mining Charter and Revised Mining Charter.

By agreement between the CoM and the Minister, the regulatory regime as it stood on 14 June 2017 (i.e. the Revised Mining Charter) is currently applicable, pending the finalisation of the Review.

It is anticipated that the 2017 Mining Charter will be finalised in the second quarter of 2018, with the Minister of Mineral Resources stating in March 2018 that he expected the new mining charter to be finalised by June 2018.

If the 2017 Mining Charter comes into effect, its requirements will include the following:

(a) **Ownership:** increases HDSA ownership of mining assets from 26% to 30%. In addition, this 30% ownership needs to comply with the "*mandated structure regime*", which requires that the 30% be distributed as follows:

  (i) 8% to an employee's share ownership scheme;

  (ii) 8% to the local community; and

  (iii) 14% to black entrepreneurs (or "**Black Persons**").

  Where the shareholding of Black Persons is funded, the shares held by such persons must vest in such Black Person within 10 years at a rate of 3% per annum. To the extent that it does not vest in the Black Person at this rate, such amount must be written off by the company. The mining right holder is also required to gratuitously pay to the Black Person shareholders, 1% of its annual turnover.

(b) **Procurement:** multinational suppliers of capital goods to the mining company must contribute a minimum of 1% of their annual income generated from South African sales into a trust established by the Minister.

(c) **Employment equity:** executive management must have no less than 50% black employees, up from 40%, and 25% of this must be black females. For senior management, a minimum of 60% black employees is required, with 30% of that being black females. Black junior management positions are to increase from 40% to 88%, with black females to make up 44%. Other changes relate to procurement and human resource development.

Should the 2017 Mining Charter comes into effect, it will give current holders of mining rights a one year transitional period to align themselves with the new ownership requirements. Where empowerment deals have been concluded and empowerment partners have sold their shares and exited the structure, new empowerment transactions will need to be concluded for mining right holders to be compliant with the 2017 Mining Charter.

On 19 February 2018, the CoM and the Government of South Africa agreed to reopen negotiations in respect of the 2017 Mining Charter. It is anticipated that the 2017 Mining Charter will be finalised in the second quarter of 2018.

Under section 47 of the MPRDA, the Minister may suspend or cancel existing prospecting and mining rights, if the holder of the rights is not in compliance with the requirements of the MPRDA or the material terms and conditions of the right, including the relevant B-BBEE and HDSA requirements.

Further, a holder of a prospecting and mining right may, in the future, be required to incur significant costs to implement changes to its management and shareholding structure in order to comply with any amended requirements as a result of changes in law and any B-BBEE and HDSA requirements, and the interpretation of such new laws and requirements, which may have a material adverse effect on a mining company's business, financial condition, results of operations and/or prospects.

In 2009 the Minister published a Code of Good Practice for the Mining Industry in terms of the MPRDA. Mining companies are required to comply with these codes however, in practice, these codes are not currently enforced by the DMR.

5. THE MINERAL AND PETROLEUM RESOURCES ROYALTY ACT NO 28 OF 2008 (ROYALTY ACT)

The Royalty Act imposes a royalty on mining companies in favour of the South African National Revenue Fund on the transfer of mineral resources with effect from 1 March 2010.

Royalties imposed differ between refined and unrefined mineral resources but in both instances are based on a percentage of gross sales, derived from a pre-determined formula measuring the ratio of earnings before interest and tax and the gross revenue realised. The Royalty Act allows the holder of a mining right to enter into an agreement with the tax authorities to fix the percentage royalty that will be payable in respect of all mining operations carried out in respect of that resource for the life of the mine. The holder may withdraw from such agreement at any time.

6. ENVIRONMENTAL REGULATION

The following legislation is (amongst others) relevant in an environmental and heritage context to the operations of a mining company in South Africa:

(a) Constitution of the Republic of South Africa, 1996;

(b) MPRDA and its regulations;

(c) National Water Act No 36 of 1998 (NWA);

(d) National Environmental Management Act No 107 of 1998 (NEMA);

(e) National Environmental Management: Air Quality Act No 39 of 2004 (NEMAQA);

(f) National Environmental Management: Waste Act No 59 of 2008 (NEMWA); and

(g) National Heritage Resources Act No 25 of 1999 (NHRA).

All environmental statutes and the common law principles must be viewed within the new constitutional framework. The Constitution is the Supreme Law of South Africa and any law that is inconsistent with its provisions may be declared to be invalid. Section 24 of the Constitution compels the State to make legislation and take other measures to protect the environment, to prevent pollution and ecological degradation, promote conservation and secure sustainable development in South Africa.

On 8 December 2014 the 'One Environment System' (**OES**) was implemented in South Africa. The OES involved a shift in the regulation of environmental matters in the mining and petroleum industries from the MPRDA to NEMA and other environmental statutes. The legislative changes that have been associated with this shift have streamlined the licensing processes for mining rights, environmental authorisations (**EAs**) and water use licences (**WULs**).

Environmental authorisations (EAs)

Under the OES, the requirement to obtain an Environmental Management Programme or Environmental Management Plan, as the case may be, in terms of the MPRDA has been removed. Prospective rights holders are now required to apply for and obtain an EA under NEMA instead. The Minister of Mineral Resources is the competent authority for issuing EAs and waste management licences in terms of NEMA and NEMWA, respectively, for prospecting and mining related activities, as well as activities in respect of the primary processing of minerals.

The Minister of Environmental Affairs is the appeal authority in respect of any appeals of decisions relating to mining related EAs and waste management licences. The Minister of Environmental Affairs is the competent authority for issuing environmental authorisations in respect of any non-mining related activities. Under the OES, applicants for EAs in terms of NEMA are required to submit an Environmental Impact Assessment report and environmental management programme containing, inter alia, the information on the pre-mining environment; identification and quantification of any potential environmental and social impacts; and providing appropriate mitigating measures to minimise any negative impacts caused by the mining operations and enhance any positive impacts.

Water use licences (WULs)

A WUL is required in order to undertake any of the water uses which are specified under section 21 of the NWA, provided that the water use is not generally authorised in terms of the NWA, is a Schedule 1 use or constitutes an existing lawful water use in terms of the NWA. Water uses include, inter alia: the taking of water from a water resource, the diversion of water courses, mine dewatering, discharge of waste water and the disposal of waste on land.

The Minister of Water and Sanitation is the competent authority in respect of the issuing of water use licences. Regulations in relation to the procedural requirements for WULs and appeals were recently published by the Minister of Water and Sanitation. For the first time since the NWA came into force, these regulations provide for specific timeframes and steps to be taken in the processing of a WUL application. Furthermore these regulations provide for security that may be required to be provided by the applicant to the DWS in relation to a WUL application. Where such security is required it will be valid for a period of at least 5 years after the WUL activities have lapsed.

Waste management licences (WMLs)

A waste management licence (**WML**) is required in terms of NEMWA in order to undertake certain waste management activities that are listed in regulations Gazetted by the Minister of Environmental Affairs. The Minister of Environmental Affairs may by notice in the Gazette, prohibit or restrict the granting of a WML by the licencing authority for a listed activity in a specified geographical area if deemed necessary to ensure the protection of the environment, conservation of resources, sustainable development or human health and well-being.

Atmospheric emissions licences (AELs)

NEMAQA requires the Minister of Environmental Affairs to establish a national framework for achieving the objectives of NEMAQA, which must include inter alia, norms and standards. An atmospheric emissions licence (**AEL**) is required in terms of NEMAQA to undertake certain listed activities which are published in terms of NEMAQA.

Historic and cultural heritage

Pursuant to the NHRA, the removal or demolition of any articles of historic or cultural importance require a permit from the South Africa Heritage Resources Agency or provincial authority, as the case may be. Burial grounds and graves are protected under the NHRA and a permit is required to destroy, alter or remove such articles.

Financial provisioning

Companies undertaking mining activities must make financial provision for rehabilitation liabilities to the satisfaction of the DMR. Financial provision for the remediation of environmental damage is regulated in terms of section 24P of NEMA and the Financial Provisioning Regulations, 2015.

Section 24P of NEMA provides that an applicant for an environmental authorisation relating to prospecting, exploration, mining or production must, before the Minister of Mineral Resources issues the environmental authorisation, comply with the prescribed financial provision for the rehabilitation, closure and on-going post decommissioning management of negative environmental impacts.

The Financial Provisioning Regulations, 2015 have resulted in significantly increased closure costs compared with the financial provisioning requirements that were previously included in the MPRDA. Existing rights holders currently have until 20 February 2019 to comply with the Financial Provisioning Regulations, 2015. A revised draft set of Financial Provisioning Regulations was published in November 2017 and, once promulgated, will replace the current Financial Provisioning Regulations under NEMA.

In relation to the closure of a mine and the issuing of a closure certificate, the mine will have to comply with the requirements set out in section 43 of the MPRDA and its corresponding regulations, as well as with NEMA and the Financial Provisioning Regulations, 2015.

Environmental liability

Mining companies operating in South Africa, like mining operations in many other parts of the world, are subject to extensive environmental laws and regulations with respect to environmental matters. In South Africa, these environmental laws and regulations change frequently and are generally becoming more stringent. The costs associated with compliance with these laws and regulations are substantial.

A mining company's exposure to environmental liability in South Africa is determined in the first place by reference to the approved management programmes (**EMPs**) (previously issued in terms of the MPRDA) and environmental authorisations obtained under NEMA and the NWA, which mining companies are obliged to have in place for their operations.

The requirements of NEMA are particularly far reaching, especially section 28 thereof, which states that every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable steps to prevent such pollution or degradation from occurring, continuing or recurring, or insofar as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment. It is arguable that section 28 of NEMA may have introduced the principle of strict liability with respect to the causation of environmental impacts.

Under the NWA, the owner of land and controllers or occupiers of land on which any activity or process is or was performed that causes, has caused or is likely to cause the pollution of a water resource, must take all reasonable measures to prevent such pollution from occurring, continuing or recurring. The DWS may issue administrative directives to the abovementioned persons to take reasonable measures to prevent pollution from occurring, continuing or recurring where such measures have not been taken. The Department of Environmental Affairs may similarly issue directives against persons who fail to comply with the section 28 duty of care under NEMA. In addition to this, these authorities can order the suspension of part or all of a company's operations for non-compliance. Contravention of these statutes is also an offence and an offender may be liable to significant penalties in the form of a fine and/or imprisonment.

Director liability

Directors of companies may be held jointly and severally liable for any negative impact on the environment, whether advertently or inadvertently caused by the company which they represent, including damage, degradation or pollution. Directors may also be held personally liable in terms of NEMA for a range of environmental offences.

7. OCCUPATIONAL HEALTH AND SAFETY REGULATION OF THE MINING INDUSTRY

Occupational health and safety of all employees in the mining industry is governed by both legislation and the common law. The common law plays an important role in that it encompasses principles relating to contractual, delictual and criminal liability.

The primary pieces of legislation governing health and safety at mines is the Mine Health and Safety Act No 29 of 1996 which includes the MHSA Regulations promulgated in terms of the MHSA and the Minerals Act Regulations, in terms of the Minerals Act No 50 of 1991, which remain in force and effect in terms of schedule 4 to the MHS Act (**MHSA**).

One of the most important objectives of the MHSA is to protect the health and safety of all persons at, and who may be affected by, mines and not merely the health and safety of persons directly employed by the holder of the mining right. An employer, defined in the MHSA as the holder of the mining right, is obliged, in terms of the MHSA, to protect, as far as reasonably practicable, the health and safety of non-employees (such as visitors to a mine) and employees (which is defined broadly to include employees of independent contractors and all persons performing work at the mine,, irrespective of the type of work being conducted.

In terms of the MHSA and the regulations binding thereunder, the following health and safety obligations are, amongst others, imposed on the employer:

(a) to ensure, as far as reasonably practicable, that the mine is designed, constructed and equipped to provide conditions for safe operation and a healthy working environment;

(b) the appointment of competent and experienced managerial and supervisory personnel;

(c) to maintain a healthy and safe mine environment;

(d) to ensure an adequate supply of health and safety equipment;

(e) to staff the mine with due regard to health and safety;

(f) to establish a health and safety policy;

(g) to prepare and implement mandatory and other codes of practice;

(h) to provide health and safety training;

(i) to assess and respond to risk;

(j) to conduct occupational hygiene measurements;

(k) to establish a system of medical surveillance;

(l) to keep record of medical surveillance and medical examinations of current and former employees are important; and

(m) to complete and submit an annual medical report.

The Mine Health and Safety Inspectorate (**MHSI**) is responsible for the enforcement of the MHSA and the investigation of and inquiry into work related injuries, fatalities and dangerous occurrences. The MHSI also plays an important role in the promotion of health and safety at mines.

Should employers or employees fail to comply with their obligations under the MHSA (which include the regulations binding thereunder), the MHSI may take a number of enforcement measures, including, amongst other:

(a) the issuing of instructions to halt all or a portion of the mine pending compliance with the MHSA;

(b) the imposition of an administrative fine in terms of the MHSA;

(c) the suspension of responsible persons' certificates of competency; and

(d) the recommendation that the employer and/or responsible persons be prosecuted for a breach of the MHSA (which amounts to an offence in terms of section 91 of the MHSA), or culpable homicide in the event of a fatality at the mine.

Any mine closure(s) may lead to significant financial losses and operational delays. A Principal Inspector of Mines could also issue a company with an administrative fine for contraventions of the MHSA, in terms of section 55B of the MHSA. The maximum amount that can be imposed for a contravention of the MHSA or applicable regulations is ZAR1 million.

8. RESTITUTION OF LAND RIGHTS ACT NO 22 OF 1994 (RESTITUTION OF LAND RIGHTS ACT)

The Restitution of Land Rights Act provides for the restitution of rights in land to persons or communities who were dispossessed of such rights as a result of past racially discriminatory laws or practices. Claims under the Restitution of Land Rights Act had to be lodged by 31 December 1998.

The Land Claims Court of South Africa may order the: (i) restoration of land or any portion of land; (ii) State to grant the claimant an appropriate right in alternative State-owned land; (iii) State to pay the claimant compensation; (iv) State to include the claimant as a beneficiary of a State support programme for housing or the allocation and development of rural land; or (v) State to grant the claimant any alternative relief. Before the Land Claims Court makes an order of restoration of rights in land, it takes into account the feasibility of such an order. If the land has been developed or is used for mining operations, the Land Claims Court is likely to render restoration not feasible, in which event the claimant would either be compensated or granted alternative State-owned land.

The Restitution of Land Rights Act provides the statutory framework for the restitution process. A landowner cannot be compelled to grant rights in land or compensation to any successful claimants. Any restitution claim lies against the State and any form of restitution (restoration or equitable redress) must be granted by the State. In the unlikely event that land is expropriated for purposes of an expropriation order, the landowner is entitled to just and equitable compensation.

Prior to the MPRDA coming into force, the question whether a claim under the Restitution of Land Rights Act could include mineral rights was not clear. Case law decided before the MPRDA came into force indicates that a claim under the Restitution of Land Rights Act may include mineral rights. Under the MPRDA, an order for restoration does not involve restoration of mineral rights even where those mineral rights might have vested in the claimant prior to the dispossession. If restoration is granted, the applicant would need a licence from the DMR before it would be entitled to mine the property.

If a land claim is settled in favour of the claimants, this should not stop mining or prospecting operations, as the mineral rights holder has statutory rights relating to accessing the land. There may however be a delay while access terms and conditions, including terms relating to the right of a land owner to claim compensation for environmental and other damage caused to the land by the mineral rights holder (under section 54 of the MPRDA), are negotiated with any new land owner.

9. LABOUR-RELATED LEGISLATION

Employment in South Africa is regulated by the law of contract and by legislation. There is a body of legislation providing minimum protection for employees out of which employers and employees cannot contract. This legislation is found in a number of Acts that regulate, inter alia, maximum hours of work, overtime rates, minimum periods of leave, notice of termination, organisational rights in respect of trade unions, strike law, rights and responsibilities of employers and workers in the event of retrenchments, insolvency and transfers of businesses, protection from unfair dismissal and the prohibition of unfair discrimination. Below is a succinct overview of the relevant legislation and its purpose.

The Labour Relations Act No 66 of 1995 (**LRA**) is the most important and primary labour law statute in South Africa. It gives effect to section 27 of the Constitution of the Republic of South Africa being the right to fair labour practices, regulates the organisational rights of trade unions, promotes and facilitates collective bargaining at the workplace and at sectoral level, regulates the right to strike and the recourse to lock-out in conformity with the Constitution, promotes employee participation in decision-making through the establishment of workplace forums, provides simple procedures for the resolution of labour disputes through statutory conciliation, mediation and arbitration and through independent alternative dispute resolution services accredited for that purpose and the transfer of a business or a part thereof as a going concern. The Labour Relations Amendment Act No 6 of 2014 (**Amendment Act**) became effective on 1 January 2015. The Amendment Act implemented several major changes to the LRA. Amongst others, it introduced new provisions in relation to temporary employment services, fixed-term contracts of employment and part time employees. The changes placed additional obligations on employers when utilising contractor services, provided for deemed permanent employment and also benefits for part-time employees in-line with that of permanent employees. The Labour Appeal Court (the second highest division in South Africa in relation to employment matters only subject to the Constitutional Court) has pronounced on an interpretation of the Amendment Act as it relates to temporary employment services effectively amounting to a banning of labour brokers. An appeal of this judgment is pending in the Constitutional Court.

The Basic Conditions of Employment Act No 75 of 1997 (**BCEA**), applies to all employees and employers. Certain employees earning more than the prescribed amount (ZAR205,433.30 per annum) are however excluded from the application of certain sections of the BCEA. The purpose of the Act is to ensure that the minimum

acceptable conditions of employment are in place within employers and regulates conditions such as working hours, wage rates, leave, termination, severance pay and deductions from remuneration.

The Employment Equity Act No 55 of 1998 (**EEA**), is intended to achieve equity in the workplace by promoting equal opportunity and fair treatment in employment through the elimination of unfair discrimination and by implementing affirmative action measures to redress disadvantages in employment experienced by people of designated groups. Amendments to the EEA in 2014 expanded the grounds for discrimination and also introduced provision relating to "equal pay for equal work".

The Occupational Health and Safety Act No 85 of 1993 (**OHSA**) sets out the minimum rights and duties of employers and employees to maintain a healthy and safe working environment. The OHSA does not apply to mines unless specifically directed by the Minister. The MHSA, detailed above, applies to mines.

The Unemployment Insurance Act No 63 of 2001, and the Unemployment Insurance Contributions Act No 4 of 2002, provides for the payment of unemployment benefits to certain employees in certain express circumstances.

Under South African law, all retirement funds (other than certain statutory or public service funds) and medical schemes must be registered in terms of the Pension Funds Act No 24 of 1956, or the Medical Schemes Act No 131 of 1998. Only registered funds may conduct business in South Africa. Therefore it is not possible for a South African employer to provide a pension or medical plan under its own administration, and employers who do offer pension or medical plans to employees (it is not compulsory for any employer to do so) are required to subscribe to registered retirement funds or medical schemes for that purpose or to register as a retirement fund or a medical scheme.

The Skills Development Act No 97 of 1998 aims to develop the skills of the South African workforce. In terms of this Act, Sector Education and Training Authorities have been created, the main tasks of which is to establish 'learnerships', to approve workplace skills plans, to allocate grants and monitor education and training in the sector, and to collect and disburse skills development levies. Training is financed by a levy equivalent to 1% of each employer's payroll, which is levied in terms of the Skills Development Levies Act No 9 of 1999. All employers are required to budget for such levy and it cannot be deducted from workers' pay.

The Compensation for Occupational Injuries and Diseases Act No 130 of 1993 (**COIDA**) provides a system of "no fault" compensation for employees who are injured or killed in accidents that arise out of and in the course of their employment, or who contract occupational diseases. However, if the accident or disease is due to the negligence of the employer, the employee may apply for increased compensation in addition to the compensation normally payable.

In terms of COIDA, an employer is, however, protected against claims by employees for injuries sustained in the course and scope of their employment. In the event of the death of an employee, the dependents of such person are in such circumstances, prevented from recovering damages from the employer of the deceased. For purposes of section 35(1) of COIDA, certain managerial persons referred to in section 56(1)(b), (c), (d) and (e) of COIDA, are deemed to be included in the definition of an employer. Those persons are: (i) any employee charged by the employer with the management or control of the *"business or any branch or department"* thereof (e.g. a section manager or mine overseer); (ii) an employee who has the right to engage or discharge employees of the employer; and (iii) an employee appointed to be in general charge of machinery, or a person appointed to assist such engineer in terms of regulations which are binding under the MHSA.

Accordingly, no civil claim shall lie against the above persons and the employer. Similarly, the dependents of the deceased employee will not have a civil (delictual) claim against the company or those persons. The employee or the dependents of the deceased employee, however, may lodge a claim with the Compensation Commissioner in terms of COIDA for increased compensation if the occupational injury or disease was due to the negligence of the employer or other persons stipulated in section 56 of COIDA.

The Occupational Diseases in Mines and Works Act No 78 of 1973 (**ODIMWA**) applies to all *"controlled mines"* or *"controlled works"* or where *"risk work"* is performed at a mine or works. An indication as to whether a mine or works is governed by the provisions of ODIMWA, is the certification of the mine or works by the commissioner and the payment of ODIMWA levies. ODIMWA provides for the payment of compensation for certain specified diseases contracted by employees (including contractor employees) at a controlled mines or works. It must be noted, however, that if an employee contracts an occupational disease which is not compensable under ODIMWA (i.e. noise induced hearing loss), such employee will have a claim under COIDA regardless of whether the mine or works is *"controlled."*

ODIMWA does not provide a protection to an employer against liability for common law damages in respect of compensable diseases (as defined). Accordingly, if an employee (including a contractor employee) contracts a compensable disease, such employee will be entitled to compensation under ODIMWA, and may also institute a common law claim for damages against the employer.

10. COMPETITION/ANTITRUST LAW

The Competition Act No 89 of 1998 (**Competition Act**) is the key legislation which governs competition in South Africa. The Competition Act aims at promoting and maintaining competition through merger control, as well as through regulating certain prohibited practices between competitors (i.e. in horizontal relationships), between parties in vertical relationships (such as manufacturers and their distributors or retail outlets) and by dominant firms who abuse their dominant position. In terms of the Competition Act, the Competition Commission, Competition Tribunal and Competition Appeal Court have been established as independent bodies to enforce the Competition Act.

From a merger control perspective, any mergers or acquisitions which meet certain criteria and thresholds require prior approval from the competition authorities.

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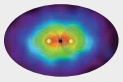

Jupiter Mines Limited

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F +61 8 9481 5933

www.jupitermines.com

JUPITER MINES LIMITED

ACN 105 991 740

Broker Code

Adviser Code

Public Offer Application Form

This is an Application Form for Shares in Jupiter Mines Limited under the Public Offer on the terms set out in the Replacement Prospectus dated 4 April 2018 (**Prospectus**). You may apply for a minimum of 5,000 Shares ($2,000) and thereafter in increments of 1,000 Shares ($400). This Application Form and your cheque or money order must be received by **5.00pm (AEST) on 10 April 2018.**

If you are in doubt as to how to deal with this Application Form, please contact your accountant, lawyer, stockbroker or other professional adviser. The Prospectus contains information relevant to a decision to invest in Shares and you should read the entire Prospectus carefully before applying for Shares.

A Shares applied for

at Price per Share **A$0.40**

B Application Monies **A$**

(minimum 5,000 Shares ($2,000), thereafter in increments of 1,000 Shares ($400))

PLEASE COMPLETE YOUR DETAILS BELOW (refer overleaf for correct forms of registrable names) +

C

Applicant #1
Surname/Company Name

Title | First Name | Middle Name

Joint Applicant #2
Surname

Title | First Name | Middle Name

Designated account e.g. <Super Fund> (or Joint Applicant #3)

D TFN/ABN/Exemption Code
First Applicant | Joint Applicant #2 | Joint Applicant #3

TFN/ABN type – if NOT an individual, please mark the appropriate box ☐ Company ☐ Partnership ☐ Trust ☐ Super Fund

PLEASE COMPLETE ADDRESS DETAILS

E PO Box/RMB/Locked Bag/Care of (c/-)/Property name/Building name (if applicable)

Unit Number/Level | Street Number | Street Name

Suburb/City or Town | State | Postcode

Email address (only for purpose of electronic communication of shareholder information)

F CHESS HIN (if you want to add this holding to a specific CHESS holder, write the number here) X +

Please note: that if you supply a CHESS HIN but the name and address details on your Application Form do not correspond exactly with the registration details held at CHESS, your Application will be deemed to be made without the CHESS HIN and any Shares issued as a result of the Offer will be held on the issuer sponsored sub-register.

G Telephone Number where you can be contacted during Business Hours ( ) | Contact Name (PRINT)

Cheques or money orders should be made payable to **"Jupiter Mines IPO Account"** in Australian currency and crossed "Not Negotiable".

H Cheque or Money Order | BSB - | Account Number

Total Amount A$

LODGEMENT INSTRUCTIONS

You must return your application so it is received before 5.00pm (AEST) on 10 April 2018 to:
Link Market Services Limited, Locked Bag A14, Sydney South NSW 1235.

JMS IPO001

Your Guide to the Application Form

Please complete all relevant white sections of the Application Form in BLOCK LETTERS, using black or blue ink. These instructions are cross-referenced to each section of the form.

The Shares to which this Application Form relates are Jupiter Mines Limited Shares. Further details about the shares are contained in the Replacement Prospectus dated 4 April 2018 issued by Jupiter Mines Limited and Jupiter SaleCo Pty Ltd (**Prospectus**). The Prospectus will expire on 13 months after the issue date. While the Prospectus is current, Jupiter Mines Limited will send paper copies of the Prospectus, any supplementary document and the Application Form, free of charge on request.

The Australian Securities and Investments Commission requires that a person who provides access to an electronic application form must provide access, by the same means and at the same time, to the relevant Prospectus. This Application Form is included in the Prospectus.

The Prospectus contains important information about investing in the Shares. You should read the Prospectus before applying for Shares.

A Insert the number of Shares you wish to apply for. The Application must be for a minimum of 5,000 Shares ($2,000) and thereafter in increments of 1,000 Shares ($400). You may be issued all of the Shares applied for or a lesser number.

B Insert the relevant amount of Application Monies. To calculate your Application Monies, multiply the number of Shares applied for by the issue price. Amounts should be in Australian dollars. Please make sure the amount of your cheque or money order equals this amount.

C Write the full name you wish to appear on the register of Shares. This must be either your own name or the name of a company. Up to three joint Applicants may register. You should refer to the table below for the correct registrable title.

D Enter your Tax File Number (TFN) or exemption category. Business enterprises may alternatively quote their Australian Business Number (ABN). Where applicable, please enter the TFN or ABN for each joint Applicant. Collection of TFN(s) and ABN(s) is authorised by taxation laws. Quotation of TFN(s) and ABN(s) is not compulsory and will not affect your Application. However, if these are not provided, Jupiter Mines Limited will be required to deduct tax at the highest marginal rate of tax (including the Medicare Levy) from payments.

E Please enter your postal address for all correspondence. All communications to you from Jupiter Mines Limited and the Share Registry will be mailed to the person(s) and address as shown. For joint Applicants, only one address can be entered.

F If you are already a CHESS participant or sponsored by a CHESS participant, write your Holder Identification Number (HIN) here. If the name or address recorded on CHESS for this HIN is different to the details given on this form, your Shares will be issued to Jupiter Mines Limited's issuer sponsored subregister.

G Please enter your telephone number(s), area code and contact name in case we need to contact you in relation to your Application.

H Please complete the details of your cheque or money order in this section. The total amount of your cheque or money order should agree with the amount shown in section B.
Make your cheque or money order payable to **"Jupiter Mines IPO Account"** in Australian currency and cross it "Not Negotiable". Your cheque or money order must be drawn on an Australian bank. Sufficient cleared funds should be held in your account, as cheques returned unpaid are likely to result in your Application being rejected.

I By submitting this Application Form, an Applicant will be deemed to have agreed to become a member of Jupiter Mines Limited and to be bound by the terms of the constitution of Jupiter Mines Limited and the terms and conditions of the Offer, and to have authorised Jupiter Mines Limited, Jupiter SaleCo Pty Ltd, the Managers (as defined in the Prospectus) and their respective officers and agents, to do anything on behalf of the Applicant necessary for the Shares to be allocated, transferred and/or issued to the Applicant.

LODGEMENT INSTRUCTIONS

This Application Form and your cheque or money order must be mailed or delivered so that it is received before 5.00pm (AEST) on 10 April 2018 at:

Mailing Address
Jupiter Mines Limited
C/- Link Market Services Limited
Locked Bag A14
Sydney South NSW 1235

Hand Delivery
Jupiter Mines Limited
C/- Link Market Services Limited
1A Homebush Bay Drive
Rhodes NSW 2138
(do not use this address for mailing purposes)

PERSONAL INFORMATION COLLECTION NOTIFICATION STATEMENT

Personal information about you is held on the public register in accordance with Chapter 2C of the *Corporations Act 2001.* For details about Link Group's personal information handling practices including collection, use and disclosure, how you may access and correct your personal information and raise privacy concerns, visit our website at www.linkmarketservices.com.au for a copy of the Link Group condensed privacy statement, or contact us by phone on +61 1800 502 355 (free call within Australia) 9am–5pm (Sydney time) Monday to Friday (excluding public holidays) to request a copy of our complete privacy policy.

CORRECT FORMS OF REGISTRABLE NAMES

Note that ONLY legal entities are allowed to hold Shares. Applications must be in the name(s) of natural persons or companies. At least one full given name and the surname is required for each natural person. The name of the beneficiary or any other non-registrable name may be included by way of an account designation if completed exactly as described in the examples of correct forms below.

Type of Investor	Correct Form of Registration	Incorrect Form of Registration
Individual Use given names in full, not initials	Mrs Katherine Clare Edwards	K C Edwards
Company Use Company's full title, not abbreviations	Liz Biz Pty Ltd	Liz Biz P/L or Liz Biz Co.
Joint Holdings Use full and complete names	Mr Peter Paul Tranche & Ms Mary Orlando Tranche	Peter Paul & Mary Tranche
Trusts Use the trustee(s) personal name(s)	Mrs Alessandra Herbert Smith <Alessandra Smith A/C>	Alessandra Smith Family Trust
Deceased Estates Use the executor(s) personal name(s)	Ms Sophia Garnet Post & Mr Alexander Traverse Post <Est Harold Post A/C>	Estate of late Harold Post or Harold Post Deceased
Minor (a person under the age of 18 years) Use the name of a responsible adult with an appropriate designation	Mrs Sally Hamilton <Henry Hamilton>	Master Henry Hamilton
Partnerships Use the partners' personal names	Mr Frederick Samuel Smith & Mr Samuel Lawrence Smith <Fred Smith & Son A/C>	Fred Smith & Son
Long Names	Mr Hugh Adrian John Smith-Jones	Mr Hugh A J Smith Jones
Clubs/Unincorporated Bodies/Business Names Use office bearer(s) personal name(s)	Mr Alistair Edward Lilley <Vintage Wine Club A/C>	Vintage Wine Club
Superannuation Funds Use the name of the trustee of the fund	XYZ Pty Ltd <Super Fund A/C>	XYZ Pty Ltd Superannuation Fund

Put the name(s) of any joint Applicant(s) and/or account description using < > as indicated above in designated spaces at section C on the Application Form.