



**CONSISTENTLY  
DELIVERING**

 **AFRIMAT**<sup>®</sup>  
LIMITED

**2023**

# COMPETENT PERSONS' REPORT ON AFRIMAT LIMITED'S IRON ORE DIVISION, SOUTH AFRICA

February 2023

[www.afrimat.co.za](http://www.afrimat.co.za)

## Executive Summary

### Introduction

Afrimat Limited (Afrimat) is listed on the Johannesburg Stock Exchange (JSE) and as such is required to report material changes on the company's assets in the form of a Competent Persons Report (CPR). In addition the Afrimat has announced a move from the Basic Materials, Construction sector to the General Mining sector, effective 20 March 2023. The change has necessitated the formal disclosure of Afrimat's Resources and Reserved in compliance with the requirements of Section 12.10 of the JSE listing requirements.

This CPR includes all relevant technical information on the Afrimat Iron Ore Division (Afrimat Iron Ore) including, but not limited to, previous exploration and mining, current exploration, recent mining and processing operations and long-term operational planning. The CPR covers the technical aspects of the following 4 mineral properties:

- Demaneng;
- Jenkins;
- Driehoekspan; and
- Doornpan.

Afrimat operates the 4 properties as a single operating unit, with shared technical, operational and support functions. Production output from the 4 properties are considered as a whole to meet customer requirements and maximise value.

This CPR will provide shareholders with a complete technical record of Afrimat Iron Ore and its current status.

### Compliance

This CPR is fully compliant with Section 12.10 of the JSE listing requirements, the South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (The SAMREC Code, 2016 Edition) and additional requirements pertaining to the JSE listing requirements.

The Competent Persons (CPs), responsible for the preparation of this public report is employed by Afrimat, but carries no direct or indirect interest in the Afrimat Iron Ore Division. The CPs compensation, employment, and contractual relationship with Afrimat is not contingent on any aspect of the CPR.

## Property Description

Afrimat operates the three properties (Demaneng, Jenkins and Driehoekspan) as a single operating unit, with shared technical, operational and support functions. Production output from the properties are considered as a whole to meet customer requirements and maximise value. Doornpan is considered an exploration property.

The Demaneng Iron Ore mine is situated approximately 15km south of the mining town of Kathu in the Northern Cape Province. Demaneng primarily mined Pit H and Rust & Vrede Pit, with ore processed through the two dense medium separation plants.

The Jenkins Iron Ore Mine is situated approximately 8km due south of the Demaneng Iron Ore Mine and about 23km south of the mining town of Kathu. Jenkins mined from a single open pit and produces a direct shipping ore product from its fixed crushing plant.

The Driehoekspan Iron Ore Mine is situated approximately 19km north of the Postmasburg town and about 25km south of the Jenkins Iron Ore Mine. The Doornpan Iron Ore project is situated approximately 13km north of the Postmasburg town and about 6km south of the Driehoekspan Iron Ore Project.

The topography of the region is characterised by low, gently rolling hills, punctuated by occasional north-south orientated erosion-resistant, siliceous ridges. The vicinity of the Project is characterised by flat rocky plains and sloping hills with well developed, closed shrub layer and well-developed open tree stratum consisting of *Acacia erioloba*. There are no existing wetlands, dams, national parks, and known archaeological artefacts within the Project area.

The major land use in this semi-arid region is game, cattle and sheep farming, although water supply is limited to an annual 300mm - 500mm of rainfall. The wet season occurs between the months of October to March. The mean monthly maximum and minimum temperatures are about 35.9°C and -3.3°C, in January and June respectively. Frost is frequent in winter.

## Legal Aspect and Tenure

### Demaneng

Security of tenure for the Demaneng property is held in the form of Mining Right NC 270 MR issued on 28 May 2011. The mining right is valid until 27 May 2028.

### Jenkins

Security of tenure for the Jenkins property is held in the form of Mining Right NC 10094 MR issued on 24 March 2021. The mining right is valid until 23 March 2051.

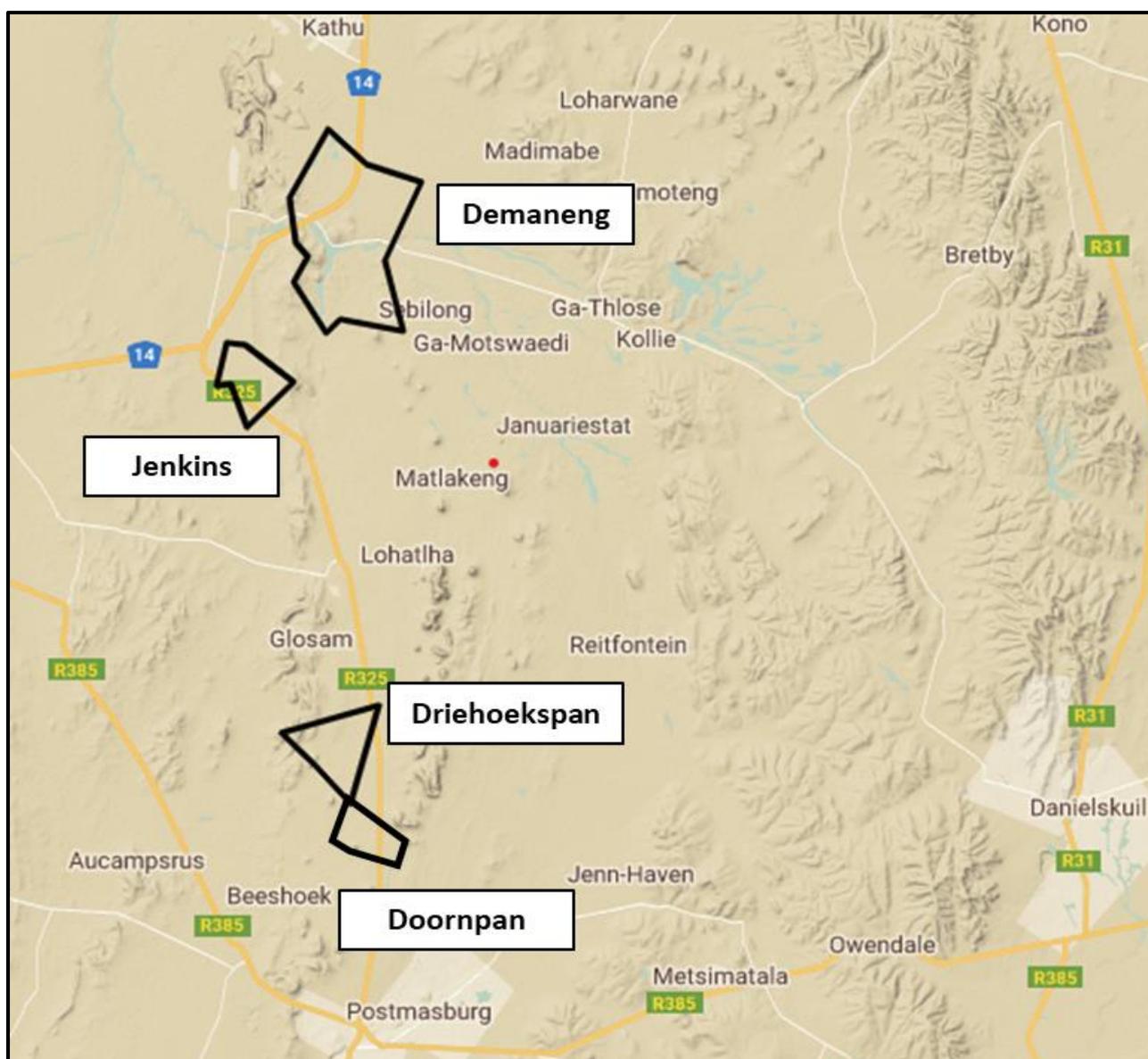
### Driehoekspan

Security of tenure for the Driehoekspan property is held in the form of Mining Right NC 10082 MR issued on 15 October 2020. The mining right is valid until 14 October 2050.

### Doornpan

Security of tenure for the Doornpan property is held in the form of Mining Right NC 10034 MR issued on 4 December 2017. The mining right is valid until 3 December 2023. Afrimat is in the process to extend the mining right.

### Location of Afrimat Iron Ore Properties



## **Geology and mineralisation**

The primary ore deposits occur in the Neoproterozoic Banded Iron Formations (BIFs) of the Transvaal Supergroup, and are classified as "Superior-type" (van Schalwyk and Beukes, 1986). The Transvaal Supergroup is represented by a several kilometre thick succession of sedimentary and volcanic rocks deposited on the stable continental platform of the Kaapvaal Craton.

The base of the Transvaal Supergroup is represented by the dolomites of the Campbell Rand Subgroup which are overlain by the chert Wolhaarkop Breccia, and above that, the chert and haematite-rich BIFs of the Manganore Iron Formation.

Localised manganese (Mn) deposits are also known to occur in the region, hosted within the Wolhaarkop Breccia (van Schalwyk and Beukes, 1986). Such structurally-controlled manganese deposits have been interpreted to be residual manganese originating from karstification of the Campbell Rand Subgroup carbonates.

Remnants of the Manganore Iron Formation and the Wolhaarkop Breccia outcrop in a generally eastward-dipping convex arc (known as the Maremane Dome) between Sishen in the north and Postmasburg in the south. The outcrops from the topographic highs referred to locally as the Klipfontein Hills.

### **Demaneng**

Demaneng is located at the northern end of the Maremane Dome close to the convergence of the north-south trending Gamagara Formation with the older Campbell Rand Dolomite. Geological Mapping across the various exposures of at Demaneng has delineated the presence of interpreted sinkholes and thrust faults, within which the massive and laminated units of the Manganore Iron Formation and Gamagara Formation have been preserved. These formations are covered by the younger Kalahari Group deposits of red sands and alluvium, proximal to the river banks.

### **PIT H**

The lithological sequence consists of shale and conglomerate of the Gamagara Formation that is unconformably underlain by BIF of the Manganore Iron Formation which is overlying an undulating Wolhaarkop chert breccia.

The majority of the mineralisation on Pit H occurs in a zone of structurally controlled haematite alteration in the BIF. The mineralisation is interpreted to occur within a series of repeated/duplicated zones of faulting or thrusting, which are orientated north-south. Duplication is evident with older stratigraphy observed to overlie younger stratigraphy. A set of northwest-southeast linear structures can be seen in the open-pit and are considered to be associated with the faulting and thrusting seen in the drillholes.

These linear features are perpendicular to the strike of the thrust orientations with recorded measurements of 90° to 110° dipping at approximately 75° to 90° to the northeast.

Three distinct zones of mineralisation are evident in the drill holes, massive, homogenous haematite (>60% Fe), layered BIF with minor zones of haematite enrichment 45% to 55% Fe and a conglomerate. The zones of partially replaced BIF that contain haematite are interpreted to form a "halo" around the massive mineralisation which is orientated approximately northwest-southeast. Overlying the host BIF is the Doornfontein Conglomerate. The pebbles and matrix of the conglomerate are often seen to be replaced by haematite. The conglomerate is flat lying, with grades ranging from 50% to 55% Fe.

### **PIT Rust en Vrede**

The lithological sequence consists of shale and conglomerate of the Gamagara Formation that is unconformably underlain by BIF of the Manganore Iron Formation which is overlying an undulating Wolhaarkop chert breccia.

The majority of the mineralisation occurs in a zone of structurally controlled haematite alteration in the BIF. The mineralisation is interpreted to occur within a series of repeated/duplicated zones of faulting or thrusting, which are orientated north-south. Duplication is evident with older stratigraphy observed to overlie younger stratigraphy. A set of northwest-southeast linear structures can be seen in the open pit and are considered to be associated with the faulting and thrusting seen in the drill holes.

Overlying the host BIF is the Doornfontein Conglomerate. The pebbles and matrix of the conglomerate are often seen to be replaced by haematite. The conglomerate is flat lying, with grades ranging from 50% to 60% Fe.

### **Jenkins**

The eastern part of Jenkins contains well exposed outcrops of dense black hematite, dipping at around 17 degrees to the west. At approximately 200m down slope, the hematite is overlain by the younger Gamagara quartzite and ferruginous shale, on an angular unconformity. Thrust faulting has been reported in the literature between the oxide layers and the underlying dolomite. Further to the west, the sedimentary rocks are overlain by the basaltic andesites of the Ongeluk Lava along the Black Ridge thrust fault plane.

Variations occur in the thickness of the various layers due to the undulations of the dolomite floor (attributed to collapsed solution cavities in the dolomite), variations of the overlying sedimentary events and compression flexing from the west.

### **Driehoekspan**

On Driehoekspan, only the western extremity of the farm contains the ore zone which outcrops on three distinct topographic ridges with opposing and overturned dips on the western most exposures, the eastern remained of the farm being the central flat lying erosional dolomite plain with occasional low hills of dolomite.

Compression tectonics from the west has produced steep to vertical and possibly overturned isoclinal folding, the frequency and amplitude of which decreases rapidly eastwards. This is evidenced by three separate outcrop exposures of both ferrous and ferro-manganiferous oxide material, decreasing in altitude from the west.

### **Doornpan**

Doornpan lies on the flat lying central Maremane dome dolomite plain with the Bleskop Hill forming an isolated topographic high containing a semi-elliptical crown outcrop of hematite. Outcropping black hematite is visible both at the apex and at the base of the hill.

Topographically, the top of the hill forms a shallow inwardly dipping, indicating that the hill is a remnant overlaying a collapsed cavity forming a slump structure. The base is some 70m below the present day dolomite erosional surface.

## **Geological Modelling**

Due to the synclinal nature of the orebody, downhole and omni-directional variograms were modelled to best describe the grade distribution within the orebody by using Datamine's Supervisor® software. The variograms were constructed per key field and the key field used was stratum i.e., only samples from the same strata were used during the modelling of the variograms.

Search volumes used were derived from the variogram ranges. Which in this specific situation was based on the omni-directional and downhole variograms. The omni-directional range for Fe in MAN\_ORE was 60 m.

A minimum of 1 and a maximum of 15 samples were used to estimate each block. These relatively small numbers were used to ensure the blockmodel honours the borehole data.

Strat3D's estimation inherently follows the structure or orientation of the orebody during estimation. Search directions are automatically adjusted to align with the orientation of the orebody. The basal contact for each stratum was used as reference plane.

Datamine's Strat3D® modelling software was used to create the geological model. The following data was used as inputs to the geological model:

1. Topographic surface:
2. Re-correlated boreholes; and
3. Outcrop of upper and lower contact of the Manganore iron formation (BIF/Hematite) as determined by 1:250 000 geological map.

The model was constructed on a 12.5 (x) m x 12.5 (y) m x 2 (z) m block size based on the Kriging Neighbourhood Analysis (KNA) and to allow the model to follow the very undulating nature of the orebody.

KNA is performed by calculating the KE and SR for varying combinations of estimation parameters. The resulting graphs is then used to help in selecting which parameters result in the least over smoothing.

Based on the results, the following parameter were applied during estimation:

- Samples: Minimum 2 (to ensure estimation in all blocks) Maximum 15 (to avoid negative weights)
- Search volume: 87 m x 25 m x 17 m (variogram ranges)
- Discretisation points: 3 x 3 x 3

Boreholes were composited into 2 m intervals and zonal control was used, i.e., the composites were limited to each stratum. The minimum composite length used was 0.01 m.

The relationship between the strata were set as "conformable". Although the genetic model indicates a disconformity between the iron bearing sediments and the shale, the best results were achieved using a conformable relationship. The strata were also set to "contiguous" ensuring there were no gaps in between successive strata away from boreholes.

Datamine's Supervisor® was used to conduct top cut analysis of the data. This was conducted to identify possible outliers in the data which may negatively impact estimation. Common practice is to "cap" outlier values which are not deemed part of the population to more reasonable grades.

However, for Jenkins and Driehoekspan, the analysis carried out indicated that top cutting is not required. Top capping analysis for strata HEM\_U and HEM\_L, the main iron bearing units, showing no outliers. Top capping/cutting was therefore not applied prior to variogram modelling and estimation.

Strat3D's estimation inherently follows the structure or orientation of the orebody during estimation. Search directions are automatically adjusted to align with the orientation of the orebody. The basal contact (floor) of each stratum was used as the reference plane.

The resultant geological model for Demaneng represents a steeply dipping “palaeo-valley” type deposit with infilling of younger sediments within the valley structure of the orebody. The valley/inner part of the deposit is covered by a banded iron formation that contains low Fe %. Directly below this is the main orebody which consists of high-grade iron ore that occurs within hematite.

The geological model created for Jenkins and Driehoekspan represents a typical “palaeo-valley” type deposit with infilling of the valley structure by younger sediments. The inner part of the deposit is covered by a thick intersection of shale and quartzite. Below this, the main orebody is situated with outcrop along the eastern edges of the orebody. The surrounding country rock comprises of dolomite.

## **Mineral Resource estimate**

The current Mineral Resource estimate has been prepared to take into account the results of the exploration programme and mining depletions to this date.

The current Mineral Resource estimate, dated 28 February 2023, has been prepared and signed off by Mr Johan Pretorius as CP. This Mineral Resource estimate was prepared in accordance with the SAMREC Code (2016 Edition) and comprises a total of 44.3Mt of iron ore and is inclusive of Mineral Reserves.

Kriging Efficiency and Slope of Regression are popular methods for classifying resources into resource categories. SR is applied here as it appears to be more robust to drillhole spacing. The SR can be defined as correlation coefficient between estimated and theoretical “true” block grades. Datamine’s Supervisor was used to determine the SR at various drillhole spacings. The following recommended classification was made (as is commonly used in the mining industry):

- SR of  $\geq 0.80$ : Measured Resources
- SR of between 0.60 - 0.80: Indicated Resources
- SR of  $< 0.60$ : Inferred Resources

The variograms produced for HEM\_U, Fe % was used as this is the metal of economic concern whilst HEM\_U is the main ore zone.

The SR at various drillhole spacings was calculated for Fe in HEM\_U. The SR was calculated for the area and the box-and-whisker plot indicating the range and mean SR for different drillhole spacings. Based on the results of the study, the following drilling spacings was applied:

- Measured Resources:  $< 80$  m drillhole spacing
- Indicated Resources: 80 m – 100 m drillhole spacing
- Inferred Resources:  $>100$  m drillhole spacing.

It should be noted that the SR calculation is highly dependent on the ranges determined from the variogram models. It is believed that the current variograms are the most accurate as they were conducted in an unfolded coordinate system and the lag used during the calculations are based on the average drillhole spacing. The previous resource estimate conducted by Sphynx (2013), had a range for Fe of 175m. The maximum range as determined in this report for Fe in the main HEM\_U was calculated as 87m. Based on the data, and especially the down-dip variance observed, a range of 87m appears appropriate.

Based on the above calculations, buffers around the boreholes which intersected the various strata were drawn and the blockmodel flagged accordingly. At least two boreholes should fall within the borehole spacing to qualify. No isolated boreholes were included.

Although Mn is present in potentially economically viable quantities and qualities at Driehoekspan, this CPR only covers the Iron Ore deposits as information on the Mn is at present insufficient to declare a Mn Mineral Resource. Exploration, modelling, study work and mine planning for Mn is ongoing at Driehoekspan.

## **Mineral Reserves**

The current Mineral Reserve estimate has been compiled by Mr Philip Mostert of Afrimat who has the necessary experience in the nature and style of mineralisation to qualify as a Competent Person as defined in terms of the SAMREC Code (2016). Mr Mostert is a member in good standing of the SACNASP. The Mineral Reserve estimate is tabulated Table 5. The Afrimat Iron Mineral Reserve estimate has been prepared as at 28 February 2023, using as input parameters the Life of Mine (LOM) planning undertaken by Mr Riaan van der Linde. Mr van der Linde is a full time employee of Ukwazi, contracted on a permanent basis as mine planner to Afrimat Iron Ore.

The mine design and scheduling processes presented utilise industry best-practice techniques. Mine design remains a dynamic exercise which will see regular revision as the actual mining experience, in terms of structure, grade and processing, and is constantly reconciled with model variables which enable progressively sharper final planning.

Geological and mining modelling packages provide a primary order-of-magnitude cross-check of the in-situ volumes, relative densities and tonnages. The Surpac mine modelling package provide this first tonnage reconciliation with the geological model on the basis of the primary exploration inputs, both structural and quality. With a <2.5% variance in tonnage estimates the Surpac models are deemed an appropriate and reasonable representation of the geological model.

## Mineral Resource and Mineral Reserve summary

Mineral Resource and Mineral Reserve estimates reported for the period ended 28 February 2023 is indicated below.

### Afrimat Iron summary Mineral Resources (28 February 2023)

Category	Mt	Fe %	K2O %	SiO2 %	Al2O3 %	P2O3 %	Mn %
Measured	35.2	61.59	0.51	4.14	2.69	0.07	1.68
Indicated	9.0	56.73	1.83	3.90	2.81	0.08	1.60
<b>Total</b>	<b>44.20</b>	<b>60.60</b>	<b>0.78</b>	<b>4.09</b>	<b>2.72</b>	<b>0.08</b>	<b>1.66</b>
Inferred	0.1	58.10	0.37	3.75	2.96	0.07	2.17

### Afrimat Iron Mineral Reserves (28 February 2023)

Operation	Category	ROM (Mt)	Fe%
Demaneng	Probable	2.59	62.17
Jenkins	Probable	15.47	62.74
Driehoekspan	Probable	7.62	60.18
<b>Total</b>		<b>25.68</b>	<b>61.92</b>

## Conclusion

Afrimat Iron Ore's properties as characterised by a high level of confidence through the completion of the recent drilling campaigns and knowledge gained from ongoing mining activities. The drilling programmes have confirmed the historical drilling information as well as the percussion drilling results, and its suitability for inclusion in the Mineral Resource estimates. This allowed for a greater number of boreholes included in the estimation database, and an increased level of confidence in the Resource classification. Based on the knowledge gained, Mineral Resources have been declared for Demaneng according to the requirements of SAMREC. This has offset the reduction in Resources at Jenkins following the pit optimisation completed in 2022. The overall Resources have remained stable apart from a minor reduction due to mining depletion.

Work is ongoing to assess the manganese potential across the properties, which could add significant value to the portfolio.

The life of mine planning caters for the mining of the various pits across the three properties which allows for effective blending strategies to meet customer product specification.

The stable life of mine, successful mining operations of the past several years and consistent product delivery has allowed for the declaration Mineral Reserves for the first time.

Two key risks to the Mineral Reserve presented in this report are the management of the blended grade supply to match customer expectations, and the achievement of the planned Driehoekspan production ramp-up.

In addition, the sporadic performance of Transnet's rail transport could impact the ability to deliver contracted volumes to port.

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# 1 Introduction

## 1.1 Terms of Reference

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contingent on any aspect of the CPR. A full list of compliance statements relevant to this CPR are included in Appendix 1.

### **1.3 Competent Persons Declaration and Qualifications**

Mr Mostert hereby provides written consent to Afrimat for the inclusion in this report of the SAMREC compliant Mineral Resource and Mineral Reserve estimates. The Lead CP also states that the information disclosed in this CPR are compliant with the SAMREC Code and, where applicable, the relevant Section 12 and Table 1 requirements and that it may be published in the form and context in which it was intended.

### **1.4 Sources of Information**

Supplementary information has been obtained from Afrimat via personal communications during the site visit and post the site visit.

### **1.5 Units and currency**

This CPR has been prepared using metric units in all cases. The currencies used include the South African Rand (ZAR) and United States Dollar (USD). The financial model has been prepared using ZAR.

### **1.6 Site Inspection**

Mr Mostert has visited the Afrimat Iron Ore sites several times during the performance of his operational duties. The most recent visit relative to the completion of the CPR is 4-6 April 2023.

Mr Pretorius is full time employed and stationed at Afrimat Iron Ore. He visits the various properties regularly as part of his operational duties.

### **1.7 Reliance on other Experts and Third Party Information**

Afrimat has relied upon the expertise of Mr Johan Pretorius , a co-author to this report for the estimation of the Mineral Resources. Mr Pretorius is employed as the Head Geology & Grade Control: Afrimat Iron Ore (Pty) Ltd. The CP has reviewed all Mineral Resource estimates and is satisfied that they are an accurate reflection of the Mineral Resource present at Demaneng, Jenkins, Driehoekspan and Doornpan based upon the currently available information.

## 2 Country Profile

The South Africa country profile has been prepared using various publicly available sources of information.

### 2.1 Political and Economic Climate

#### 2.1.1 Political Climate

South Africa was declared a republic in 1961. The political and legal systems were based upon the concept of separate racial development enforced by a white minority government. The first multiracial elections, held in 1994, ushered in black majority rule under the African National Congress (ANC). South Africa continues to hold democratic, peaceful, free and fair elections.

South Africa is widely believed to be the most advanced economy in Africa, and is classified as a middle-income, emerging market, with well-developed financial and judicial systems, and modern infrastructure.

Mr Cyril Ramaphosa was elected president by parliament in February 2018 after his predecessor, Mr Jacob Zuma, resigned. Mr Ramaphosa had been chosen to lead the ruling ANC a few months earlier. On 21 September 2018, Mr Ramaphosa unveiled a stimulus package which included beefed-up infrastructure outlays, job-creation initiatives and pro-business reforms. Markets reacted favourably to the appointment of Mr Tito Mboweni as finance minister, who has been tasked with reviving the lacklustre economy and easing investor concerns.

South Africa's sixth general elections since the end of apartheid in 1994 were held on 8 May 2019. The elections were held to elect the new National Assembly and provincial legislatures for each province. The National Assembly election was won by the ANC with a majority of 57.50%, down from 62.15% since the 2014 election. This result was the ANC's lowest vote share since becoming the ruling party in 1994. The official opposition remained the Democratic Alliance (DA) whose vote share decreased from 22.23% to 20.77%. Mr Cyril Ramaphosa remains as president for the next five years. The next general elections are scheduled for 2024.

#### 2.1.2 Economic Climate

South Africa is a country with a developing economy and unique societal challenges. High crime rate, poor standards of education, high unemployment and low incomes for entry-level jobs result in feelings of inequality and a recurrent cycle of poverty. Government is

tackling these issues by introducing higher minimum wage structures, as well as creating innovative ways to advance small business start-ups aimed at kick-starting the creation of jobs. Effective Socio-Economic Development (SED) programmes are also being run by many companies in South Africa to address these challenges. The National Development Plan (NDP) outlines structural modifications required to boost investment, increase employment and remove constraints to economic growth.

Electricity supply shortages have constrained South Africa's growth for several years. Rolling scheduled power cuts (load-shedding) started in 2007 and have intensified exponentially, reaching close to 9 hours daily in 2022. This severe electricity shortfall has disrupted economic activity and increased operating costs for businesses, many of which rely on costly diesel generators. It has also affected other infrastructure such as water, IT, and service delivery (health and education).

Weak structural growth and the COVID-19 pandemic have exacerbated socio-economic challenges. South Africa has recovered its pre-pandemic GDP but not its employment level. At the end of 2022, there were still close to half a million fewer jobs than at the end of 2019, with women and youth persistently more impacted. Inequality remains among the highest in the world, and poverty was an estimated 63% in 2022 based on the upper-middle-income country poverty line, only slightly below its pandemic peak. These trends have prompted growing social demands for government support, which could put the sustainability of public finances at risk if they are to be met.

The global environment remained supportive but increasingly severe domestic constraints led to GDP growth slowing to 2% in 2022 from 4.9% in 2021. Mining production fell while manufacturing production stagnated, as load-shedding and transport bottlenecks intensified. The services sectors (financial, transport, and personal) and domestic trade were key drivers of growth. The labour market has remained weak. The employment ratio only increased slightly to 39.4% at the end of 2022 from a pandemic low of 35.9% in September 2021. In this context, the COVID-19 Social Relief of Distress Grant, introduced in May 2020, was extended for another year until March 2024. Socio-economic challenges were further exacerbated by rising fuel and food (bread and cereals) prices, which disproportionately affected the poor. Inflation averaged 6.9% in 2022 but was 8.2% for those at the bottom 20% of the income distribution.

## **2.2 Minerals Industry**

South Africa has an abundance of mineral resources, accounting for a significant proportion of world production and reserves. South Africa's mining industry has been dominated by

gold, platinum and coal since mining commenced in the late 1800s, although over 50 different minerals are currently mined annually in the country. There are over 1,700 mines operating in the country employing over 457,000 personnel (DMR, 2019). The GDP from mining increased to ZAR231 billion (bn) in the second quarter of 2021 from ZAR228bn in the first quarter of 2022. No further updates to these figures have been published by the DMR for 2022.

### **2.2.1 Iron Ore Industry**

South African iron ore resources, an estimated nearly 5,370Mt, are ranked the 9<sup>th</sup> largest in the world. If the Bushveld Complex's lower-grade potential resources are included, the resource base increases by 26,400Mt, which would then rank South Africa's iron ore resources as the 6<sup>th</sup> largest in the world. In terms of export of iron ore, South Africa is ranked number 6<sup>th</sup> in the world.

The principal deposits of iron ore of South Africa are the Superior-type banded iron formations of the Transvaal Supergroup in the Northern Cape Province, which can be traced as a prominent, arcuate range of hills for some 400km from Pomfret in the north to Prieska in the south. The most significant deposits occur in the vicinity of Postmasburg and Sishen, where high-grade hematite concentrations have been preserved in the narrow north-south trending belt of the iron- and manganese-bearing lithologies of the Asbestos Hills Subgroup (~2,670Mt at Beeshoek Mine, Sishen Mine and Welgevonden deposit (Astrup et al, 1998). An additional 100Mt is estimated to occur as hematite concentrations within the Penge Formation of the Chuniespoort Group (Transvaal Supergroup), which crops out along the northern rim of the Bushveld Complex near Thabazimbi in the Limpopo Province.

South Africa's iron ore is exported via Transnet's Orex railway line through the port of Saldanha. The length of the Sishen to Saldanha railway line is 861 km – 2 to 3 times longer than the rail lines of CVRD (Brazil) and BHP Billiton (Australia) rail lines – both these lines (and associated ports) are controlled, paid for and maintained by the respective companies. The lower transport and freight cost gives the companies a competitive edge over South African companies.

The global iron ore market size will grow from \$405.1 billion in 2022 to \$447 billion in 2023 at a compound annual growth rate (CAGR) of 10.3%. The Russia-Ukraine war disrupted the chances of global economic recovery from the COVID-19 pandemic, at least in the short term. The war between these two countries has led to economic sanctions on multiple countries, a surge in commodity prices, and supply chain disruptions, causing inflation

across goods and services and affecting many markets across the globe. The iron ore market size is expected to grow from \$657.73 billion in 2027 at a CAGR of 10.1%.

South Africa accounts for 3% of global production, with the other largest producers being Australia (38%), Brazil (18%), India (10%) and China (10%). Exports of iron ore from South Africa remained flat by 0.44% to 68Mt in 2022 over 2021, with the highest share being exported to China. South Africa's iron ore exports are expected to grow at a CAGR of 3% between 2022 and 2026, to 77Mt by 2026.

Leading producers of iron ore in South Africa are Anglo American and African Rainbow Minerals. Anglo American's output was 31.55Mt in 2021, up by 5% on 2020. African Rainbow Minerals produced 15.93Mt, a decrease of 0.99% on the previous year.

The growth in the iron ore market is due to increasing construction projects in rapidly developing countries such as China and India owing to the rising population and infrastructure development. Population refers to the whole number of people or inhabitants in a country or region. The primary use of iron ore (98%) is to make steel. For instance, In June 2022, according to Worldometer, a US-based reference website that provides counters and real-time statistics for diverse topics, The current population of China is 1,450,341,718. Therefore, the rising population is driving the growth of the Iron Ore market.

## 2.3 Minerals Policy and legislative framework

From 1997, the ownership of South Africa's minerals was vested in the State. From this time the Department of Minerals and Energy (DME) managed the regulation of South Africa's minerals industry. In May 2009, President Jacob Zuma, announced the creation of two new ministries to replace the DME. The two ministries were named the Department of Energy (DOE), and the Department of Mineral Resources (DMR). The DMR is responsible for the promotion and regulation of the minerals and mining for transformation, growth, development and to ensure that all South Africans derive sustainable benefit from the country's mineral wealth. The aim of the DMR is to formulate and implement policy to ensure optimum use of the country's mineral resources.

The South Africa government has an extensive legal framework within which mining, environmental and social aspects are managed. The South African statutory legislation and requirements relevant to Nkomati include the following laws:

- Mineral and Petroleum Resources Development Act (Act 28 of 2002) (MPRDA);
- Mineral and Petroleum Resources Development Amendment (Act 49 of 2008);
- Mineral and Petroleum Resources Development Draft Amendment Bill (2012);

- Broad-Based Socio-Economic Empowerment Charter for the Mining and Minerals Industry (2018);
- Mineral and Petroleum Resources Royalty Act (Act 28 of 2008) (MPRRA);
- National Environmental Management Act (Act 107 of 1998) (NEMA);
- National Environmental Management Laws Amendment Act (Act 25 of 2014);
- National Environmental Management: Air Quality Act (Act 39 of 2004) (NEM:AQA);
- National Environmental Management: Waste Act (Act 59 of 2008) (NEM:WA);
- National Environmental Management: Protected Areas Act (Act 57 of 2003) (NEM:PAA);
- Environment Conservation Act (Act 73 of 1989) (ECA) (Section 25 – Noise Regulations);
- National Heritage Resources Act (Act 25 of 1999) (NHRA);
- National Forests Act (Act 30 of 1998) (NFA);
- National Water Act (Act 36 of 1998) (NWA);
- Hazardous Substances Act (Act 15 of 1973) (HAS); and
- Mine Health and Safety Act (Act 29 of 1996) and amendments (MHSA).

## 3 Project Outline

### 3.1 Property Location

Afrimat operates the three properties (Demaneng, Jenkins and Driehoekspan) as a single operating unit, with shared technical, operational and support functions. Production output from the properties are considered as a whole to meet customer requirements and maximise value. Doornpan is considered an exploration property.

The Demaneng Iron Ore mine is situated approximately 15km south of the mining town of Kathu in the Northern Cape Province (Figure 1). Demaneng primarily mined Pit H and Rust & Vrede Pit, with ore processed through the two dense medium separation plants.

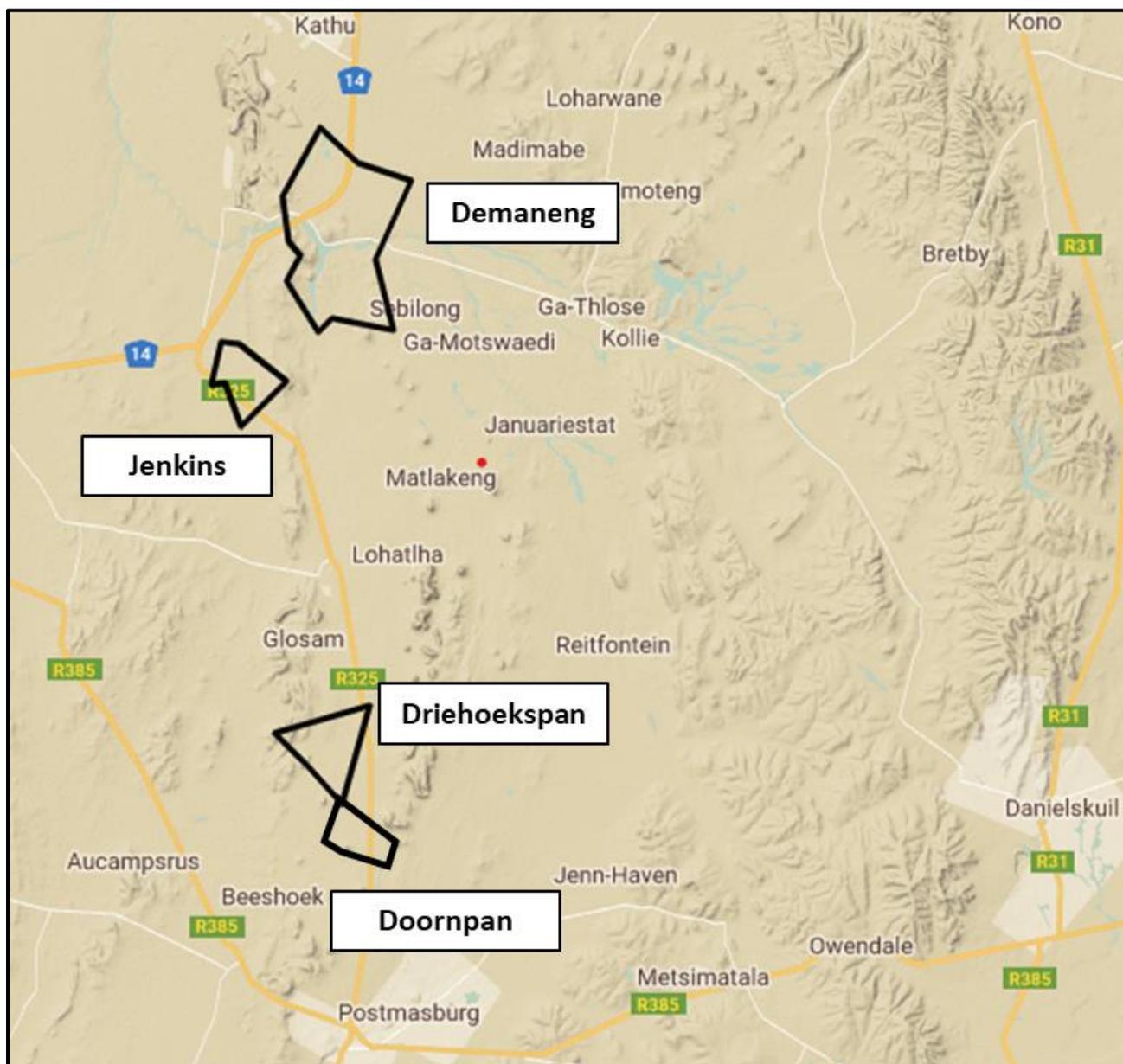
The Jenkins Iron Ore Mine is situated approximately 8km due south of the Demaneng Iron Ore Mine and about 23km south of the mining town of Kathu . Jenkins mined from a single open pit and produces a direct shipping ore product from its fixed crushing plant.

The Driehoekspan Iron Ore Mine is situated approximately 19km north of the Postmasburg town and about 25km south of the Jenkins Iron Ore Mine. The Doornpan Iron Ore project is situated approximately 13km north of the Postmasburg town and about 6km south of the Driehoekspan Iron Ore Project (Figure 1).

The topography of the region is characterised by low, gently rolling hills, punctuated by occasional north-south orientated erosion-resistant, siliceous ridges. The vicinity of the Project is characterised by flat rocky plains and sloping hills with well developed, closed shrub layer and well-developed open tree stratum consisting of *Acacia erioloba*. There are no existing wetlands, dams, national parks, and known archaeological artefacts within the Project area.

The major land use in this semi-arid region is game, cattle and sheep farming, although water supply is limited to an annual 300mm - 500mm of rainfall. The wet season occurs between the months of October to March. The mean monthly maximum and minimum temperatures are about 35.9°C and -3.3°C, in January and June respectively. Frost is frequent in winter.

Figure 1 Afrimat Iron Ore Location



## 3.1 Legal Aspects and Permitting

### 3.1.1 Mineral Tenure

#### Demaneng

Security of tenure for the Demaneng property is held in the form of Mining Right NC 270 MR issued on 28 May 2011. The mining right is valid until 27 May 2028.

#### Jenkins

Security of tenure for the Jenkins property is held in the form of Mining Right NC 10094 MR issued on 24 March 2021. The mining right is valid until 23 March 2051.

#### Driehoekspan

Security of tenure for the Driehoekspan property is held in the form of Mining Right NC 10082 MR issued on 15 October 2020. The mining right is valid until 14 October 2050.

#### Doornpan

Security of tenure for the Doornpan property is held in the form of Mining Right NC 10034 MR issued on 4 December 2017. The mining right is valid until 3 December 2023.

### 3.1.2 Surface Rights

Afrimat Iron own all of the surface rights within its Mining Right boundaries. These were acquired during the original transaction with COSA.

### 3.1.3 Environmental Permits

Afrimat Iron operates under a Mining Right and, as such, has prepared a number of Environmental Impact Assessments (EIAs) and Environmental Management Programmes (EMPs) for the various mining activities

Afrimat is currently in the process of completing the application for the amendment to the Water Use License.

## 3.2 Royalties, taxation and liabilities

### 3.2.1 Royalties

In terms of the MPRDA, Nkomati is required to pay the following royalty to the State:

*Royalty rate* =  $0.5 + \text{Earning before interest \& tax (EBIT) Gross sales (refined)} \times 9 \times 100$

The maximum royalty rate percentage for an unrefined mineral resource is 7%.

No other royalties are payable by Afrimat Iron.

### **3.2.2 Taxation**

In South Africa the current company tax rate is 27%. Capital expenditure incurred by a mining company qualifies for a deduction in full in the year in which it is spent. Since most mining capital cannot be written off in the year in which it is incurred, if insufficient taxable revenue is generated in any single year, the unredeemed capital balance is carried forward to the next tax year.

## **4 Accessibility, Physiography, Climate, Local Resources and Infrastructure**

### **4.1 Topography, elevation, fauna and flora**

#### **4.1.1 Topography and elevation**

The area is generally flat lying forming part of the eastern edge of the Kalahari, with remnant hills and local undulations to the west, north of the extensive Ghaap dolomite plateau and to the east of the Langeberg mountain range. The most prominent hills are the eastern and western remnants of the Maremane dome stretching north-south in a semi-arcuate form from Postmasburg to Kathu.

#### **4.1.2 Fauna**

The mammalian community at the site is likely to be of moderate diversity; although more than 50 species of terrestrial mammals are known from the wider area, the extent and habitat diversity of the site is too low to support a very wide range of mammals.

#### **4.1.3 Flora**

According to the national vegetation map (Mucina & Rutherford 2006, SANBI 2018), the site is restricted to the Kathu Bushveld vegetation type. This vegetation unit occupies an area of 7 443 km<sup>2</sup> and extends from around Kathu and Dibeng in the south, through Hotazel, and to the Botswana border between Van Zylsrus and McCarthysrus. In terms of soils, the vegetation type is associated with aeolian red sand and surface calcrete and deep sandy soils of the Hutton and Clovelly soil forms. The main land types are Ah and Ae with some Ag. The Kathu Bushveld vegetation type is still largely intact and less than 2% has been transformed by mining activity. Therefore, it has been classified as Least Threatened. It is however, poorly conserved and does not currently fall within any formal conservation areas. Although no endemic species are restricted to this vegetation type, a number of Kalahari endemics are known to occur in this vegetation type such as *Vachellia luederitzii* var

luederitzii, Anthephora argentea, Megaloprotachne albescens, Panicum kalaharensis and Neuradopsis bechuanensis. It is more fully described as it occurs at the site in the next section. Other vegetation types that occur in the immediate area include Kuruman Thornveld to the east and Gordonia Duneveld to the west, neither of which is of conservation concern nor occur within the site.

## 4.2 Climate

Kathu's climate is a local steppe climate. During the year, there is little rainfall in Kathu. The average temperature in Kathu is 18.8 °C. Precipitation here is about 374 mm per year.

Temperatures range from a winter minimum of 2.5°C in July to a summer maximum of 31.9°C in January, although temperatures regularly reach 40°C in summer.

Operations take place throughout the year, although heavy thunderstorms may temporarily halt operations in the opencast during rainy summer months.

## 4.3 Access

The area has a good network of national roads that links all area of the current economic interest. The major airports are situated at Kimberly and Upington, with a smaller regional airport located north of the town of Kathu.

The area is served by two main rail line comprising the Hotazel – Sishen – Post Elizabeth Maganese line and the Sishen-Saldanha Iron Ore line.

## 4.4 Proximity to population centres

The properties are located between the towns of Kathu and Postmasburg, Northern Cape Province, South Africa. Kathu lies 25km to the north, with Postmasburg 51km south. Both centres can be reached via the R325 national road.

## 4.5 General infrastructure

The properties are serviced via a well maintained tarred road network. The Kathu-Sishen rail line runs to the north of the properties, with access to siding for loading.

Both Kathu and Postmasburg contain medical facilities, schools, commercial properties and various mining support industries.

## 5 Geological Setting, Mineralisation and Deposit Types

### 5.1 Regional Geology

The primary ore deposits occur in the Neoproterozoic Banded Iron Formations (BIFs) of the Transvaal Supergroup, and are classified as “Superior-type” (van Schalwyk and Beukes, 1986). The Transvaal Supergroup is represented by a several kilometre-thick succession of sedimentary and volcanic rocks deposited on the stable continental platform of the Kaapvaal Craton.

The base of the Transvaal Supergroup is represented by the dolomites of the Campbell Rand Subgroup which are overlain by the chert Wolhaarkop Breccia, and above that, the chert and haematite-rich BIFs of the Manganore Iron Formation.

Localised manganese (Mn) deposits are also known to occur in the region, hosted within the Wolhaarkop Breccia (van Schalwyk and Beukes, 1986). Such structurally-controlled manganese deposits have been interpreted to be residual manganese originating from karstification of the Campbell Rand Subgroup carbonates. Remnants of the Manganore Iron Formation and the Wolhaarkop Breccia outcrop in a generally eastward-dipping convex arc (known as the “Maremane Dome”) between Sishen in the north and Postmasburg in the south. The outcrops from the topographic highs referred to locally as the “Klipfontein Hills”.

The BIF's of the Transvaal Supergroup comprises of alternating layers which are rich in iron (Fe) and chert that contain between 25% and 35% Fe. Where significant enrichment has taken place, content may exceed 60% Fe. The BIFs transition upwards into locally enriched, laminated and massive iron ore. The enriched Manganore Iron Formation occurs as irregular lenses in this generally deformed and structurally controlled stratigraphy.

A regional unconformity separated the Manganore Iron Formation from the overlying clastic sediments of the Gamagara Formation. The Gamagara Formation included re-worked, ferruginous conglomerated and quartzites, as well as highly aluminous shales and relict pisolitic laterite profiles. This package can be covered by a considerable thickness (up to 100m) of Kalahari Group cover (Astruop, et al., 1998). Where dolomite is exposed on surface calcrete is also extensively developed.

To the west of the Maremane Dome lie older rocks of the Postmasburg Group which have been thrust over the Gamagara along the Black Ridge Thrust Fault (Beukes and Smit, 1987). This important major thrust fault system developed during the late phases of the Kheiss

Belt mountain building event. The thrust fault system duplicates the beds of the Transvaal Supergroup, including the BIFs around Sishen and Postmasburg.

Haematite-rich surface rubble (locally referred to as “detrital”) can be developed in places and is interpreted to be a secondary deposit, comprising eroded and partially transported remnants of the Manganore Iron Formation, now constituting regolith.

## 5.2 Local Geology

### 5.2.1 Demaneng

Demaneng is located at the northern end of the Maremane Dome close to the convergence of the north-south trending Gamagara Formation with the older Campbell Rand Dolomite. Geological Mapping across the various exposures of at Demaneng has delineated the presence of interpreted sinkholes and thrust faults, within which the massive and laminated units of the Manganore Iron Formation and Gamagara Formation have been preserved. These formations are covered by the younger Kalahari Group deposits of red sands and alluvium, proximal to the river banks.

#### PIT H

The lithological sequence consists of shale and conglomerate of the Gamagara Formation that is unconformably underlain by BIF of the Manganore Iron Formation which is overlying an undulating Wolhaarkop chert breccia.

The majority of the mineralisation on Pit H occurs in a zone of structurally controlled haematite alteration in the BIF. The mineralisation is interpreted to occur within a series of repeated/duplicated zones of faulting or thrusting, which are orientated north-south. Duplication is evident with older stratigraphy observed to overlie younger stratigraphy. A set of northwest-southeast linear structures can be seen in the open-pit and are considered to be associated with the faulting and thrusting seen in the drillholes. These linear features are perpendicular to the strike of the thrust orientations with recorded measurements of 90° to 110° dipping at approximately 75° to 90° to the northeast.

Three distinct zones of mineralisation are evident in the drill holes, massive, homogenous haematite (>60% Fe), layered BIF with minor zones of haematite enrichment 45% to 55% Fe and a conglomerate. The zones of partially replaced BIF that contain haematite are interpreted to form a “halo” around the massive mineralisation which is orientated approximately northwest-southeast. Overlying the host BIF is the Doornfontein

Conglomerate. The pebbles and matrix of the conglomerate are often seen to be replaced by haematite. The conglomerate is flat lying, with grades ranging from 50% to 55% Fe.

### **PIT Rust en Vrede**

The lithological sequence consists of shale and conglomerate of the Gamagara Formation that is unconformably underlain by BIF of the Manganore Iron Formation which is overlying an undulating Wolhaarkop chert breccia.

The majority of the mineralisation occurs in a zone of structurally controlled haematite alteration in the BIF. The mineralisation is interpreted to occur within a series of repeated/duplicated zones of faulting or thrusting, which are orientated north-south. Duplication is evident with older stratigraphy observed to overlie younger stratigraphy. A set of northwest-southeast linear structures can be seen in the open-pit and are considered to be associated with the faulting and thrusting seen in the drill holes.

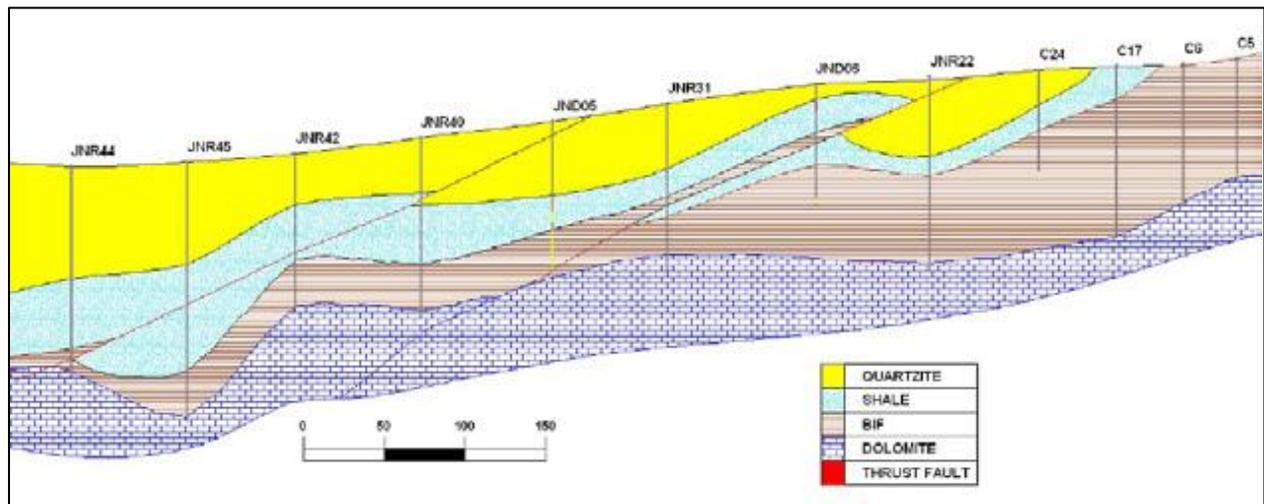
Overlying the host BIF is the Doornfontein Conglomerate. The pebbles and matrix of the conglomerate are often seen to be replaced by haematite. The conglomerate is flat lying, with grades ranging from 50% to 60% Fe.

## **5.2.2 Jenkins**

The eastern part of Jenkins contains well exposed outcrops of dense black hematite, dipping at around 17 degrees to the west. At approximately 200m down slope, the hematite is overlain by the younger Gamagara quartzite and ferruginous shale, on an angular unconformity. Thrust faulting has been reported in the literature between the oxide layers and the underlying dolomite. Further to the west, the sedimentary rocks are overlain by the basaltic andesites of the Ongeluk Lava along the Black Ridge thrust fault plane.

Variations occur in the thickness of the various layers due to the undulations of the dolomite floor (attributed to collapsed solution cavities in the dolomite), variations of the overlying sedimentary events and compression flexing from the west.

Figure 2 East-West geological section through the Jenkins Iron Ore Deposit

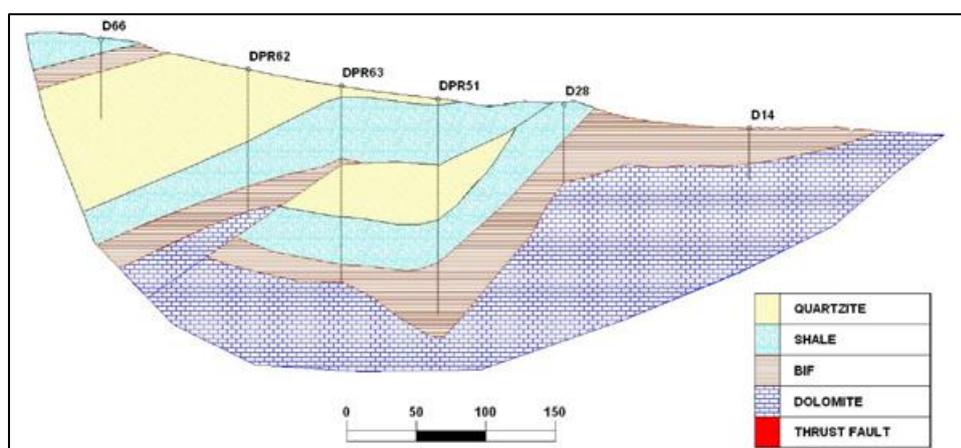


### 5.2.3 Driehoekspan

On Driehoekspan, only the western extremity of the farm contains the ore zone which outcrops on three distinct topographic ridges with opposing and overturned dips on the western most exposures, the eastern remained of the farm being the central flat lying erosional dolomite plain with occasional low hills of dolomite.

Compression tectonics from the west has produced steep to vertical and possibly overturned isoclinal folding, the frequency and amplitude of which decreases rapidly eastwards. This is evidenced by three separate outcrop exposures of both ferrous and ferro-manganiferous oxide material, decreasing in altitude from the west.

Figure 3 East-West geological section through the Driehoekspan Iron Ore Deposit

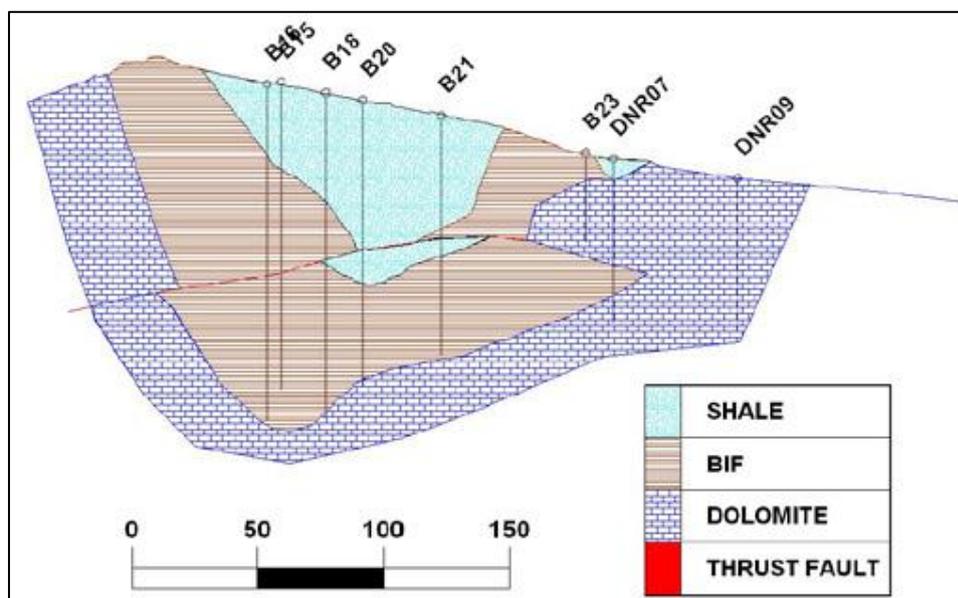


## 5.2.4 Doornpan

Doornpan lies on the flat lying central Maremane dome dolomite plain with the Bleskop Hill forming an isolated topographic high containing a semi-elliptical crown outcrop of hematite. Outcropping black hematite is visible both at the apex and at the base of the hill.

Topographically, the top of the hill forms a shallow inwardly dipping, indicating that the hill is a remnant overlaying a collapsed cavity forming a slump structure. The base is some 70m below the present day dolomite erosional surface.

Figure 4 East-West geological section through the Doornpan Iron Ore Deposit



## 6 Project History

### 6.1 Historical Exploration

#### 6.1.1 Demaneng

The historical records show small scale manganese mining being conducted at Demaneng 546 and Mashwening 557 since 2003. Historical manganese workings are scattered throughout the farms and were most likely the catalyst for iron exploration. Burk identified iron ore target areas on Demaneng 546 and Mashwanening 557 during intermittent exploration campaigns from 2009 to 2012. During this period, Burk drilled a number of percussion and diamond drillholes on the Project which were logged and sampled by Orex. Burk drilled a total of 16 percussion drillholes and two diamond drillholes on the Project during 2009. Of the 18 drillholes that were drilled, 16 were analysed. Gaps in the sample stream were attributed to zones of un-mineralised material. These samples have not been made available to The Mineral Corporation for logging or re-sampling.

During Burk's 2011 and 2012 exploration campaigns, 37 percussion drillholes were drilled on the Project to delineate the mineralisation found during the 2009 drilling phase. Lithological logging was provided for the majority of the drilling but only four drillholes were sampled. The Mineral Corporation understands that based on an initial visual assessment of the mineralisation, the remaining samples were not analysed as they were collected from un-mineralised zones.

The geological database made available to The Mineral Corporation contains assay values for 707 historical drilling samples. Included in the database was a limited set of lithological, collar and sampling data. No quality assurance and quality control data was received and it is assumed that no quality control samples were used during the 2009 to 2012 drilling campaigns.

Diro procured Burk's exploration database which consisted of lithological logs, analytical analyses and collar co-ordinates. The exploration database consisted of 53 percussion drillholes and two diamond drillholes, of which 21 contained analytical data. It is understood that a number of other drillholes drilled by Burk for detrital mineralisation do exist and have been sited during the exploration programme. No collar, assay or lithological data is available for these drillholes.

In July 2013, Diro initiated further exploration on the Project which aimed to validate the historical data and provide sufficient exploration data to enable a SAMREC Code compliant Mineral Resource estimate to be completed. During the 2013/2014 campaign, all

percussion and diamond drillholes for the Project were the responsibility of Orex. A track mounted percussion drilling machine equipped with a blast hole drill bit was employed to conduct in-fill drilling where required, and was the responsibility of Orex. The Mineral Corporation managed the RC drilling campaign and provided oversight for the campaign as a whole. This campaign continued in 2014.

All drillholes were collared with HQ size drill core (63.3mm) for the first 6m to stabilise the top of the hole. The remainder of the hole was drilled with NQ size drill core, which yielded a core diameter of 47.4mm and provided adequate material for assaying, with enough remaining for repeat assays and duplicate analysis.

Drillcore was presented to Orex in a cleaned condition and with the required driller's marks and blocks in place. No core was rejected on this basis. Core depth marking and recording as well as reconciliation of core losses through stick-up measurements was professionally managed. The ends of core runs were identified with core blocks. Other measured core depths, including intervals to be sampled, were identified with white paint marker.

Core integrity within the mineralised zones was somewhat higher than the adjacent BIFs due to its less brittle nature, and the core was generally well prepared and knitted together prior to sampling. Occasional sub-vertical fracturing and brecciation within the BIFs caused wedging of the core and minor core loss was noted.

Core quality within mineralised fractured zones was often poor, with increased fracturing density and zones of core loss. In extreme cases, the core was badly broken and could not be sampled. This was noted accordingly in the logging.

### 6.1.2 Historical data comparisons

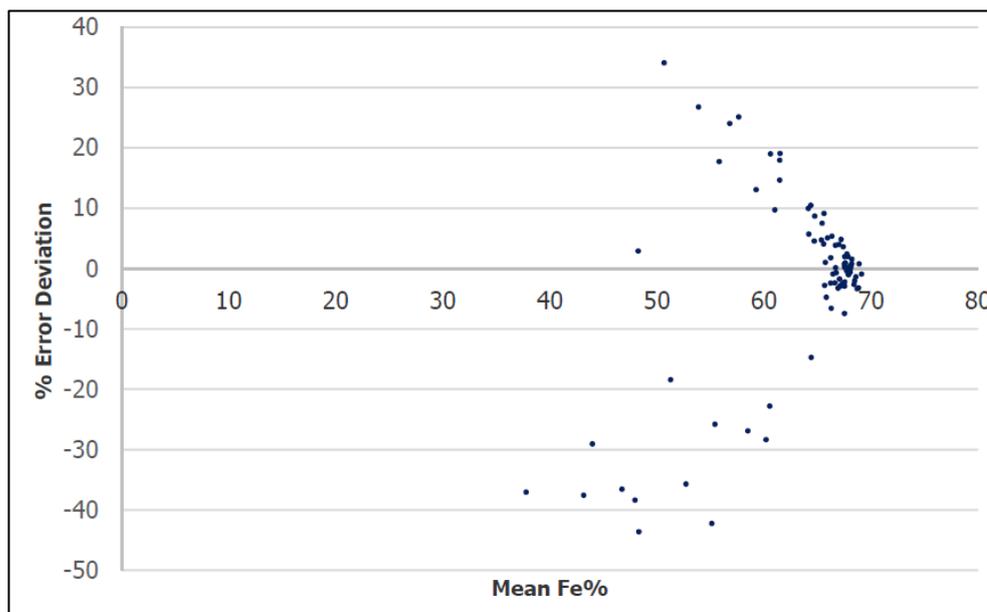
A vertical twin hole correlation study of the historical Burk percussion drillholes with diamond drill core has been conducted. The Mineral Corporation has compared three pairs of vertical drillholes that were close enough to be considered twins on Target H.

Identical lithological intervals from the twinned pairs were selected and the % Error Deviation was calculated using the formulae:

$$\% \text{ Error Deviation} = \frac{\text{Analysed value (\%)} - \text{Certified value (\%)}}{\text{Certified Value}} \times 100$$

The comparison generally shows a good correlation at >60% Fe (**Error! Reference source not found.**), which is where the majority of the haematite mineralisation is expected to occur.

Figure 5 Comparison of percussion versus diamond duplicate samples



The Mineral Corporation provides the following comments on the twinning analysis:

- There is reasonable correlation in terms of downhole mineralisation location between the percussion drilling and the diamond drilling;
- The percussion data with lower Fe values seems to encounter larger % Error Deviations, this could be partly due to the drilling method; or
- The result of the geological variability influencing low Fe grade material at the margins of the correlated data pairs.

As reasonable correlation is shown within the mineralised zone (>60% Fe), The Mineral Corporation would consider this data to be adequate, to be used in a Mineral Resource estimate.

### 6.1.3 Diamond drill sampling

The allocated area at Orex's sample preparation facility was adequately clean, and sample bags were clearly labelled and stapled to prevent contamination and to guard against mishandling and deliberate contamination.

Depth markings and sampling intervals were marked on the core with white paint marker, and the core aligned in the core tray prior to delivery to the Orex core yard. A white painted arrow demarcating the end of each sample was placed on the core, and the cutting line scribed on the core guided by the point of the arrow. The cut line was carefully followed, resulting in exact halves of split core.

The box containing the two halves of sawn core was returned to the dedicated sampling area, from where one half was extracted and placed in a sample bag with an appropriate sample tag stapled to the inside.

The remaining half of the cut core to be used as a reference was marked with white painted core depths at one metre intervals, displaying the sample number. The half core was packed and placed in a contiguous manner in the core trays.

#### **6.1.4 Survey, DTM and co-ordinate system**

Drillhole collars from the current drilling programme were surveyed using differential GPS on 2013/10/10 by Integrated Mapping Solutions (IMS) and on 2014/02/03 by the Diro surveyor. Nineteen RC and two diamond holes that were drilled after the last survey date, have only hand-held GPS surveys. Collar positions were checked for consistency by The Mineral Corporation with a handheld GPS.

The survey data (co-ordinates) were supplied on the South African Grid with the WGS84 datum, on the LO23 projection. All modelling and diagrams are in the same system. The Digital Terrain Model (DTM) of the topographic surface used during the modelling was generated from point data acquired by Laser Imaging, and the Detection and Ranging (Lidar) Survey that was flown on 2014/02/11 by Southern Mapping Geospatial.

IMS acting as independent surveyors for The Mineral Corporation completed a comparison between the Lidar point data and the differential GPS survey.

## 7 Exploration Data/Information

### 7.1 Laboratory quality assurance and quality control

#### Demaneng

QA/QC samples are intended to provide a measure of sample control, contamination, analytical precision and accuracy of the sample preparation and the analytical procedure used by the laboratory. This is achieved by inserting control samples into the sample stream during the sampling phase of an exploration programme. Three types of control samples are used: Blanks, Standards and Duplicates.

For the duration of the 2013/2014 exploration programme, all samples were sent to the sample preparation facility at Set Point - Kuruman, this is an accredited sample preparation facility and falls under the Set Point - Johannesburg Laboratories division. All analytical procedures were performed at Set Point - Johannesburg, located at 30 Electron Avenue, Isando, 1601, Johannesburg, Gauteng, South Africa. Set Point - Johannesburg (Registration Number 1989/000201/07) is a reputable laboratory that is accredited by SANAS (ISO 17025) for the analysis of major and minor element oxides.

X-ray Fluorescence Spectroscopy (XRF) was the analytical technique used to determine the major and minor element concentrations for the Project. This method is a non-destructive analytical technique used to determine a full range of light to heavy elements, by fused disc. Fused disc is suitable for large numbers of samples where the matrix of the material is generally consistent.

Analytical results which were below the XRF detection limit were replaced with a value which was half the detection limit. QA/QC samples were introduced into the sample streams for the 2013/2014 campaign. No QA/QC samples were introduced into the historical percussion sample streams drilled during 2009 and 2012.

Two certified reference materials (Standards) were used by Orex and The Mineral Corporation during the course of the current drilling campaign. These were SARM132 and AMIS0362 (Table 1), obtained from Mintek and African Mineral Standards (AMS) respectively, who are accredited with ISO 17025 and specialise in the manufacture of certified reference materials.

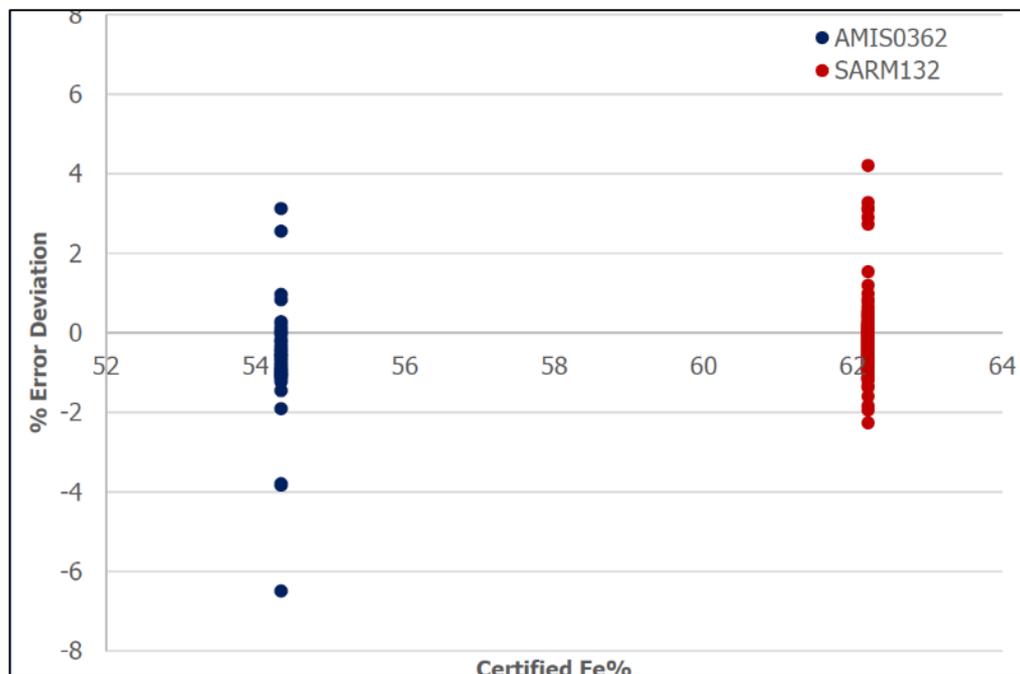
Table 1 SARM132 and AMIS0362 – Fe and SiO<sub>2</sub>

CRM	Constituents	Certified Value (%)	Lower Limit (%)	Upper Limit (%)
SARM132	Fe	62.2	61.992	62.408
	SiO <sub>2</sub>	7.82	7.647	7.993
AMIS0362	Fe	54.34	53.112	55.568
	SiO <sub>2</sub>	8.34	8.327	8.353

The % Error Deviation was plotted against the certified Fe value (**Error! Reference source not found.**). SARM132 was used to analyse the analytical accuracy of Fe% greater than 60%. It shows slight under reporting in the range of -1.5% Error Deviation. This is considered to be within acceptable limits.

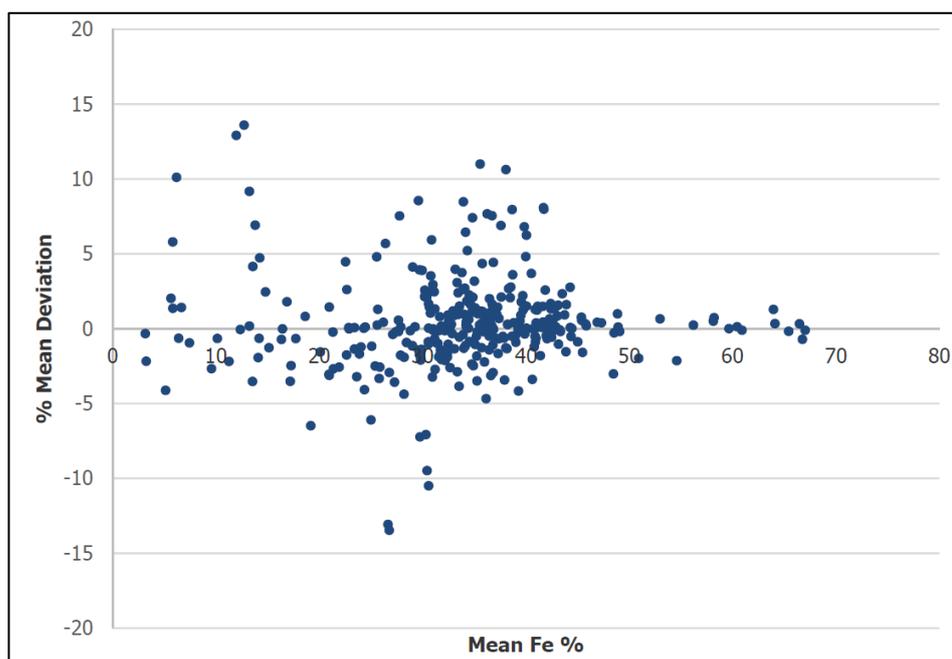
The results for AMIS0362, a Standard used to analyse the accuracy of the laboratory for samples with Fe% greater than 50%, also returned % Error Deviations within the industry standards, showing a slightly negative under reporting of -1% Error Deviation. The % Error Deviation ranges for both Standards are considered acceptable and the assay results can be used in the Mineral Resource estimate.

Figure 6 % Error results for standards SARM132 and AMIS0362



Field Duplicate samples are a test of a laboratory's precision and the ability to reproduce a set of prescribed assay values. The Duplicate results (Figure 7) show an increase in % Mean Deviation towards the lower Fe% values; this is probably due to the limits of the analytical procedure. As the concentration of an element reduces, the analytical precision of the instrument decrease until it reaches the detection limit. The results are within the 10% Mean Deviation limits, which The Mineral Corporation considers to be an indication of good sampling and analytical controls.

Figure 7 Duplicate results for Fe%



### 7.1.1 Laboratory QaQc Conclusions

The results for the Standards and Duplicates submitted are generally good, but a number of Blanks submitted returned anomalous Fe values. The anomalous Fe values range between 1.5% and 3.0% Fe, which is above the detection limit for the analytical technique. The re-analysis of the duplicate samples showed % Mean Deviations of less than 2% and no bias. The Mineral Corporation recommends that several samples of the blank used be re-assayed, to determine a "certified" Fe concentration for the blank, and rule out the possibility the blank itself is the source of contamination.

Historical sampling and sample preparation protocols adopted by Orex were generally acceptable to ensure reliability, accuracy and precision of the sample data. However, The Mineral Corporation has adjusted Orex's protocol to ensure that an average of 10% of the

total samples consist of QA/QC samples. The analytical precision and accuracy of the analyses completed for Fe (primary element) by Set Point are within industry norms; and the analytical results are acceptable for the Mineral Resource estimate.

Notwithstanding the limited QA/QC for the historical exploration, The Mineral Corporation considers the Burk data from 2009 to 2012 to be suitable for geological interpretation and Mineral Resource estimates. However, it is recommended that where Mineral Resource classification is determined for areas which are informed primarily by 2009 and 2012 data, the impact of the lack of quality control procedures should be considered.

Quality control exercises conducted on the recent Diro exploration datasets illustrate that the data can be used for geological interpretation and Mineral Resource estimates.

## **7.2 Database management**

The database used to inform the Mineral Resource estimates has been compiled in Microsoft Excel Spreadsheets over the course of the exploration activities on the Project. The information was appended into Microsoft Access and makes the following observations with regards to its integrity. Visual validation was carried out to ensure the collar elevations correspond to the provided topographic surface.

Additionally, the collars were projected to the topographic surface and this distance was noted. The minimum distance (below topography) was 0.62 m and the maximum distance (above the topography) was 1.27 m. This is deemed acceptably accurate, and these differences are most likely attributable to the way the topographic surface was created from height measurements. Only three boreholes had a difference in collar elevation of more than 1.00 m. Survey certificates of the boreholes were provided by Afrimat.

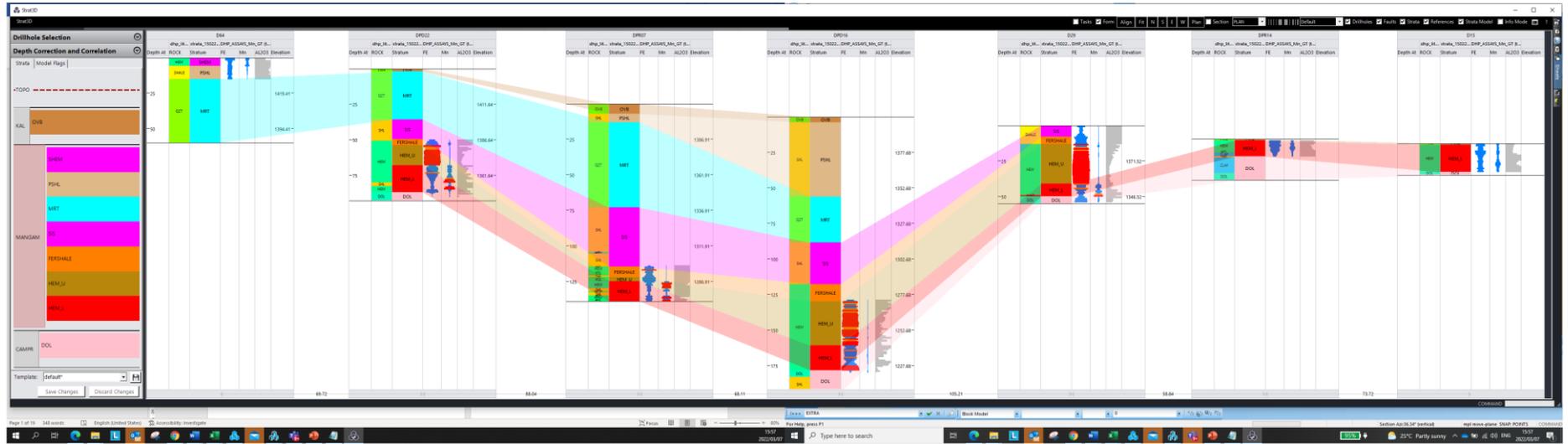
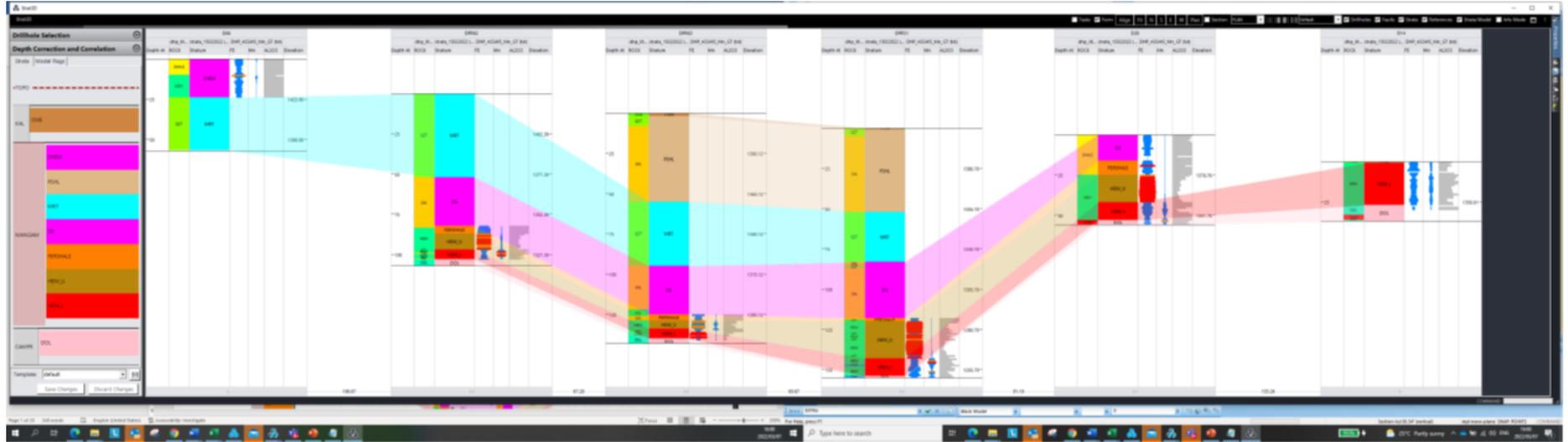
The lithological logs and assay results were used in the correlation process. Fence diagrams were drawn of the boreholes during the re-correlation process to ensure lateral continuation of the strata were confirmed by the lithological logs and assay results. Typically, the basal dolomites were used as reference, i.e., the younger sediments were deposited on top of the dolomites and therefore it was assumed that they will have a “conformable” relationship to the dolomitic floor with pinching out of the sediments against the palaeo-highs in the dolomite. This assumption was confirmed by the genetic model, the borehole data, and the mapped outcrop. It should be noted that the strata were modelled with a discontinuity between the dolomites and the younger strata.

The re-correlation allowed for accurate domaining and ensured high grade samples were used to estimate into high grade blocks and vice-versa for low grade samples.

The strata all had a conformable, "contiguous" relationship meaning there are no gaps between successive intervals.

Fence diagrams (perpendicular to strike), aligned by collar elevation, are provided for below (Figure 8). The palaeo-valley trending north-northeast is clearly evident.

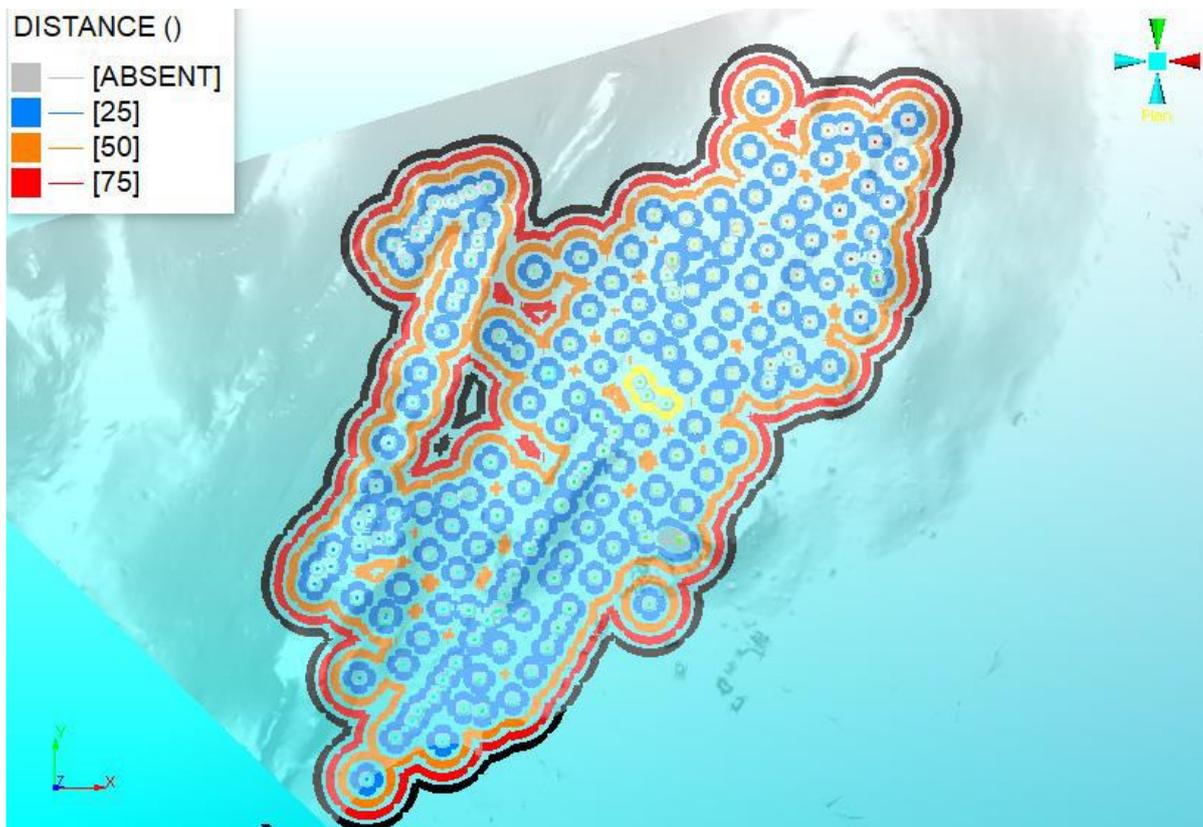
Figure 8 Fence diagrams



### 7.3 Data density and distribution

The distance between the boreholes used for modelling is indicated in Figure 9 (radius). Most of the boreholes are closer than 100 m from each other (50 m radius) whilst isolated areas have a closer drillhole spacing of less than 50 m (25 m radius).

Figure 9 Borehole spacing contours for Driehoekspan (25m radius intervals).



### 7.4 Drillhole types

The borehole data provided consisted of borehole drilled during various exploration campaigns. It consisted of diamond core, reverse circulation and percussion boreholes. All boreholes were used during modelling and estimation.

A QQ-plot comparing the quantiles of the reverse circulation/percussion boreholes to those of the diamond core boreholes for the HEM\_U intersection were drawn to determine if they can be collectively used in estimation. It is interesting to note that above the 25th percentile (first blue line), the grade between the diamond core and reverse circulation/percussion boreholes compares very favourably. Below the 25th percentile, there seems to be a deviation with the reverse circulation/percussion boreholes showing a slightly higher grade compared to that of the diamond core borehole. As this only represents 25 % of the

intersections and at lower grades (not ore), it was deemed suitable to include the reverse circulation/percussion boreholes with the diamond core boreholes.

As part of a verification programme, Afrimat conducted twin drilling to confirm drillholes from previous exploration. Three examples are provided below (Figure 10 to Figure 12) with the newly correlated strata. It should be noted that in most instances the twinned boreholes compared very well to the original boreholes and both boreholes were used during estimation

Figure 10 Twinned borehole (D27 vs DPDD27)

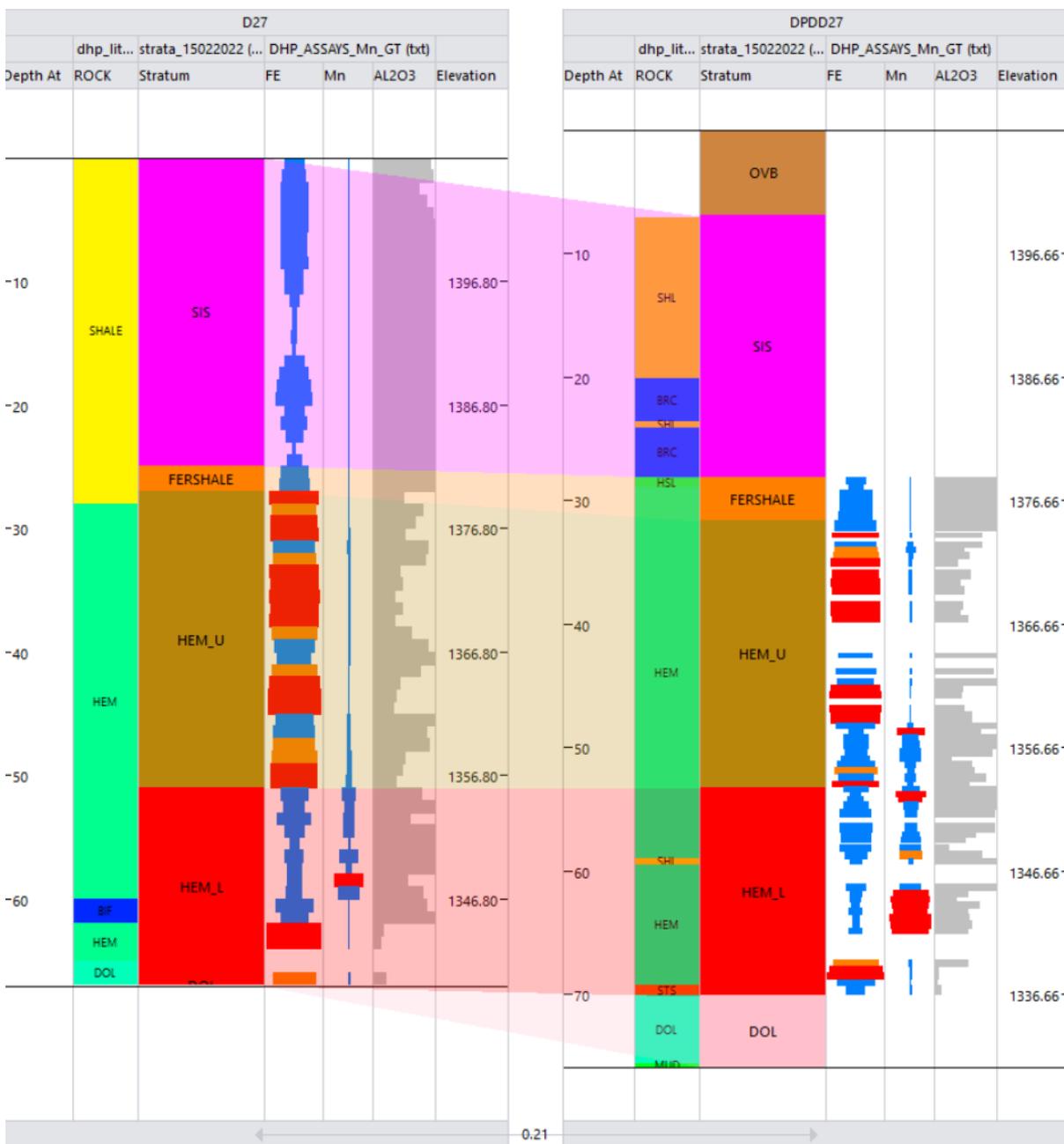


Figure 11 Twinned Borehole (D45 vs DPDD45)

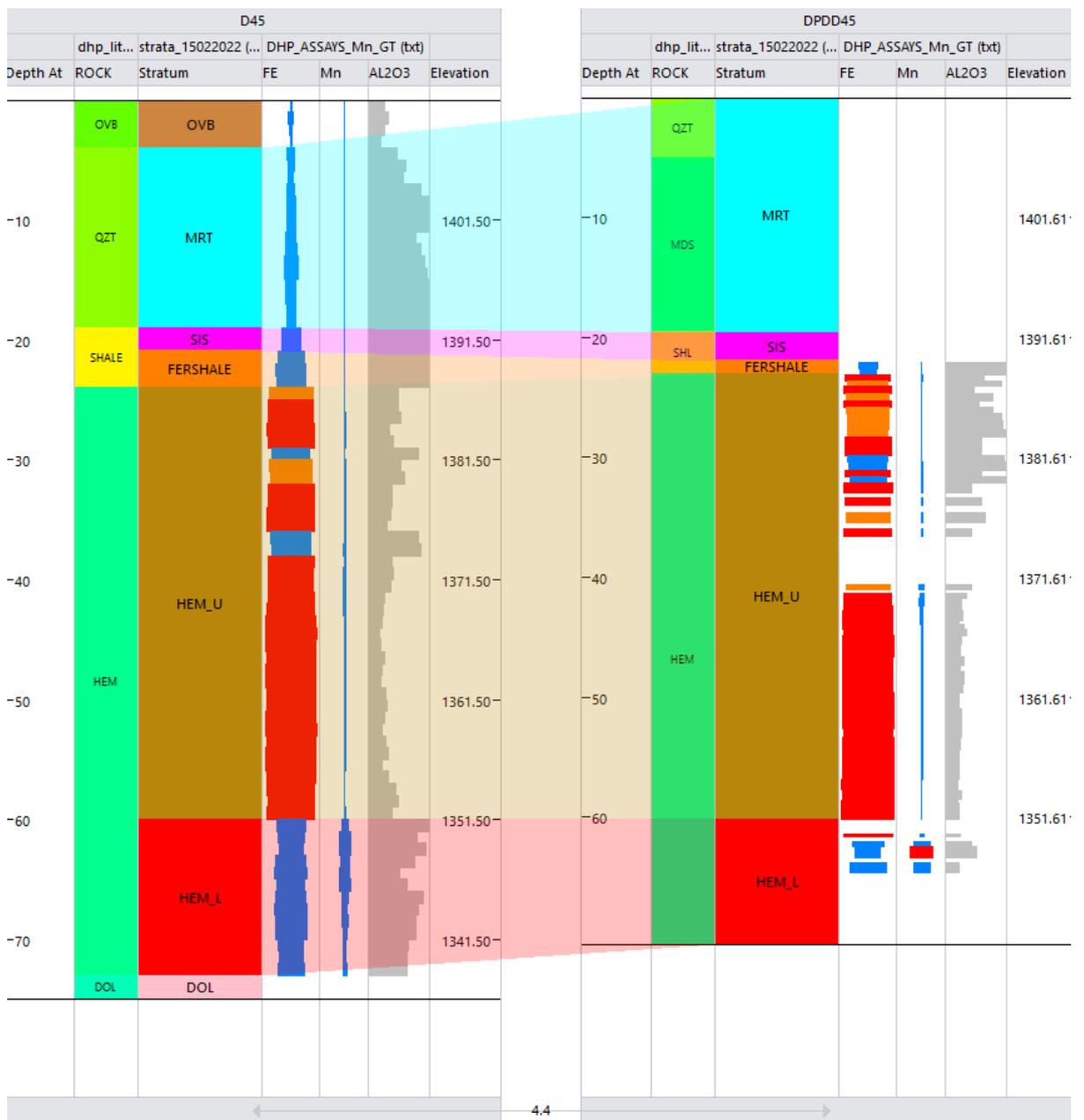
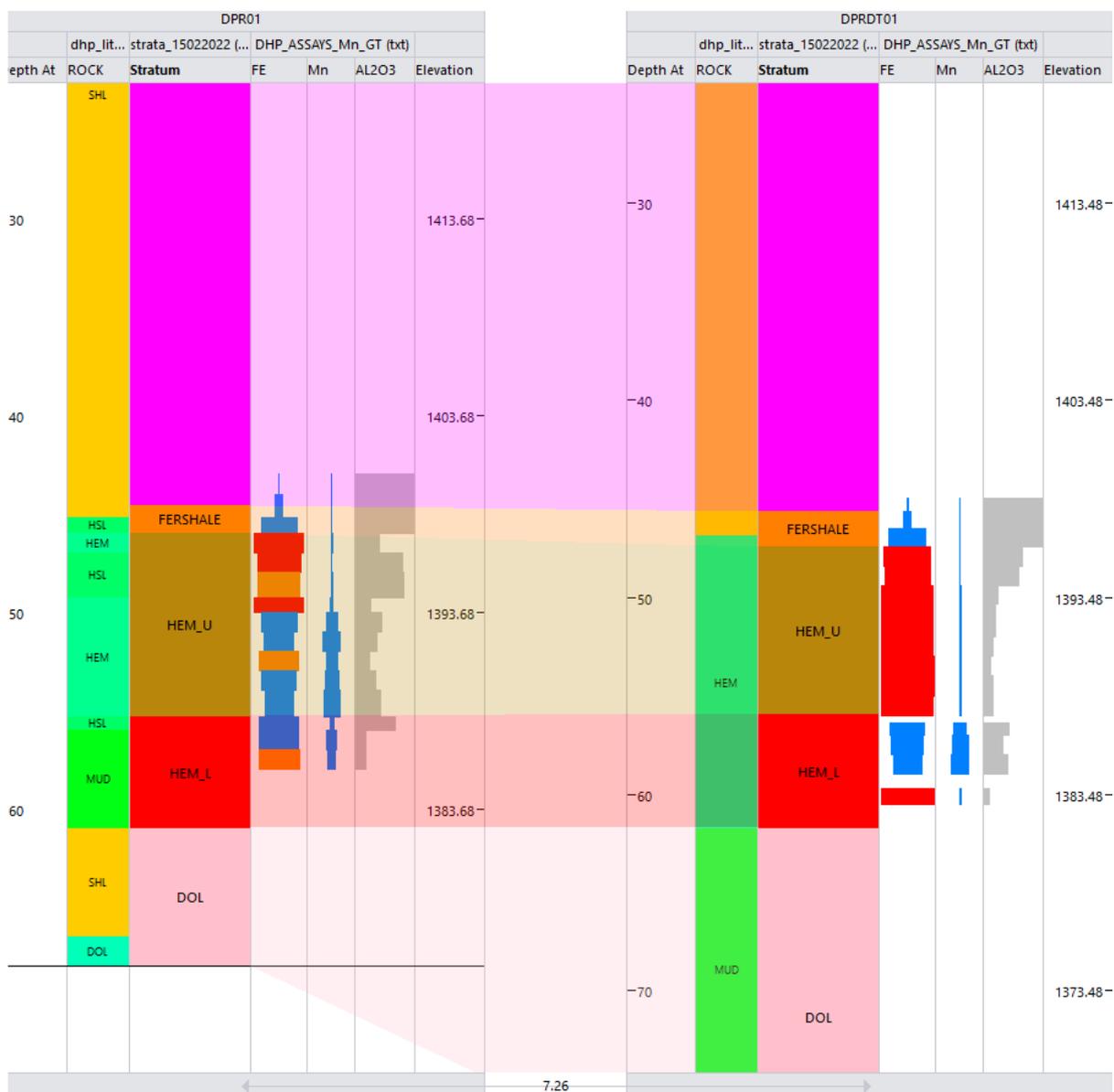


Figure 12 Twinned borehole (DPR01 vs DPRDT01)



## 7.5 Descriptive statistics

### Demaneng

The lithological characteristics correlated well with the geochemical analyses, with a drop in Fe% and an increase in SiO<sub>2</sub>% noted between the different mineralised zones. Length-weighted averages were calculated for the key variables. Fe%, SiO<sub>2</sub>%, Al<sub>2</sub>O<sub>3</sub>%, TiO<sub>2</sub>%, P% and Mn% were the variables applied for this Mineral Resource estimate.

Summaries of the statistical analysis for the haematite, conglomerate and BIF ore types are shown in Table 2 to Table 4..

Table 2 Summary of statistics for haematite

	Fe%	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	P%	TiO <sub>2</sub> %	Mn%
Total no of Samples	936	963	663	973	663	655
Min %	0.00	0.00	0.03	0.00	0.01	0.00
Max %	69.91	85.01	32.20	0.48	2.05	0.21
Mean %	59.75	9.83	2.24	0.04	0.13	0.01
Variance	173.92	173.05	21.19	0.00	0.06	0.00
Standard Deviation	11.99	13.15	4.60	0.05	0.26	0.01
Description	Negatively Skewed	Positively Skewed	Positively Skewed	Positively Skewed	Positively Skewed	Positively Skewed

Table 3 Summary of statistics for conglomerate

	Fe%	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	P%	TiO <sub>2</sub> %	Mn%
Total no of Samples	67	61	39	67	39	39
Min %	6.89	0.97	0.51	0.01	0.04	0.00
Max %	67.85	66.71	19.80	0.10	2.10	0.17
Mean %	53.35	13.34	7.10	0.04	0.44	0.02
Variance	140.38	163.10	34.04	0.00	0.19	0.00
Standard Deviation	11.84	12.77	5.83	0.02	0.44	0.02
Distribution	Negatively Skewed	Positively Skewed	Positively Skewed	Normal	Positively Skewed	Normal

Table 4 Summary of statistics for BIF

	Fe%	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	P%	TiO <sub>2</sub> %	Mn%
Total no of Samples	2537	2529	2264	2537	2264	2264
Min %	0.00	0.00	0.00	0.00	0.00	0.00
Max %	67.97	103.65	34.40	0.34	2.30	0.03
Mean %	35.05	75.41	1.13	0.01	0.07	0.01
Variance	130.12	235.88	8.07	0.00	0.02	0.00
Standard Deviation	11.4	15.35	2.84	0.02	0.17	0.02
Description	Normal	Normal	Positively Skewed	Positively Skewed	Positively Skewed	Positively Skewed

Driehoekspan, Doornpan and Jenkins

Histograms of the Fe-distribution and Mn-distributions for the different domains are provided in Figure 13 and Figure 14. The histograms for the HEM\_U strata indicate a positively skewed distribution as is typical for iron-ore deposits. The histograms of the other domains showed mixed populations which is attributable to the lower grade and interbedded argillaceous (shales) material. Based on the descriptive statistics, HEM\_U is the domain with the most consistent high grade (+50 % Fe) material. HEM\_L has the most Mn intersection of + 28 % Mn whilst several high-grade Mn intersections were also observed in FERSHALE.

Figure 13 Histogram and parametric statistics for Fe % per domain/stratum.

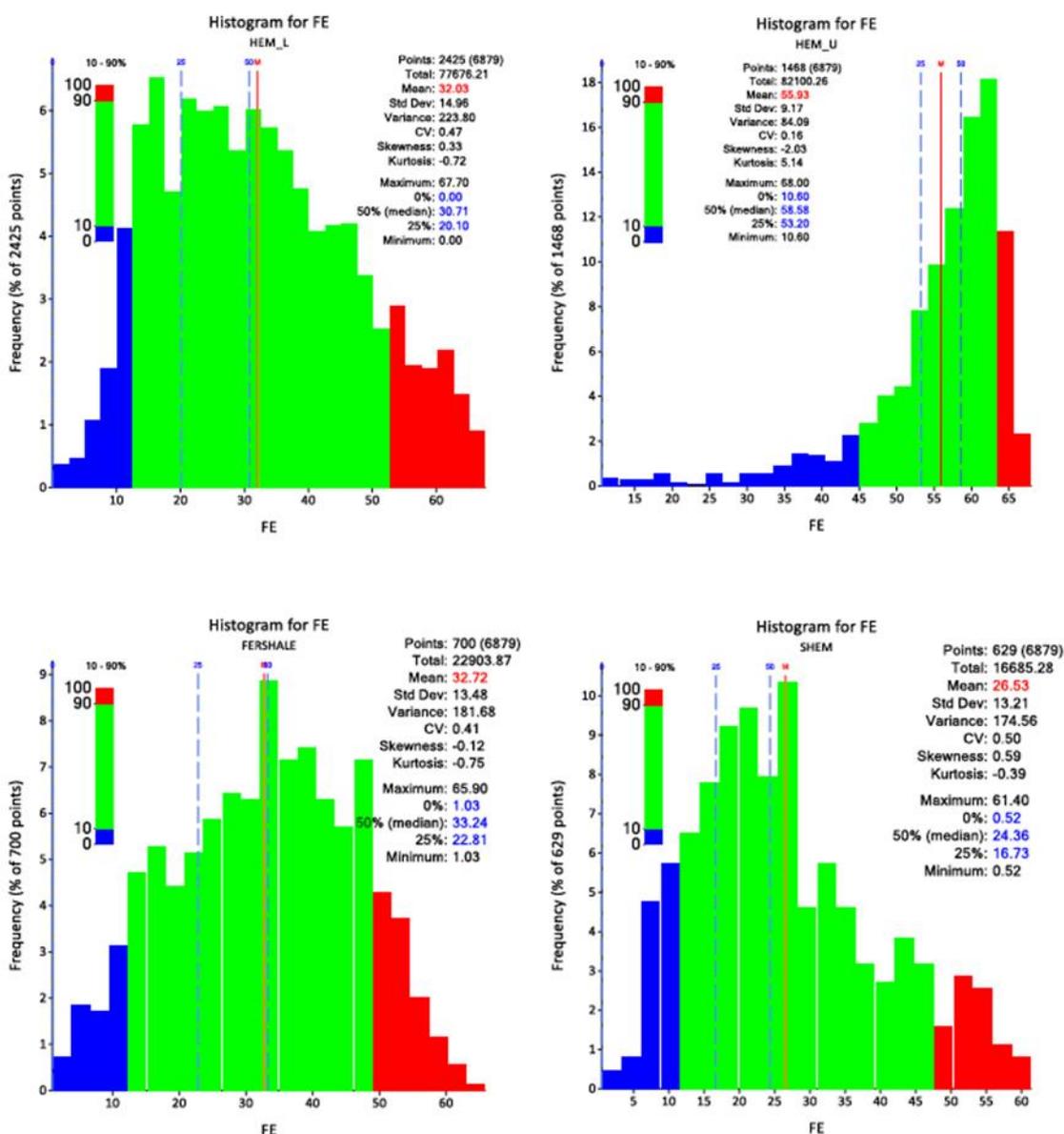
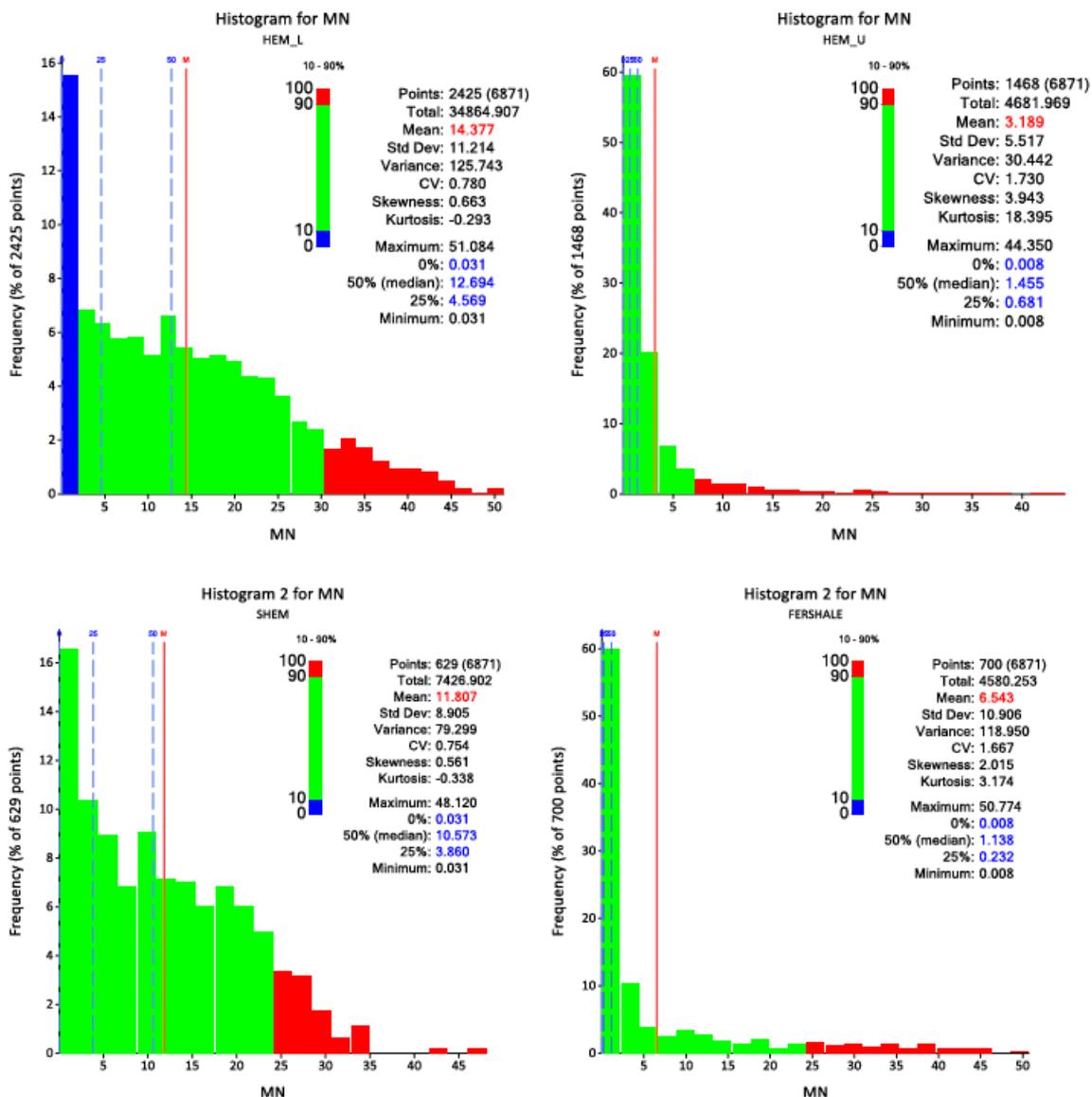


Figure 14 Histogram and parametric statistics for Mn %.



## 8 Geological modelling techniques and results

### 8.1 Demaneng

On the basis of the exploration conclusions, mineralisation limits on Target H and Target A were interpreted on north-south and east-west sections using the lithological and geochemical data available. The Mineral Resource estimation methodology involved the following procedures:

- Database compilation from Microsoft Excel spreadsheets and verification by The Mineral Corporation;
- QA/QC result analysis;
- Interpretation of the mineralisation and geology to produce a geological map with conceptual sections;
- Interpretation and construction of 2D strings of each mineralised zone;
- Construction of wireframe models from strings of each mineralised zone;
- Data conditioning (composites) for geostatistical analysis and variography;
- Block modelling and grade interpolation; and
- Classification of Mineral Resources.

#### 8.1.1 Modelling Techniques

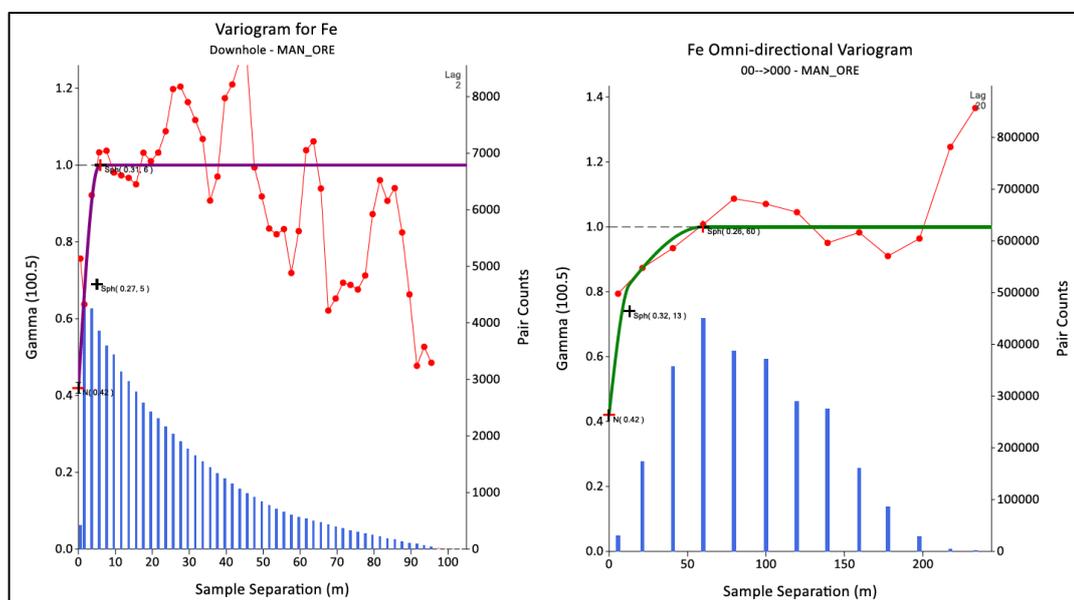
Due to the synclinal nature of the orebody, downhole and omni-directional variograms were modelled to best describe the grade distribution within the orebody by using Datamine's Supervisor® software. The variograms were constructed per key field and the key field used was stratum i.e., only samples from the same strata were used during the modelling of the variograms. The downhole and omni-directional variograms that have been modelled for Fe in the MAN\_ORE stratum is provided in **Error! Reference source not found.** The variogram parameters for all elements in MAN\_ORE is displayed below in Table 5.

**Table 5 Variogram Parameters for MAN\_ORE**

Element/Oxide	Nugget	Structure 1	Structure 2	Range
Fe	0.42	0.32	0.26	60
SiO <sub>2</sub>	0.38	0.38	0.24	54
Al <sub>2</sub> O <sub>3</sub>	0.08	0.33	0.59	61
K <sub>2</sub> O	0.35	0.18	0.47	54
S	0.4	0.08	0.52	9
P	0.66	0.15	0.19	7
Mn	0.17	0.39	0.44	17
Ba	0.01	0.25	0.74	22

The downhole variograms were modelled to find the Nugget and thereafter the omni-directional variograms were modelled.

Figure 15 Downhole and Omni-directional variogram for Fe in MAN\_ORE.



### Search Volumes and Samples used

Search volumes used were derived from the variogram ranges. Which in this specific situation was based on the omni-directional and downhole variograms. The omni-directional range for Fe in MAN\_ORE was 60 m.

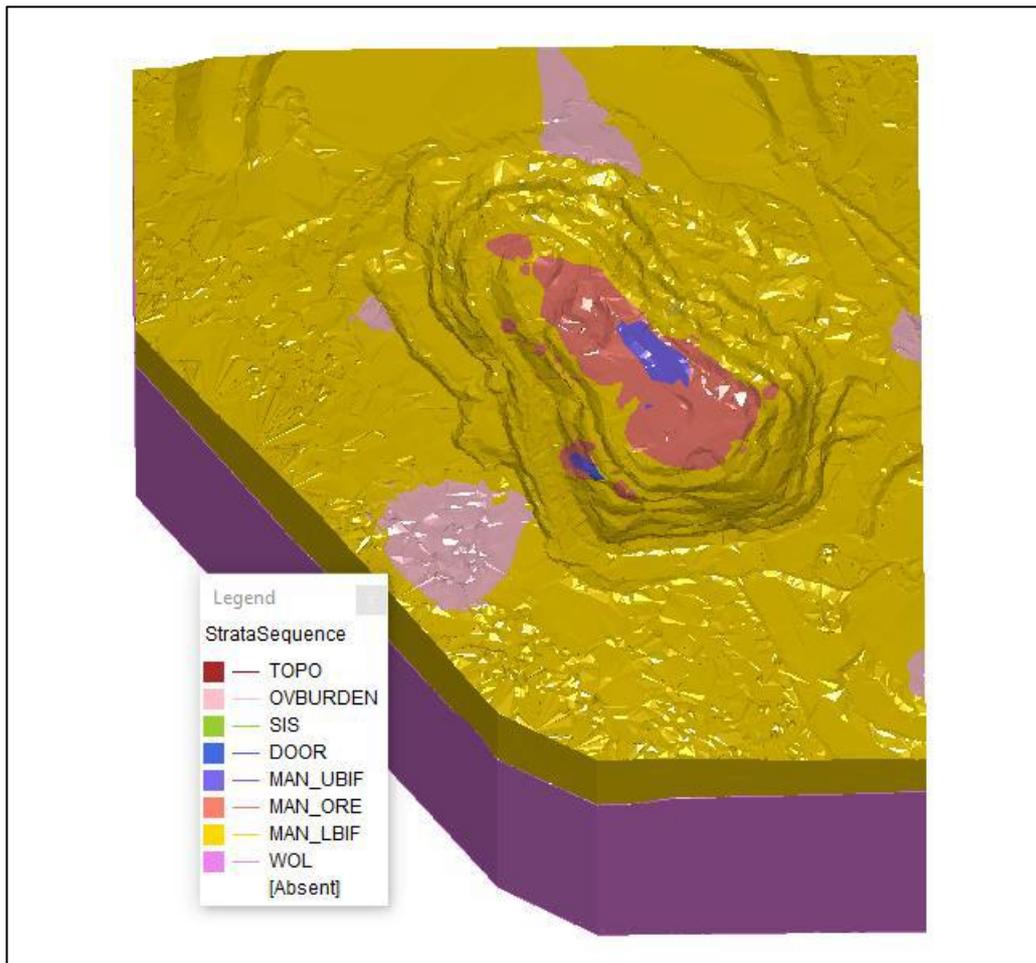
A minimum of 1 and a maximum of 15 samples were used to estimate each block. These relatively small numbers were used to ensure the blockmodel honours the borehole data. Strat3D's estimation inherently follows the structure or orientation of the orebody during estimation. Search directions are automatically adjusted to align with the orientation of the orebody. The basal contact for each stratum was used as reference plane.

### 8.1.2 Modelling Results

The resultant geological model represents a steeply dipping "palaeo-valley" type deposit with infilling of younger sediments within the valley structure of the orebody. The valley/inner part of the deposit is covered by a banded iron formation that contains low Fe %. Directly below this is the main orebody namely MAN\_ORE which consists of high-grade iron ore that occurs within hematite.

The different strata (oldest to more recent) wireframes are provided in 3D in Figure 16

Figure 16 Wireframes of the Strata sequence at Pit H.



The syncline structure within the basal WOL stratum is evident throughout the geological model.

The (MAN\_ORE) Manganore Formation lies on top of the WOL and follows the synclinal structure whereby the valley infill developed a banded iron formation that does not contain high Fe grades.

#### Cross-sections geology

Geological cross-sections provide sectional views of the model (Figure 17 to Figure 19). The sections were drawn in a northeast - southwest and northwest - southeast direction to visualise the synclinal structure.

The model accurately honours all the borehole intersections. The boreholes and the blockmodel is coloured using the same strata legend. The steeply dipping syncline is clear from the sections along with the continuation of the underlying strata.

Figure 17 Geology cross-section 1 – Pit H

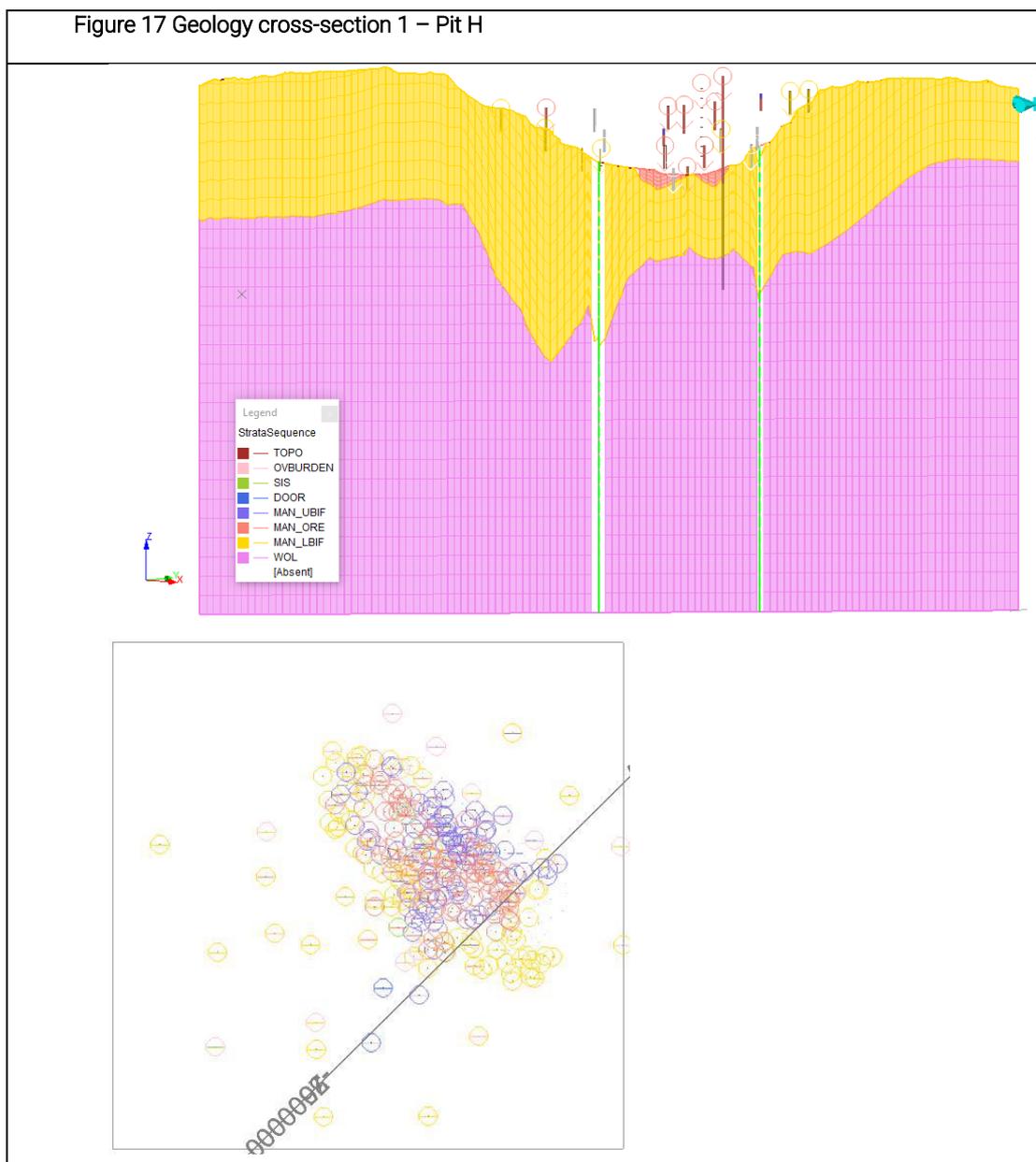


Figure 18 Geology cross-section 2 – Pit H

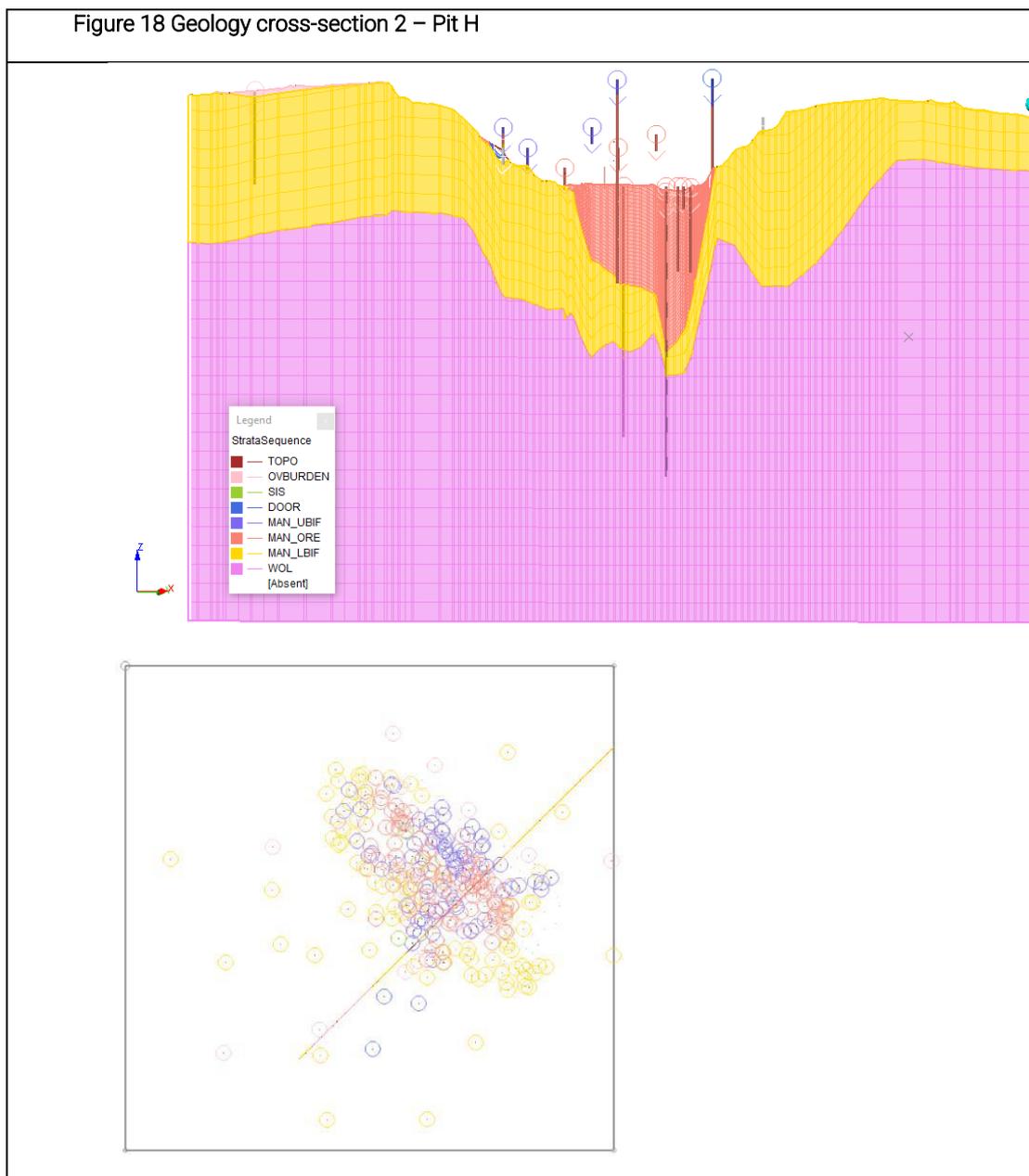
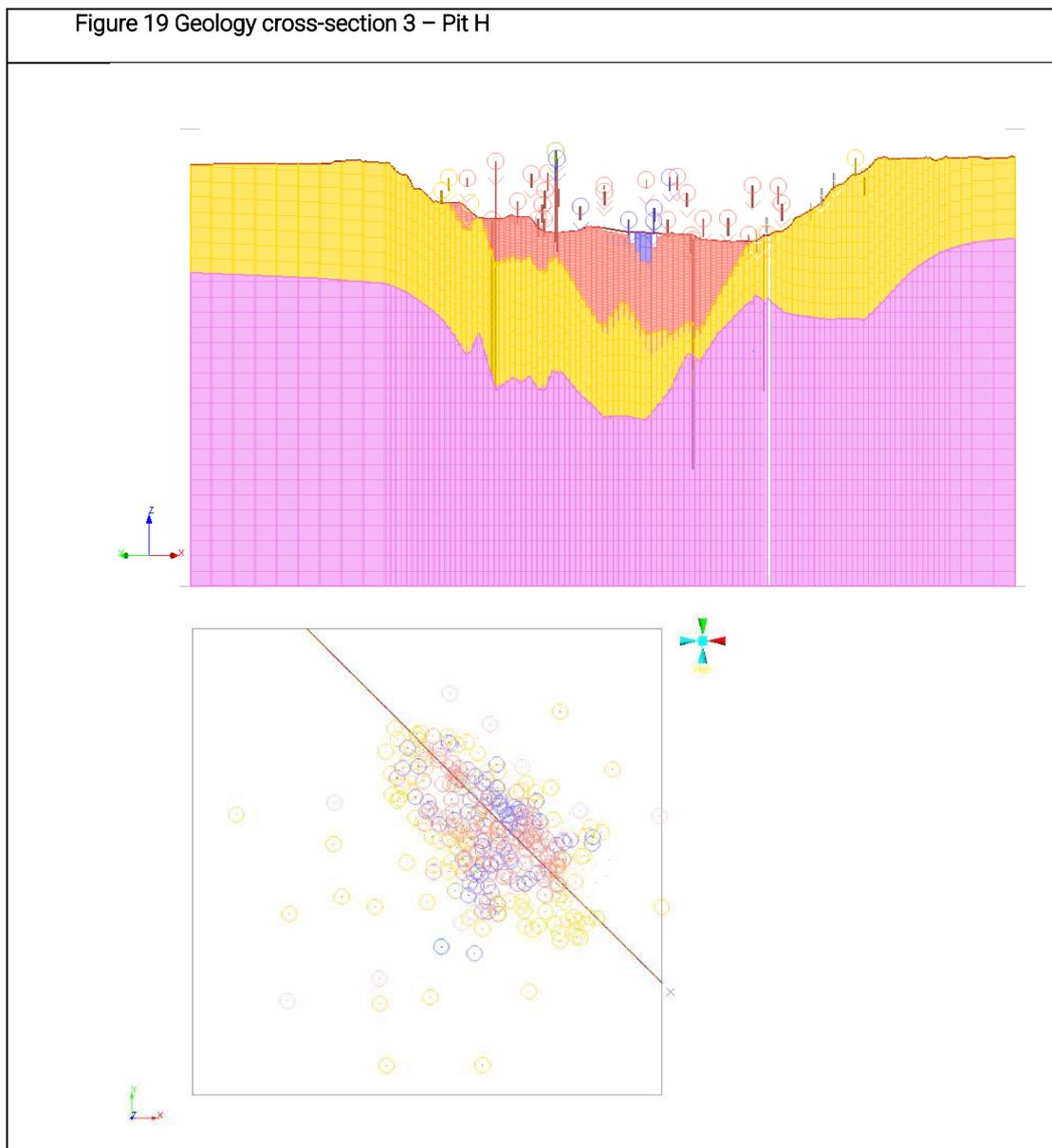


Figure 19 Geology cross-section 3 – Pit H



## Model Validation

Parametric statistics, swath plots and cross-sections were used to compare the sample data to the estimated model.

Summary statistics of the model and samples are provided below (Table 6). The mean grade for all the estimated zones in the model compares very well to that of the original samples. As can be expected, the range, standard deviation, and variance of grades in the blockmodel is smaller than those of the composited samples.

**Table 6 Summary statistics of the model and the samples**

STRATUM	MAN_LBIF	MAN_LBIF	MAN_ORE	MAN_ORE	MAN_UBIF	MAN_UBIF
	Unweighted Samples	Model Cells	Unweighted Samples	Model Cells	Unweighted Samples	Model Cells
No of records	3670	205863	2725	48191	1424	5709
No samples	3494	205863	2690	48191	1314	5709
Minimum	1.43	20.96	0.01	35.67	0.01	26.78
Q1	29.65	32.1	53.31	54.47	29.19	34.75
Median	35.37	33.9	61.04	57.14	34.78	36.37
Q3	40.66	36.14	64.52	59.55	41.04	38.11
Maximum	65.88	472.12	69.92	65.58	69.81	43.15
Mean	34.34	34.03	57.59	57.09	34.12	36.26
Mean diff v model	0.32	-	0.5	-	-1.14	-
%Mean diff v model	0.92	-	0.87	-	-3.25	-
Std Dev	10.1	2.87	10.03	3.68	11.44	2.52
Variance	102.08	8.26	100.52	13.53	130.98	6.35
%Coeff. Variation	28.42	8.44	17.41	6.44	32.59	6.95
MAD	7.53	2.3	7	2.99	8.41	1.98
Model tonnes	-	39346967.32	-	2266200.82	-	908124.6

North-south, east west and along strike swath plots at 10m intervals were drawn to compare estimated grade in the blockmodel to the grades in the samples used for estimation.

As is evident from the graphs, the model honours the samples very well. The swath plots were constructed for the MAN\_ORE stratum only (Figure 20 to Figure 22).

Figure 20 Swath plot X-direction, MAN\_ORE, Fe

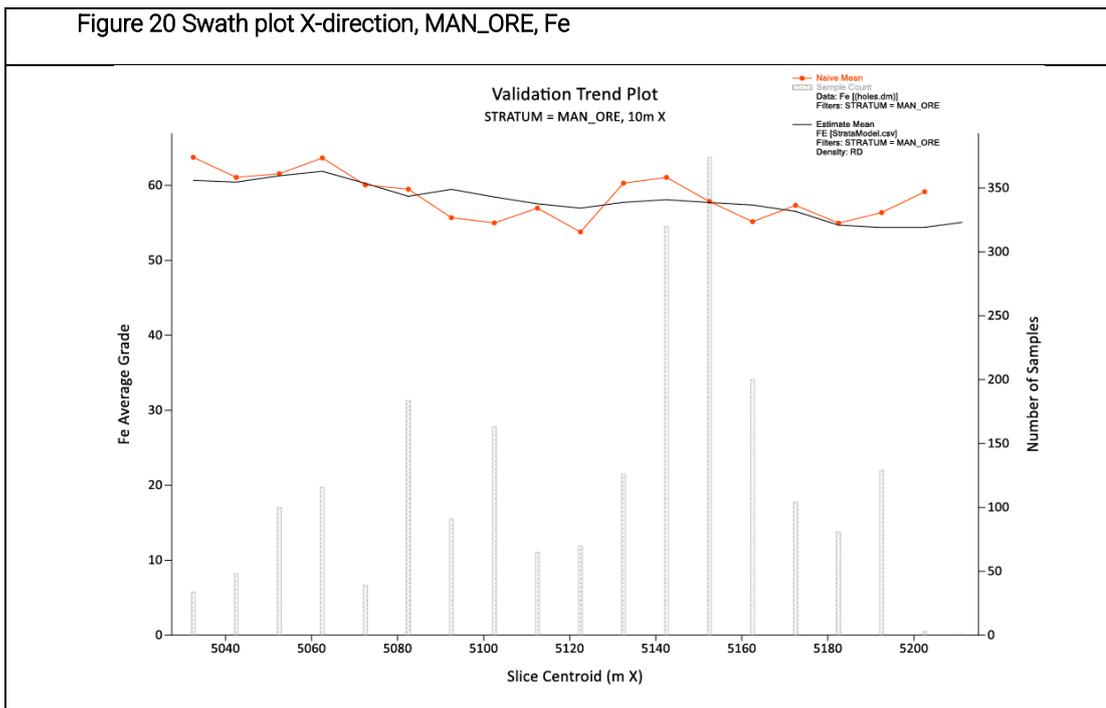
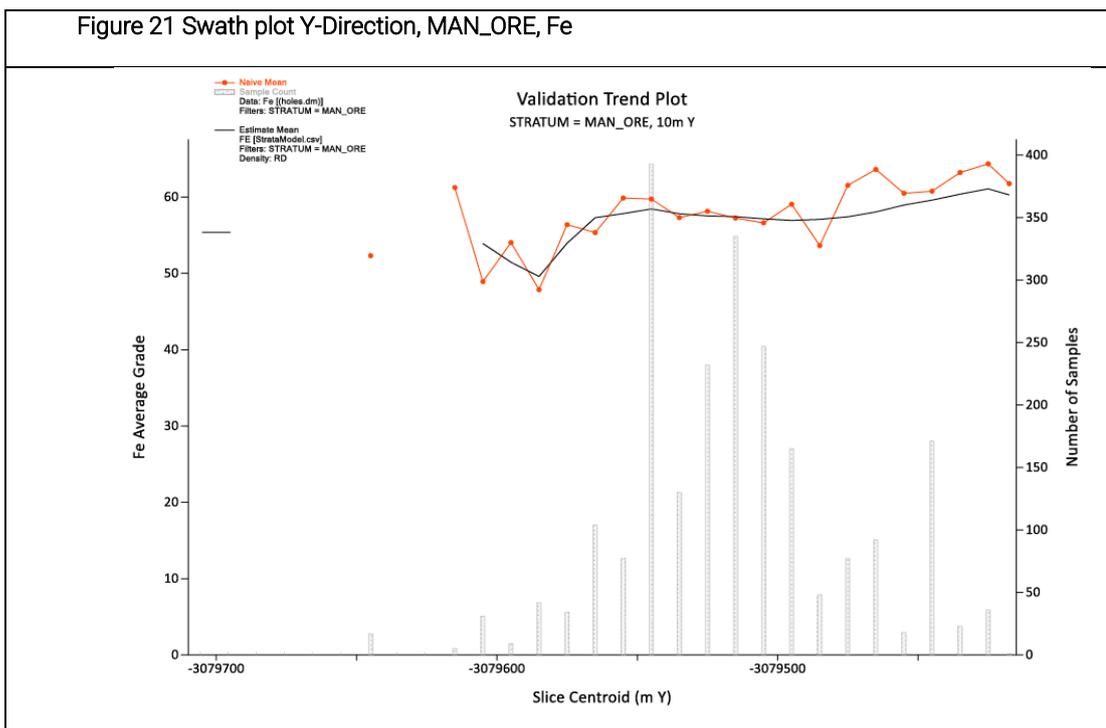
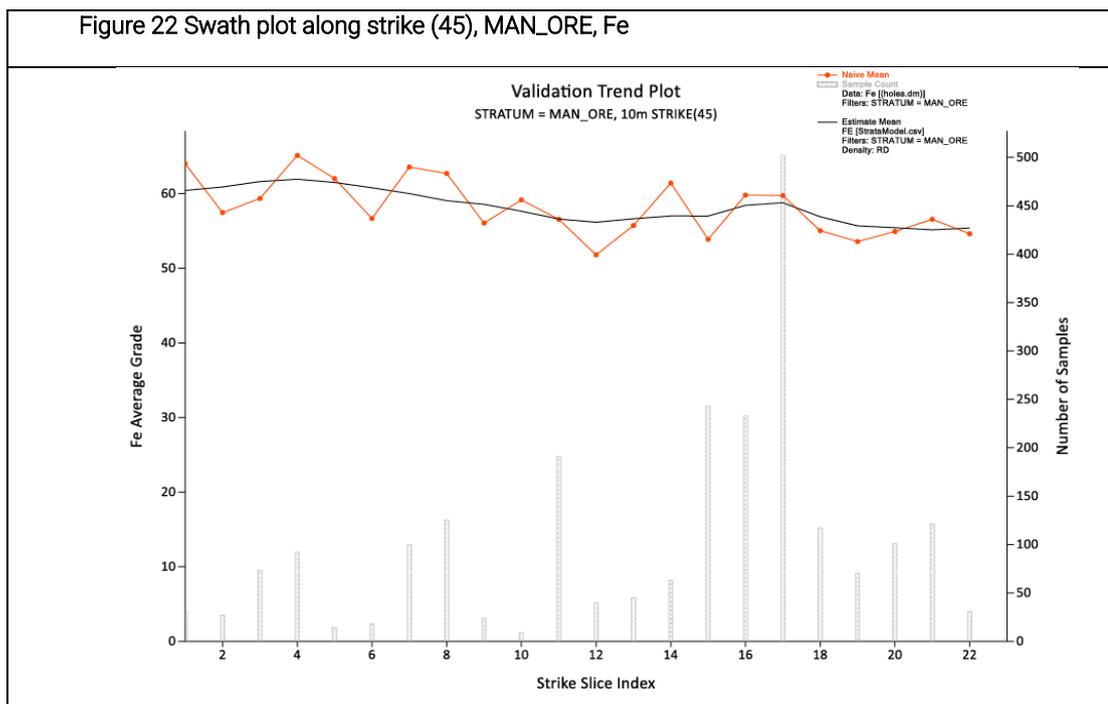


Figure 21 Swath plot Y-Direction, MAN\_ORE, Fe





## 8.2 Driehoekspan, Doornpan and Jenkins

Datamine's Strat3D® modelling software was used to create the geological model. The following data was used as inputs to the geological model:

1. Topographic surface;
2. Re-correlated boreholes; and
3. Outcrop of upper and lower contact of the Manganore iron formation (BIF/Heamatite) as determined by 1:250 000 geological map.

The model was constructed on a 12.5 (x) m x 12.5 (y) m x 2 (z) m block size based on the Kriging Neighbourhood Analysis (KNA) and to allow the model to follow the very undulating nature of the orebody. For the OVB, PSHL, MRT, SIS and DOL strata, seam filling was used in the Z direction. For the SHEM, FERSHALE, HEM\_U and HEM\_L strata, 2m blocks in Z were used to accurately capture the vertical variation in grade.

Boreholes were composited into 2m intervals and zonal control was used, i.e., the composites were limited to each stratum. The minimum composite length used was 0.01m.

The relationship between the strata were set as "conformable". Although the genetic model indicates a disconformity between the iron bearing sediments and the shale, the best results were achieved using a conformable relationship. The strata were also set to "contiguous" ensuring there were no gaps in between successive strata away from boreholes.

Datamine's Supervisor® was used to conduct top cut analysis of the data. This was conducted to identify possible outliers in the data which may negatively impact estimation. Common practice is to "cap" outlier values which are not deemed part of the population to more reasonable grades.

The analysis carried out indicated that top cutting is not required. Top capping analysis for strata HEM\_U and HEM\_L, the main iron bearing units, are provided in Figure 23 and Figure 24, showing no outliers.

Top capping/cutting was therefore not applied prior to variogram modelling and estimation.

Figure 23 Top-cutting analysis of HEM\_U strata.

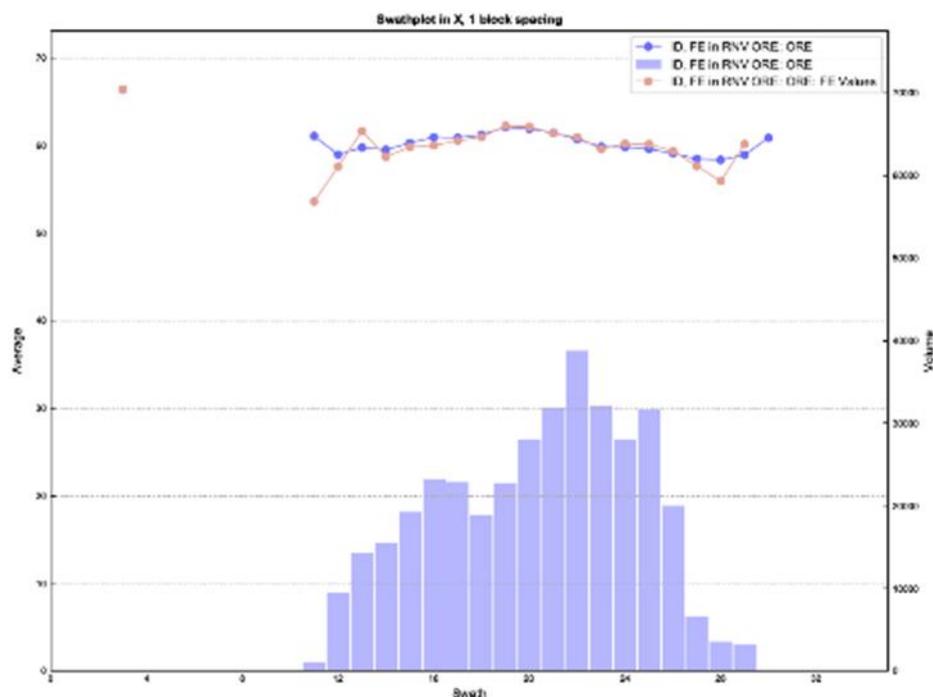
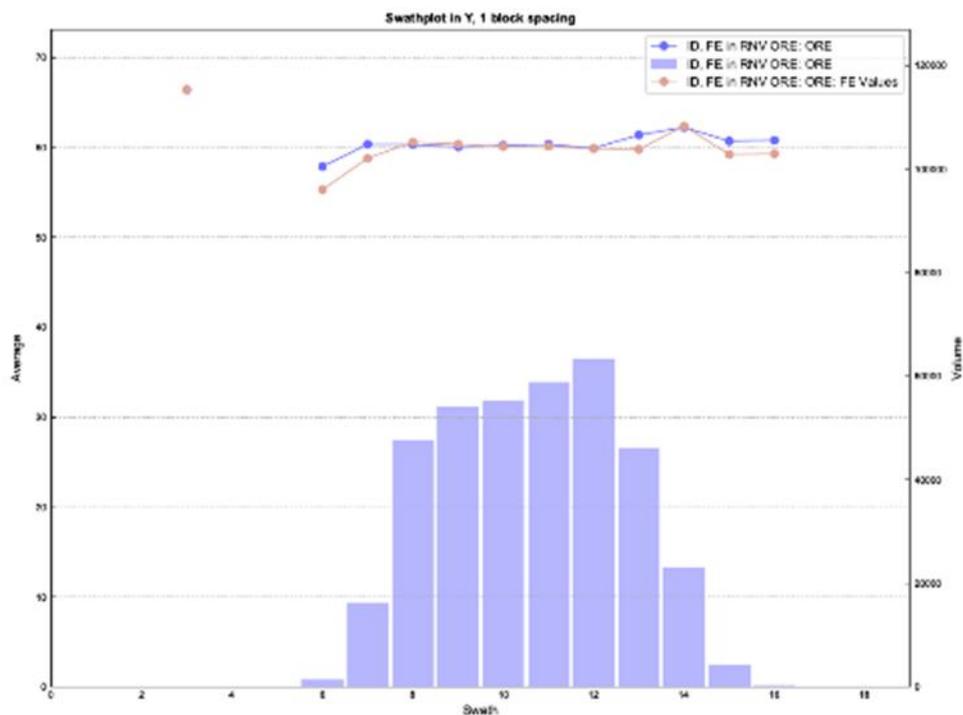


Figure 24 Top-cutting analysis of HEM\_L strata.



### 8.2.1 Modelling Techniques

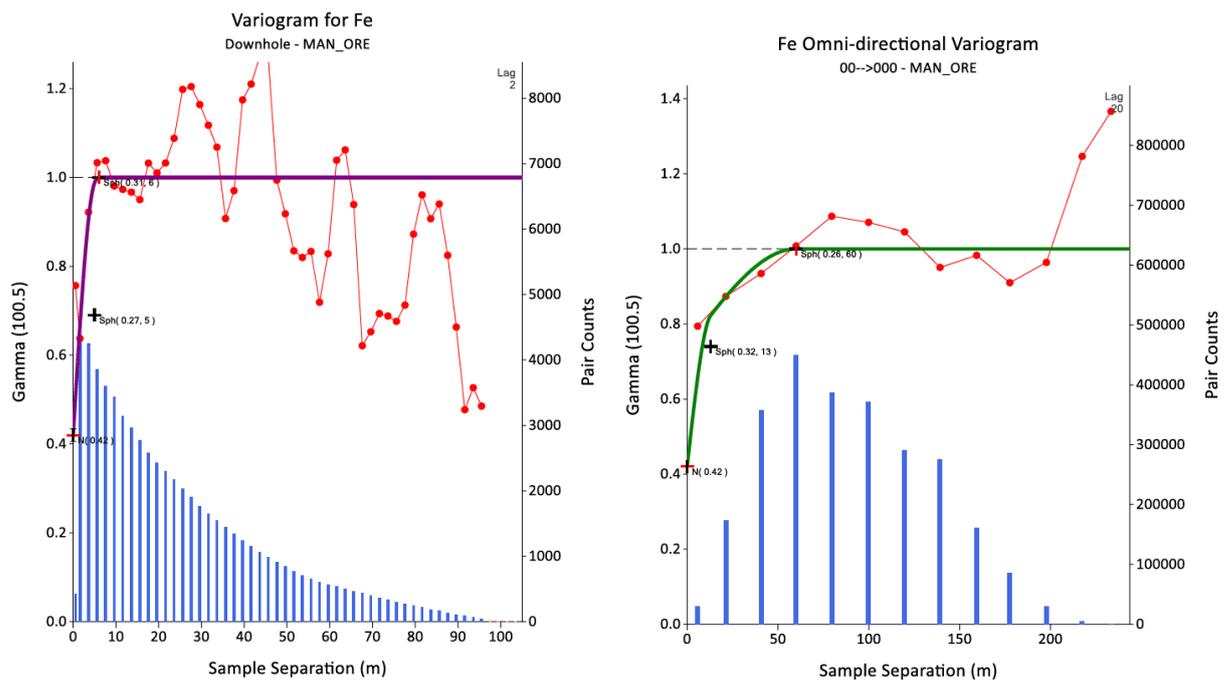
Ordinary kriging (OK) was used to estimate the assayed values into the blockmodel.

Due to the “folded” nature of the deposit, boreholes were unfolded using Datamine’s StudioRM® software before variography was conducted. During the unfolding process, the user defines the geological controls interactively on the graphics screen, using strata boundaries and structural links. The process then creates a wireframe and calculates distances along strike, down dip and in the true thickness directions. Hence each sample has two sets of coordinates, one in the original XYZ system and one in the new Unfolded Coordinate System (UCS).

After the boreholes were successfully unfolded, downhole and directional variograms were calculated and modelled using Datamine’s Supervisor® software. The variograms were constructed per key field and the key field used was stratum i.e., only samples from the same strata were used during the variogram calculation.

Variogram contours of the original boreholes (folded) confirmed the directional/anisotropic nature of the deposit with mineralisation showing a greater trend along strike with shorter ranges in the dip direction. The downhole and omni-directional variograms that have been modelled for Fe in the MAN\_ORE stratum is provided in Figure 25.

Figure 25 Downhole and Omni-directional variogram for Fe in MAN\_ORE



Downhole variograms were modelled to determine the nugget. Three directional variograms were also modelled which correspond with the strike, the dip (unfolded) and thickness (between hanging wall and footwall).

Based on the variogram modelling, the variogram parameters for the various elements/oxides were determined. The variograms were normalised to a total sill value of 1.00.

The variograms confirmed that large variation in grade over relatively short distances. For Fe %, the inherent sample variance (sill) was reached over a relatively short distance of less than 100 m. The relatively large nugget value and the short range to the first structure, indicate the large variation in grade over short distances.

#### Kriging Neighbourhood Analysis

To optimise the estimation parameters used, Kriging Neighbourhood Analysis (KNA) was conducted. The variogram models for HEM\_U, Fe % was used as this is the main iron bearing strata.

KNA is a process for optimising estimation parameters, including block size, number of informing samples, search range and the number of discretisation points. Parameters are evaluated based on two conditional bias statistics:

- Kriging Efficiency (KE), which measures the effectiveness of the kriging estimate to reproduce the local block grade accurately. A low KE indicates a high degree of over smoothing.
- Slope of regression (SR) summarises the degree of over smoothing of high and low grades. A slope close to 1 indicates that the regression between the estimated and the actual grades is likely to be very good, meaning there is limited over smoothing. Conversely, low slope values indicate that there is over smoothing and hence a poor relationship between estimated and the actual block grades.

KNA is performed by calculating the KE and SR for varying combinations of estimation parameters. The resulting graphs is then used to help in selecting which parameters result in the least over smoothing.

Based on the results, the following parameter were applied during estimation:

- Block size: 12.5 m x 12.5 m x 2 m
- Samples: Minimum 2 (to ensure estimation in all blocks) Maximum 15 (to avoid negative weights)
- Search volume: 87 m x 25 m x 17 m (variogram ranges)
- Discretisation points: 3 x 3 x 3

#### Search Volumes and Samples Used

Search volumes used were determined from the variogram ranges. The following search ellipsoids were used for the higher-grade zones:

- HEM\_U: 87 m (strike) x 25 m (perpendicular to strike) x 17 m (vertical)

A minimum of 2 and a maximum of 15 samples were used to estimate each block. These relatively small numbers were used to ensure the blockmodel honours the borehole data. Increasing the minimum number of samples to use per estimate to 3 and 5 resulted in over-smoothed results and a blockmodel which did not honour the borehole data.

Strat3D's estimation inherently follows the structure or orientation of the orebody during estimation. Search directions are automatically adjusted to align with the orientation of the orebody. The basal contact (floor) of each stratum was used as the reference plane.

## 8.2.2 Modelling Results

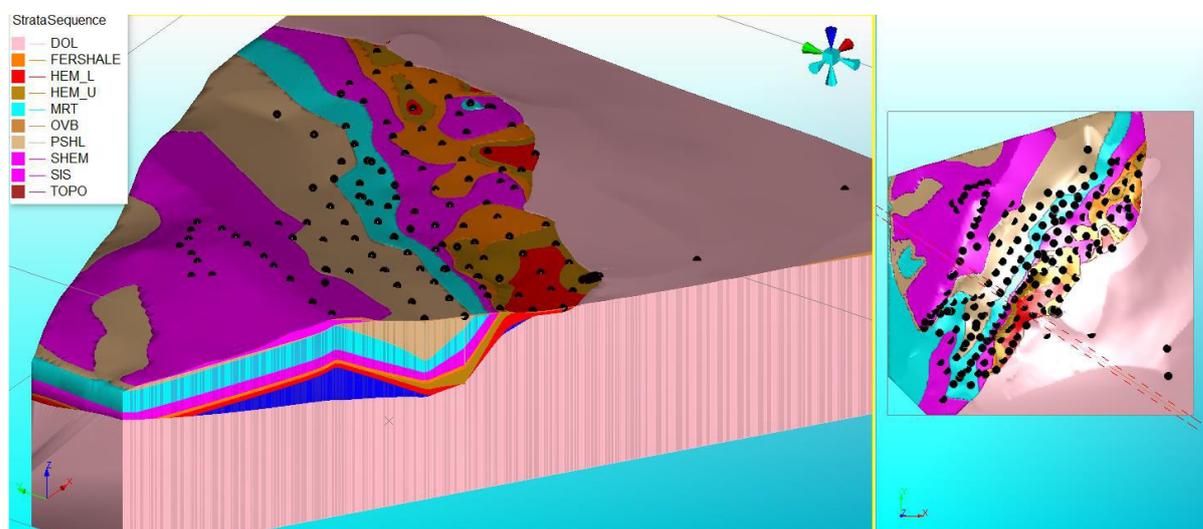
The geological model created represents a typical "palaeo-valley" type deposit with infilling of the valley structure by younger sediments. The inner part of the deposit is covered by a thick intersection of shale and quartzite. Below this, the main orebody (HEM\_U and HEM\_L)

is situated with outcrop along the eastern edges of the orebody. The surrounding country rock comprises of dolomite. Details are provided below.

### 3D View

The north-north-easterly trending palaeo-valley structure in the dolomitic basal rocks is clear. The basal HEM\_L and HEM\_U (Manganore Formation) lies unconformably on top of the dolomites. This is followed by the FERSHALE unit and the SIS (Sishen Shales). Above this the MRT (Marthaspoort Quartzites) are developed in the deeper parts of the valley. Towards the central parts of the valley, PSHL (Paling Shale) is developed. The uppermost SHEM (Haematitic Shale) unit is developed along the western parts of the deposit.

**Figure 26** A northwest-southeast section through the geological model.



### Cross-sections Geology

Geological cross-sections provide sectional views of the model (Figure 27 to Figure 29). The sections were drawn perpendicular to the strike of the orebody.

The model accurately honours all the borehole intersections. The boreholes and the blockmodel is coloured using the same strata legend.

The northeast-southwest trending palaeo-valley is clear from the sections and is very characteristic of deposits in this area. The lateral continuation of the strata is also evident. The strata dip steeply against the sides of the palaeo-valley.

Also worth noticing, is the full stratigraphic succession which were intersected by the boreholes toward the middle/deeper part of the palaeo-valley with boreholes intersecting

the upper Paling Shales and the Marthaspoort Quartzites and the Sishen Shales before entering the iron bearing Ferruginous Shales (most likely part of the Sishen

Figure 27 Geology cross-section 1

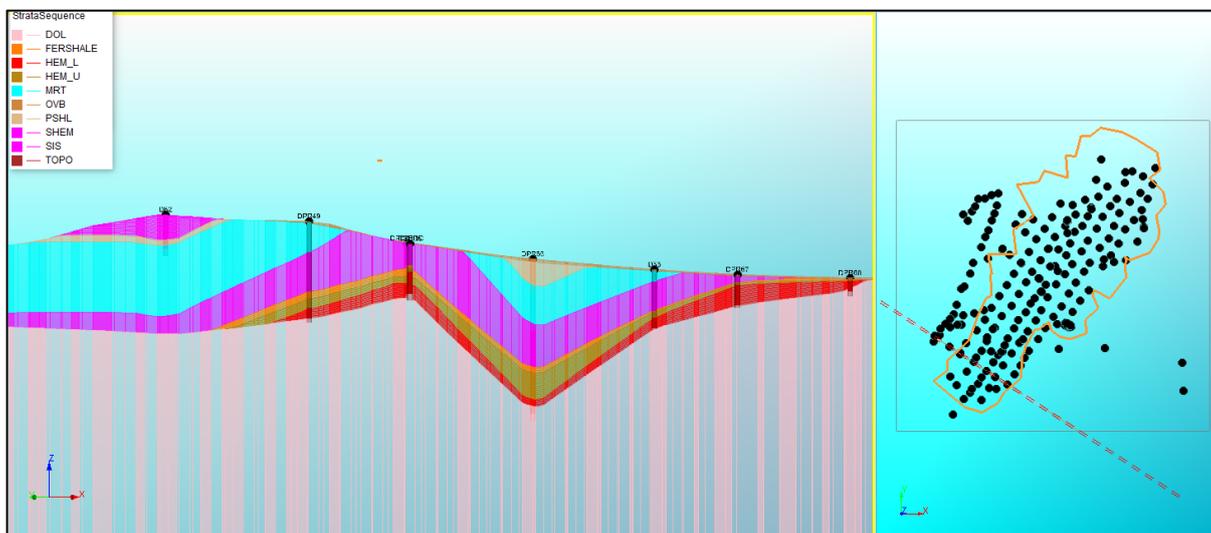
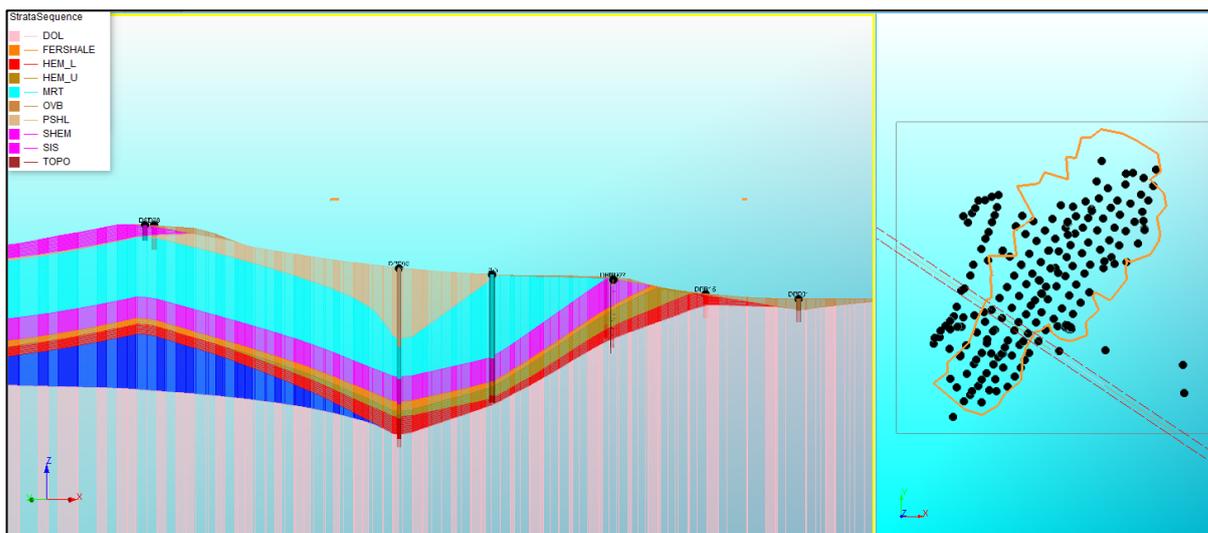


Figure 28 Geology cross-section 2.





Another interesting, and economically important observation is the shallow, relatively flat lying, high grade material seen along the north-eastern flank of the deposit.

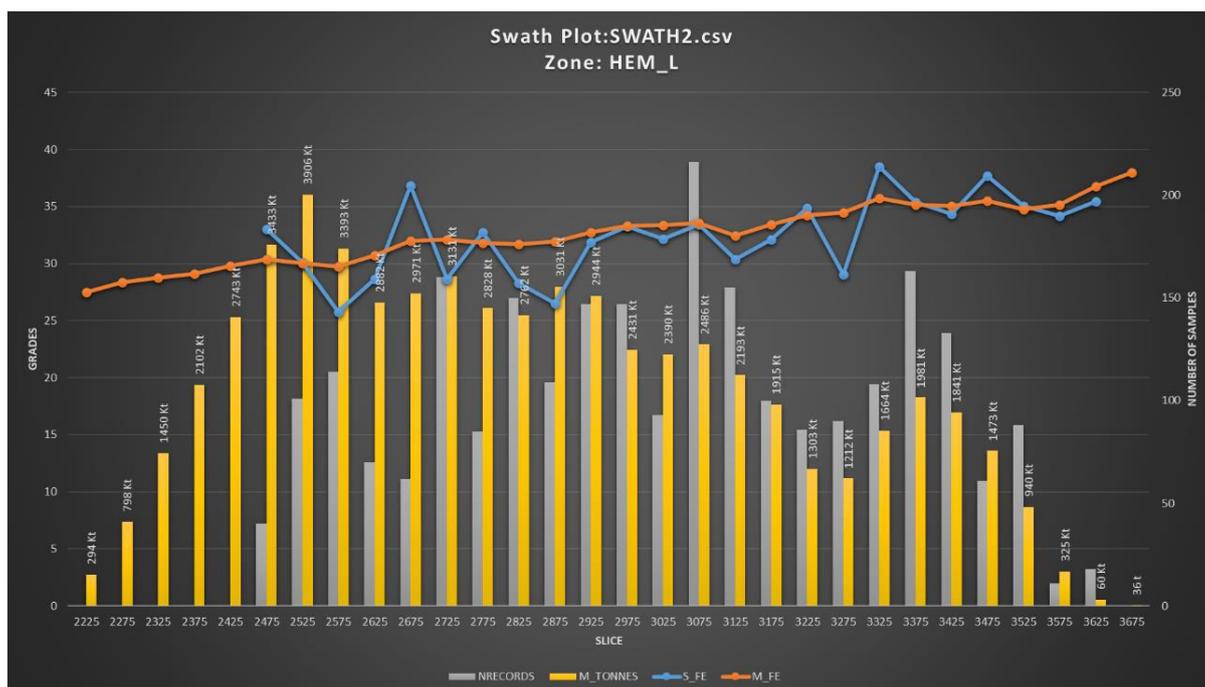
The continuation of ore to the west of the orebody should be viewed with caution and is based on the current geological interpretation. Most of the boreholes along the western flank of the orebody was drilled short and did not intersect the ore bearing HEM\_U and HEM\_L. Afrimat is going to drill deeper boreholes in this area to confirm the continuation at depth of the orebody. Once deeper borehole data is available in this area, the geological interpretation can be re-assessed, and the model updated. During resource classification, only resources 50 m away from boreholes were considered.

#### Swath Plots

North-south and east-west swath plots at 50 m intervals were drawn to compare the estimated grade in the blockmodel to the grades in the composited boreholes used for estimation (Figure 30).

As is evident from the graphs, the model honours the samples very well. The swath plots were constructed for the high-grade zones only.

Figure 30 Swath plots



## 9 Mineral Resource estimate

Reblocking of Jenkins cause of resource change. Included percussion drill results in estimate. Ukwazi pit design influenced the available resource

### 9.1 Current Mineral Resource Estimate

The current Mineral Resource estimate has been prepared to take into account the results of the exploration programme and mining depletions to this date.

The current Mineral Resource estimate, dated 28 February 2023, has been prepared and signed off by Mr Johan Pretorius as CP. This Mineral Resource estimate was prepared in accordance with the SAMREC Code (2016 Edition) and comprises a total of 44.3Mt of iron ore and is inclusive of Mineral Reserves. The Mineral Resources are tabulated in Table 7 to Table 10.

Table 7 Demaneng Mineral Resource (28 February 2023)

Pit	Category	Mt	Fe %	K2O %	SiO2 %	Al2O3 %	P2O3 %	Mn %
Rust & Vrede	Indicated	1.23	56.70	5.32	1.81	0.50	0.02	1.47
Pit F	Indicated	0.05	55.82	13.60	1.15	0.16	0.04	0.07
Pit H	Indicated	1.06	58.46	10.49	1.34	0.17	0.05	0.02
Rust & Vrede South	Indicated	0.38	55.86	3.68	2.20	0.40	0.01	1.94
JC Orebody	Indicated	0.45	55.30	8.68	1.45	0.43	0.02	0.66
<b>Total</b>		<b>3.18</b>	<b>56.97</b>	<b>7.46</b>	<b>1.64</b>	<b>0.36</b>	<b>0.03</b>	<b>0.90</b>

Table 8 Jenkins Mineral Resource (28 February 2023)

Category	Mt	Fe %	K2O %	SiO2 %	Al2O3 %	P2O3 %	Mn %
Measured	16.2	60.38	0.37	3.23	1.98	0.07	1.89
Indicated	-	-	-	-	-	-	-
<b>Total</b>	<b>16.2</b>	<b>60.38</b>	<b>0.37</b>	<b>3.23</b>	<b>1.98</b>	<b>0.07</b>	<b>1.89</b>
Inferred	-	-	-	-	-	-	-

Table 9 Driehoekspan Mineral Resource (28 February 2023)

Category	Mt	Fe %	K2O %	SiO2 %	Al2O3 %	P2O3 %	Mn %
Measured	17.98	57.39	0.44	6.04	4.69	0.03	2.40
Indicated	4.33	56.40	0.37	6.08	5.09	0.04	2.91
<b>Total</b>	<b>22.31</b>	<b>57.20</b>	<b>0.43</b>	<b>6.05</b>	<b>4.77</b>	<b>0.03</b>	<b>2.50</b>
Inferred	-	-	-	-	-	-	-

Table 10 Doornpan Mineral Resource (28 February 2023)

Category	Mt	Fe %	K2O %	SiO2 %	Al2O3 %	P2O3 %	Mn %
Measured	1.06	56.51	0.29	12.21	2.35	0.02	0.19
Indicated	1.50	57.14	0.36	11.63	2.21	0.02	0.38
<b>Total</b>	<b>2.55</b>	<b>56.88</b>	<b>0.33</b>	<b>11.87</b>	<b>2.27</b>	<b>0.02</b>	<b>0.30</b>
Inferred	0.08	58.10	0.30	10.60	1.62	0.02	0.33

## 9.2 Volume

The volume has been estimated using the modelled ore body thickness in each defined Resource block.

## 9.3 Relative density

Densities were assigned to the model based on the Fe %. Density measurements and corresponding Fe % grades were provided by Afrimat (Figure 33) as per Sphynx (2013) and based on these for following equation was derived:  $DENSITY=(0.0471*FE)+1.5997$

These densities were assigned to all material with a Fe % greater than 40 % after estimating the Fe % into the blockmodel.

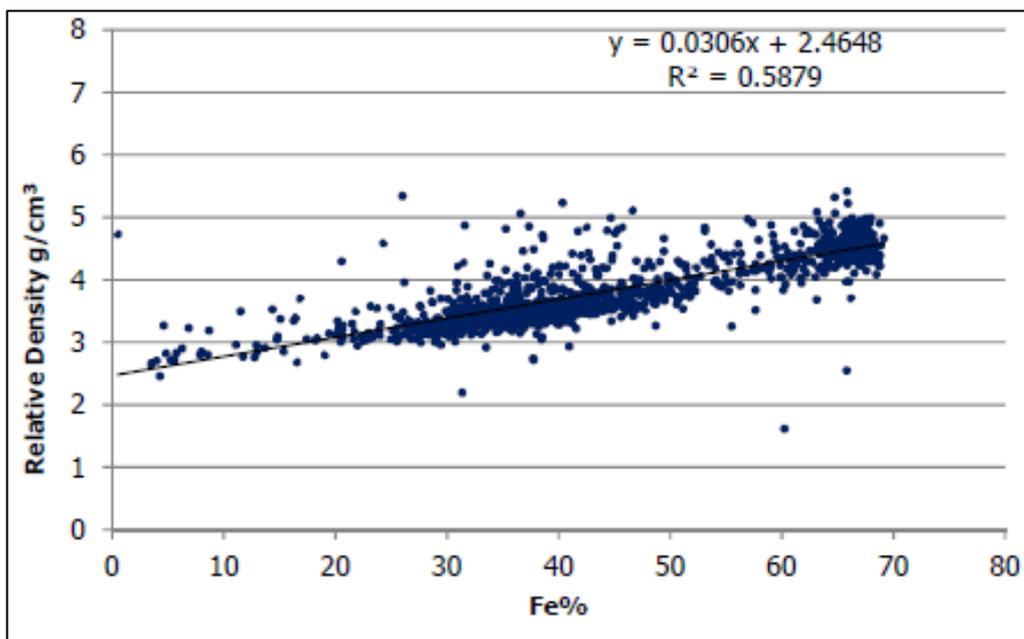
Where the Fe % was less than 40 %, default densities were assigned as follows:

- HEM\_SHEM: 3.30 g/cc
- FERSHALE: 3.30 g/cc
- HEM\_U: 3.30 g/cc
- HEM\_L: 3.30 g/cc
- All other: 2.70 g/cc

A regression formula for relative density against Fe grade was calculated and applied to the estimated Fe grades to derive an estimate for relative density and inform the tonnage estimates.

Relative density measurements were performed on all diamond drillcore from the Project. The Archimedes method of density determination is calculated as follows and was applied to each sample. A plot of the relative density versus its equivalent Fe% grade is shown in Figure 31. A positive relationship is noted, as is expected in this type of mineralisation.

Figure 31 Density vs Fe% grade



## 9.4 Tonnage

All volumes were multiplied by the raw relative density in order to estimate the tonnages for each resource block.

## 9.5 Cut-off parameters

No Fe% cut-off grades have been applied to the haematite, as it is lithologically constrained. It is noted that the transition from haematite to BIF is typically in the region of 50-60% Fe, which would be higher than a conceptual cut-off grade, and hence the estimates do not contain any "below cut-off" material. For the BIF, a nominal cut-off grade of 35% Fe has been applied to the estimates.

## 9.6 Mineral Resource classification criteria

Several factors were considered in the Mineral Resource classification. While Kriging Efficiency (KE) was used as a guide, data confidence and geological continuity are considered equally important. The efficiency associated with the estimation of Fe grade is measured by KE, calculated using the formula:

$$KE = \frac{\text{Block Variance} - \text{Kriging Variance}}{\text{Block Variance}}$$

Kriging Efficiency and Slope of Regression are popular methods for classifying resources into resource categories. Slope of Regression (SR) is applied here as it appears to be more

robust to drillhole spacing. The SR can be defined as correlation coefficient between estimated and theoretical "true" block grades. Datamine's Supervisor was used to determine the SR at various drillhole spacings. The following recommended classification was made (as is commonly used in the mining industry):

- SR of  $\geq 0.80$ : Measured Resources
- SR of between 0.60 - 0.80: Indicated Resources
- SR of  $< 0.60$ : Inferred

The variograms produced for HEM\_U, Fe % was used as this is the metal of economic concern whilst HEM\_U is the main ore zone.

The SR at various drillhole spacings was calculated for Fe in HEM\_U. The SR was calculated for the area and the box-and-whisker plot indicating the range and mean SR for different drillhole spacings.

Based on the results of the study, the following drill spacings are recommended for Demaneng.

- Measure Resources:  $< 40$  m drillhole spacing
- Indicated Resources: 40 m – 60 m drillhole spacing
- Inferred Resources:  $> 60$  m drillhole spacing

Based on the results of the study, the following drilling spacings are recommended for Jenkins, Driehoekspan and Doornpan:

- Measured Resources:  $< 80$  m drillhole spacing
- Indicated Resources: 80 m – 100 m drillhole spacing
- Inferred Resources:  $> 100$  m drillhole spacing.

### 9.6.1 Demaneng

It should be noted that the SR calculations are highly dependent on the ranges determined from the variogram models. Another method to determine the mineral classification is to determine 2/3rds or 66.6% of the range from the variogram.

Even though the results of the Kriging Efficiency and the SR results indicated a Measured Resource category for Demaneng, the limitations brought about by the drilling technique used (percussion and RC), resulted in the CP downgrading the Mineral Resources to Indicated.

### 9.6.2 Driehoekspan, Jenkins and Doornpan

It should be noted that the SR calculation are highly dependent on the ranges determined from the variogram models. It is believed that the current variograms are the most accurate as they were conducted in an unfolded coordinate system and the lag used during the calculations are based on the average drillhole spacing. The previous resource estimate conducted by Sphynx (2013), had a range for Fe of 175 m. The maximum range as determined in this report for Fe in the main HEM\_U was calculated as 87 m. Based on the data, and especially the down-dip variance observed, a range of 87 m appears appropriate. Based on the above calculations, buffers around the boreholes which intersected the various strata were drawn and the blockmodel flagged accordingly. At least two boreholes should fall within the borehole spacing to qualify. No isolated boreholes were included. Due to variable and discontinuous nature of the Mn % mineralisation, no attempt was made to classify the manganese resources.

### 9.7 Reasonable prospects for eventual economic extraction

Reasonable prospects for eventual economic extraction have been demonstrated by the fact that the mine is currently operating the Demaneng, Jenkins and Driehoekspan opencast sections, processing plant and all related support infrastructure. In addition, the declaration of Mineral Reserves along with the associated cash flow evaluation has demonstrated that additional mining sections are economically extractable.

## 10 Mineral Reserve estimate

The current Mineral Reserve estimate has been compiled by Mr Philip Mostert of Afrimat who has the necessary experience in the nature and style of mineralisation to qualify as a Competent Person as defined in terms of the SAMREC Code (2016). Mr Mostert is a member in good standing of the SACNASP. The Mineral Reserve estimate is tabulated Table 11. The Afrimat Iron Mineral Reserve estimate has been prepared as at 28 February 2023, using the LOM planning as input parameters undertaken by Mr Riaan van der Linde.

The mine design and scheduling processes presented utilise industry best-practice techniques. Mine design remains a dynamic exercise which will see regular revision as the actual mining experience, in terms of structure, grade and processing, and is constantly reconciled with model variables which enable progressively sharper final planning.

Geological and mining modelling packages provide a primary order-of-magnitude cross-check of the in-situ volumes, relative densities and tonnages. The Surpac package provide this first tonnage reconciliation with the geological model on the basis of the primary exploration inputs,

both structural and quality. With a <2.5% variance in tonnage estimates the Surpac models are deemed an appropriate and reasonable representation of the geological model.

Rigorous LOM schedules were then set up, with reserving modifying factors informed by experience in the current Jenkins and Demaneng, from both pit planning and processing point of view. Modifying factors applied in the reserving process are listed in the respective sections of this report. In-pit losses and practical processing plant yield are the key parameters which are constantly monitored and modified in the forward-looking models to inform realistic expectations of future production. Experience at Afrimat Iron since commencement clearly leads to improved estimates of mine and plant output.

Only Indicated and Measured Mineral Resources are considered for Mineral Reserve estimation. In the event that Indicated or Measured Mineral Resource blocks are geographically isolated and cannot be accessed without including Inferred Mineral Resources into the schedule, that block is excluded. In this instance additional drilling is recommended in order to upgrade the appropriate blocks to at least an Indicated Mineral Resource categorisation before the isolated block could be considered in Mineral Reserve estimation.

**Table 11 Afrimat Iron Mineral Reserves (28 February 2023)**

Operation	Category	ROM (Mt)	Fe%
Demaneng	Probable	2.59	62.17
Jenkins	Probable	15.47	62.74
Driehoekspan	Probable	7.62	60.18
<b>Total</b>		<b>25.68</b>	<b>61.92</b>

## 10.1 Mine design and scheduling

### 10.1.1 Mine design concept

Mining operations at Afrimat Iron is currently limited to Demaneng and Jenkins. Driehoekspan is currently under development and is expected to enter production during the second quarter of 2023.

Medium to long-term mine planning has been conducted for the following areas:

- Demaneng: currently extracting iron ore for Pit H, JC Orebody, Rust & Vrede and Rust & Vrede South.
- Jenkins: extraction continues in the main pit, with the focus on stripping activities to the west, and the drop to the next bench.
- Driehoekspan: preliminary development activities commenced, with active mining planned in the second quarter of 2023.

### 10.1.2 Method and competence

Ongoing opencast mine design and scheduling for the Damaneng, Jenkins and Driehoekspan opencasts has been undertaken by Mr Riaan van der Linde. Mr van der Linde is employed by Ukwazi, and contracted to provide mine planning exclusively to Afrimat Iron. The design and schedule is based on the 28 February 2023 geological model and blockmodels exported from Datamine and Deswik.

Volume and/or grade variations were addressed in the geological model itself or within the primary databases to ensure that the model reconciliations were within acceptable limits. Design iterations were then further evaluated to deal with bench configurations for the opencast designs. The opencast layouts were scheduled in Surpac with the appropriate orebody thickness, processing parameters and grade cut-offs applied.

### 10.1.3 Mine design

Geological model data for each pit was provided to Mr van der Linde by Afrimat in the form of geological models and grade blockmodels which were imported into Surpac mine scheduling software. Ore and waste face outlines were placed over the geological model to determine the basic pit shells. These shells were further refined by the geological information within the blocks and cut-offs applied, where necessary.

The model was driven by a production rate averaging 125 000 tonnes per month for Jenkins, 50 000 tonnes per month for Demaneng and 40 000 tonnes per month for Driehoekspan ,

with ore extracted as exposed in the pit and stockpiled as required. The primary objective was to understand the timing and volumes of pit waste and ore respectively.

The Jenkins and Driehoekspan planning parameters are listed below:

- Road design: Road width 16 meter: Maximum gradient 1 in 10 (Caterpillar performance handbook 1:8)
- Geotechnical design parameters according to Slope Stability COP (Machini– Diro-Afrimat-COP-June 2017)
- Plan runs with seven loaders allocated to specific mining areas.
- Drill meters per day 500 with maximum loading capacity of 100 000 to 170 000 ton per week.

The Demaneng planning parameters are listed below:

- Road design: Road width 16 meter:
  - Maximum gradient 1 in 10 (Caterpillar performance handbook 1:8)
- Geotechnical design parameters according to Slope Stability COP (Machini– Diro-Afrimat-COP-June 2017)
- Plan runs with seven loaders allocated to specific mining areas.
- Drill meters per day 500 with maximum loading capacity of 100 000 to 170 000 ton per week.

The Pit shell design are shown in Figure 32 to Figure 36.

**Figure 32 Jenkins Pit shell designs**

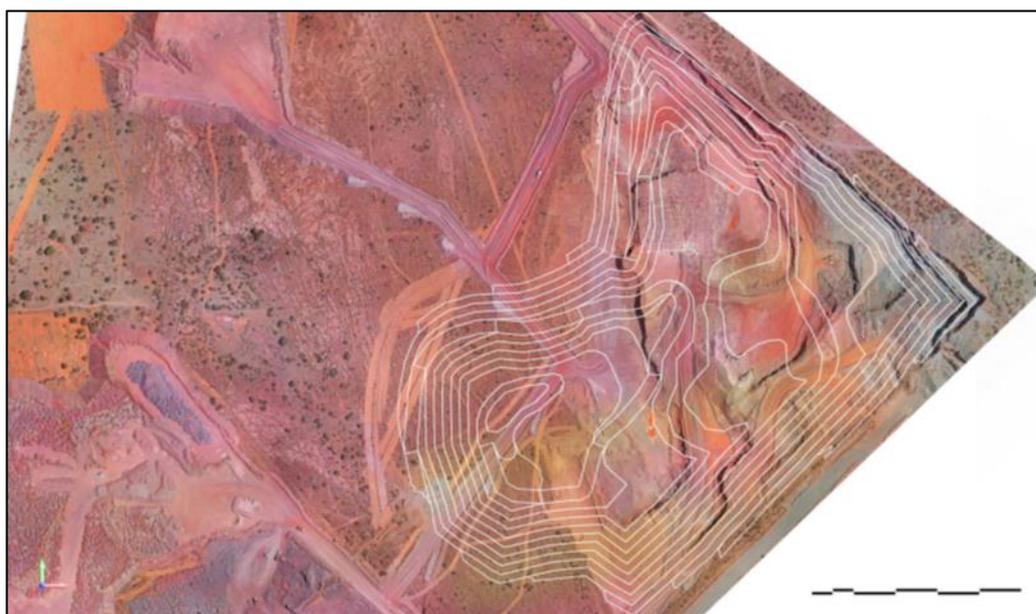


Figure 33 Driehoekspan Pit shell designs



Figure 34 Demaneng Pit H Pit shell design

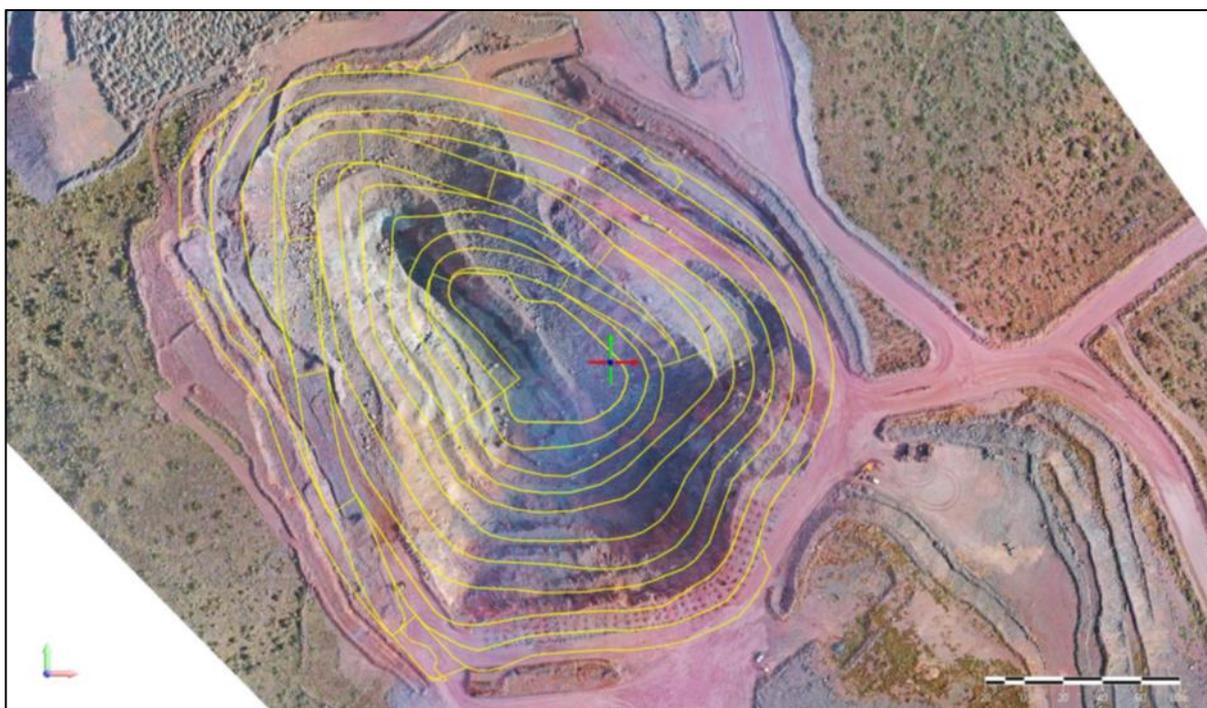
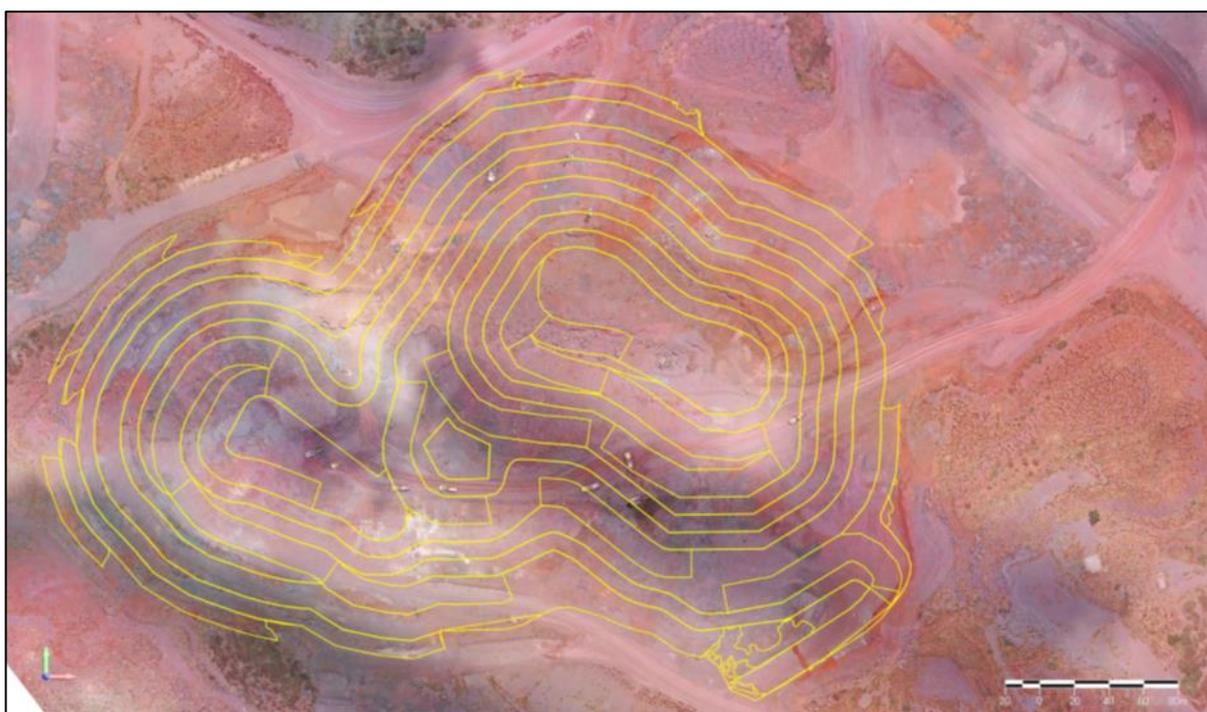


Figure 35 Demaneng JC Pit shell design



Figure 36 Rust &amp; Vrede Pit shell design



#### **10.1.4 Production scheduling**

The Jenkins pit will deliver ROM of 16.95Mt over a 133 month pit life at an average production rate of 125 000t/pm and average strip ratio of 2.8BCM/t.

The Driehoekspan pit will deliver ROM of 7.42Mt over a 137 month pit life at an average production rate of 58 000t/pm and average strip ratio of 0.44BCM/t.

The various Demaneng pit is scheduled as a unit to manage volume and grade. The combined production will deliver ROM of 2.67Mt over a 57 month pit life at an average production rate of 47 000t/pm and average strip ratio of 8.22BCM/t.

#### **10.1.5 Rehabilitation**

Ongoing rollover pit void fill will continue as is the practice in current pit. The long-term plan for rehabilitation and closure of the various pits is to allow the void to flood and to utilise the water accumulation for local consumption. Stockpiles will be shaped appropriately, and the ROM pad and operating infrastructure removed, and the respective footprints rehabilitated.

### **10.2 Modifying factor summary**

#### **10.2.1 Geological losses**

Based on the level of exploration and variability in grade, a 10 % loss would be appropriate.

#### **10.2.2 Mining losses**

A 5% layout loss was discounted from Mineral Resource to accommodate mining inefficiencies and practical mining issues related to layout limitations. As Afrimat has not conducted a formal reconciliation of planned versus actual mining recoveries this discount is based on experience and is considered reasonable in addition to geological losses.

#### **10.2.3 Contamination**

A 4% non-ore contamination reporting to ROM was applied.

As noted, to date Afrimat has not reconciled planned versus actual contamination. These losses were therefore applied based on experience on operations of a similar nature. Ignoring contamination would ignore the impact on both mining cost and process yield.

### 10.2.4 Reconciliation between current and previous Mineral Reserve estimates

No previous Mineral Reserves have been estimated for the Afrimat Iron properties.

### 10.2.5 Key risks associated with the Mineral Reserve Estimate

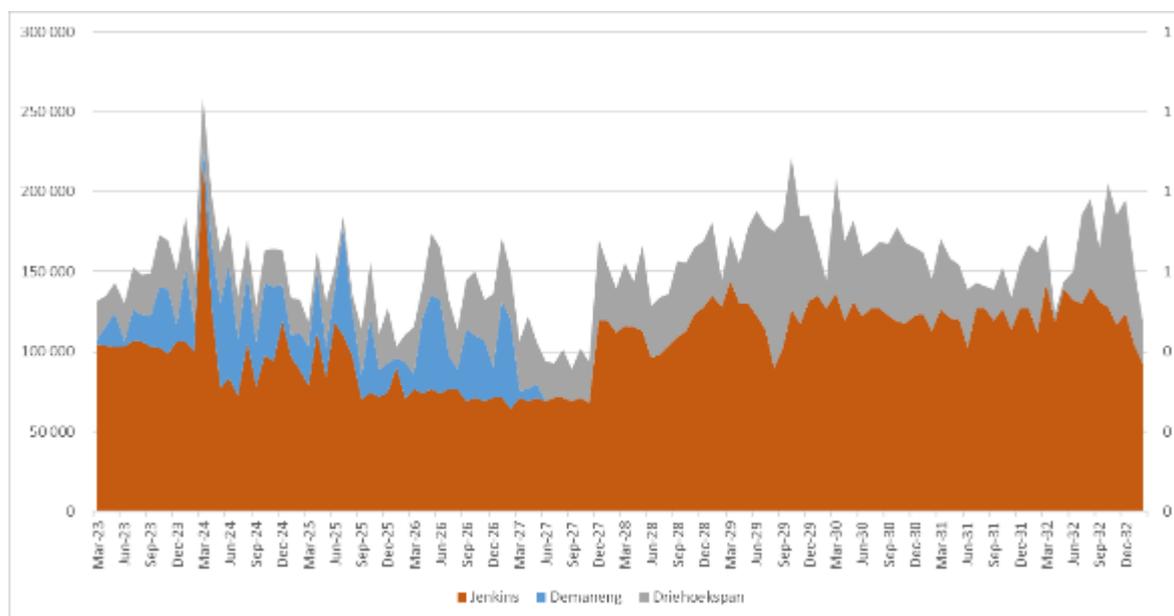
Two key risks to the Mineral Reserve presented in this report are the management of the blended grade supply to match customer expectations, and the achievement of the planned Driehoekspan production ramp-up.

In addition the sporadic performance of Transnet's rail transport could impact the ability to deliver contracted volumes to port.

### 10.2.6 LOM production summary

The ROM, LOM production summary for the various mining areas is combined and presented in Figure 37

Figure 37 Afrimat Iron production and Life of Mine Summary



## 11 Mineral Resource and Mineral Reserve summary

Mineral Resource and Mineral Reserve estimates reported for the period ended 28 February 2023 are summarised in Table 12 and Table 13.

Table 12 Afrimat Iron Ore Mineral Resource (28 February 2023)

Category	Mt	Fe %	K2O %	SiO2 %	Al2O3 %	P2O3 %	Mn %
Measured	35.2	61.59	0.51	4.14	2.69	0.07	1.68
Indicated	9.0	56.73	1.83	3.90	2.81	0.08	1.60
<b>Total</b>	<b>44.20</b>	<b>60.60</b>	<b>0.78</b>	<b>4.09</b>	<b>2.72</b>	<b>0.08</b>	<b>1.66</b>
Inferred	0.1	58.10	0.37	3.75	2.96	0.07	2.17

Table 13 Afrimat Iron Mineral Reserves (28 February 2023)

Operation	Category	ROM (Mt)	Fe%
Demaneng	Probable	2.59	62.17
Jenkins	Probable	15.47	62.74
Driehoekspan	Probable	7.62	60.18
<b>Total</b>		<b>25.68</b>	<b>61.92</b>

## 12 Conclusions

Afrimat Iron Ore's properties as characterised by a high level of confidence through the completion of the recent drilling campaigns and knowledge gained from ongoing mining activities. The drilling programmes have confirmed the historical drilling information as well as the percussion drilling results, and its suitability for inclusion in the Mineral Resource estimates. This allowed for a greater number of boreholes included in the estimation database, and an increased level of confidence in the Resource classification.

Based on the knowledge gained, Mineral Resources have been declared for Demaneng according to the requirements of SAMREC. This has offset the reduction in Resources at Jenkins following the pit optimisation completed in 2022. The overall Resources have remained stable apart from a minor reduction due to mining depletion.

Work is ongoing to assess the manganese potential across the properties, which could add significant value to the portfolio.

The life of mine planning caters for the mining of the various pits across the three properties which allows for effective blending strategies to meet customer product specification.

The stable life of mine, successful mining operations of the past several years and consistent product delivery has allowed for the declaration Mineral Reserves for the first time.

Two key risks to the Mineral Reserve presented in this report are the management of the blended grade supply to match customer expectations, and the achievement of the planned Driehoekspan production ramp-up.

In addition, the sporadic performance of Transnet's rail transport could impact the ability to deliver contracted volumes to port.

## 13 Signature Page

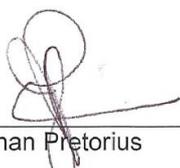


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Philip Mostert

*B.Sc. (Hons) Geol, Pr. Sci. Nat*

*Lead Competent Person*



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Johan Pretorius

*M.Sc. Geol, Pr. Sci. Nat*

*Competent Person*

Effective Date: 28 February 2023

Philip Mostert

As the author of the report entitled "Competent Persons' Report on Afrimat Limited's Iron Ore Division, South Africa", I hereby state:

- My name is Philip Mostert and I am a Manager Business Development at Afrimat Limited of Tyger Valley Office Park No. 2. Corner Willie van Schoor Avenue and Old Oak Road Bellville.
- I am a qualified Geologist, and I am a registered with the South African Council for Natural Scientific Professionals as a Professional Natural Scientist (Reg. No. 400442/11).
- My qualifications include BSc Hons (Geol),
- I have 22 years' experience in exploration, geology, mining and the estimation of Mineral Resources and Reserves. I have co-authored over 30 CPRs, Mineral Experts Reports and NI43-101 Technical Reports for both local and international stock exchanges.
- I am a 'Competent Person' as defined in the SAMREC Code (2016 Edition).
- I am the lead Competent Person and lead author in this CPR.
- I visited the site in 4-6 April 2023 for the purposes of the preparation of this CPR.
- I am responsible for all sections within this CPR, excluding the geological modelling, Resource section.
- I am not aware of any material fact or material change with respect to the subject matter of the CPR that is not reflected in the CPR, the omission of which would make the CPR misleading.
- I declare that this CPR appropriately reflects the Competent Person's/author's view.
- I am a full time employee of Afrimat.
- I have read the SAMREC Code (2016 Edition) and the CPR has been prepared in accordance with the guidelines of the SAMREC Code (2016 Edition).
- I do not have, nor do I expect to receive, a direct or indirect interest in the Afrimat Iron Ore or Afrimat.
- At the effective date of the CPR, to the best of my knowledge, information and belief, the CPR contains all scientific and technical information that is required to be disclosed to make the CPR not misleading.
- Dated at Sandton on 5 May 2023.




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Philip Mostert

*B.Sc. (Hons) Geol, Pr. Sci. Nat*

*Competent Person*

Johan Pretorius

As the author of the report entitled "Competent Persons' Report on Afrimat Limited's Iron Ore Division, South Africa", I hereby state:

- My name is Johan Pretorius and I am a Head Geology & Grade Control at Afrimat Iron Ore (Pty) Ltd at Demaneng Mine, Kathu, Northern Cape Province, South Africa.
- I am a qualified Geologist, and I am registered with the South African Council for Natural Scientific Professionals as a Professional Natural Scientist (Reg. No. 400100/00).
- My qualifications include MSc Hons (Geol),
- I have 37 years' experience in exploration, geology, mining and the estimation of Mineral Resources.
- I am a 'Competent Person' as defined in the SAMREC Code (2016 Edition).
- I visited the site on a regular basis as part of my operational duties for the purposes of the preparation of this CPR.
- I am responsible for geological modelling and Resource sections within this CPR.
- I am not aware of any material fact or material change with respect to the subject matter of the CPR that is not reflected in the CPR, the omission of which would make the CPR misleading.
- I declare that this CPR appropriately reflects the Competent Person's/author's view.
- I am a full time employee of Afrimat.
- I have read the SAMREC Code (2016 Edition) and the CPR has been prepared in accordance with the guidelines of the SAMREC Code (2016 Edition).
- I do not have, nor do I expect to receive, a direct or indirect interest in the Afrimat Iron Ore or Afrimat.
- At the effective date of the CPR, to the best of my knowledge, information and belief, the CPR contains all scientific and technical information that is required to be disclosed to make the CPR not misleading.
- Dated at Kathu on 15 May 2023.



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Johan Pretorius  
*M.Sc. Geol, Pr. Sci. Nat*  
*Competent Person*

SAMREC TABLE 1					Note the section in the CPR where this is located or note why it is not relevant to the project ("if not, why not").
		Exploration Results	Mineral Resources	Mineral Reserves	
<b>Section 1: Project Outline</b>					
1.1	Property Description	(i)	Brief description of the scope of project (i.e. whether in preliminary sampling, advanced exploration, scoping, pre-feasibility, or feasibility phase, Life of Mine plan for an ongoing mining operation or closure).		1.1, 3.1
		(ii)	Describe (noting any conditions that may affect possible prospecting/mining activities) topography, elevation, drainage, fauna and flora, the means and ease of access to the property, the proximity of the property to a population centre, and the nature of transport, the climate, known associated climatic risks and the length of the operating season and to the extent relevant to the mineral project, the sufficiency of surface rights for mining operations including the availability and sources of power, water, mining personnel, potential tailings storage areas, potential waste disposal areas, heap leach pad areas, and potential processing plant sites.		3.1, 4.1, 4.2, 4.5
		(iii)	Specify the details of the personal inspection on the property by each CP or, if applicable, the reason why a personal inspection has not been completed.		1.6
1.2	Location	(i)	Description of location and map (country, province, and closest town/city, coordinate systems and ranges, etc.).		3.1
		(ii)	Country Profile: describe information pertaining to the project host country that is pertinent to the project, including relevant applicable legislation, environmental and social context etc. Assess, at a high level, relevant technical, environmental, social, economic, political and other key risks.		2.1, 3.1
		(iii)	Provide a general topocadastral map	Provide a Topo-cadastral map in sufficient detail to support the assessment of eventual economics. State the known associated climatic risks.	Provide a detailed topo-cadastral map. Confirm that applicable aerial surveys have been checked with ground controls and surveys, particularly in areas of rugged terrain, dense vegetation or high altitude.
1.3	Adjacent Properties	(i)	Discuss details of relevant adjacent properties. If adjacent or nearby properties have an important bearing on the report, then their location and common mineralized structures should be included on the maps. Reference all information used from other sources.		No adjacent property information used in report
1.4	History	(i)	State historical background to the project and adjacent areas concerned, including known results of previous exploration and mining activities (type, amount, quantity and development work), previous ownership and changes thereto.		6.0, 6.1

SAMREC TABLE 1				Note the section in the CPR where this is located or note why it is not relevant to the project ("if not, why not").
		Exploration Results	Mineral Resources	Mineral Reserves
		(ii)	Present details of previous successes or failures with reasons why the project may now be considered potentially economic.	Operating mines. Not relevant.
		(iii)		Discuss known or existing historical Mineral Resource estimates and performance statistics on actual production for past and current operations.
		(iv)		Discuss known or existing historical Mineral Reserve estimates and performance statistics on actual production for past and current operations. 10.1.4
		Confirm the legal tenure to the satisfaction of the Competent Person, including a description of the following:		
		(i)	Discuss the nature of the issuer's rights (e.g. prospecting and/or mining) and the right to use the surface of the properties to which these rights relate. Disclose the date of expiry and other relevant details.	3.1.1
		(ii)	Present the principal terms and conditions of all existing agreements, and details of those still to be obtained, (such as, but not limited to, concessions, partnerships, joint ventures, access rights, leases, historical and cultural sites, wilderness or national park and environmental settings, royalties, consents, permission, permits or authorisations).	3.1.3
		(iii)	Present the security of the tenure held at the time of reporting or that is reasonably expected to be granted in the future along with any known impediments to obtaining the right to operate in the area. State details of applications that have been made.	3.1.1
		(iv)	Provide a statement of any legal proceedings for example; land claims, that may have an influence on the rights to prospect or mine for minerals, or an appropriate negative statement.	No outstanding legal known
		(v)	Provide a statement relating to governmental/statutory requirements and permits as may be required, have been applied for, approved or can be reasonably be expected to be obtained.	3.1
1.6	Royalties	(i)	Describe the royalties that are payable in respect of each property.	3.2.1
1.7	Liabilities	(i)	Describe any liabilities, including rehabilitation guarantees that are pertinent to the project. Provide a description of the rehabilitation liability, including, but not limited to, legislative requirements, assumptions and limitations.	3.1.3
<b>Section 2: Geological Setting, Deposit, Mineralisation</b>				

SAMREC TABLE 1				Note the section in the CPR where this is located or note why it is not relevant to the project ("if not, why not").
		Exploration Results	Mineral Resources	Mineral Reserves
2.1	Geological Setting, Deposit, Mineralisation	(i)	Describe the regional geology.	5.1
		(ii)	Describe the project geology including deposit type, geological setting and style of mineralisation.	5.2
		(iii)	Discuss the geological model or concepts being applied in the investigation and on the basis of which the exploration program is planned. Describe the inferences made from this model.	8.1, 8.2
		(iv)	Discuss data density, distribution and reliability and whether the quality and quantity of information are sufficient to support statements, made or inferred, concerning the Exploration Target or Mineralisation.	7.3, 7.5
		(v)	Discuss the significant minerals present in the deposit, their frequency, size and other characteristics. Includes minor and gangue minerals where these will have an effect on the processing steps. Indicate the variability of each important mineral within the deposit.	7.5
		(vi)	Describe the significant mineralised zones encountered on the property, including a summary of the surrounding rock types, relevant geological controls, and the length, width, depth, and continuity of the mineralisation, together with a description of the type, character, and distribution of the mineralisation	8.1.2, 8.2.2
		(vii)	Confirm that reliable geological models and / or maps and cross sections that support interpretations exist.	Confirmed. 8.1, 8.2
<b>Section 3: Exploration and Drilling, Sampling Techniques and Data</b>				
3.1	Exploration	(i)	Describe the data acquisition or exploration techniques and the nature, level of detail, and confidence in the geological data used (i.e. geological observations, remote sensing results, stratigraphy, lithology, structure, alteration, mineralisation, hydrology, geophysical, geochemical, petrography, mineralogy, geochronology, bulk density, potential deleterious or contaminating substances, geotechnical and rock characteristics, moisture content, bulk samples etc.). Confirm that data sets include all relevant metadata, such as unique sample number, sample mass, collection date, spatial location etc.	6.1, 7
		(ii)	Identify and comment on the primary data elements (observation and measurements) used for the project and describe the management and verification of these data or the database. This should describe the following relevant processes: acquisition (capture or transfer), validation, integration, control, storage, retrieval and backup processes. It is assumed that data are stored digitally but hand-printed tables with well organized data and information may also constitute a database.	87.2
		(iii)	Acknowledge and appraise data from other parties and reference all data and information used from other sources.	1.7
		(iv)	Clearly distinguish between data / information from the property under discussion and that derived from surrounding properties	N/A. No data from surrounding sources used

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		Exploration Results	Mineral Resources	Mineral Reserves
		(v)	Describe the survey methods, techniques and expected accuracies of data. Specify the grid system used.	6.1.4
		(vi)	Discuss whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the estimation procedure(s) and classifications applied.	9.6
		(vii)	Present representative models and / or maps and cross sections or other two or three dimensional illustrations of results, showing location of samples, accurate drill-hole collar positions, down-hole surveys, exploration pits, underground workings, relevant geological data, etc	8.1.2, 8.2.2
		(viii)	Report the relationships between mineralisation widths and intercept lengths are particularly important, the geometry of the mineralisation with respect to the drill hole angle. If it is not known and only the down-hole lengths are reported, confirm it with a clear statement to this effect (e.g. 'down-hole length, true width not known').	8.1.2, 8.2.2
3.2	Drilling Techniques	(i)	Present the type of drilling undertaken (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Banka, 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).	6.1.3, 7.4
		(ii)	Describe whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, technical studies, mining studies and metallurgical studies.	6.1.3, 7.4
		(iii)	Describe whether logging is qualitative or quantitative in nature; indicate if core photography. (or costean, channel, etc) was undertaken	6.1.3, 7.4
		(iv)	Present the total length and percentage of the relevant intersections logged.	6.1.3, 7.4
		(v)	Results of any downhole surveys of the drill hole to be discussed.	No downhole surveys completed. All holes drilled at 90°. Hole lengths did not require a survey
3.3	Sample method, collection, capture and storage	(i)	Describe the 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.	6.1.3 1 7.3
		(ii)	Describe the sampling processes, including sub-sampling stages to maximize representivity of samples. This should include whether sample sizes are appropriate to the grain size of the material being sampled. Indicate whether sample compositing has been applied.	6.1.3, 7.2

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		Exploration Results	Mineral Resources	Mineral Reserves
		(iii)	Appropriately describe each data set (e.g. geology, grade, density, quality, diamond breakage, geo-metallurgical characteristics etc.), sample type, sample-size selection and collection methods	7.5
		(iv)	Report the geometry of the mineralisation with respect to the drill-hole angle. State whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. State if the intersection angle is not known and only the downhole lengths are reported.	8.1.2, 8.2.2
		(v)	Describe retention policy and storage of physical samples (e.g. core, sample reject, etc.)	7.2
		(vi)	Describe the 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 and 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.	7.2
		(vii)	If a drill-core sample is taken, state whether it was split or sawn and whether quarter, half or full core was submitted for analysis. If a non-core sample, state whether the sample was riffled, tube sampled, rotary split etc. and whether it was sampled wet or dry.	7.2
3.4	Sample Preparation and Analysis	(i)	Identify the laboratory(s) and state the accreditation status and Registration Number of the laboratory or provide a statement that the laboratories are not accredited.	7.1
		(ii)	Identify the analytical method. Discuss the nature, quality and appropriateness of the assaying and laboratory processes and procedures used and whether the technique is considered partial or total.	7.1
		(iii)	Describe the process and method used for sample preparation, sub-sampling and size reduction, and likelihood of inadequate or non representative samples (i.e. improper size reduction, contamination, screen sizes, granulometry, mass balance, etc.)	7.1
3.5	Sampling Governance	(i)	Discuss the governance of the sampling campaign and process, to ensure quality and representivity of samples and data, such as sample recovery, high grading, selective losses or contamination, core/hole diameter, internal and external QA/QC, and any other factors that may have resulted in or identified sample bias.	7.2
		(ii)	Describe the measures taken to ensure sample security and the Chain of Custody.	7.2
		(iii)	Describe the validation procedures used to ensure the integrity of the data, e.g. transcription, input or other errors, between its initial collection and its future use for modelling (e.g. geology, grade, density, etc.)	7.5, 8.1.1, 8.2.1

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		Exploration Results	Mineral Resources	Mineral Reserves
		(iv)	Describe the audit process and frequency (including dates of these audits) and disclose any material risks identified.	7.1
3.6	Quality Control/Quality Assurance	(i)	Demonstrate that adequate field sampling process verification techniques (QA/QC) have been applied, e.g. the level of duplicates, blanks, reference material standards, process audits, analysis, etc. If indirect methods of measurement were used (e.g. geophysical methods), these should be described, with attention given to the confidence of interpretation.	7.1.1
3.7	Bulk Density	(i)	Describe the method of bulk density determination with reference to the frequency of measurements, the size, nature and representativeness of the samples.	No bulk sample taken as Nkomati is an operating mine, thus providing all relevant data that would be recovered from a bulk sample
		(ii)	If target tonnage ranges are reported state the preliminary estimates or basis of assumptions made for bulk density.	
		(iii)	Discuss the representivity of bulk density samples of the material for which a grade range is reported.	
		(iv)	Discuss the adequacy of the methods of bulk density determination for bulk material with special reference to accounting for void spaces (vugs, porosity etc.), moisture and differences between rock and alteration zones within the deposit.	
3.8	Bulk-Sampling and/or trial-mining	(i)	Indicate the location of individual samples (including map).	
		(ii)	Describe the size of samples, spacing/density of samples recovered and whether sample sizes and distribution are appropriate to the grain size of the material being sampled.	
		(iii)	Describe the method of mining and treatment.	
		(iv)	Indicate the degree to which the samples are representative of the various types and styles of mineralisation and the mineral deposit as a whole.	
<b>Section 4: Estimation and Reporting of Exploration Results and Mineral Resources</b>				
4.1	Geological model and interpretation	(i)	Describe the geological model, construction technique and assumptions that forms the basis for the Exploration Results or Mineral Resource estimate. Discuss the sufficiency of data density to assure continuity of mineralisation and geology and provide an adequate basis for the estimation and classification procedures applied.	8.1, 8.2
		(ii)	Describe the nature, detail and reliability of geological information with which lithological, structural, mineralogical, alteration or other geological, geotechnical and geo-metallurgical characteristics were recorded.	8.1, 8.2

SAMREC TABLE 1					Note the section in the CPR where this is located or note why it is not relevant to the project ("if not, why not").
		Exploration Results	Mineral Resources	Mineral Reserves	
		(iii)	Describe any obvious geological, mining, metallurgical, environmental, social, infrastructural, legal and economic factors that could have a significant effect on the prospects of any possible exploration target or deposit.		
		(iv)		Discuss all known geological data that could materially influence the estimated quantity and quality of the Mineral Resource.	8.1, 8.2
		(v)		Discuss whether consideration was given to alternative interpretations or models and their possible effect (or potential risk) if any, on the Mineral Resource estimate.	Ore body well understood through several years of mining. No alternative models considered
		(vi)		Discuss geological discounts (e.g. magnitude, per reef, domain, etc.), applied in the model, whether applied to mineralized and / or un-mineralized material (e.g. potholes, faults, dykes, etc).	12.5.1
4.2	Estimation and modelling techniques	(i)	Describe in detail the estimation techniques and assumptions used to determine the grade and tonnage ranges.		9.5, 10.2
		(ii)		Discuss the nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values (cutting or capping), compositing (including by length and/or density), domaining, sample spacing, estimation unit size (block size), selective mining units, interpolation parameters and maximum distance of extrapolation from data points.	9, 10.2
		(iii)		Describe assumptions and justification of correlations made between variables.	9, 10.2
		(iv)		Provide details of any relevant specialized computer program (software) used, with the version number, together with the estimation parameters used.	9.1, 10.1.2

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		Exploration Results	Mineral Resources	Mineral Reserves	
		(v)		State the processes of checking and validation, the comparison of model information to sample data and use of reconciliation data, and whether the Mineral Resource estimate takes account of such information.	9.6
		(vi)		Describe the assumptions made regarding the estimation of any co-products, by-products or deleterious elements.	No by-product modelled
4.3	Reasonable prospects for eventual economic extraction	(i)		Disclose and discuss the geological parameters. These would include (but not be limited to) volume / tonnage, grade and value / quality estimates, cut-off grades, strip ratios, upper- and lower- screen sizes.	9.1 – 9.5, 10.2.1 – 10.2.3
		(ii)		Disclose and discuss the engineering parameters. These would include mining method, dilution, processing, geotechnical, geohydraulic and metallurgical) parameters.	10.1.1, 10.1.3, 10.2
		(iii)		Disclose and discuss the infrastructural including, but not limited to, power, water, site-access.	4.5
		(iv)		Disclose and discuss the legal, governmental, permitting, statutory parameters.	3.1
		(v)		Disclose and discuss the environmental and social (or community) parameters.	3.1
		(vi)		Disclose and discuss the marketing parameters.	
		(vii)		Disclose and discuss the economic assumptions and parameters. These factors will include, but not limited to, commodity prices and potential capital and operating costs	2.2, 10.2.6
		(viii)		Discuss any material risks	
		(ix)		Discuss the parameters used to support the concept of "eventual"	9.7
4.4	Classification Criteria	(i)		Describe criteria and methods used as the basis for the classification of the Mineral Resources into varying confidence categories.	8.6
4.5	Reporting	(i)	Discuss the reported low and high-grades and widths together with their spatial location to avoid misleading the reporting of Exploration Results, Mineral Resources or Mineral Reserves.		9.5
		(ii)	Discuss whether the reported grades are regional averages or if they are selected individual samples taken		9.6, 10

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	Exploration Results	Mineral Resources	Mineral Reserves	
	from the property under discussion.			
(iii)	State assumptions regarding mining methods, infrastructure, metallurgy, environmental and social parameters. State and discuss where no mining related assumptions have been made.			10.1.1- 10.1.3
(iv)	State the specific quantities and grades / qualities which are being reported in ranges and/or widths, and explain the basis of the reporting			9.1
(v)		Present the detail for example open pit, underground, residue stockpile, remnants, tailings, and existing pillars or other sources in the Mineral Resource statement		9.1
(vi)		Present a reconciliation with any previous Mineral Resource estimates. Where appropriate, report and comment on any historic trends (e.g. global bias).		10.2.4
(vii)		Present the defined reference point for the tonnages and grades reported as Mineral Resources. State the reference point if the point is where the run of mine material is delivered to the processing plant. 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.		9.6
(viii)	If the CP is relying on a report, opinion, or statement of another expert who is not a CP, disclose the date, title, and author of the report, opinion, or statement, the qualifications of the other expert and why it is reasonable for the CP to rely on the other expert, any significant risks and any steps the CP took to verify the information provided.			1.7
(ix)	State the basis of equivalent metal formulae, if applied.			N/A

SAMREC TABLE 1						Note the section in the CPR where this is located or note why it is not relevant to the project ("if not, why not").
		Exploration Results	Mineral Resources	Mineral Reserves		
<b>Section 5: Technical Studies</b>						
5.1	Introduction	(i)	Technical Studies are not applicable to Exploration Results	State the level of study – whether scoping, prefeasibility, feasibility or ongoing Life of Mine	State the level of study – whether prefeasibility, feasibility or ongoing Life of Mine. The Code requires that a study to at least a Pre-Feasibility level has been undertaken to convert Mineral Resource to Mineral Reserve. Such studies will have been carried out and will include a mine plan or production schedule that is technically achievable and economically viable, and that all Modifying Factors have been considered.	10
		(ii)			Provide a summary table of the Modifying Factors used to convert the Mineral Resource to Mineral Reserve for Pre-feasibility, Feasibility or on-going life-of-mine studies.	10.2
5.2	Mining Design	(i)	Technical Studies are not applicable to Exploration Results	State assumptions regarding mining methods and parameters when estimating Mineral Resources or explain where no mining assumptions have been made.		10.1.2

SAMREC TABLE 1					Note the section in the CPR where this is located or note why it is not relevant to the project ("if not, why not").	
			Exploration Results	Mineral Resources	Mineral Reserves	
		(ii)			State and justify all modifying factors and assumptions made regarding mining methods, minimum mining dimensions (or pit shell) and internal and, if applicable, external) mining dilution and mining losses used for the techno-economic study and signed-off, such as mining method, mine design criteria, infrastructure, capacities, production schedule, mining efficiencies, grade control, geotechnical and hydrological considerations, closure plans, and personnel requirements.	10.2
		(iii)			State what mineral resource models have been used in the study.	10
		(iv)			Explain the basis of (the adopted) cut-off grade(s) or quality parameters applied. Include metal equivalents if relevant	9.5
		(v)			Description and justification of mining method(s) to be used.	10.1.1
		(vi)			For open-pit mines, include a discussion of pit slopes, slope stability, and strip ratio.	10.1.1, 10.2.6
		(vii)			For underground mines, discussion of mining method, geotechnical considerations, mine design characteristics, and ventilation/cooling requirements.	N/A

SAMREC TABLE 1						Note the section in the CPR where this is located or note why it is not relevant to the project ("if not, why not").
			Exploration Results	Mineral Resources	Mineral Reserves	
		(viii)			Discussion of mining rate, equipment selected, grade control methods, geotechnical and hydrogeological considerations, health and safety of the workforce, staffing requirements, dilution, and recovery.	10.1.2, 10.2.6
		(ix)			State the optimisation methods used in planning, list of constraints (practicality, plant, access, exposed Mineral Reserves, stripped Mineral Reserves, bottlenecks, draw control).	10.2.6
5.3	Metallurgical and Testwork	(i)	Technical Studies are not applicable to Exploration Results		Discuss the source of the sample and the techniques to obtain the sample, laboratory and metallurgical testing techniques.	No sample taken. Operating mine with several years of production data
		(ii)			Explain the basis for assumptions or predictions regarding metallurgical amenability and any preliminary mineralogical test work already carried out.	?
		(iii)		Discuss the possible processing methods and any processing factors that could have a material effect on the likelihood of eventual economic extraction. Discuss the appropriateness of the processing methods to the style of mineralisation.	Describe the processing method(s) to be used, equipment, plant capacity, efficiencies, and personnel requirements.	?

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			Exploration Results	Mineral Resources	Mineral Reserves	
		(iv)			Discuss the nature, amount and representativeness of metallurgical test work undertaken and the recovery factors used. A detailed flow sheet / diagram and a mass balance should exist ,especially for multi-product operations from which the saleable materials are priced for different chemical and physical characteristics.	?
		(v)			State what assumptions or allowances have been made for deleterious elements and the existence of any bulk-sample or pilot-scale test work and the degree to which such samples are representative of the ore body as a whole.	?
		(vi)			State whether the metallurgical process is well-tested technology or novel in nature.	?
5.43	Infrastructure	(i)	Technical Studies are not applicable to Exploration Results	Comment regarding the current state of infrastructure or the ease with which the infrastructure can be provided or accessed		4.5
		(ii)			Report in sufficient detail to demonstrate that the necessary facilities have been allowed for (which may include, but not be limited to, processing plant, tailings dam, leaching facilities, waste dumps, road, rail or port facilities, water and power supply, offices, housing, security, resource sterilisation testing etc.). Provide detailed maps showing locations	4.5, 3.2

SAMREC TABLE 1						Note the section in the CPR where this is located or note why it is not relevant to the project ("if not, why not").
			Exploration Results	Mineral Resources	Mineral Reserves	
					of facilities.	
		(iii)			Statement showing that all necessary logistics have been considered.	4.5
5.5	Environmental and Social	(i)	Technical Studies are not applicable to Exploration Results	Confirm that the company holding the tenement has addressed the host country environmental legal compliance requirements and any mandatory and/or voluntary standards or guidelines to which it subscribes		3.1
		(ii)		Identify the necessary permits that will be required and their status and where not yet obtained, confirm that there is a reasonable basis to believe that all permits required for the project will be obtained		3.1
		(iii)		Identify and discuss any sensitive areas that may affect the project as well as any other environmental factors including I&AP and/or studies that could have a material effect on the likelihood of eventual economic extraction. Discuss possible means of mitigation.		3.1.3
		(iv)		Identify any legislated social management programmes that may be required and discuss the content and status of these.		3.1.3
		(v)		Outline and quantify the material socio-economic and cultural impacts that need to be mitigated, and their mitigation measures and where appropriate the associated costs.		No material socio-economic impact identified
5.6	Market Studies and Economic criteria	(i)	Technical Studies are not applicable to Exploration Results		Describe the valuable and potentially valuable product(s) including suitability of products, co-products and by products to market.	2.2

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			Exploration Results	Mineral Resources	Mineral Reserves	
		(ii)			Describe product to be sold, customer specifications, testing, and acceptance requirements. Discuss whether there exists a ready market for the product and whether contracts for the sale of the product are in place or expected to be readily obtained. Present price and volume forecasts and the basis for the forecast.	2.2
		(iii)			State and describe all economic criteria that have been used for the study such as capital and operating costs, exchange rates, revenue / price curves, royalties, cut-off grades, reserve pay limits.	2.2
		(iv)			Summary description, source and confidence of method used to estimate the commodity price/value profiles used for cut-off grade calculation, economic analysis and project valuation, including applicable taxes, inflation indices, discount rate and exchange rates.	2.2
		(v)			Present the details of the point of reference for the tonnages and grades reported as Mineral Reserves (e.g. material delivered to the processing facility or saleable product(s)). It is important that, in any situation where the reference point is different, a clarifying statement is included to ensure that the reader is fully informed as	10

SAMREC TABLE 1						Note the section in the CPR where this is located or note why it is not relevant to the project ("if not, why not").
			Exploration Results	Mineral Resources	Mineral Reserves	
					to what is being reported.	
		(vi)			Justify assumptions made concerning production cost including transportation, treatment, penalties, exchange rates, marketing and other costs. Provide details of allowances that are made for the content of deleterious elements and the cost of penalties.	10.2
		(vii)			Provide details of allowances made for royalties payable, both to Government and private.	3.2.1
		(viii)			State type, extent and condition of plant and equipment that is significant to the existing operation(s).	4.5
		(ix)			Provide details of all environmental, social and labour costs considered	3.1.3
5.7	Risk Analysis	(i)	Technical Studies are not applicable to Exploration Results	Report an assessment of technical, environmental, social, economic, political and other key risks to the project. Describe actions that will be taken to mitigate and/or manage the identified risks.		10.2.5
5.8	Economic Analysis	(i)	Technical Studies are not applicable to Exploration Results	At the relevant level (Scoping Study, Pre-feasibility, Feasibility or on-going Life-of Mine), provide an economic analysis for the project that includes:		2.2

SAMREC TABLE 1					Note the section in the CPR where this is located or note why it is not relevant to the project ("if not, why not").
			Exploration Results	Mineral Resources	Mineral Reserves
		(ii)		Cash Flow forecast on an annual basis using Mineral Reserves or an annual production schedule for the life of the project	10.2.6
		(iii)		A discussion of net present value (NPV), internal rate of return (IRR) and payback period of capital	Operating mine. Economic factors considered internally does not require NPV and IRR. No major additional capital to be spent
		(iv)		Sensitivity or other analysis using variants in commodity price, grade, capital and operating costs, or other significant parameters, as appropriate and discuss the impact of the results.	
Section 6: Estimation and Reporting of Mineral Reserves					
6.1	Estimation and modelling techniques	(i)		Describe the Mineral Resource estimate used as a basis for the conversion to a Mineral Reserve.	10
		(ii)		Report the Mineral Reserve Statement with sufficient detail indicating if the mining is open pit or underground plus the source and type of mineralisation, domain or ore body, surface dumps, stockpiles and all other sources.	10, 11
		(iii)			Provide a reconciliation reporting historic reliability of the performance parameters, assumptions and modifying factors including a comparison with the previous Reserve quantity and qualities, if available. Where appropriate, report and comment on any historic trends (e.g. global bias)
6.2	Classification Criteria	(i)		Describe and justify criteria and methods used as the basis for the classification of the Mineral Reserves into varying confidence categories, based on the Mineral Resource category, and including consideration of the confidence in all the modifying factors.	10

SAMREC TABLE 1					Note the section in the CPR where this is located or note why it is not relevant to the project ("if not, why not").
		Exploration Results	Mineral Resources	Mineral Reserves	
6.3	Reporting	(i)		Discuss the proportion of Probable Mineral Reserves, which have been derived from Measured Mineral Resources (if any), including the reason(s) therefore.	10
		(ii)		Present details of for example open pit, underground, residue stockpile, remnants, tailings, and existing pillars or other sources in respect of the Mineral Reserve statement	10
		(iii)		Present the details of the defined reference point for the Mineral Reserves. State where the reference point is the point where the run of mine material is delivered to the processing plant. 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. State clearly whether the tonnages and grades reported for Mineral Reserves are in respect of material delivered to the plant or after recovery.	10
		(iv)		Present a reconciliation with the previous Mineral Reserve estimates. Where appropriate, report and comment on any historic trends (e.g. global bias).	No previous Mineral Reserves reported.
		(v)		Only Measured and Indicated Mineral Resources can be considered for inclusion in the	10

SAMREC TABLE 1						Note the section in the CPR where this is located or note why it is not relevant to the project ( <i>"if not, why not"</i> ).
		Exploration Results	Mineral Resources	Mineral Reserves		
				Mineral Reserve.		
		(vi)		State whether the Mineral Resources are inclusive or exclusive of Mineral Reserves.		10
<b>Section 7: Audits and Reviews</b>						
7.1	Audits and Reviews	(i)	State type of review/audit (e.g. independent, external), area (e.g. laboratory, drilling, data, environmental compliance etc), date and name of the reviewer(s) together with their recognized professional qualifications.			7.1
		(ii)	Disclose the conclusions of relevant audits or reviews. Note where significant deficiencies and remedial actions are required.			7.1
<b>Section 8: Other Relevant Information</b>						
8.1		(i)	Discuss all other relevant and material information not discussed elsewhere.			All material information covered in report
<b>Section 9: Qualification of Competent Person(s) and other key technical staff. Date and Signature Page</b>						
9.1		(i)	State the full name, registration number and name of the professional body or RPO, for all the Competent Person(s). State the relevant experience of the Competent Person(s) and other key technical staff who prepared and are responsible for the Public Report.			1.3
		(ii)	State the Competent Person's relationship to the issuer of the report.			1.3
		(iii)	Provide the Certificate of the Competent Person (Appendix 1), including the date of sign-off and the effective date, in the Public Report.			Appendix 1