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ASX ANNOUNCEMENT

BYRO MAGNETITE PROJECT - FE1 MINERAL RESOURCE ESTIMATE

Athena Resources Limited (ASX:AHN) is pleased to release the full Entech Mineral Resource Estimate for the FE1 Magnetite Deposit dated March 2023.

Highlights

Whole rock and concentrate estimates – extract

Byro FE1 Open Pit Whole Rock Mineral Resource within mineralised domains interpreted at 10% Fe cut-off.

Mineral Resource Category	Weathering	Tonnes (Mt)	Fe (%)	SiO2 (%)	Al2O3 (%)	P (%)	S (%)	TiO2 (%)	LOI (%)	Density
Indicated	Fresh	24.0	25.1	49.3	5.48	0.052	0.079	0.32	-0.059	3.27
Inferred	Fresh	5.3	22.7	50.6	6.56	0.048	0.085	0.37	0.023	3.21
Total		**29.3**	**24.7**	**49.6**	**5.68**	**0.051**	**0.080**	**0.33**	**-0.044**	**3.26**

No cut-off grade used in the report.

Totals may not be able to be reproduced due to the effects of rounding.

Byro FE1 Open Pit Magnetite Mineral Resource within mineralised domains interpreted at 20% DTR cut-off.

Mineral Resource Category	Weathering	Tonnes (Mt)	DTR (%)	Fe (%)	SiO2 (%)	Al2O3 (%)	P (%)	S (%)	LOI (%)	Density
Indicated	Fresh	17.7	33.6	70.7	1.23	0.32	0.003	0.021	-3.20	3.30
Inferred	Fresh	3.3	32.3	70.8	0.95	0.34	0.002	0.023	-3.17	3.26
Total		**21.0**	**33.4**	**70.7**	**1.18**	**0.32**	**0.003**	**0.021**	**-3.19**	**3.29**

No cut-off grade used in the report.

Totals may not be able to be reproduced due to the effects of rounding.

The estimated Magnetite Mineral Resource is contained within the whole rock Mineral Resource, and they are not cumulative.

Link to this extract

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Conclusions - extract

- Acceptable validation of the geology model and the Mineral Resource estimates means that the model produced is a reasonable representation of the data used and the estimation method applied.
- The 2022 drilling has enhanced the geological understanding of the deposit and also improved the interpretation of the mineralisation and magnetite domains.
- The updated sampling, compositing and QAQC procedures have increased the confidence in the database and provided a better understanding of the variability of grades and magnetic recoveries throughout the deposit.
  The Byro FE1 MRE, as reported, meets the criterion for reasonable prospects for eventual economic extraction (RPEEE).

Link to this extract

The full report is attached.

This announcement is Authorised by the Board

Ed Edwards
Managing Director
29 March 2023

INTERESTS IN MINING TENEMENTS

Athena Resources Limited 100%	Tenement Type
Byro Exploration	E – Exploration License
E09/1507	
E09/1552	
E09/1637	
E09/1781	
E09/1938	
Byro Project Mining	M - Mining Lease
M09/166	
M09/168	

CAUTIONARY NOTES AND DISCLOSURES

Disclosures

All data and Information of material nature referred to within this Report with reference to historical drilling have previously been reported on the ASX platform in compliance with the relevant JORC compliance reporting format at the time of data acquisition.

Cautionary Notes and Forward Looking Statements

This announcement contains certain statements that may constitute "forward looking statements". Such statements are only predictions and are subject to inherent risks and uncertainties, which could cause actual values, results, performance achievements to differ materially from those expressed, implied or projected in any forward looking statements.

JORC Code Compliance Statement

Some of the information contained in this announcement is historic data that have not been updated to comply with the 2012 JORC Code. Some information referred to in the announcement was prepared and first disclosed under the JORC Code 2004 edition. It has not been updated since to comply with the JORC Code 2012 edition on the basis that the information has not materially changed since it was last reported.

Competent Persons Disclosure

Mr Kelly is an employee of Athena Resources and currently holds securities in the company.

Competent Person Statement

The information included in the report was compiled by Mr Liam Kelly, an employee of Athena Resources Limited. Mr Kelly has had over twenty years' experience as a geologist in mining and exploration and is a Member of the Australasian Institute of Mining and Metallurgy, (306501). Mr Kelly has sufficient relevant experience in the styles of mineralisation and deposit styles under consideration to qualify as a Competent Person as defined in "The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012 Edition)". The historical information included is compliant with the relevant JORC Code, 2004 Edition, and new information announced post that version of the JORC Code is compliant with the JORC Code 2012 Edition. Mr Kelly consents to the inclusion of the information in the report in the context and format in which it appears.

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MINERAL RESOURCE ESTIMATE

FE1 MAGNETITE DEPOSIT

MARCH 2023

DOCUMENT REF	REVISION	DATE	PREPARED BY	CHECKED	AUTHORISED	AUTHORISED FOR USE
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17 March 2023

Liam Kelly
Exploration and Operations Manager
Athena Resources Ltd
21 Millstream Rise
Hillarys WA 6025

RE: FE1 Magnetite Deposit – Mineral Resource Estimate

Dear Mr Kelly

The following report summarises material outcomes of the Mineral Resource Estimate and the updates carried out on the model for the FE1 Magnetite Deposit, located northeast of Geraldton in the Gascoyne Mineral Field, Western Australia, undertaken by Entech Pty Ltd during December 2022 to January 2023.

Should you have any questions relating to this report, please contact the undersigned.

Regards

Alan Miller MAusIMM(CP)
Senior Geologist

Distribution:

Original held by:	Entech Pty Ltd
PDF copy:	Athena Resources Ltd

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1 EXECUTIVE SUMMARY

Introduction

Entech Mining Pty Ltd (Entech) was commissioned by Mr Liam Kelly of Athena Resources Ltd (Athena) to update the Mineral Resource Estimate (MRE) for the FE1 magnetite deposit (FE1) northeast of Geraldton, Western Australia.

This report reviews the changes to the resource modelling and estimation since the MRE that was estimated by AMC Consultants Pty Ltd (AMC) in February 2012 (AMC, 2012) and provides a statement of Mineral Resources classified in accordance with the requirements of the current *Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves* (JORC, 2012).

Geology

Athena's Byro Project is located along the north-western margin of the Yilgarn Craton, within an Archaean Gneiss Belt which trends north-northeast for approximately 200 km. The geology is predominately quartzo-feldspathic gneisses and migmatites with amphibolites, quartzites, BIF's, felsic volcanics and layered mafic-ultramafic intrusions.

Regional folding and thrusting have resulted in a steep dominant westerly dip and north-northeast strike, although locally this varies from north to east. The high-grade magnetite iron ore at Byro has been characterised by a coarse metamorphic grain size, super low impurities during development of thick migmatite layers in the upper amphibolite - granulite metamorphic terrain.

Drilling

The MRE includes 29 reverse circulation (RC) drill holes completed during 2010 to 2011. A further four RC drill holes were added in 2022 along with two diamond drill hole (DD), and 9 drill holes with RC pre-collars and diamond core tails. The depth from surface to the current vertical limit of the Mineral Resources is approximately 200 m. Drill hole coverage for geological and grade domain interpretations averages 100 m × 50 m.

Assaying

The resource drilling completed during 2022 has been assayed by Australian Laboratory Services Pty Ltd (ALS) for a suite of 25 head variables, 25 concentrate variables and Davis tube recovery (DTR). From these results the standard iron ore suite of 12 variables (Fe, SiO_2, Al_2O_3, MgO, TiO_2, K_2O, CaO, P, Mn, S, Na_2O, and LOI) plus V has been analysed in both head and concentrate samples and Davis tube recovery (DTR).

Interpretation

Geological interpretations based on lithology, head grade and DT data were completed by Athena geologists. 3D (wireframe) geological modelling was carried out by Entech and reviewed by Athena.

Whole rock mineralisation was modelled at a cut-off grade of 10% head Fe to produce the mineralisation envelope. Three main domains were interpreted striking north-south and dipping about 35^{o} to the west. Within these domains the magnetic domains were interpreted at a cut-off grade of 20% DTR.

The mineralisation is offset by a north-south striking fault that dips about 80^{o} to the east. A steep dipping dolerite dyke striking about 50^{o} crosscuts the mineralised domains and post-dates the mineralisation. The weathering profile was modelled based on geology logging of drill holes.

The current drill hole spacing provides an acceptable degree of confidence in the interpretation and continuity of grade and geology and the definition of the boundary between weathered and fresh mineralisation. The assay data that was cross-referenced with available core photography to provide confidence in the mineralisation.

Resource Modelling

Head grade drilling samples were composited to 2 m lengths honouring lode domain boundaries. DTR drilling samples were composited to 4 m lengths honouring lode domain boundaries. Composites were reviewed for statistical outliers and no top-caps were applied.

Variography analyses for head grades were completed on composites grouped by whole rock mineralisation domains. Variography analyses for DTR and concentrate grades were completed on composites grouped by magnetite mineralisation domains. Search neighbourhoods broadly reflected the direction of maximum continuity within the plane of mineralisation, ranges, and anisotropy ratios from the variogram models. Neighbourhood parameters were optimised by validation of interpolation outcomes. For statistical and variographic analysis, the composite grades for the concentrate assays were all multiplied by their respective DTR values to produce accumulated concentrate grades. The weighting of the concentrate assays by their recovery results in a more realistic estimate of the concentrate grades in the final model.

A parent block size of 20 m × 50 m × 10 m, with a sub block size of 2.5 m × 6.25 m × 2.5 m, was used to provide adequate resolution for geological domains.

Grade estimation was carried out using the linear estimation method of Ordinary Kriging (OK) for 26 variables – Fe, SiO_2, Al_2O_3, MgO, TiO_2, K_2O, CaO, P, Mn, S, Na_2O, V, and loss on ignition (LOI) – in both head assays and concentrate assays (weighted by DTR) plus DTR, and specific gravity.

A three-pass estimation strategy was used, whereby search ranges reflected variogram maximum modelled continuity and a minimum of 5, maximum of 20 composites was used. The second search double the search range. The third pass doubled the second range search and used a minimum of 2 and maximum of 40 composites. The majority of blocks within mineralisation and magnetite domains were estimated in the first two passes. No blocks in these domains remained unestimated.

The specific gravity from the measured drill core data was domained and composited into 2 m intervals. For samples without measured density data the dry bulk density values used in the resource model were assigned using linear regressions of bulk density vs. head Fe %. The dry bulk density was then estimated using OK (using a similar three-pass estimate method as used for the elements).

Mineral Resource Statement

The Mineral Resource Statement for the Byro FE1 magnetite open pit Mineral Resource Estimate (MRE) was prepared in January 2023 and is reported according to the *Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves* (the 'JORC Code') 2012 edition.

In the opinion of Entech, the Mineral Resource evaluation reported herein is a reasonable representation of the global open pit magnetite Mineral Resources within the deposit, based on sampling drill data available as at 13 December 2022.

The Indicated and Inferred Mineral Resources comprise fresh rock material. The Mineral Resource Statement is presented in Table 1 for whole rock mineralisation and in Table 2 for magnetite.

Table 1 Byro FE1 Open Pit Whole Rock Mineral Resource within mineralised domains interpreted at 10% Fe cut-off.

Mineral Resource Category	Weathering	Tonnes (Mt)	Fe (%)	SiO2 (%)	Al2O3 (%)	P (%)	S (%)	TiO2 (%)	LOI (%)	Density
Indicated	Fresh	24.0	25.1	49.3	5.48	0.052	0.079	0.32	-0.059	3.27
Inferred	Fresh	5.3	22.7	50.6	6.56	0.048	0.085	0.37	0.023	3.21
Total		**29.3**	**24.7**	**49.6**	**5.68**	**0.051**	**0.080**	**0.33**	**-0.044**	**3.26**

No cut-off grade used in the report.

Totals may not be able to be reproduced due to the effects of rounding.

Table 2 Byro FE1 Open Pit Magnetite Mineral Resource within mineralised domains interpreted at 20% DTR cut-off

Mineral Resource Category	Weathering	Tonnes (Mt)	DTR (%)	Fe (%)	SiO2 (%)	Al2O3 (%)	P (%)	S (%)	LOI (%)	Density
Indicated	Fresh	17.7	33.6	70.7	1.23	0.32	0.003	0.021	-3.20	3.30
Inferred	Fresh	3.3	32.3	70.8	0.95	0.34	0.002	0.023	-3.17	3.26
Total		**21.0**	**33.4**	**70.7**	**1.18**	**0.32**	**0.003**	**0.021**	**-3.19**	**3.29**

No cut-off grade used in the report.

Totals may not be able to be reproduced due to the effects of rounding.

The estimated Magnetite Mineral Resource is contained within the whole rock Mineral Resource, and they are not cumulative.

Data from a total of 6 790 m of drilling from 33 RC drill holes and 9 RC drill holes with diamond core tails and two diamond drill holes were available for the MRE. The database to 30 November 2022 comprised 2 353 samples with head grade assays and 373 samples with recovery and concentrate assays.

This MRE includes Inferred Mineral Resources which are unable to have economic considerations applied to them, nor is there certainty that further sampling will enable them to be converted to Measured or Indicated Mineral Resources.

<u>Competent Person's Statement</u>

The information in the report to which this statement is attached that relates to the Estimation and Reporting of Mineral Resources at the Byro FE1 magnetite deposit is based on information compiled by Mr Alan Miller, BSc, a Competent Person who is a current Member and Chartered Professional of the Australasian Institute of Mining and Metallurgy (AusIMM). Mr Miller, Senior Geologist at Entech Pty Ltd, is an independent consultant to Athena Resources Ltd (Athena) with sufficient experience relevant to the style of mineralisation and deposit type under consideration and to the activities being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the *Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves*. Mr Miller consents to the inclusion in the report of matters based on his information in the form and context in which it appears.

2 INTRODUCTION

Entech Mining Pty Ltd (Entech) was commissioned by Athena Resources Ltd (Athena) to conduct a Mineral Resource Estimate (MRE) for the FE1 Magnetite Deposit (FE1), located northeast of Geraldton, Western Australia.

This report reviews the changes to the resource modelling and estimation since the MRE that was estimated by AMC Consultants Pty Ltd (AMC) in February 2012 (AMC, 2012) and provides a statement of Mineral Resources classified in accordance with the requirements of the current *Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves* (JORC, 2012).

3 SCOPE AND DATA

The primary objective is to provide an updated MRE within JORC Code guidelines with an upgrade in resource classification.

Athena has completed fifteen drill holes since the resource model update by AMC in 2012 (AMC, 2012).

The focus of this update is to:

- Review the existing data with the aim of using correlations with the new data to improve confidence in the data for resource classification.
- conduct two-day site visit.
- update interpretation based on the new drill hole data.
- analyse density data and investigate regression with assay data.
- data validation, QAQC, statistical and variographic analysis by domain.
- Grade interpolation of head and concentrate grades.
- Resource model classification, validation, and reporting.

Athena provided the following data and Entech did not undertake any further work, but accepted the data as presented:

- Validated database containing all drill hole collar, survey, assay, geology, and geophysical data required for the update.
- Validated wireframes, surfaces and interpretation strings representing weathering, structural, and lithological domains from the 2012 model.
- Interpreted geological cross sections.
- Drill core and chip photos.

4 GEOLOGY

4.1 REGIONAL GEOLOGY

Athena's Byro FE1 Project is located along the north-western margin of the Yilgarn Craton, within an Archaean Gneiss Belt which trends north-northeast for approximately 200 km (Figure 4-1).

Figure 4-1: Location Plan of Byro Project

The geology is predominately quartzo-feldspathic gneisses and migmatites with amphibolites, quartzites, banded iron formations (BIF), felsic volcanics and layered mafic-ultramafic intrusions (Athena, 2019). Regional folding and thrusting have resulted in a steep dominant westerly dip and north-northeast strike, although locally this varies from north to east. The high-grade magnetite iron ore at Byro has been characterised by a coarse metamorphic grain size, super low impurities during development of thick migmatite layers in the upper amphibolite - granulite metamorphic terrain. Outcropping sequences of mafic to ultramafic lithologies suggest a series of prospective intrusions, the extent of which has been refined with gravity and detailed magnetic surveys where alluvial cover persists. The regional geology is shown in Figure 4-2.

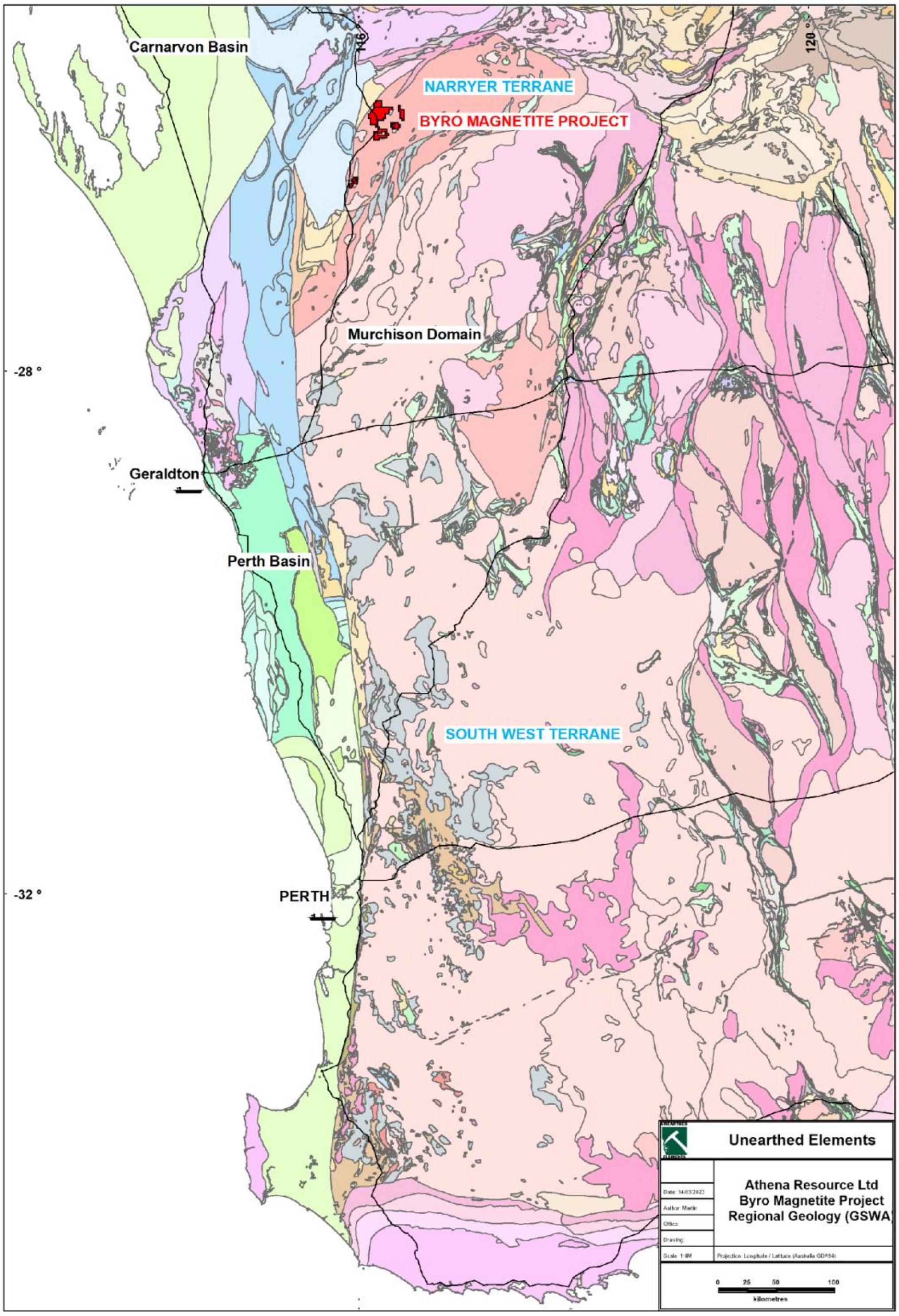


Figure 4-2: **Regional Geology Plan of Byro Project**

4.2 LOCAL GEOLOGY

Elongate occurrences of quartz-magnetite rock are abundantly scattered throughout the Archean migmatitic Narryer Terrane gneisses in the Byro and Narryer project areas and are a source of magnetite ores. The occurrences were originally interpreted to be highly metamorphosed sheared resisters of BIF within the migmatite. They generally strike northeast and dip steeply northwest but show association around mafic-ultramafic bodies. The lenses are spatially associated with discontinuous rafts of mafic layered intrusives, quartzite and thin layers of schistose talc ultramafics – the latter possibly being part of the dismembered Manfred Complex. Traces of meta-BIF and quartzite, as taken from outcrops presented on the 1:250 000 geological map of Williams and Myers (1987) (Figure 4-3) are now believed to be related to early mafic layered intrusive events, augmented by aeromagnetic interpretations and drill data of Athena.

The quartz-magnetite rafts are metamorphosed to upper amphibolite-granulite facies. They have coarse granoblastic textures with moderate foliation, and grain sizes ranging from 0.5 mm to 5 mm - features which facilitate clean separation of the constituent grains during grinding. Ferro-silicate minerals (e.g. - hypersthene, grunerite) that generally plague most Archaean BIFs are generally absent. In essence they are essentially bi-mineralic rocks. They outcrop conspicuously in areas of exposure, but much of their extent is covered by alluvium, colluvium, and laterite. They invariably have sharp high-amplitude aeromagnetic responses.

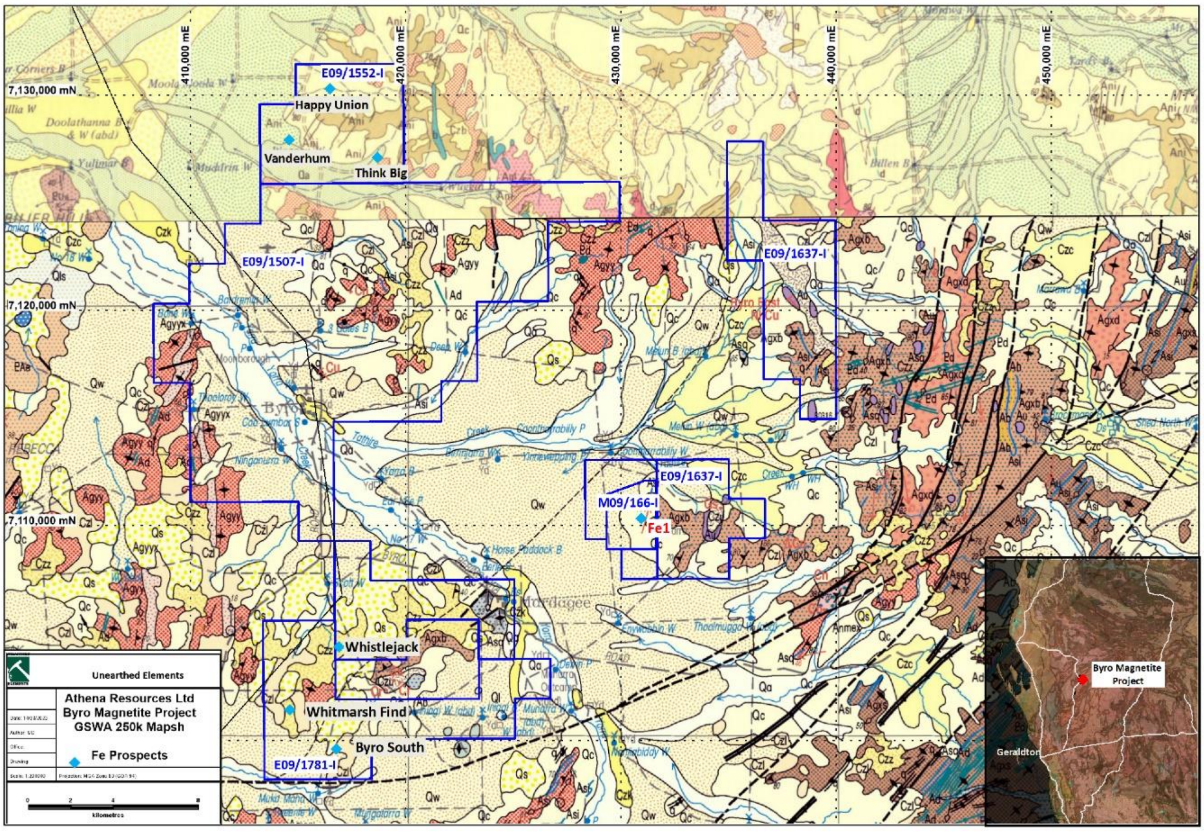


Figure 4-3: **Local Geology Map of Byro Project**

5 DRILLING

The first phase of drilling was completed in 2010 to 2011 and consisted of 29 reverse circulation (RC) drill holes that formed the basis of the Inferred resource completed by AMC in 2012. The infill drilling program completed in 2022 consisted of 15 drill holes that were designed to:

- target identified data gaps to improve the resource category from Inferred to Indicated.
- extend the resource to the west and at depth.
- provide geotechnical data for future studies.

Part of the program included twin drill holes that were used to check RC versus diamond core sampling results and provide confidence in the compositing procedures used in 2011.

A summary of the 2022 drill program is shown in Table 5-1. The drill holes used in the 2023 MRE update are shown in Figure 5-1 (diamond core samples are shown in pink and RC chips in blue).

Table 5-1: Data from 2022 drilling added to the database.

Drill Type	No. of drill holes	No. of head assays	No. of concentrate assays	Total metres	Average depth (m)
RC	4	44	16	426	106.5
RD	9	645	207	1 702.97	189.2
DD	2	90	25	342.6	171.3
Total	**15**	**779**	**248**	**2 471.57**	**164.8**

5.1 SURVEYING

The MGA_GDA94 Zone 50 grid system has been used to locate the drill holes collars. The drill collars were established with a Garmin hand-held Differential Global Positioning System (DGPS) (+/-5m accuracy). The drill hole locations were later picked up using a hand-held Stonex S900 GNSS receiver DGPS with an accuracy of +/- 0.15 m.

Diamond drill holes were surveyed downhole at 5 m intervals using a Reflex true north seeking Gyro. RC drill holes were either not surveyed downhole or had an estimated dip and azimuth at the end of hole due to interference with the readings.

Figure 5-1: **Byro FE1 Drill hole plan**

6 DATA VALIDATION

6.1 REVIEW OF DATA FOR RESOURCE MODELLING

A full review of the previous data and the new data was completed to ensure that is suitable for resource modelling.

6.2 DATA REVIEW

6.2.1 DRILL PROGRAM COMPARISON

There have been two drilling campaigns at FE1 which are summarised in Table 6-1. The 2011 drilling was all RC and the 2022 program was mostly RC pre-collars with diamond core tails resulting in about 90% of the samples being core and 10% being RC chips. The number of mineralised head and concentrate samples for the total database are also shown in Table 6-1.

Table 6-1: Drill Campaign Summary

Drill hole year	No. of drill holes	Drill hole type	No. Head Samples		No. Conc. Samples		No. Mineralised Head Samples		No. Mineralised Conc. Samples	
			RC	DD	RC	DD	RC	DD	RC	DD
2010 – 2011	29	RC	1532	0	125	0	608	0	117	0
2022	15	RC, DD	83	696	27	221	55	583	22	208

DD – diamond drill hole; RC – reverse circulation drill hole

A comparison of the 2022 drill holes, which contain QAQC data, with the 2011 drill holes, which contain laboratory QAQC but no company QAQC, was conducted to try and provide some confidence in the quality of the old data. The 2011 and 2022 drill programs have been compared between 7 109 900 mN and 7 110 600 mN where there is a similar coverage of the two drilling programs.

There is a similar amount of head data from the old drill holes and the new (Table 6-2), however there is significantly more concentrate data from the new drill holes than the old (Table 6-3) due to the large composite lengths used for the 2011 sampling.

The relationships of the distributions of the two sets of data were assessed using Q-Q plots. The left image in Figure 6-1 shows a Q-Q plot of the 2011 vs 2022 DTR distributions within the mineralised domains where Fe >= 10%. This is very similar to a RC chip vs diamond core plot as the 2011 drilling is all RC chips and the 2022 drilling is 90% diamond core. The Q-Q plot shows a bias with higher DTR results in the 2011 drilling particularly for the lower DTR results. This suggests that a portion of the clay fines may have been lost from the RC samples resulting in apparently higher recoveries being reported. The right image in Figure 6-1 shows the same comparison within the magnetite domains where DTR >= 20% and no bias is evident between the years or sample types. The large composite size of 10 m for DTR samples in the 2011 program would also be a contributing factor to this bias as some of the smaller low-grade intervals are included in the composite. There was also a degree of selective sampling in 2011 where some low-grade or waste intervals within the mineralised domains were not sampled.

The same comparison is shown in Figure 6-2 for concentrate Fe grades. There is a drift in the low-grade tail but for most samples there is no evidence of bias in the mineralised or magnetite domains.

A similar but smaller bias is also seen towards higher head Fe grades in the 2011 drilling as shown in the Q-Q plot in Figure 6-3. QQ plots for some of the major elements are provided in Appendix A.

This may have an impact on the boundary definition of the mineralisation and magnetite zones and the large composite RC samples will mask some of the internal variability of the mineralisation. However, given that the coverage of old and new data within the selected area is not entirely consistent, there is no obvious bias evident within the magnetite zone and there are no major issues with correlation of mineralisation in 3D the impact on the confidence in the resource is low. Based on this assessment any future drilling in the deposit should be completed with diamond core only.

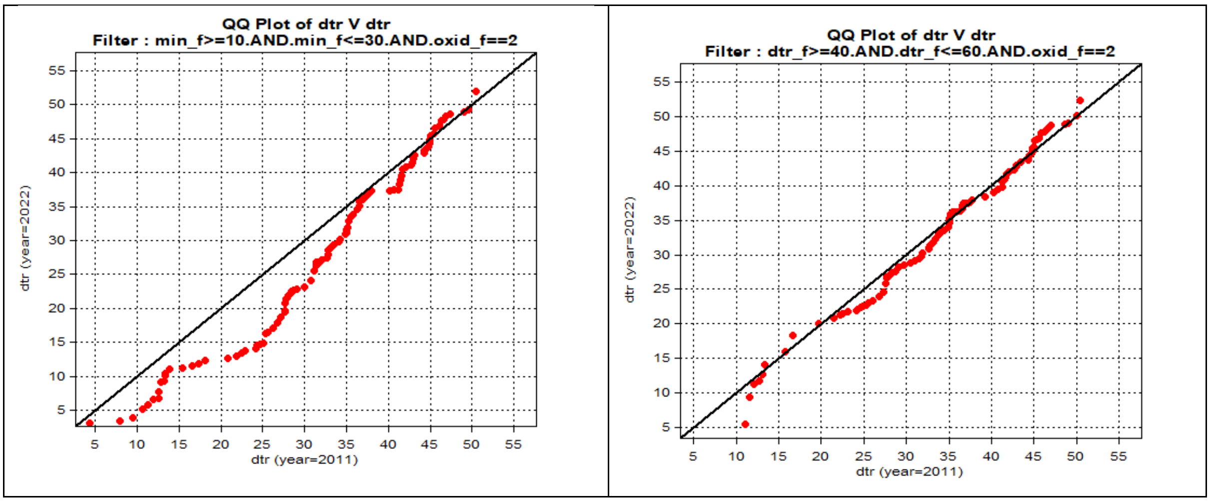


Figure 6-1: **QQ plots of 2011 vs 2022 DTR results in fresh (left) mineralised domains (Fe>=10%) and in (right) magnetite domains (DTR>=20%).**

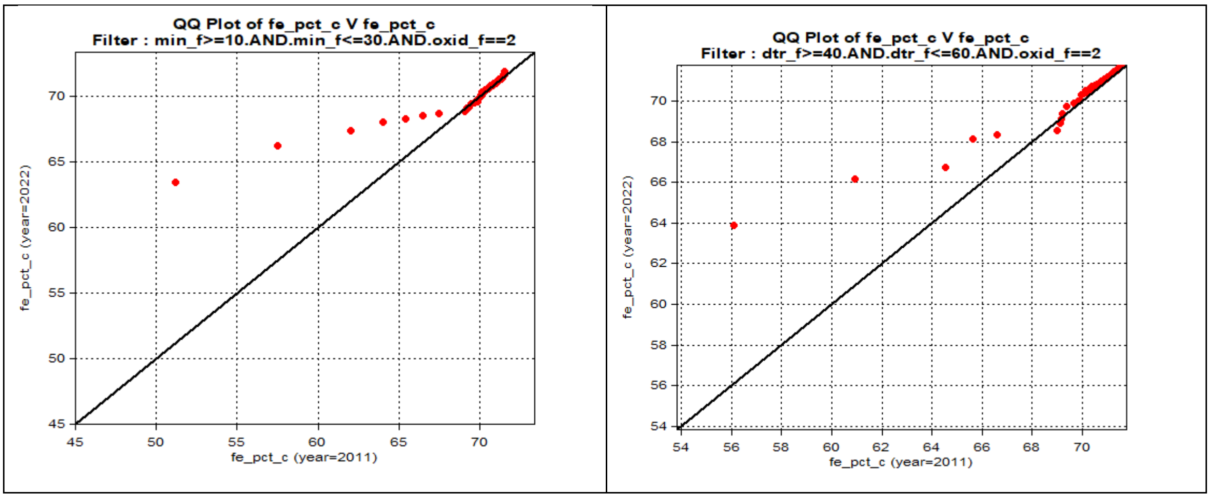


Figure 6-2: **QQ plots of 2011 vs 2022 Fe concentrate results in fresh (left) mineralised domains (Fe>=10%) and in (right) magnetite domains (DTR>=20%).**

A summary of the mean grades of some of the head grade elements within the whole rock mineralisation domains in the comparison area is provided in Table 6-2. The summary of the mean grades of some of the concentrate grade elements within the magnetite domains is shown in Table 6-3.

Table 6-2 Mean grades of head samples within whole rock mineralised domains in comparison area.

Year	No Samp	Fe_pct_H	SiO_2_pct_H	Al_2O_3_pct_H	TiO_2_pct_H	S_pct_H	LOI_pct_H
2011	618	24.61	49.13	5.79	0.34	0.074	0.10
2022	638	24.26	49.94	5.66	0.34	0.085	-0.13

Table 6-3 Mean grades of concentrate samples within magnetite domains in comparison area.

Year	No Samp	DTR	Fe_pct_C	SiO_2_pct_C	Al_2O_3_pct_C	TiO_2_pct_C	LOI_pct_H
2011	91	35.76	70.53	1.37	0.36	0.16	-3.22
2022	165	33.39	70.63	1.27	0.30	0.18	-3.23

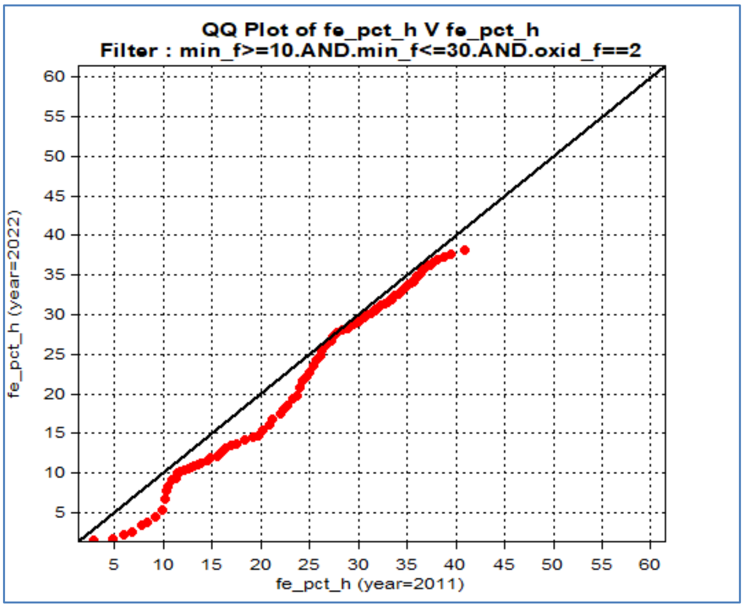


Figure 6-3: QQ plot of 2011 vs 2022 Fe head grades in fresh mineralised domains (Fe>=10%).

6.3 DATABASE REVIEW

A validated drill hole database was provided by Athena in Microsoft Access format. Entech's review of the database focused mainly on the data added to the database since the AMC estimate in 2012. Several cases of sample swaps or mislabelling of samples from the 2022 drilling were identified. These are detailed in Table 6-4. For some samples, the wrong standard name was assigned and in other cases a duplicate sample was not associated with the correct original sample. The corrected database used for the resource interpretation and estimation was *FE1_DB_221130 v2.accdb.*

Table 6-4: Database errors and corrections

Drill hole name	Interval	Sample no.	Comments
AHRC0107D	96 - 98 m	FE1D00211	Mislabelled as duplicate of FE100204. Changed to duplicate of FE1D00210.
AHRC0108D	160 - 162 m	FE1D00108	Mislabelled as duplicate of FE100106. Changed to duplicate of FE1D00107.
AHRC0112D	218.06 - 219 m	FE1D00729	Mislabelled as duplicate of FE100727. Changed to duplicate of FE1D00728.
AHRC0114D	144 -146 m	FE1D00378	Mislabelled as duplicate of FE100376. Changed to duplicate of FE1D00377.
AHRC113D		FE1D00045	Mislabelled as Standard OREAS700. Changed to Standard OREAS701.
AHRC113D		FE1D00276	Sample swap. Labelled as Blank OREAS20A but should be drill sample from 112–113 m. Sample FE1D0075 changed to Blank OREAS20A.
AHRC0120D	76 – 78 m	AHRC0120DC09	Assay data missing from DTR-Products-Assays table. Corrected.
AHRC0108D		AHRC0108DC07 AHRC0108DC12 AHRC0108DC13	Assay data incomplete in DTR-Products-Assays table. Corrected.
AHRC0120D AHRC0121D			NSS results for LOI371, LOI650 and LOI1000 in DTR-Products-Assays table entered as 0 rather than absent. Corrected.
All holes			Inconsistency of assaying and entering of V, V_2O_5, Mn and MnO. All checked and entered correctly as V_2O_5 and MnO.
AHRC0001 to AHRC0011			Original laboratory results incorrectly reported. LOI1000 was copied into K_2O, P was copied into MnO, S was copied into CaO and Con weight was copied into Na_2O. Database corrected.

6.4 QAQC

6.4.1 STANDARDS

During the 2010 to 2011 drilling program there were no external standards submitted to the laboratory (Ultratrace). Two commercially available standards prepared by ORE Research & Exploration Pty Ltd were submitted to Australian Laboratory Services Pty Ltd (ALS) by Athena with the drill samples for head grade analysis during the 2022 drilling program. A summary of these standards is shown in Table 6-5.

OREAS700 is a tungsten magnetite ore and OREAS701 is a high-grade tungsten magnetite ore. Both standards performed well with some samples being outside acceptable limits for some minor elements. The mean and bias of the elements for OREAS700 and OREAS701 are shown in Table 6-6. The standards represent about 3.6% of total samples submitted to the laboratory from the 2022 drill holes.

The CRM plots are provided in Appendix A. An example plot of Fe is shown in Figure 6.4 for standard OREAS700.

Entech recommends that standards are included with the analysis of concentrate grades for future drilling programs to improve the understanding of potential biases in concentrate assay data.

Table 6-5: Summary of Athena Standard samples

Standard	Dates used	Type	No. of standards	Comments
OREAS700	2022	Pulp	14	Head grades – mostly in acceptable limits and some bias in some minor elements
OREAS701	2022	Pulp	14	Head grades – mostly in acceptable limits and some bias in some minor elements

Table 6-6 Summary of the most recently used standards at FE1.

Standard Name	Element	Expected Mean %	Sample Mean %	% Bias
OREAS700	Al2O3	10.62	10.74	1.09
	CaO	7.86	7.94	0.98
	Fe	16.06	16.24	0.18
	K2O	1.89	1.89	0.23
	LOI1000	1.95	2.08	6.74
	MgO	1.74	1.75	0.62
	Na2O	1.65	1.70	3.05
	P	0.35	0.36	2.53
	S	0.30	0.32	6.60
	SiO2	47.30	47.89	1.25
	TiO2	0.32	0.33	1.56
	V	0.006	0.006	3.69
OREAS701	Al2O3	12.40	12.43	0.26
	CaO	5.18	5.15	-0.59
	Fe	23.98	23.63	-1.44
	K2O	3.12	3.09	-0.92
	LOI1000	1.80	1.43	-20.3
	MgO	1.32	1.37	4.06
	Na2O	0.92	0.92	-0.12
	P	0.52	0.52	0.78
	S	0.69	0.69	-0.47
	SiO2	33.95	33.89	-0.17
	TiO2	0.27	0.26	-0.54
	V	0.005	0.006	3.17

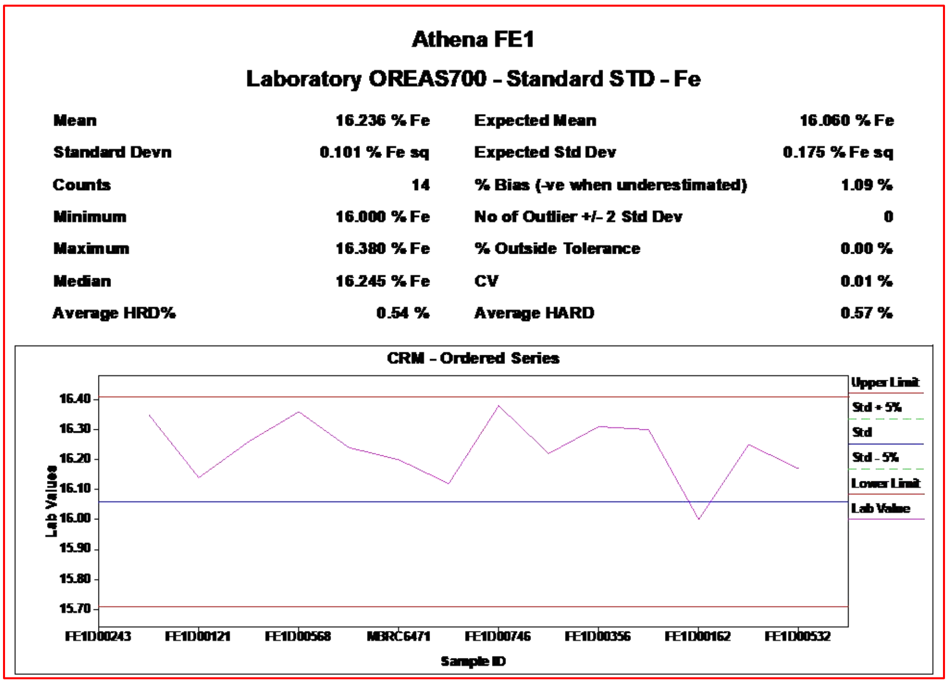


Figure 6.4 Standard OREAS700 Fe plot and analysis.

6.4.2 BLANKS

No blanks were inserted with the 2011 drill samples. Two blanks were used during the 2022 drill program – Bunbury Dolerite and OREAS20A prepared by ORE Research & Exploration Pty Ltd. The blanks performed well with no obvious evidence of contamination. The plot for Fe from OREAS20A is shown in Figure 6.5. The blank plots are provided in Appendix A. The blanks represent about 3.3% of total samples submitted to the laboratory from the 2022 drill holes.

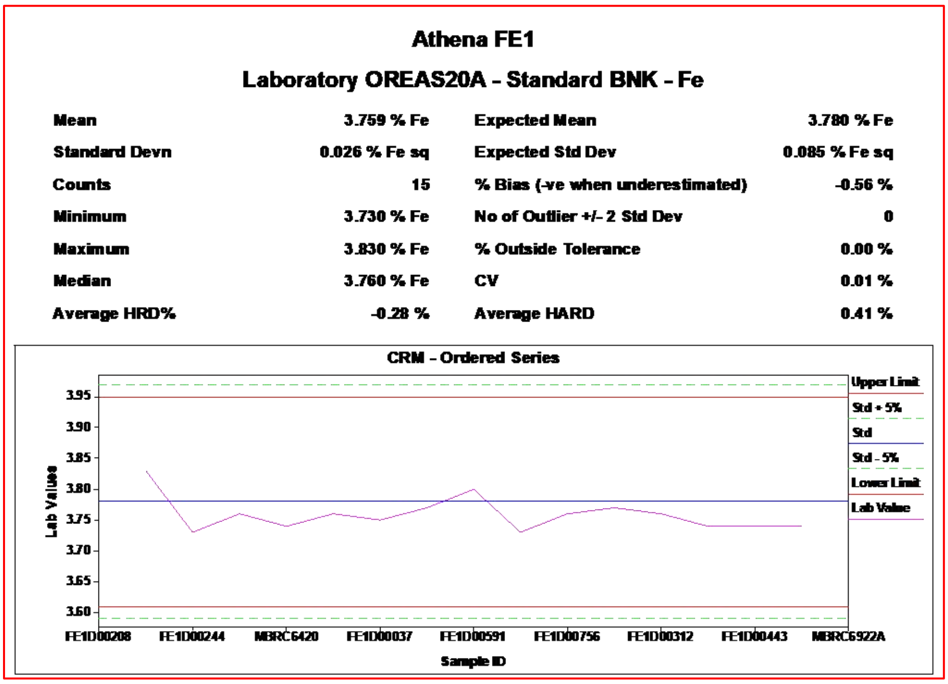


Figure 6.5 Blank OREAS20A Fe plot and analysis.

6.4.3 DUPLICATES

No field duplicates were collected with the 2011 drill samples. A total of 15 quarter-core duplicates were collected during the sampling process from the 2022 diamond drill core. The duplicate samples correlate reasonably well with some spread in results for minor elements as expected. The plot for head Fe is shown in Figure 6.6. Plots of all duplicates are provided in Appendix A. The duplicates represent about 1.9% of total samples submitted to the laboratory from the 2022 drill holes.

Athena FE1

DUP - Fe vs Fe Dupl

	% Fe	% Fe Dupl			
Pairs	15	15		Total Mean	32.168 % Fe
Mean	32.208	32.129	% Fe	Average bias	0.079 % Fe
Minimum	18.430	17.000	% Fe	Regression slope Y on X	1.05
Maximum	37.020	37.080	% Fe	Maximum HARD	100.00 %
Variance	24.361	27.115	% Fe sq	Average HARD	0.96 %
CV	0.153	0.162		% Average HRD	0.24 %

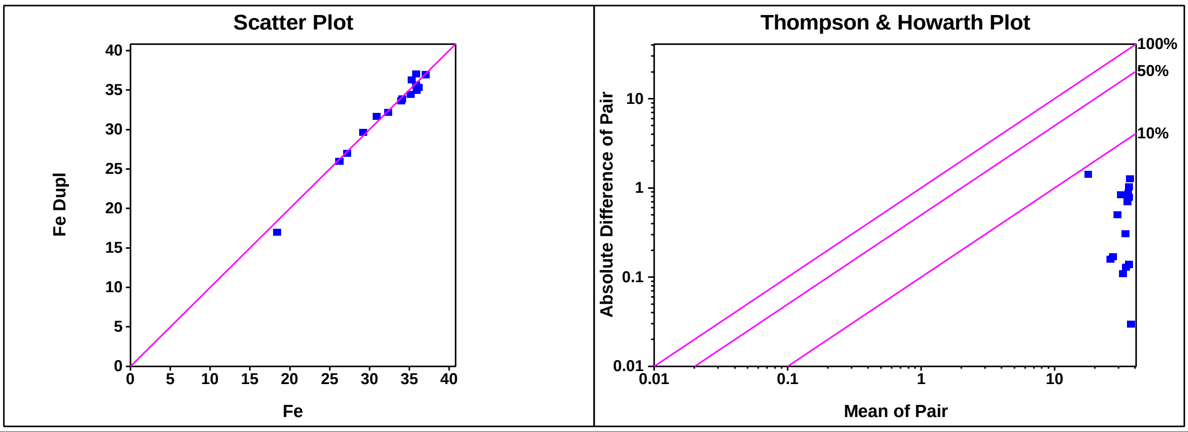


Figure 6.6 Field Duplicate plot and analysis for Fe.

6.4.4 LABORATORY QAQC

Ultratrace inserted several different pulp standards with the head assay samples during the 2010 to 2011 drill program, and these are listed in Table 6-7. The results for these standards are generally within acceptable limits and occasionally show minor bias for some of the minor elements. A plot for head Fe from standard NCS DC 14006a is shown in Figure 6.7.

Table 6-7: Summary of Laboratory Standard samples used during 2010 and 2011.

Standard	Dates used	Type	No. of standards	Comments
NCS DC 14003d	2010	Pulp	3	Head grades – mostly in acceptable limits and no evidence of major bias
NCS DC 14006a	2010–2011	Pulp	29	Head grades – mostly in acceptable limits and some bias in some minor elements
NCS DC 14043	2010–2011	Pulp	20	Head grades – mostly in acceptable limits and some bias in some minor elements
SARM 1	2010	Pulp	5	Head grades – mostly in acceptable limits and some bias in some minor elements
SARM 2	2010–2011	Pulp	9	Head grades – mostly in acceptable limits and some bias in some minor elements
SARM 4	2010–2011	Pulp	5	Head grades – two standards potentially mislabelled
SARM 11	2010–2011	Pulp	24	Head grades – mostly in acceptable limits and some bias in some minor elements
SARM 12	2010–2011	Pulp	24	Head grades – mostly in acceptable limits and some bias in some minor elements
SARM 13	2011	Pulp	5	Head grades – mostly in acceptable limits and some bias in some minor elements
SARM 14	2011	Pulp	5	Head grades – mostly in acceptable limits and some bias in some minor elements
SARM 39	2011	Pulp	4	Head grades – mostly in acceptable limits and some bias in some minor elements
SARM 45	2010	Pulp	3	Head grades – mostly in acceptable limits and no evidence of major bias

Athena 2010-2011 Lab Standards

Standard NCS DC 14006a - Fe

Mean	43.578 % Fe	Expected Mean	43.660 % Fe
Standard Devn	0.068 % Fe sq	Expected Std Dev	0.100 % Fe sq
Counts	29	% Bias (-ve when underestimated)	-0.19 %
Minimum	43.420 % Fe	No of Outlier +/- 2 Std Dev	1
Maximum	43.810 % Fe	% Outside Tolerance	3.45 %
Median	43.570 % Fe	CV	0.00 %
Average HRD%	-0.09 %	Average HARD	0.11 %

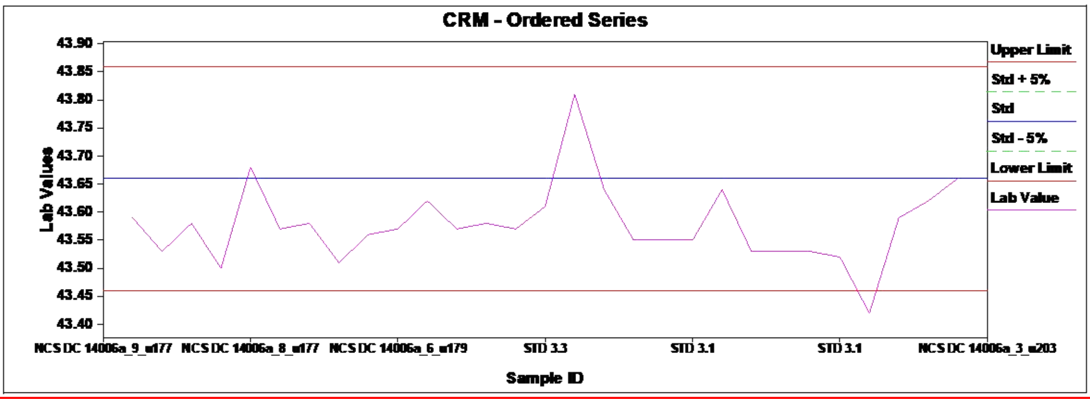


Figure 6.7 Laboratory Standard NCSDC14006a plot of Fe from 2010 to 2011 drill program.

Laboratory repeats have been conducted on 144 samples from the 2011 drill program and the correlation is very good as expected. However, there are a couple of samples with spurious results as shown for Fe in Figure 6.8 but it is not clear if these were followed up or reassayed.

Athena 2010-2011 Lab Repeats

Fe vs Fe Dupl

	% Fe	% Fe Dupl			
Pairs	144	144		Total Mean	13.147 % Fe
Mean	13.075	13.218	% Fe	Average bias	-0.143 % Fe
Minimum	0.480	0.500	% Fe	Regression slope Y on X	0.99
Maximum	39.700	39.780	% Fe	Maximum HARD	100.00 %
Variance	170.129	171.414	% Fe sq	Average HARD	1.16 %
CV	0.998	0.991		% Average HRD	-0.14 %

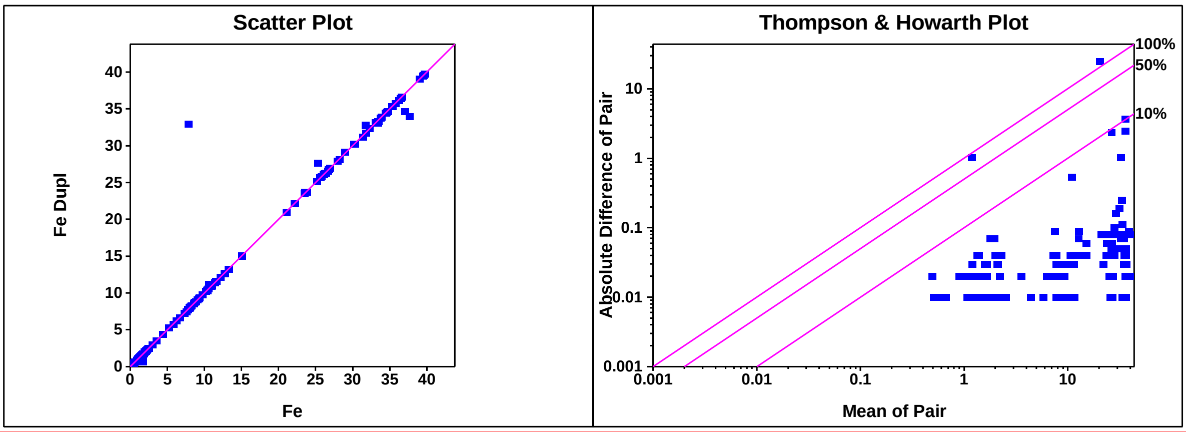


Figure 6.8 Laboratory Repeats plot of Fe from 2010 to 2011 drill program.

ALS also inserted several different pulp standards with the head assay samples and with the composited feed and product DTR samples during the 2022 drill program, and these are listed in Table 6-8. The results for these standards are generally within acceptable limits and occasionally show minor bias for some of the minor elements. A plot for Fe from standard NCS DC 18014 submitted with the 2 m head samples is shown in Figure 6.9 and a plot for the same standard submitted with the 4 m DTR feed and product composite samples is shown in Figure 6.10.

ALS submitted 27 blank samples with the 2 m head samples and 16 blank samples with the 4 m DTR samples with no obvious evidence of contamination.

Table 6-8: Summary of Laboratory Standard samples used during 2022.

Standard	Type	No. of standards	Comments
GIOP135	Head	10	Head grades – mostly in acceptable limits and no evidence of major bias
GIOP51	Head	63	Head LOI grades only – mostly in acceptable limits and no evidence of major bias
NCS DC 18014	Head	12	Head grades – mostly in acceptable limits and some bias in some minor elements
OREAS401	Head	13	Head grades – mostly in acceptable limits and no evidence of major bias
OREAS406	Head	10	Head grades – mostly in acceptable limits and no evidence of major bias
GIOP135	DTR	8	DTR feed and product grades – mostly in acceptable limits and no evidence of major bias
GIOP51	DTR	41	DTR feed and product LOI grades only – mostly in acceptable limits and no evidence of major bias
NCS DC 18014	DTR	9	DTR feed and product grades – mostly in acceptable limits and some bias in some minor elements
OREAS402	DTR	9	DTR feed and product grades – mostly in acceptable limits and some bias in some minor elements
OREAS406	DTR	8	DTR feed and product grades – mostly in acceptable limits and some bias in some minor elements

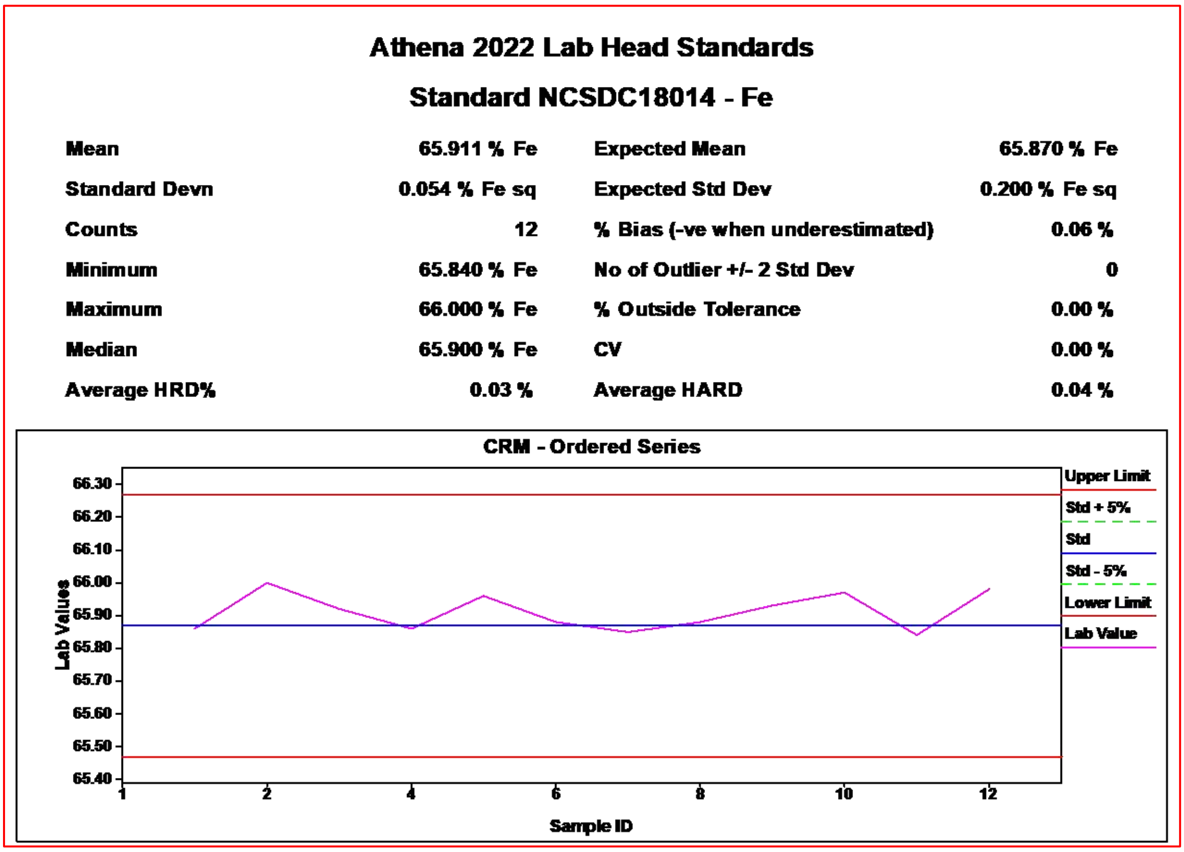


Figure 6.9 Laboratory Standard NCSDC18014 plot of Fe submitted with 2 m head samples from 2022 drill program.

Athena 2022 DTR Samples

Standard NCSDC18014 - Fe

Mean	65.899 % Fe	Expected Mean	65.870 % Fe
Standard Devn	0.032 % Fe sq	Expected Std Dev	0.100 % Fe sq
Counts	9	% Bias (-ve when underestimated)	0.04 %
Minimum	65.840 % Fe	No of Outlier +/- 2 Std Dev	0
Maximum	65.940 % Fe	% Outside Tolerance	0.00 %
Median	65.910 % Fe	CV	0.00 %
Average HRD%	0.02 %	Average HARD	0.03 %

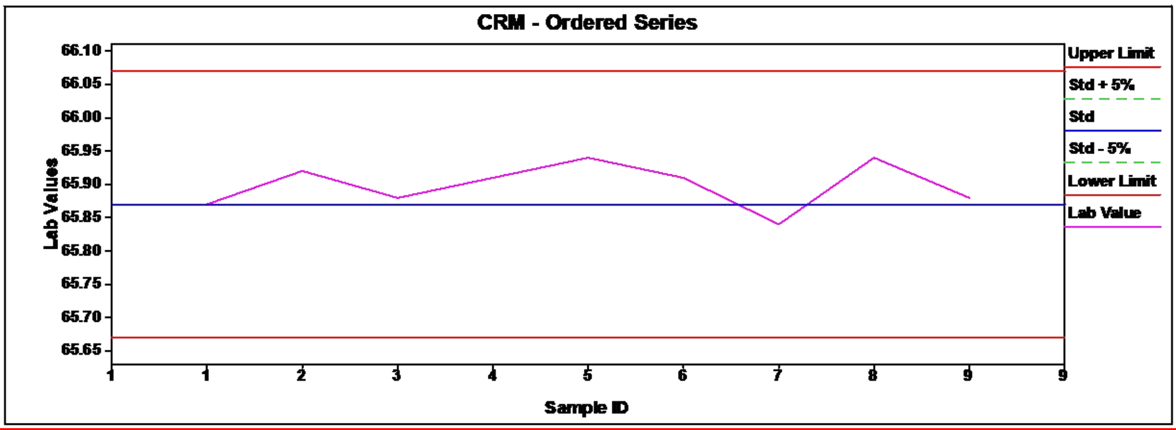


Figure 6.10 Laboratory Standard NCSDC18014 plot of Fe submitted with 4 m composite samples from 2022 drill program.

Laboratory repeats have been conducted on 41 head samples from the 2022 drill program and the correlation is very good as expected. The LOI results have also been repeated for 103 head samples with very good results. Repeat analyses have been performed on 13 DTR feed composites and 14 DTR product composites. The results compare very well with a bit of scatter for a couple of the minor elements. The plot for Fe from the DTR product composites is shown in Figure 6.11. Thirty-five DTR feed composites were repeated for LOI with very good results, and 26 DTR product composites were repeated for LOI with good results but a bit more scatter is evident.

Athena 2022 DTR Samples

Conc - Fe vs Fe Dupl

	% Fe	% Fe Dupl			
Pairs	14	14		Total Mean	70.370 % Fe
Mean	70.377	70.364	% Fe	Average bias	0.014 % Fe
Minimum	66.220	66.170	% Fe	Regression slope Y on X	1.00
Maximum	71.410	71.390	% Fe	Maximum HARD	100.00 %
Variance	1.485	1.499	% Fe sq	Average HARD	0.04 %
CV	0.017	0.017		% Average HRD	0.01 %

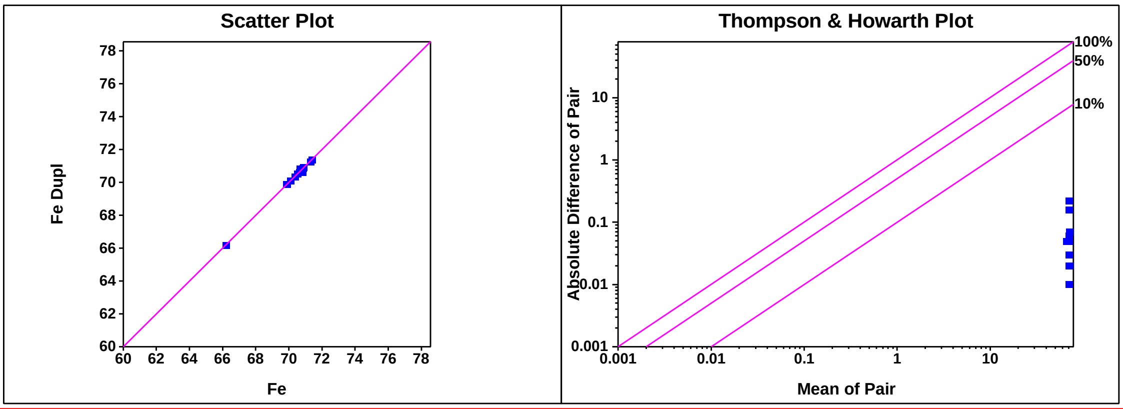


Figure 6.11 **Laboratory Repeats plot of Fe for the 4 m DTR product composites from the 2022 drill program.**

6.4.5 TWIN DRILL HOLES

Two pairs of twin drill holes have been completed at Byro FE1. AHRC0005 drilled in 2011 and AHRC0118 drilled in 2022 are both RC drill holes and compare the RC sampling between the two drill programs. AHRC0030a is an RC drill hole completed in 2011 and AHRC0112D is a diamond drill hole completed in 2022 and provide a comparison between the RC and diamond drill core samples. The locations of the twin holes are shown in cross section in Figure 6.12.

The comparison for head Fe from the RC drill holes, AHRC0005 and AHRC0118 which are drilled about 10 m apart, is shown in Figure 6.13. The Q-Q plot shows a slight bias towards AHRC0118 for higher grades and towards AHRC0005 for lower grades. The downhole profiles show a similar pattern in grades however there is a shift between the profiles. The comparison is at equal depths down hole, but the location cross section shows there may be some influence from the dolerite dyke which the drill holes intersect at the bottom of the holes and this could account for the apparent shift in the grade profiles. The comparison of DTR results is shown in Figure 6.14 and shows the difference between the 10 m composites used in 2011 and the 4 m composites used in 2022. The Q-Q plots are similar for the higher grades but then there is a bias in the lower grades as some of these were not sampled in 2011. The down hole profiles are similar for both drill holes and also show the shift as seen in the head grades. Overall, the comparison of the RC drill holes is acceptable with no consistent bias or significant differences. Twin hole plots for other head and concentrate grades are provide in Appendix A.

The comparison for head Fe from RC drill hole AHRC0030a and diamond drill hole AHRC0112D is shown in Figure 6.15. These drill holes are collared about 5 m apart and separate to about 25 m apart at 200 m downhole depth. The Q-Q plot for head Fe shows a very good correlation with no obvious bias. The downhole profiles show a similar pattern in the shallower parts of the drill hole with local differences increasing with depth as the drill holes move further apart.

The comparison of DTR results is shown in Figure 6.16 and again shows the difference between the 10 m composites and selective sampling used in 2011 and the 4 m composites used in 2022. There are larger differences at deeper drill hole depths where the drill holes are further apart. The twin drill holes do not compare well for DTR which reflects the sampling practices used rather than a problem with the assays themselves. This highlights the importance of using a smaller size composite and sampling the entire mineralised zone as was done during the 2022 drilling program.

Figure 6.12 Twin Hole locations. AHRC0005 and AHRC0118 on cross section 7 110 200 mN (left) and AHRC0030a and AHRC0112D on cross section 7 110 025 mN (right).

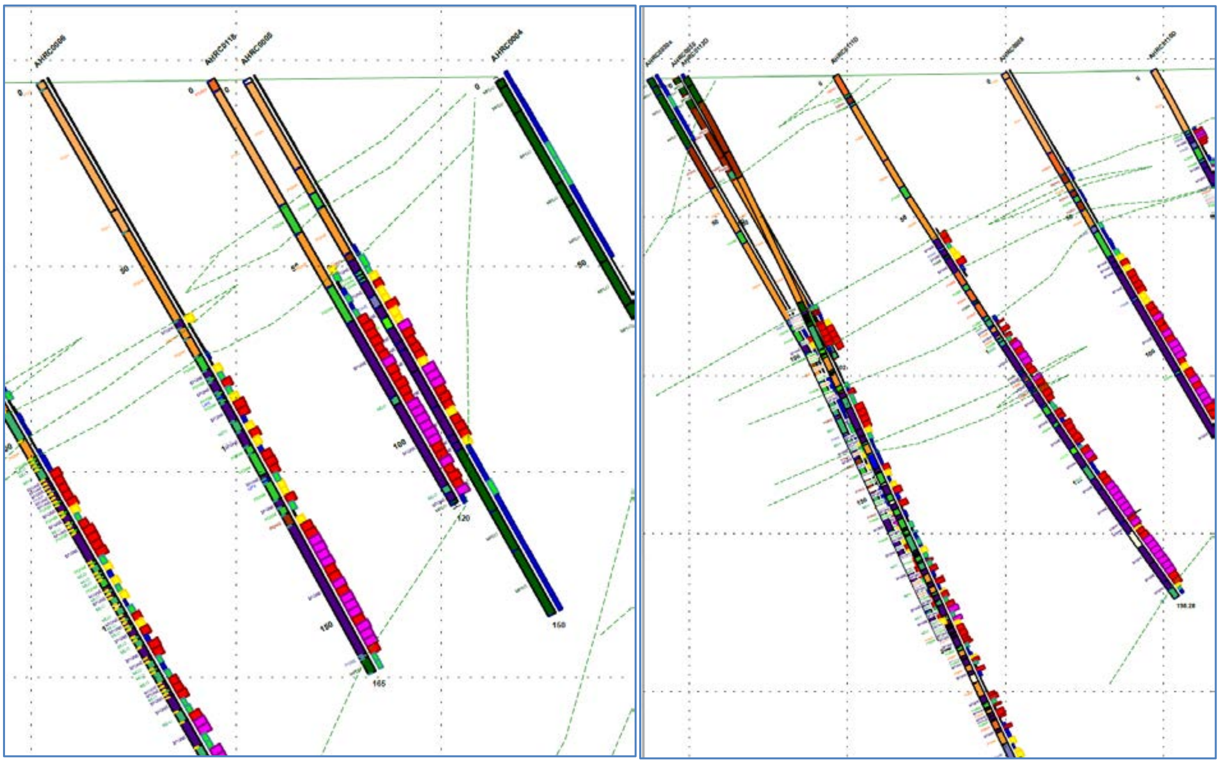


Figure 6.13 Twin Hole comparison of Fe head from RC drill holes AHRC0005 and AHRC0118

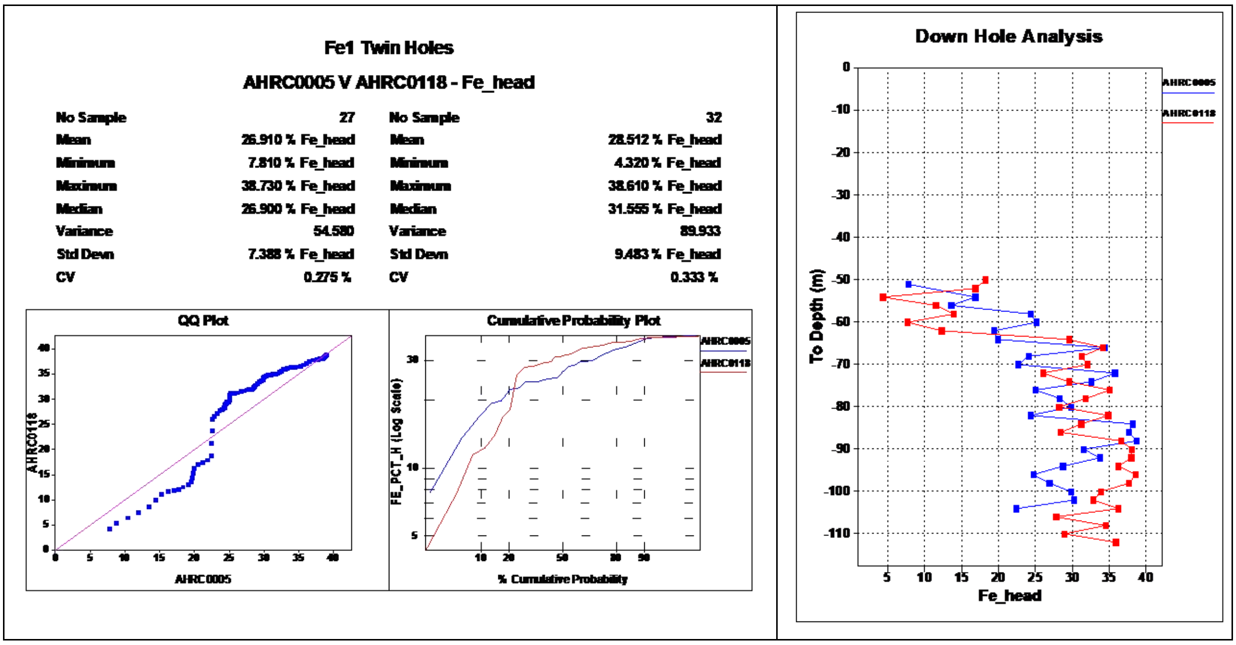


Figure 6.14 Twin Hole comparison of DTR from RC drill holes AHRC005 and AHRC0118

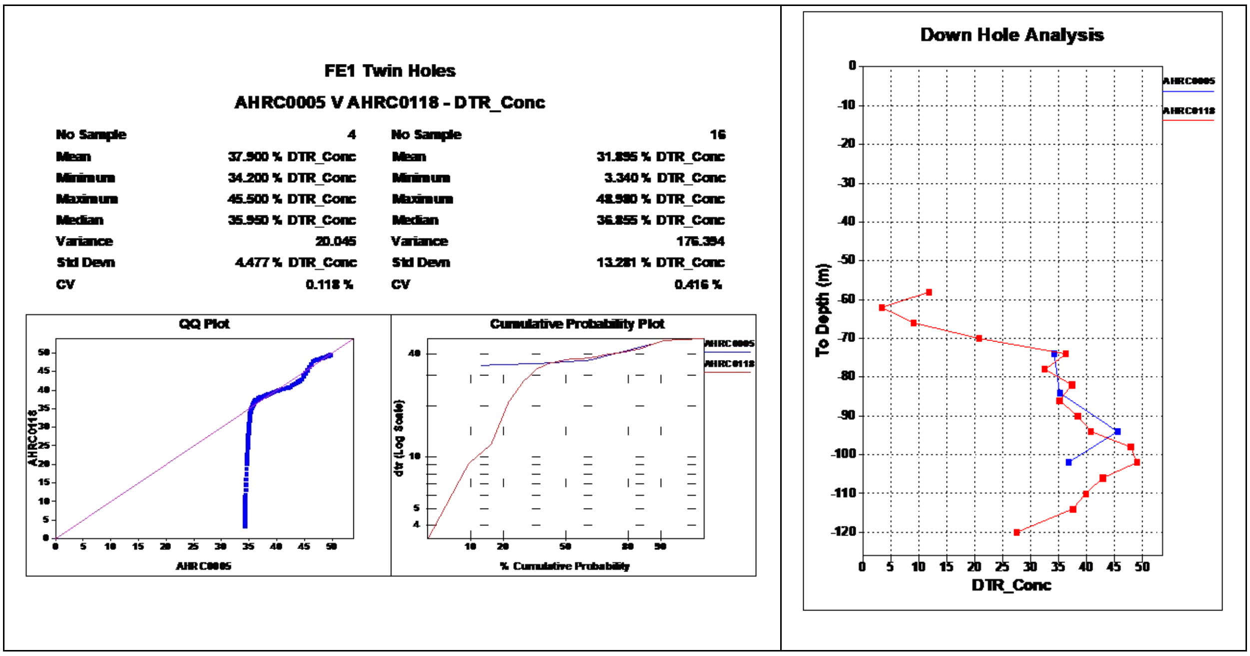


Figure 6.15 **Twin Hole comparison of Fe from RC drill hole AHRC0030a and diamond drill hole AHRC0112D**

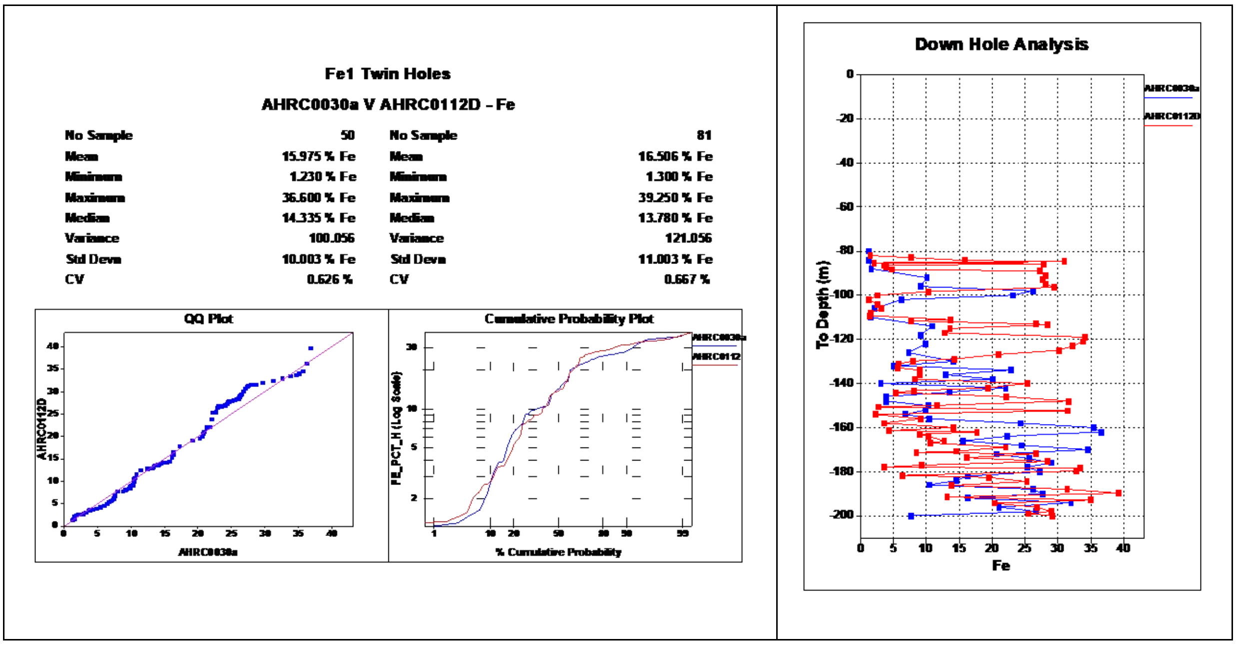
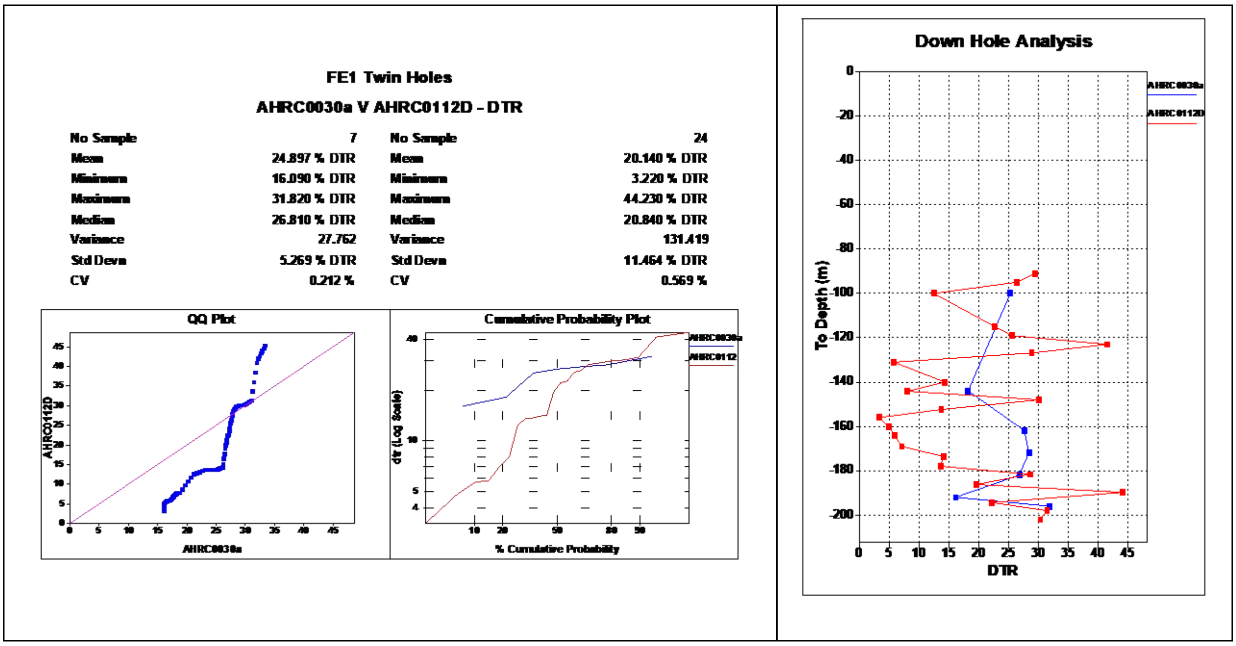


Figure 6.16 **Twin Hole comparison of DTR from RC drill hole AHRC0030a and diamond drill hole AHRC0112D**



7 GEOLOGY MODELLING

7.1 DOMAINS

The lithology and mineralisation domains were reinterpreted on cross-section by Athena, and these formed the basis of the domains interpreted by Entech in 3D using Vulcan software. The cross-section interpretations are included in Appendix B.

The closer spaced drilling improved the confidence in the mineralisation orientation and resulted in a slightly shallower average dip of 35^{o} for the mineralised domains.

The background whole rock mineralisation interpretation was defined on a head grade of 10% Fe. Within this boundary a magnetite mineralisation interpretation was defined using a 20% DTR cut-off grade. The domains were grouped and coded for analysis and estimation as detailed in Table 7-1.

The mineralisation is cross-cut by a steeply dipping southwest-northeast striking dolerite dyke. It is also offset by a steep east dipping north-south trending fault. A 3D view of the deposit is shown in Figure 7-1.

Plan and section views of the whole rock mineralisation domains are shown in Figure 7-2 and Figure 7-3 respectively. Plan and section views of the magnetite domains are shown in Figure 7-4 and Figure 7-5 respectively.

Table 7-1: Domain definition criteria

Domain	Model Field	Description	Location
10	Geo_zone	Whole Rock Mineralisation	Upper zone, west of fault
20	Geo_zone	Whole Rock Mineralisation	Lower zone, west of fault
30	Geo_zone	Whole Rock Mineralisation	Combined zones, east of fault
40	Geo_mag	Magnetite Mineralisation	Upper zone, west of fault, contained within Domain 10
50	Geo_mag	Magnetite Mineralisation	Lower zone, west of fault, contained within Domain 20
60	Geo_mag	Magnetite Mineralisation	Combined zone, east of fault, contained within Domain 30
70		Dolerite Dyke	Cross-cutting dyke

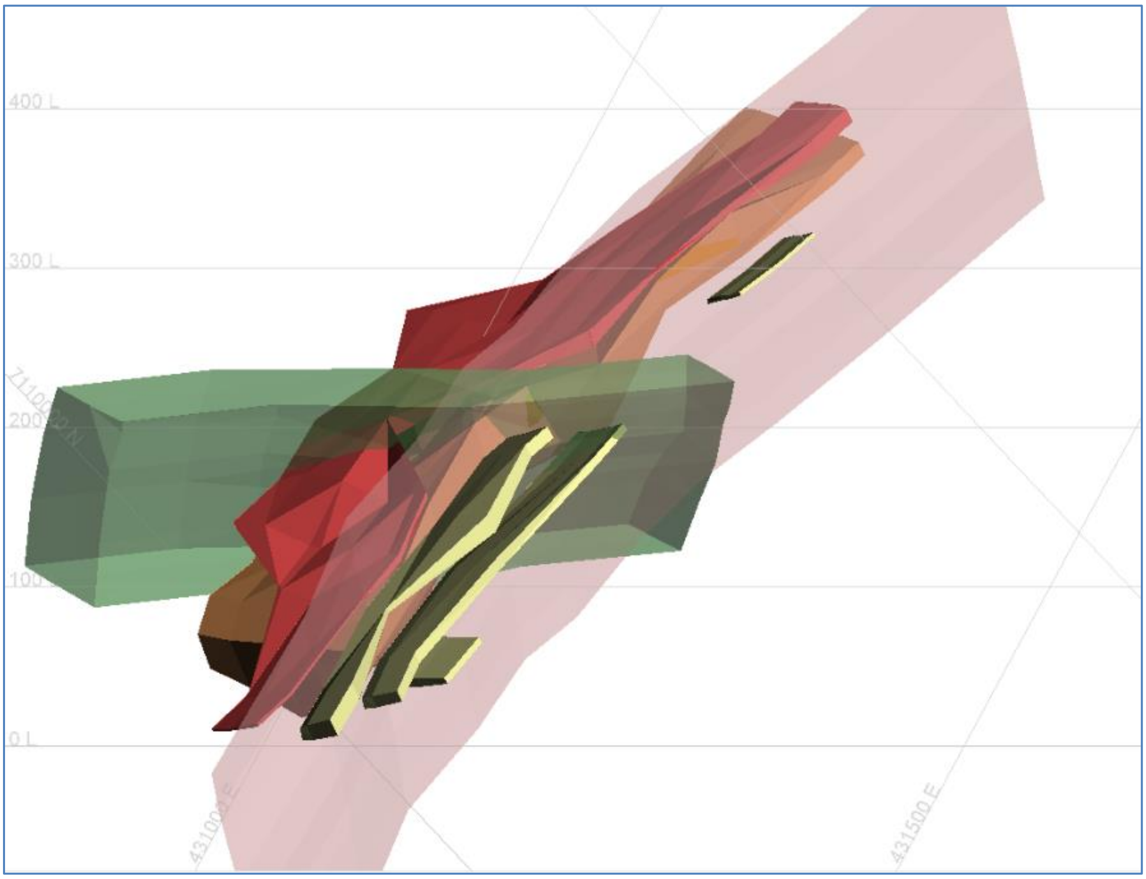


Figure 7-1: **3D view of whole rock mineralisation domains with dolerite and fault.**

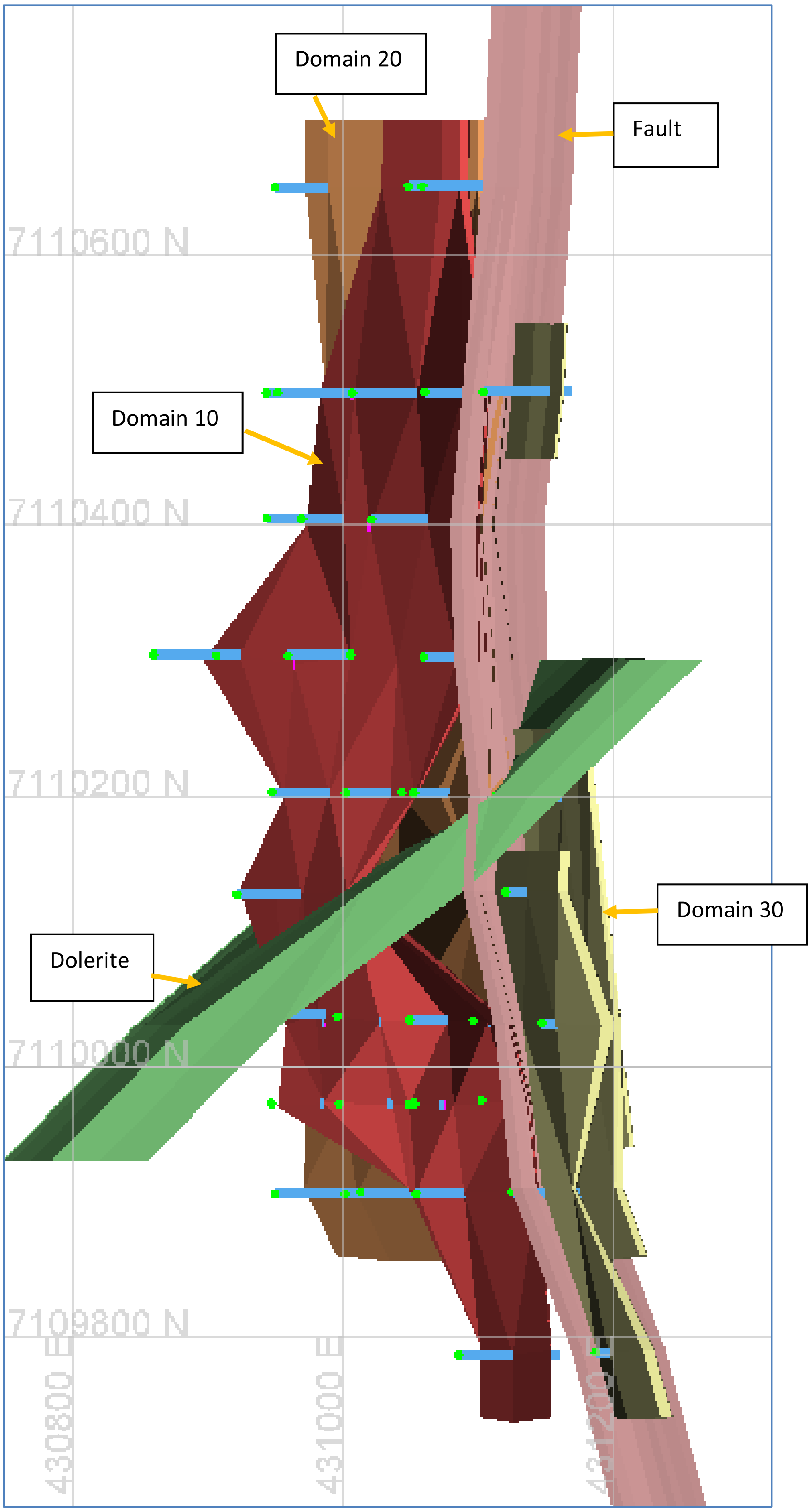


Figure 7-2: **Plan view of mineralisation domains defined in current resource model update.**

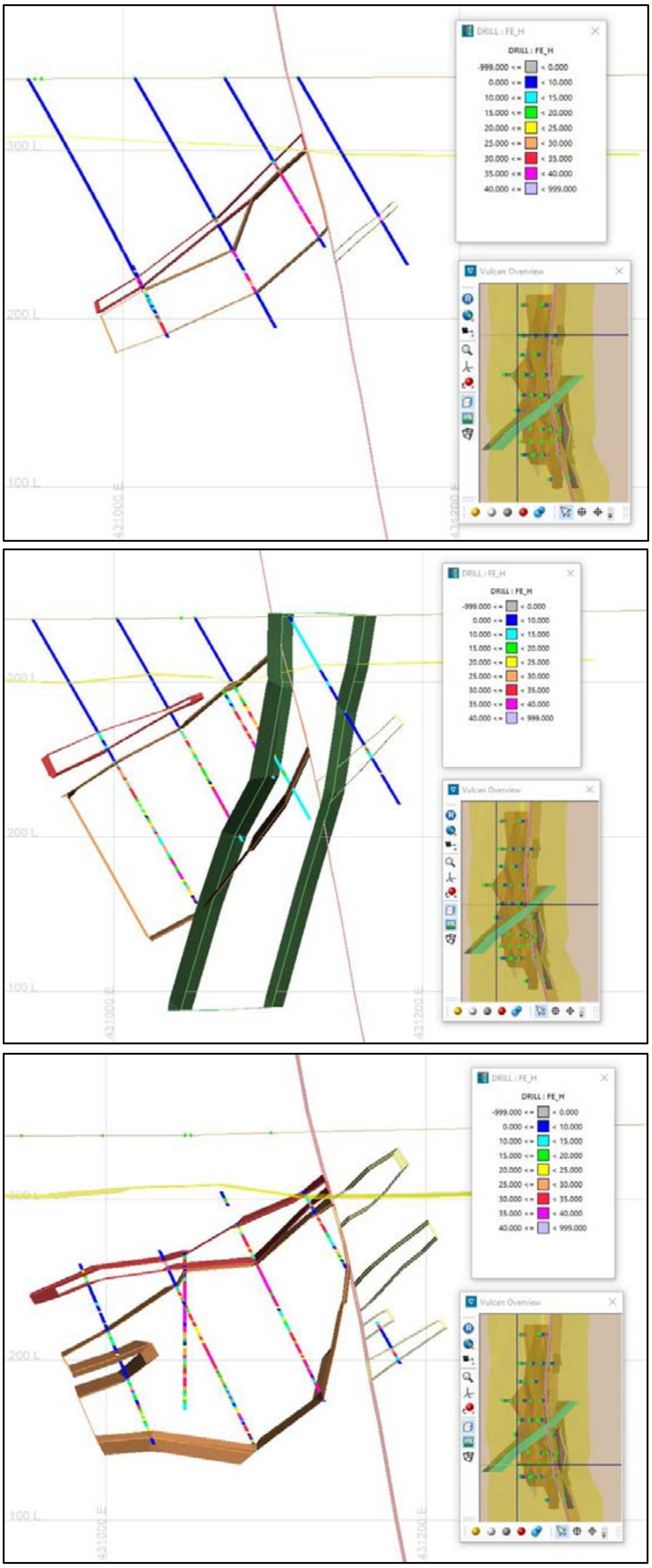


Figure 7-3: Cross Sections 7110500, 7110200, and 7109970 showing mineralisation domains and fault orientations.

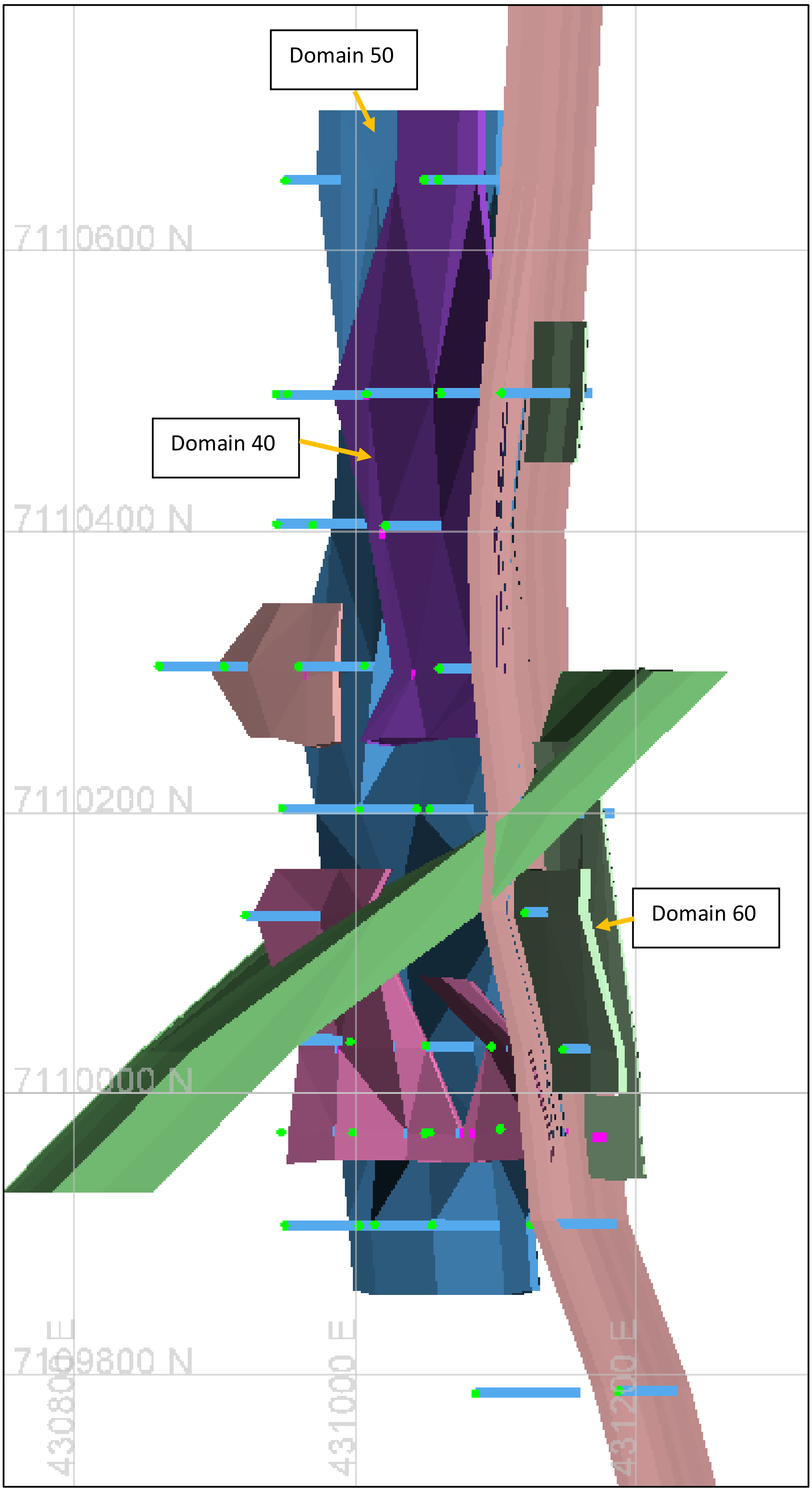


Figure 7-4: Plan view of magnetite domains defined in current resource model update.

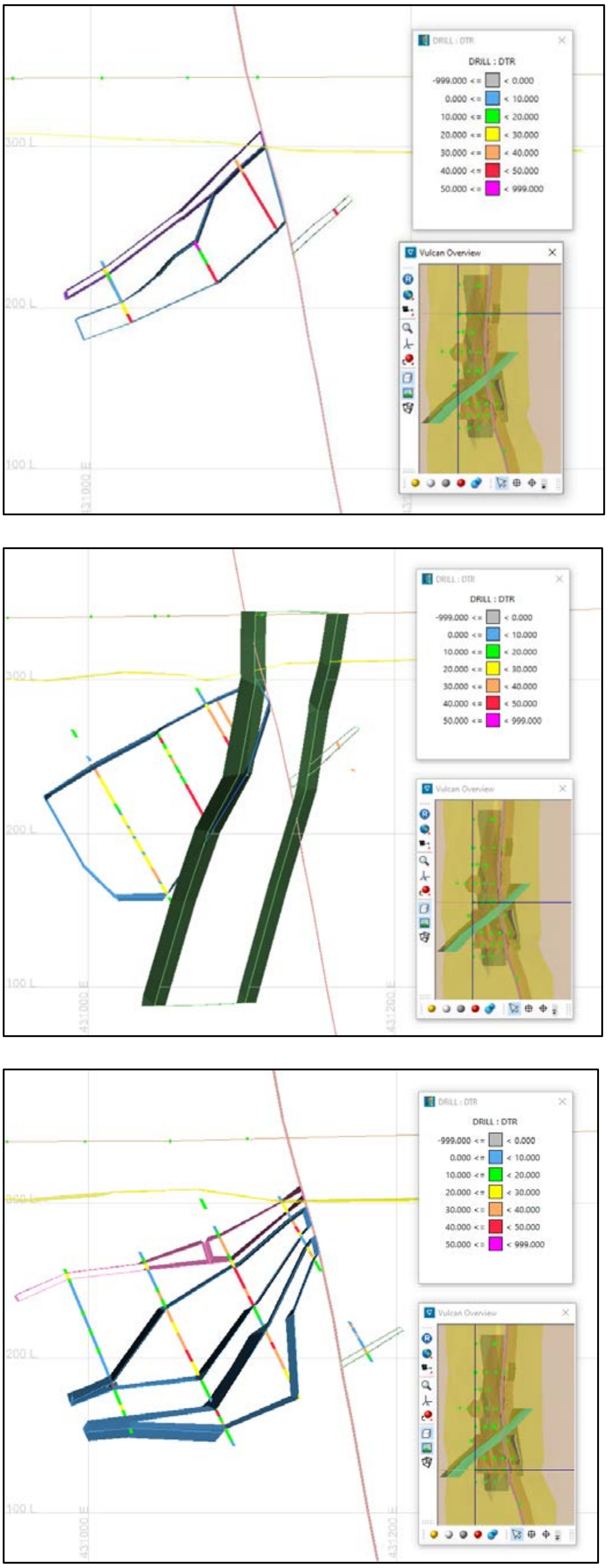


Figure 7-5: **Cross Sections 7110500, 7110200, and 7109970 showing magnetite domains and fault orientations.**

7.2 OXIDE SURFACE

The oxidation surface was interpreted based on logging in the drill hole database. The depth to the top of fresh rock varies across the deposit from about 30 m to 50 m. The block model field and codes are provided in Table 7-2.

Table 7-2: Oxidation definition criteria

Domain	Model Field	Description
1	Geo_oxide	Completely oxidised
2	Geo_oxide	Fresh Rock

7.3 TOPOGRAPHY

The 2 m contour data from the Geological Survey of Western Australia (GSWA) was compared to the drill hole collar elevations to generate a topography wireframe. The collar elevations are about 5 m higher than the 2 m contours as shown in Figure 7-6. Due to this mismatch in information, the 2 m GSWA data alone was used to produce a final topography wireframe and the drill hole collars were registered onto that wireframe.

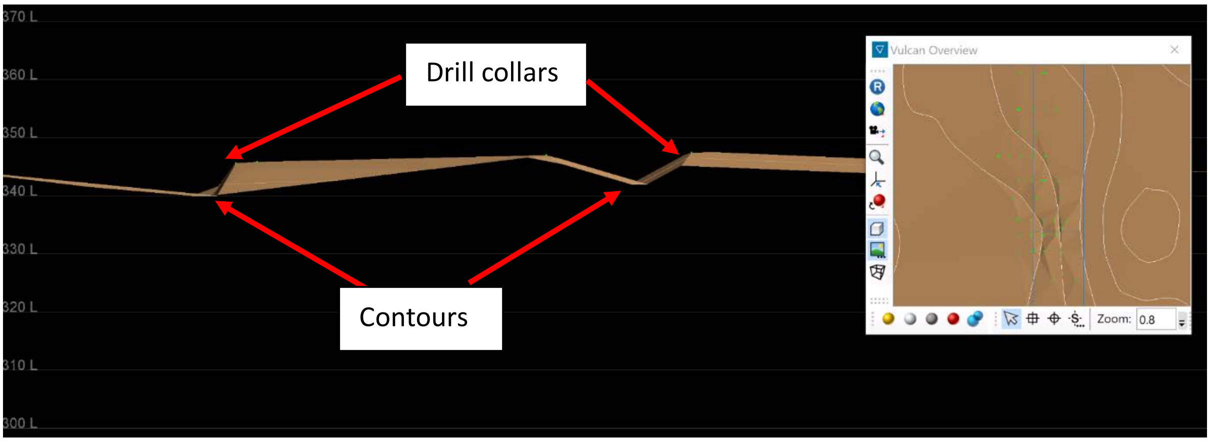


Figure 7-6: Cross- section of 2 m contour data versus drill hole collars.

8 GEOLOGY BLOCK MODEL

8.1 BLOCK MODEL PARAMETERS

The geological block model was constructed using Vulcan software (MGA94 grid coordinates). The model is orientated parallel to the grid.

The minimum drill spacing of 50 m × 100 m determined that a parent block size of 20 m × 50 m × 10 m was appropriate, where the height of the parent block corresponds to the height of the planned benches (10 m) in the pit design. A sub-block size of 2.5 m × 6.25 m × 2.5 m was used to provide adequate resolution for mineralisation and geological domains. The final block model dimensions are provided in Table 8-1.

Table 8-1: Block model dimensions

Parameter	Easting	Northing	Elevation (m RL)
Minimum	430 800	7 109 600	80
Maximum	431 300	7 110 850	400
Range	500	1 250	320
Number of parent cells	25	27	32
Parent cell size	20	50	10
Sub-cell size	2.5	6.25	2.5

8.2 BLOCK MODEL

During creation of the block model, the blocks position and size were defined by the geology wireframe surfaces and/or solids which represent the contact boundaries.

The variables are assigned to each block and set to a default value. The values then flagged to the variable depend on the block's position relative to the wireframe in three-dimensional space. In the case where multiple wireframes are available for a block, the wireframes tagged with the highest priority take precedence over wireframes with lower priority.

Table 8-2 summarises the variables created for the geological block model prior to estimation. Table 8-3 illustrates the values assigned to the geological variables. Plan views of the model coded by mineralisation domains are shown in Figure 8-1 and Figure 8-2, and coded by magnetite domains are shown in Figure 8-3 and Figure 8-4. Figure 8-5 shows cross-section 7 110 040 mN coloured by both mineralisation and magnetite domains.

The block model was compared in section and plan against the final wireframes. The model was checked for correct prioritisation of wireframes. Checking included checks that blocks were correctly flagged and checks for the presence of any unassigned block within the model.

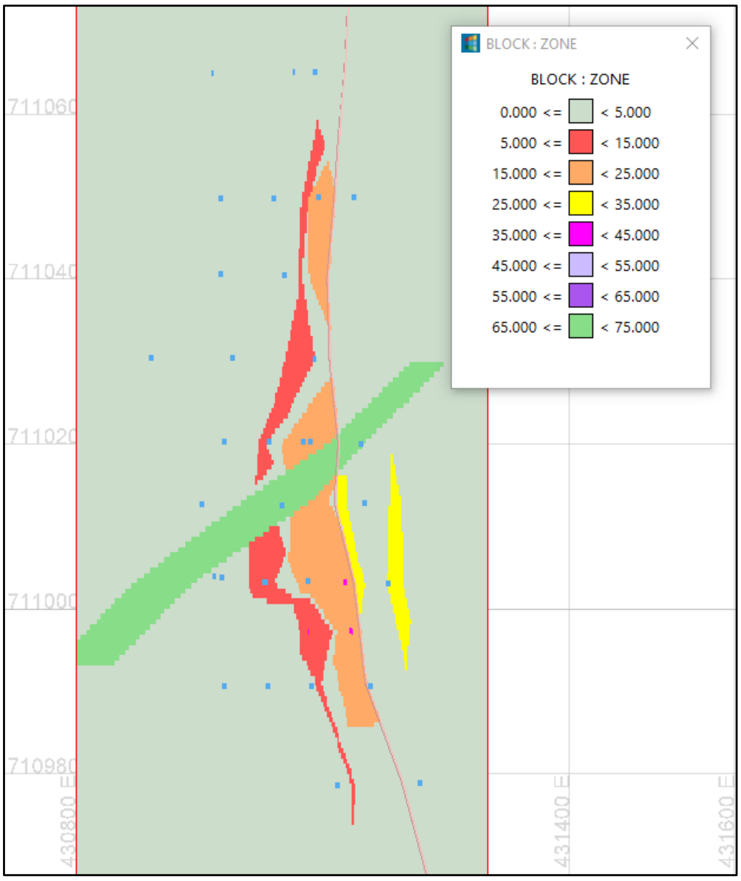
Table 8-2: Geological block model variables

Variable name	Data type	Default value	Description
geo_zone	Short (Integer * 2)	1	mineralisation domain
geo_mag	Short (Integer * 2)	1	Magnetite domain
geo_oxide	Short (Integer * 2)	0	oxide classification, fresh, oxide, or blocks above topography (air)
fault_block	Short (Integer * 2)	-99	Fault block – east or west

Table 8-3: Values assigned to the geology variables.

Variable name	Values	Priority	Description
res_cat	-99	1	default
res_cat	2	2	Indicated Class
res_cat	1	3	Inferred Class
geo_oxide	0	1	Default
geo_oxide	0	4	Air – Above Topo
geo_oxide	1	3	Oxidised Rock
geo_oxide	2	2	Fresh Rock
geo_zone	10	1	Mineralised
geo_zone	20	1	Mineralised
geo_zone	30	1	Mineralised
geo_zone	70	99	Dolerite
geo_mag	40	1	Magnetite
geo_mag	50	1	Magnetite
geo_mag	60	1	Magnetite
geo_mag	70	99	Dolerite
fault_block	1	1	West block
fault_block	2	1	East block

Level plans of the mineralisation domains in the final block model are shown in Figure 8-1 and Figure 8-2. Level plans of the magnetite domains are shown in Figure 8-3 and Figure 8-4. Cross-section views are shown in Figure 8-5. A full list of the block model variables and the list of wireframes used to create the block model is provided in Appendix C.



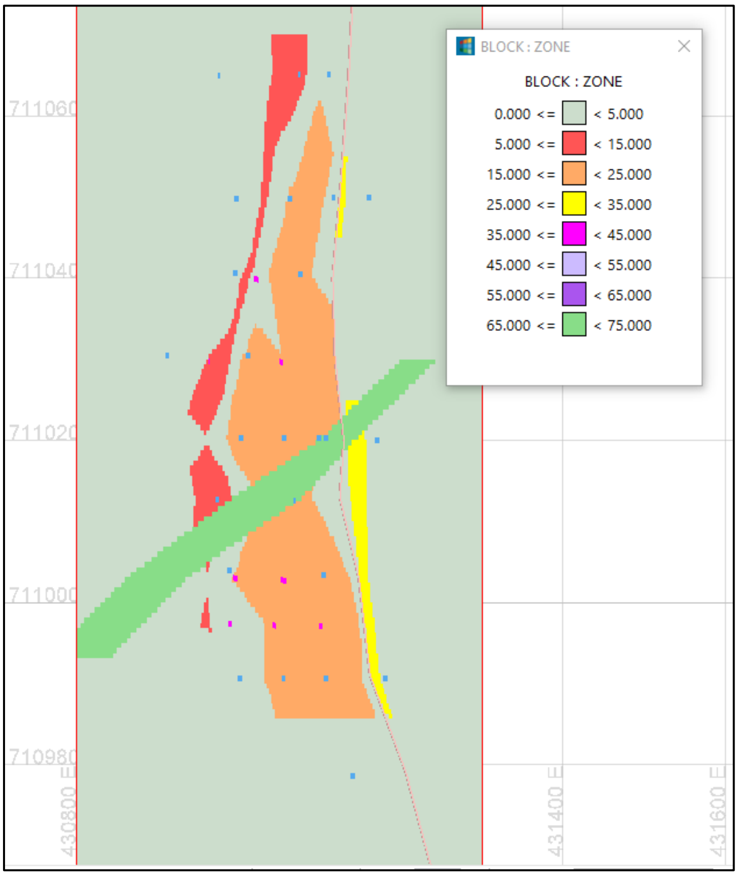


Figure 8-1: Plan of Mineralisation Domains at 280 m RL (top) and 240 m RL (bottom)

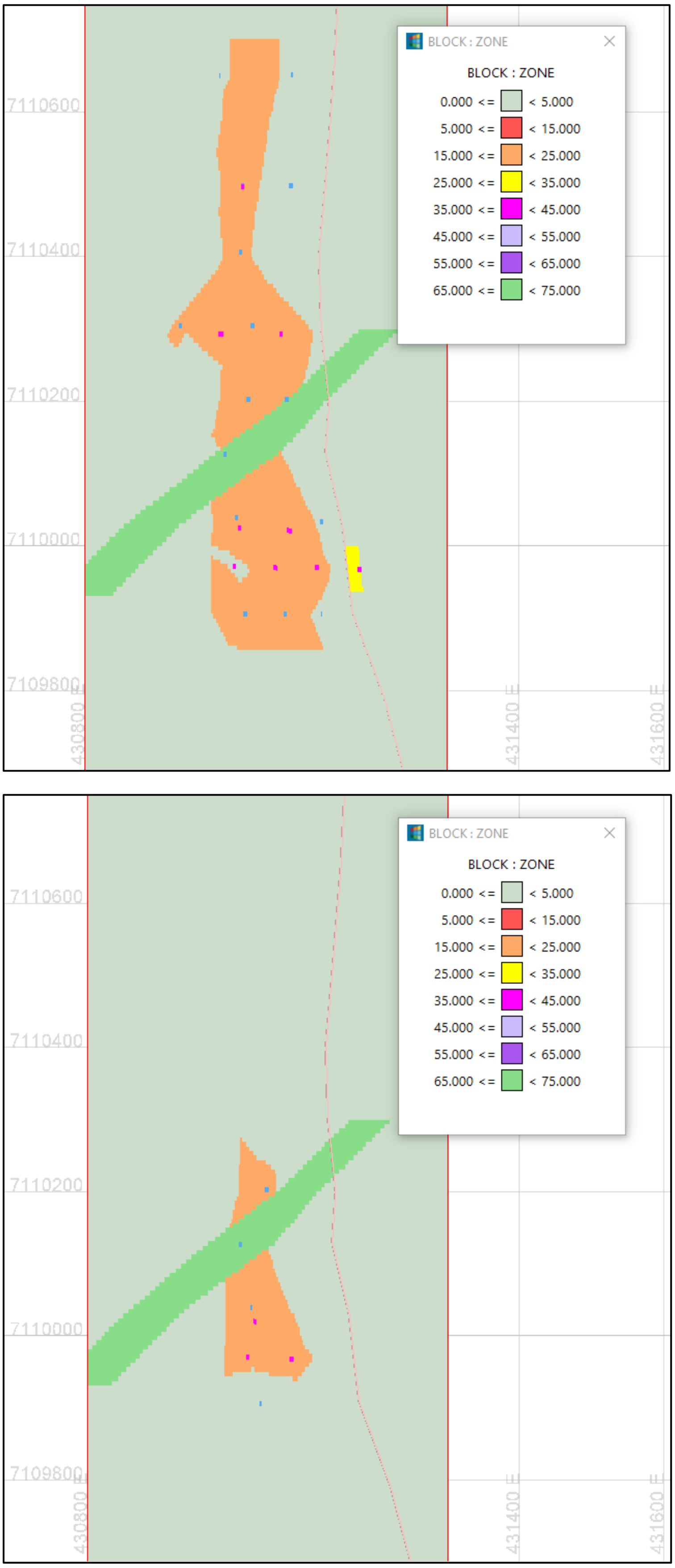


Figure 8-2: Plan of Mineralisation Domains at 200 m RL (top) and 160 m RL (bottom)

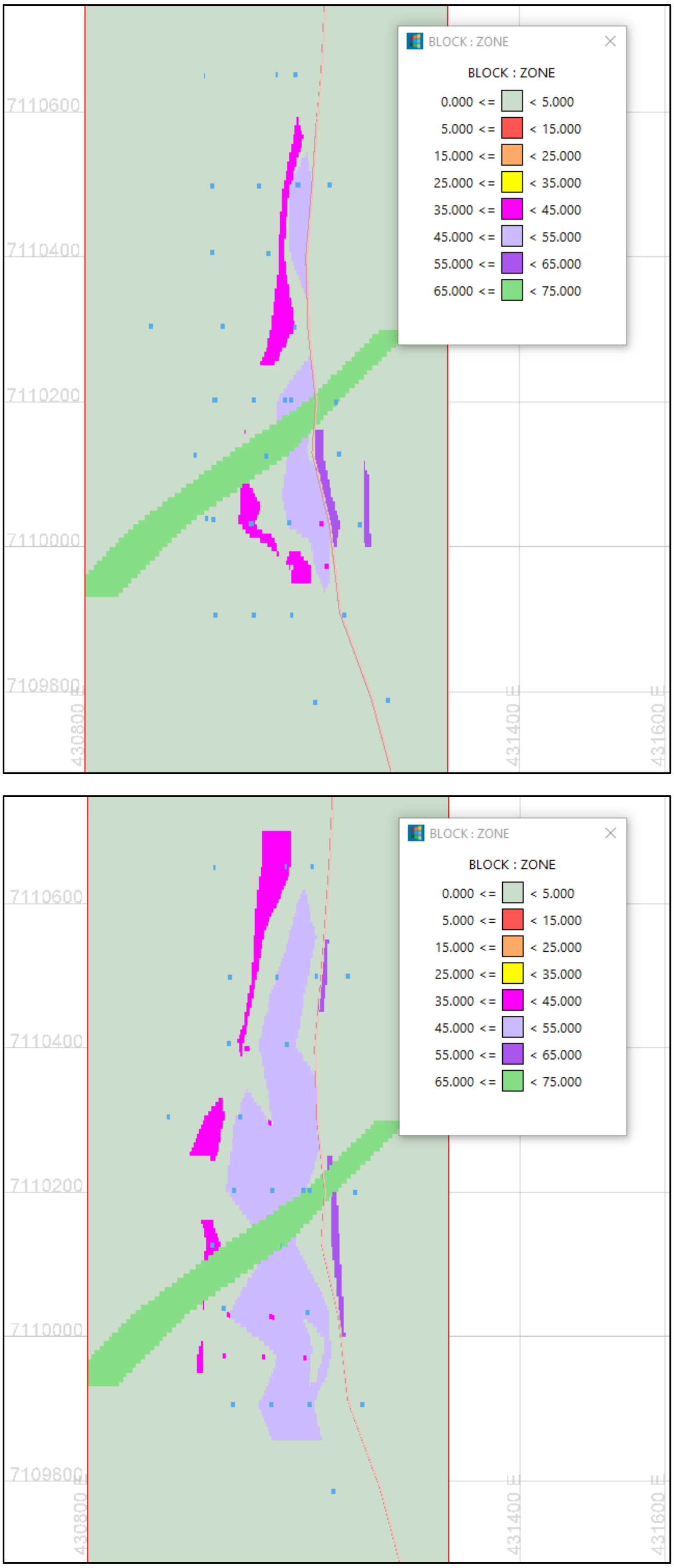


Figure 8-3: Plan of Magnetite Domains at 280 m RL (top) and 240 m RL (bottom)

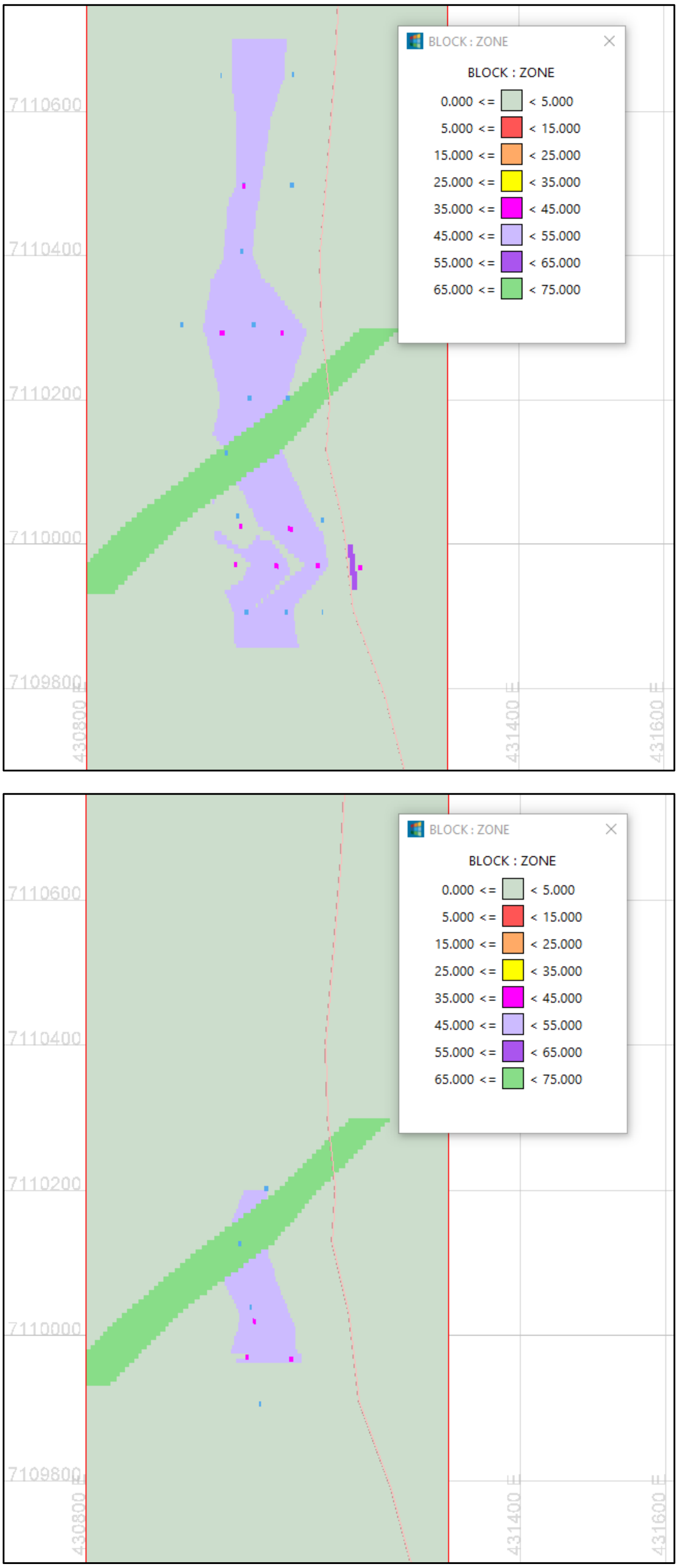


Figure 8-4: Plan of Magnetite Domains at 200 m RL (top) and 160 m RL (bottom)

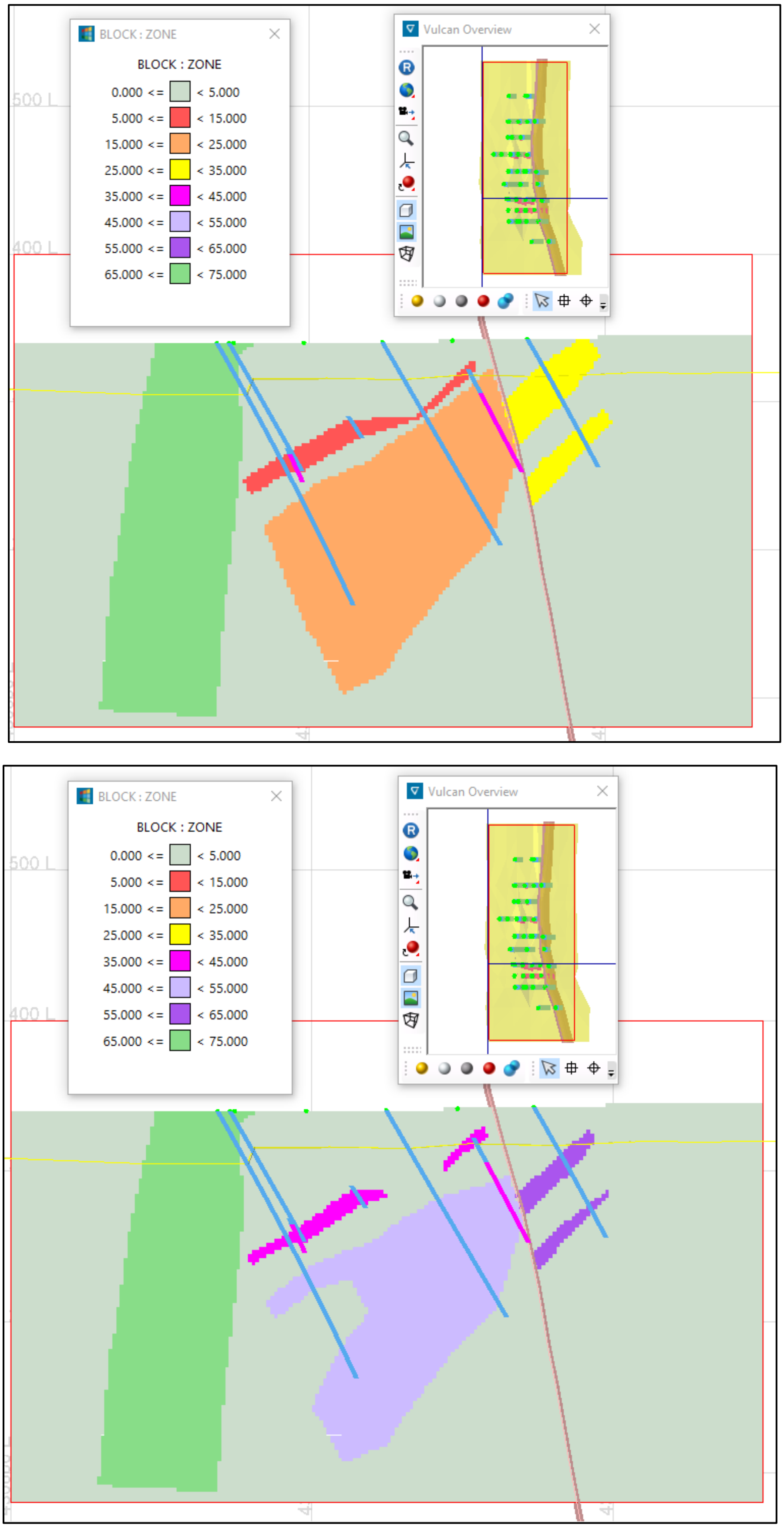


Figure 8-5: Cross-section 7 110 040 m N showing Mineralisation Domains (top) and Magnetite Domains (bottom)

9 STATISTICAL ANALYSIS

9.1 DATA PREPARATION

Values in the assay fields that were below the defined Limit of Detection (LOD) were set to half of the detection limit value. The LOD values for each element are as follows:

- 0.001 for K_2O, MnO, Na_2O, P, S, and V
- 0.01 for SiO_2, TiO_2, Al_2O_3, Fe, MgO, CaO, and LOI.

The samples were collected at 2 m intervals, unless lithological contacts were encountered. In this instance the sample lengths were adjusted to honour these contacts. The composite length of 4 m was used for the samples undergoing DTR analysis.

9.2 DEFAULT GRADES

The drill holes from the 2011 and 2022 drilling were continuously sampled mostly at 2 m intervals for the head grade analysis. In 2011 the head samples were composited up to 10 m intervals for DTR and concentrate grade analysis. Some low grade or waste samples within the mineralised domains were excluded from the composite samples. In 2022 the head samples were composited up to 4 m intervals with all samples within mineralised domains being sent for analysis. Some of the low grade and waste samples from the 2022 drilling had very low magnetic recovery resulting in insufficient sample for analysis of concentrate grades.

To prevent high grading of the estimated grades in the final resource model and to ensure that the back calculation of concentrate grades (refer Section 9.5) is accurate, it is necessary to insert default grades into the sample files before compositing.

The lithologies of the missing samples or missing data were mostly logged as mafic gneiss (PGNM) or dolerite (MDO). A review was conducted of assay results for these lithologies in the database. In the 2022 drilling there are seven samples within mineralised zones logged as PGNM and four samples logged as MDO. The assays from these samples were averaged and used as the default concentrate and DTR grades for the missing intervals. The average grades for PGNM and MDO are shown in Table 9-1.

Table 9-1: Default concentrate grades used for unsampled or unassayed intervals in mineralised domains.

Lith	Fe_C	SiO_2_C	Al_2O_3_C	TiO_2_C	CaO_C	MgO_C	MnO_C	K_2O_C	P_C	S_C	Na_2O_C	V_C	LOI_C	DTR
PGNM	69.73	1.55	0.34	0.44	0.11	0.22	0.093	0.016	0.002	0.19	0.04	0.032	-2.81	10.48
MDO	68.26	3.17	0.41	0.58	0.23	0.17	0.11	0.024	0.002	0.28	0.024	0.015	-99	3.01

9.3 SAMPLE FLAGGING

The flagging and compositing strategy for the assay data and density was as follows:

1. The Vulcan ***fe1_221208.flg.isis*** database was flagged from the wireframes to the Assay table for:
    a. Oxidation (1 = oxide, 2 = fresh)
    b. Whole rock domain, i.e., 10, 20 or 30.
    c. Magnetite domain, i.e., 40, 50 or 60.
    d. Dolerite (70).
2. The raw data are composited into a mapfile. The parameters for the mapfile were set up in .cm1 files called ***resource_2022_2mH.cm1*** and ***resource_2022_4mC.cm1***. The details of the cm1 file are as follows:
    a. Compositing method – **Run length** which produces composites of equal length (except for end of hole, geological and triangulation boundaries). A composite length cannot exceed the length of the drill hole or segment of a drill hole that is available.
    b. Compositing length – 2 m for head grades and 4 m for concentrate grades.
    c. Unlogged data are assigned a default value of -99.0.
    d. -99.0 default assay values are then excluded from the composite; this is to avoid underestimation of the grades.
    e. The mapfiles contains flagging for:
        i. Whole rock domain
        ii. Magnetite domain
        iii. Oxidation
    f. Density is included with the 2 m composite file.
3. The resulting composite mapfiles used for estimation in the Byro FE1 resource model are ***fe1_2022_resource_head_2m_comp.map*** and ***fe1_2022_resource_final_4m_acc_def_comp.map***.

9.4 SMALL SAMPLE LENGTHS

Some of the composites are residual samples and do not reach the full 2 m in length in head samples or 4 m in concentrate samples. These smaller samples are a result of geological contacts, and end of holes which do not exactly match the compositing sample intervals. For grade estimation, length weighting was used to account for the small samples.

9.5 CONCENTRATE ACCUMULATIONS

The 4 m composite concentrate grades were multiplied by their respective DTR grade to produce accumulated concentrate grades. These accumulated grades were then used for statistical and variographic analysis and for grade estimation. Weighting the concentrate grades by their DTR grade results in a more realistic estimate of the concentrate grades in the final model.

This is a similar concept to length weighting assays to remove bias in the averages so that the proportion of high grade is better represented in the average grade. In this case the concentrate assays are weighted by the amount of magnetic material that is recoverable so that concentrate grades of samples with low recoveries are not over-represented in the final estimated grades.

The final block concentrate grades are back-calculated by dividing the estimated accumulated grade by the estimated DTR concentrate grade for each block.

9.6 EXPLORATORY DATA ANALYSIS

Exploratory data analysis (EDA) was carried out on the composited data. The data were evaluated in domains defined by mineralisation zone and oxidation state.

The EDA work involved generating descriptive statistics for each of the domains, as well as distribution comparisons between the mineralised zones. The tables and statistical plots for the variables are presented in Appendix D, which includes the following information:

- Histogram plots by domain (mineralised zone and oxidation state) – histogram plots are useful to assess the overall distributional shape and presence of sub-populations within each domain, as well as basic statistical data such as minima, maxima and the mean.
- Box plots – these depict data through their quartiles; they are useful for displaying variation in samples and clearly highlighting the degree of dispersion, the skewness in the data and display any outliers.
- Cumulative log-probability plots by domain – these plots provide a more complete summary of the global distributions and show any outlier values or separate tail populations that may have an impact on grade interpolation.

Examples of log-probability plots and box plots are provided in Figure 9-1.

The presence of outliers was investigated. No major outliers were found; therefore, no samples have been cut. Cutting of selective assays is very risky for iron ore estimation as the chemical balance of the estimated grades can be skewed, i.e., it could vary significantly from 100%.

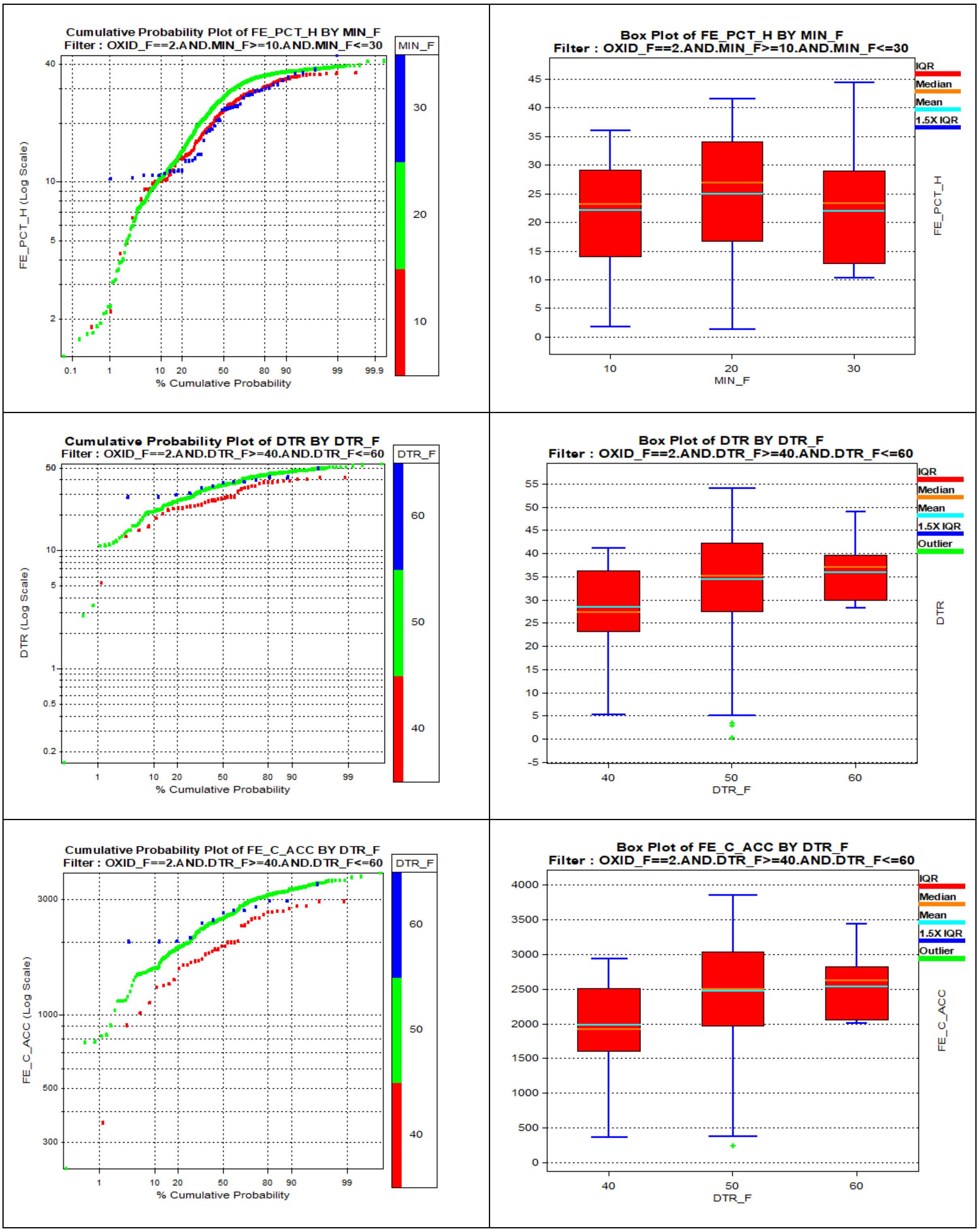


Figure 9-1: Log probability plot and box plot for composites Fe_pct_h (top), DTR (middle) and Fe_c_acc (bottom)

9.7 DRY BULK DENSITY DATA

Density data was collected on site using the water displacement method from the diamond drill core samples produced during the 2022 drilling program. The density measurement station is shown in Figure 9-2. Density measurements were recorded for every core sample submitted for assay for a total of 696 measurements.

ALS conducted check SG measurements on about 4% of the samples. The results compare reasonably well with a bit of scatter and no evidence of bias as shown in Figure 9-3.

The density data was flagged by the mineralisation domains and the basic statistics are shown in Table 9-2.

Figure 9-2: Density Measurement setup on site.

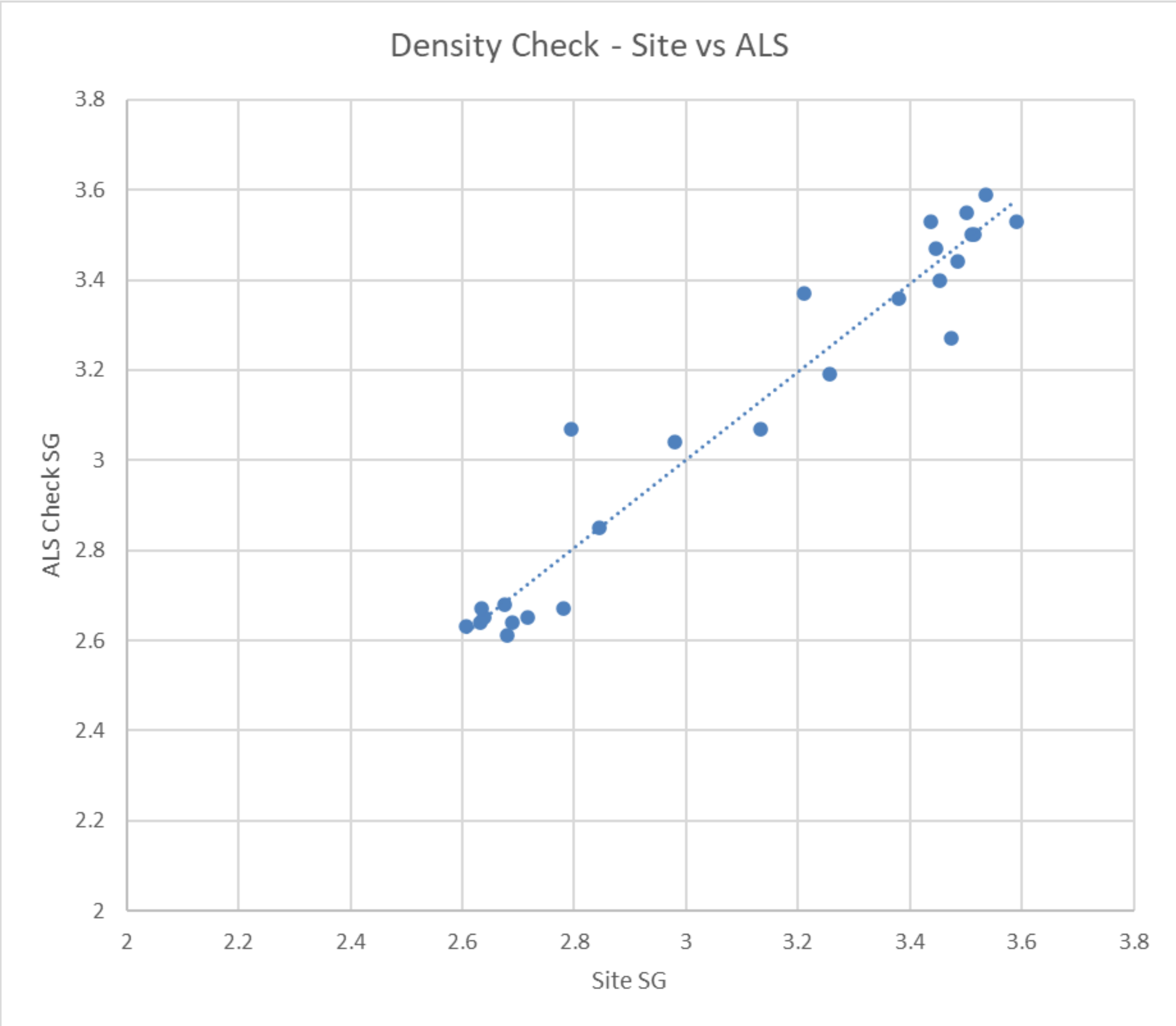


Figure 9-3: **Scatter plot of site SG Measurements and ALS check SG Measurements.**

Table 9-2: **Density statistics for samples flagged by mineralisation domains.**

Unit	No. of samples	Minimum	Maximum	Mean	Median	Std Dev
1	113	2.56	3.43	2.79	2.71	0.180
10	75	2.65	3.64	3.20	3.24	0.272
20	498	2.23	4.56	3.22	3.28	0.300
30	10	3.01	3.44	3.23	3.25	0.184

Std Dev – standard deviation

10 VARIOGRAPHIC ANALYSIS

10.1 INTRODUCTION

The variography was updated for all elements in this model due to the re-domaining of all the assay data. The variography will be used to:

- Establish any directions of major grade continuation for each element per estimation domain.
- Provide variogram model parameters for sample weighting during estimation.

10.2 VARIOGRAPHY DOMAINS

To ensure enough data are available to produce meaningful variograms for the mineralised stratigraphy, the data were grouped in domains. Variography analyses for head grades were completed on composites grouped by whole rock mineralisation domains. Variography analyses for DTR and concentrate grades were completed on composites grouped by magnetite mineralisation domains.

Variographic domaining is summarised in Table 10-1.

Table 10-1: Domain combinations for variography

Assays	Geology domains	Variography domains
Head grades	10, 20, 30	20
Concentrate grades	40, 50, 60	50
SG	10, 20, 30	20
Dolerite	70	70

10.3 VARIOGRAPHY APPROACH

The spatial continuity of the data for all elements was completed using Supervisor geostatistical software. In all, 28 variables were analysed for variography; these include both the head and accumulated concentrate assay data for Al_2O_3, CaO, Fe, K_2O, LOI, MgO, MnO, Na_2O, P, S, SiO_2, TiO_2, V, as well as specific gravity and DTR.

Experimental variograms for each element per variographic domain were plotted; the procedure used to determine the variography is as follows:

- The raw data were composited to 2 m sample lengths for head assays and 4 m lengths for concentrate assays.
- The variography was grouped to ensure enough samples were available to produce a reasonable variogram.
- Variogram parameters such as lag spacing, number of lags, and tolerance on distance were determined by the sample spacing. These parameters are chosen to be the approximate sample spacing aligned with the direction of the experimental variogram. The lag spacing for the downhole variogram was selected to match the lengths in the composited data.
- The angular and search tolerances used to generate the experimental variograms for the domains are displayed in Table 10-2.

- The observed dip and strike of the mineralisation were used to determine the axes of data continuity. The Supervisor variogram map was then used to confirm and/or refine the parameters.
- The major axes determined were oriented towards 0° with no plunge. The semi-major axis dips about 35° towards 270°.
- The downhole variogram model is used for the minor axis and has also provided the nugget value for the variogram models.
- The spherical scheme model was used to derive all the variogram model parameters from the experimental variograms.

Table 10-2: Parameters used for variogram generation.

Parameter	Value
Horizontal angle tolerance	20°
Vertical angle tolerance	10°
Horizontal bandwidth distance	200 m
Vertical bandwidth distance	20 m
Lag distance	35 m to 50 m
Lag tolerance	15 m to 25 m

10.4 VARIOGRAPHY INTERPRETATION

The following comments are made regarding the variogram interpretation and identified spatial mineralisation characteristics:

- The range for the major axis in the whole rock domains averages 200 m, with a minimum of 190 m and a maximum of 210 m.
- The short-range structures show that about half the variance occurs in the first 90 m.
- The semi-major axis of the whole rock domains range of influence is generally between 80 and 120 m, with an average of 100 m.
- The major axis for the magnetite domains range of influence is between 220 m and 260 m, with short-range structures generally between 85 m and 120 m.
- Of whole rock domains have the highest nugget-to-sill ratio. The percentage of the total sill is 22% (on average), whereas the magnetic domains averaged 13% of the total sill.
- The downhole continuity (used for the minor axis) in the magnetite domains has the longest range (between 30 m and 65 m). The whole rock domains were between 25 m and 35 m.

10.5 VARIOGRAPHY RESULTS

The experimental and modelled variograms are provided in Appendix E, where the following information is presented for each domain:

- Variograms of the head assays and accumulated concentrate grades for Fe, Al_2O_3, CaO, DTR, K_2O, LOI, MgO, MnO, Na_2O, P, S, SiO_2, TiO_2 and V.
- Downhole variograms which indicate modelling of the nugget variance.
- Spherical model parameters for the modelled variables.

Examples for Fe_H in the whole rock domains and Fe_C_ACC in the magnetite domains are shown in Figure 10-1.

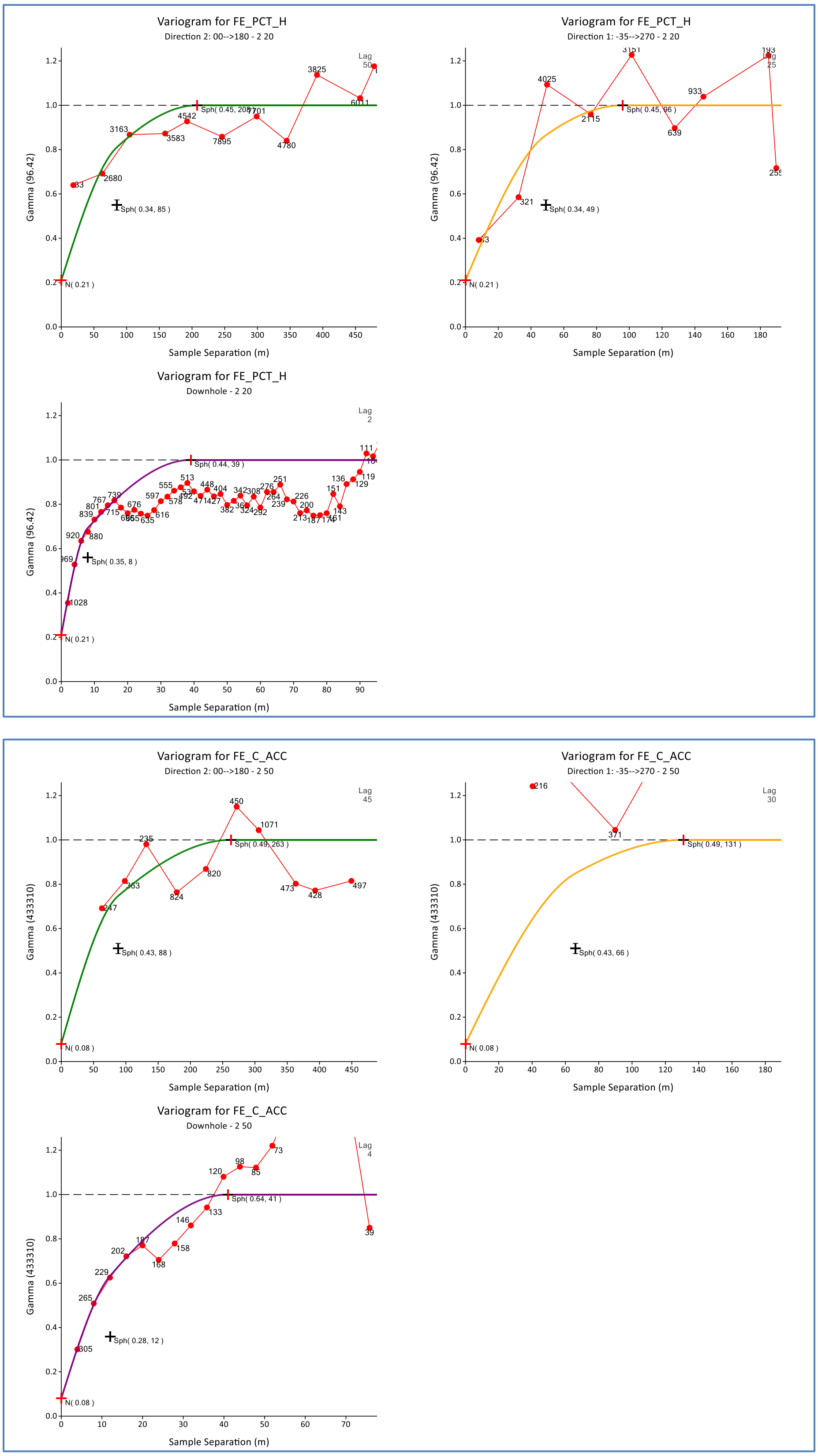


Figure 10-1: Variograms for Fe_H (top) and Fe_C_ACC (bottom)

11 GRADE INTERPOLATION

11.1 GRADE INTERPOLATION STRATEGY

Grade estimation was carried out using the linear estimation method of Ordinary Kriging (OK) for 28 variables. These variables include 13 head assay variables (Fe_PCT_H, SiO_2_PCT_H, Al_2O_3_PCT_H, MgO_PCT_H, TiO_2_PCT_H, K_2O_PCT_H, CaO_PCT_H, P_PCT_H, MnO_PCT_H, S_PCT_H, Na_2O_PCT_H, V_PCT_H and LOI1000_PCT_H), 13 accumulated concentrate assay variables (Fe_C_ACC, SiO_2_C_ACC, Al_2O_3_C_ACC, CaO_C_ACC, K_2O_C_ACC, MgO_C_ACC, Na_2O_C_ACC, P_C_ACC, TiO_2_C_ACC, S_C_ACC, MnO_C_ACC, V_C_ACC and LOI_C_ACC), Conc_DTR_PCT and density. The block concentrate grades are then calculated by dividing the estimated accumulated grade by the corresponding estimated DTR grade.

Grade estimates were made into the parent block size of 20 m × 50 m × 10 m and sub-blocks were allocated the parent block estimates. The size of the sub-blocks in the model with respect to the general data spacing means that the estimation of individual sub-blocks would likely to entail a high degree of estimation error.

11.2 KRIGING PLAN

The kriging plan is a three-pass estimation process; the first pass uses the search parameters defined in Table 11-1.

The rotation for the search is derived from the anisotropy in the variography. The search ellipse radii have been determined by the variography.

The total range of the variography averaged around 200 m to 250 m and the short-range structures averaged about 100 m to 120 m. The size of the first-pass search ellipses is similar to the short-range structures to capture the local variability and the size of the second-pass search ellipses approximates the total ranges of the variography.

The second-pass estimation parameters were loosened to enable more samples to be selected for estimation. This involved doubling the size of the ellipse radius for all domains.

The search parameters for the third pass included doubling the size of the search ellipse again, as there were some samples that were not available for estimation due to undulations in the mineralised domains. Expanding the search increased the ability of the model to find these samples. The minimum number of samples to be selected was reduced to 2, and the maximum number of samples allowed to be selected was doubled to 40. The maximum number of samples per drill hole was also increased to 10 in the third pass.

The estimation was applied to individual mineralised and waste domains and the dolerite dyke. The estimation of the domains was separated into fresh and oxide.

Table 11-1: Kriging search first pass parameters for head and concentrate variables

Domain	Vulcan rotation	Ellipse radius			No. of samples		Max. no of samples per hole	Discretisation
		Major	Semi	Minor	Min.	Max.		
All except 70	0,0,35	100	50	20	5	20	4	4 × 4 × 2
70 (Dolerite)	50,0,80	100	50	20	5	20	4	4 × 4 × 2

11.3 DENSITY MODELLING

This MRE contains dry bulk density data which was collected on drill core from 11 holes completed in 2022. The density sample locations provide a representative density profile between mineralised and weathering domains and depth profile within the MRE.

Density measurements were collected and measured using an industry-accepted water immersion density determination method for each sample. No factors or assumptions for void spaces were made within the MRE. There is very little evidence of void spaces in the magnetite drill core.

Within the mineralised domains, 579 samples have a measured density value, and 111 host rock samples have a measured density value.

For samples without measured density data the dry bulk density values used in the resource model were assigned using linear regressions (of bulk density vs. head Fe %) for fresh and weathered rocks. Within the fresh material, evaluation was undertaken within mineralised and host rock with no definitive variation in regression outcomes. Thus, one regression formula for fresh material was applied across all mineralisation and weathering domains. The scatter plot of Fe head vs SG is shown in Figure 11-1

Within the mineralised domains there are 709 samples with a regressed density value and 842 host rock samples.

The density regression used is SG = 0.0242 × Fe head + 2.662. The regression has a correlation co-efficient of 0.91 between measured density and head Fe.

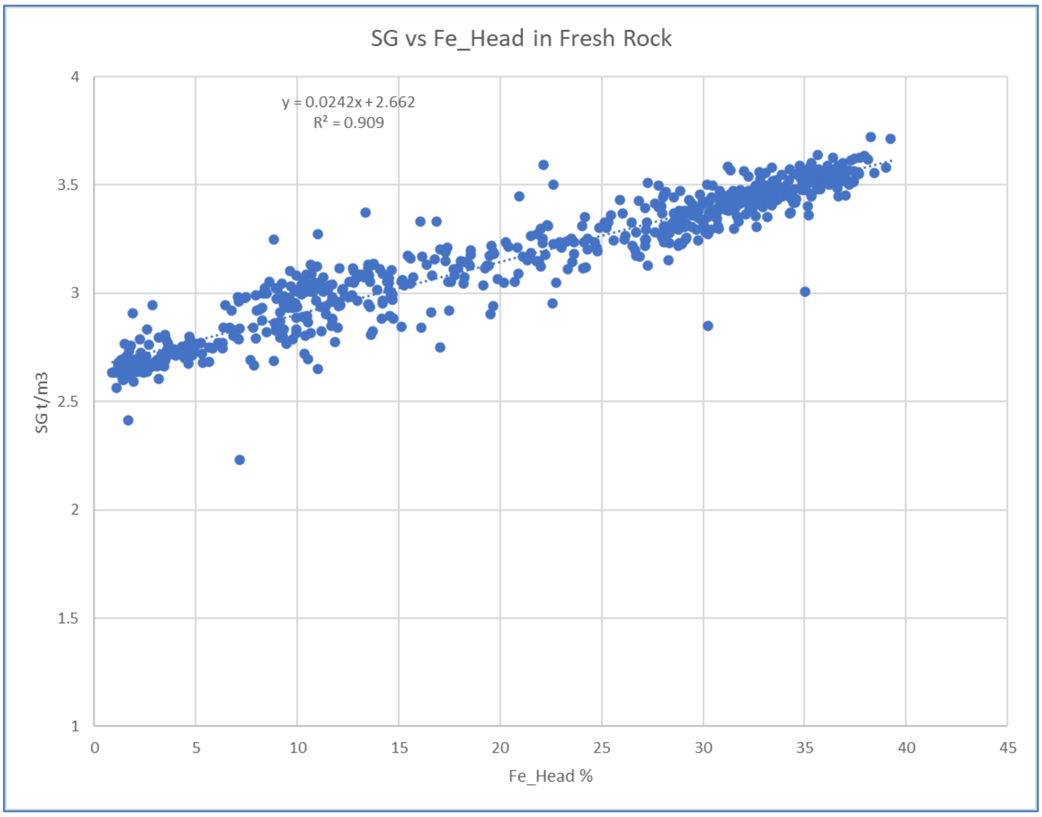


Figure 11-1: Scatter plot of Fe head vs SG in Fresh Rock

11.4 ESTIMATION BLOCK MODEL

Details of the final estimated block model are:

- Name – fe1_dtr_2022_10_geo.bmf
- Size – 52 414 KB
- Date – 10/01/2023.

12 VALIDATION

Statistical and visual block model validations were undertaken to validate application of the various estimation passes, to ensure that as far as the data allow, all blocks within mineralisation domains were estimated and the model estimates performed as expected.

12.1 VISUAL ASSESSMENT OF GRADE ESTIMATES

An on-screen validation between the samples and blocks was completed for the entire model by comparing block estimates and composite grades in cross-section and plan view. Examples for Fe_PCT_H estimates are displayed in Figure 12-1 and for Conc_DTR_PCT in Figure 12-2.

12.2 COMPARISON OF DRILLING AND MODEL STATISTICS

The statistics for the composites from the drilling and the estimates in the model were collated for each domain.

The results for the minimum and maximum values as well as the means were compared to each other. It was noted that the minor variable estimates do not always perform well, and this can be attributed to the very small values and occasionally sparse data for these elements. However, the major variables such as Conc_DTR_PCT, Fe in both head and concentrate, and silica in both head and concentrate compare well, as shown in Table 12-1. The drill hole composites have been weighted by the Conc_DTR_PCT for the comparison as they were also weighted by the Conc_DTR_PCT for the grade estimation to produce the block grades.

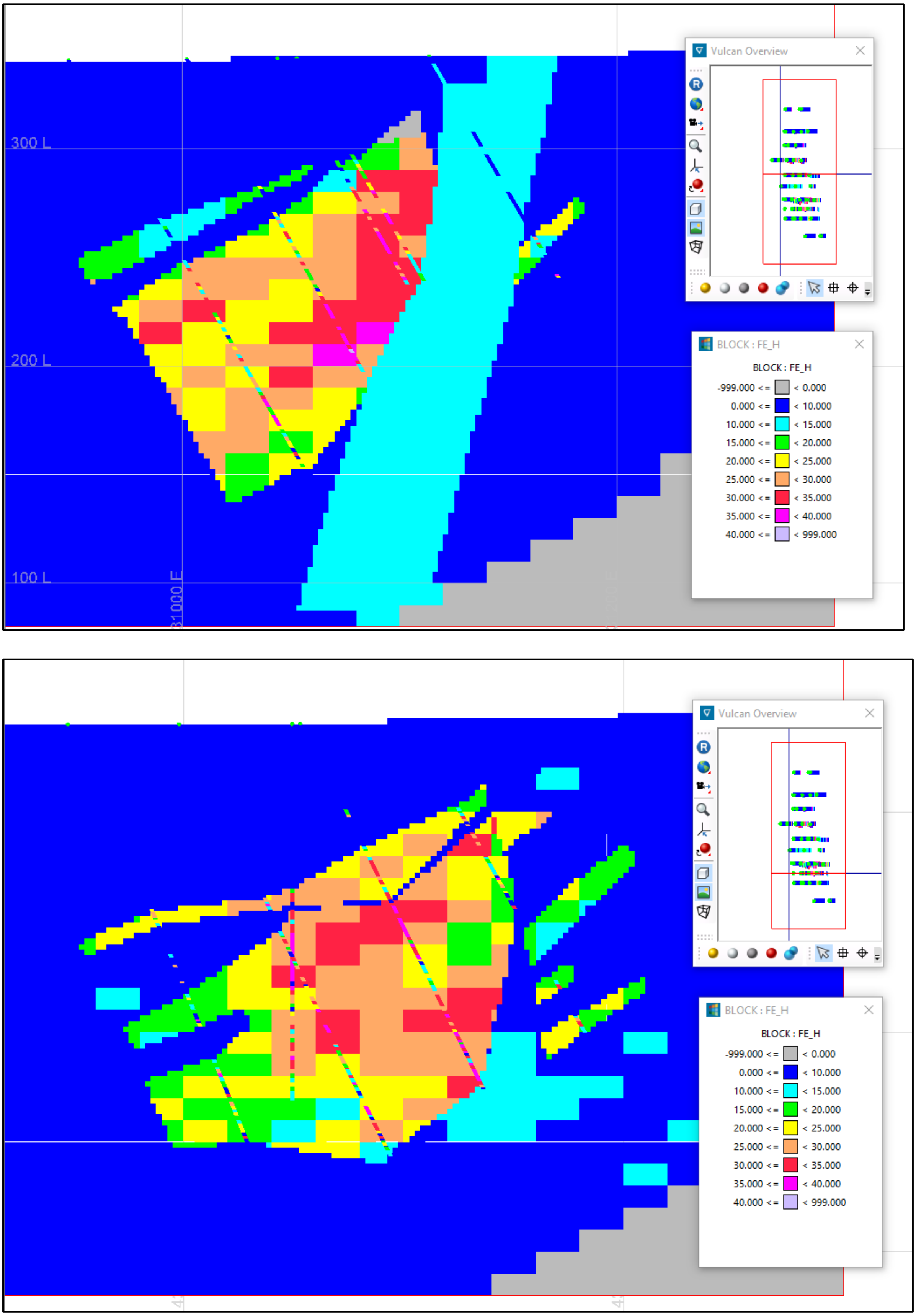


Figure 12-1: On-screen section comparison of Fe_PCT_H drill hole assays and block estimates on section 7 110 200 mN (top) and section 7 109 970 (bottom).

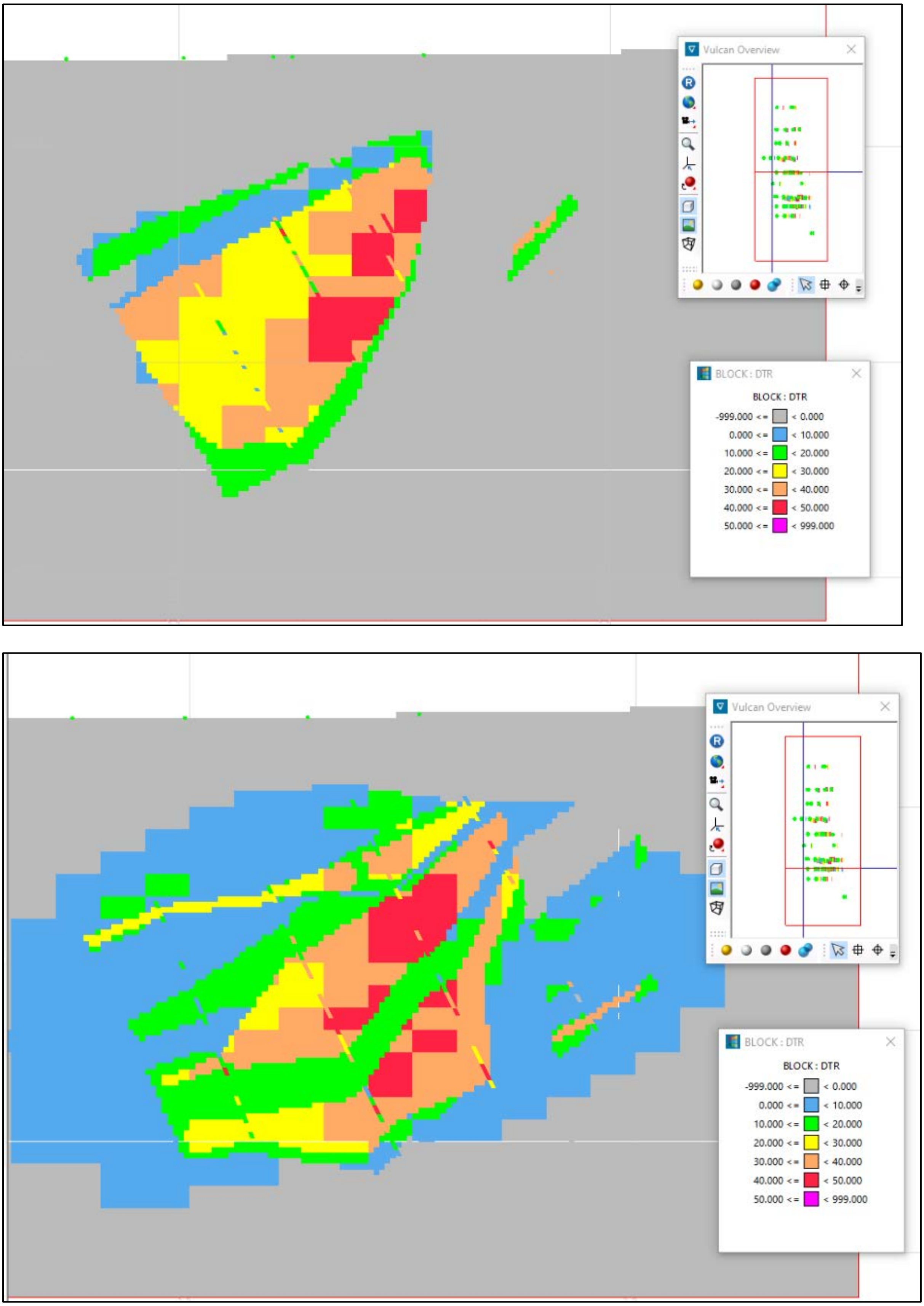


Figure 12-2: On-screen section comparison of Conc_DTR_PCT drill hole assays and block estimates on section 7 110 200 mN (top) and section 7 109 970 (bottom).

Table 12-1: Statistical comparison between composites and block model for major elements whole rock domains

Element		10	20	30
Fe_PCT_H	Assay Mean	22.0	25.0	21.9
	Block Mean	22.2	25.3	20.9
SiO2_PCT_H	Assay Mean	50.9	49.3	50.6
	Block Mean	51.2	49.3	50.8
Al2O3_PCT_H	Assay Mean	6.54	5.53	7.17
	Block Mean	6.58	5.39	7.66

Table 12-2: Statistical comparison between composites and block model for major elements magnetite domains

Element		40	50	60
DTR	Assay Mean	28.4	34.4	35.9
	Block Mean	29.5	33.8	35.6
Fe_PCT_C	Assay Mean	70.1	70.7	70.6
	Block Mean	70.3	70.8	70.4
SiO2_PCT_C	Assay Mean	1.66	1.23	1.15
	Block Mean	1.51	1.13	1.39

12.3 SWATH PLOT VALIDATIONS

Swath plots are used to assess the block model estimates for global bias, since the estimates should have a close relationship to the drill hole composite data used for estimation.

Swath plots were produced for all variables in the fresh mineralised domains. The process involves averaging both the blocks and samples in panels of 10 m (easting), by 50 m (northing) and by 10 m (elevation). Conformance of the model and sample average grades was assessed in the form of easting, northing, and elevation swaths of the panel averages.

Swath plot examples for Conc_DTR_PCT in the combined magnetite domains are shown in Figure 12-3. Plots for other assays and domains are included in Appendix F.

This figure highlights that where there are a reasonable number of samples, the block model estimates follow the trend of the composite grades across the deposit. It is noted that where sample numbers are low, the estimates do not pick up the peaks and troughs in the sample data as well. However, the plots show that the estimates in the model provide a satisfactory representation of the drill hole data used and an indication the kriging has performed as expected.

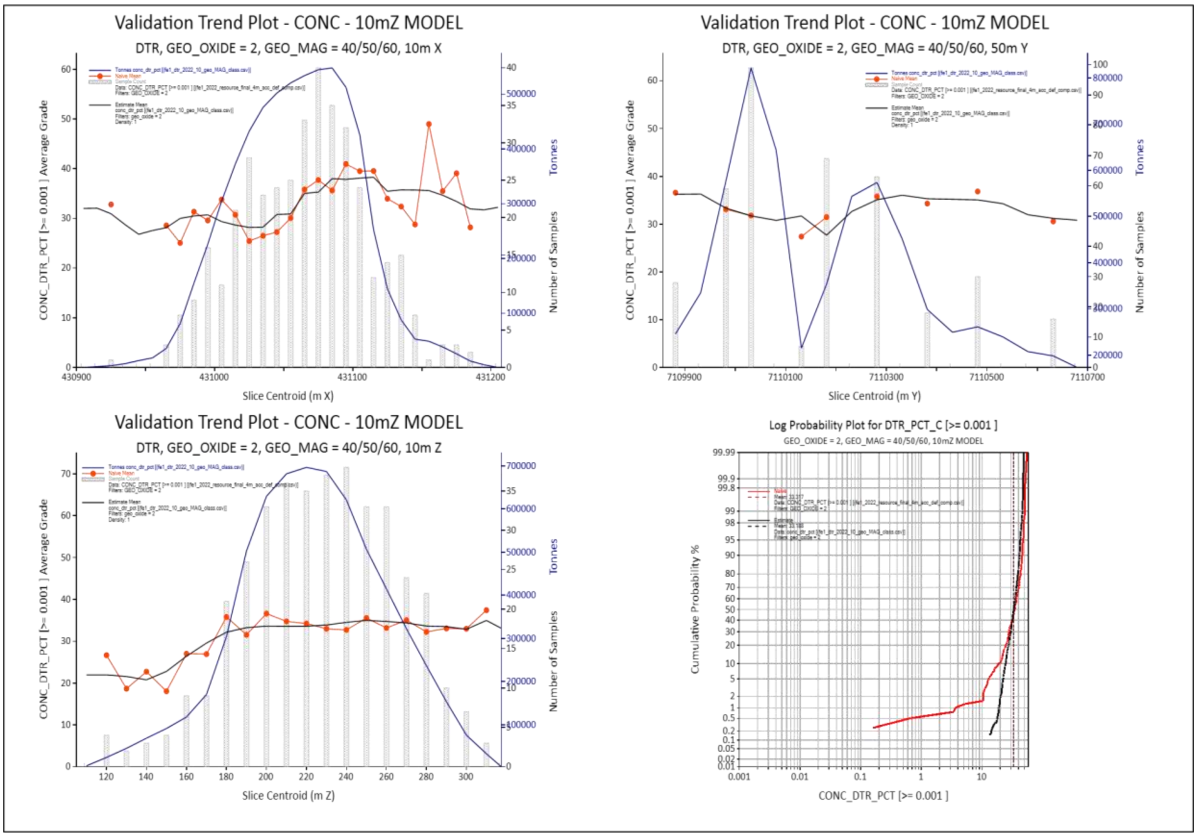


Figure 12-3: Swath plots for Conc_DTR_PCT in combined magnetite domains

13 MINERAL RESOURCE CLASSIFICATION

Mineral Resources are classified in accordance with the *Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves* (JORC, 2012). The open pit magnetite deposit contains Indicated and Inferred Mineral Resources.

The classification of Mineral Resources was completed by Entech based on the geological complexity, number of drill samples, drill hole spacing and sample distribution, data quality and estimation quality for Fe_PCT_C and DTR. The Competent Person is satisfied that the result appropriately reflects his view of the deposit. Continuous zones meeting the criteria shown in Table 13-1 were used to define each resource class.

Table 13-1: Criteria for classification of Mineral Resources

Classification	Drill hole spacing	Kriging slope of regression	Estimation Pass
Indicated	Approx. 50 × 50 m	Slope of Fe_PCT_C >0.7	First or second pass
Inferred	Approx. 100 × 100 m	Slope of Fe_PCT_C >0.2	All passes

These continuous zones were digitised and wireframed, then Vulcan scripts were used to classify the Mineral Resource using the conditions outlined in Table 13-2. The classification is confined to the fresh parts of the mineralised and magnetite domains.

Table 13-2: Script conditions for classification of Mineral Resources

Classification	Priority	Bounding wireframe or condition	Res_class
Unclassified			0
Inferred	1	Within geo_zone	1
Indicated	2	indicated.00t	2

Plan views of the resource model classification are shown in Figure 13-1 and a cross-section views are shown in Figure 13-2.

This process is subjective and relies on the resource geologist to manually digitise polygons defining the areas to be classified.

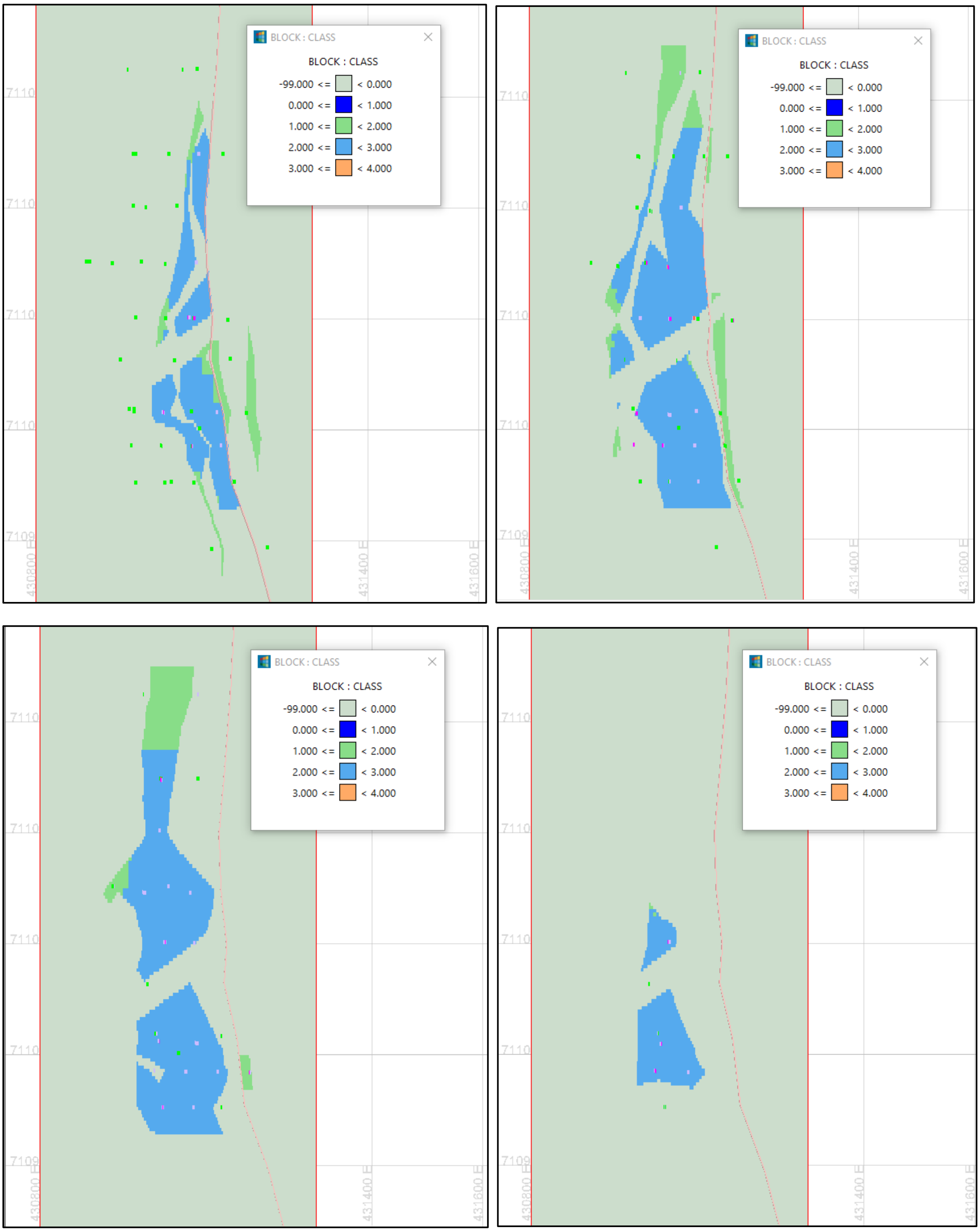


Figure 13-1: **Plan views of the Mineral Resource classification at 280 m RL (top left), 240 m RL (top right), 200 m RL (bottom left) and 160 m RL (bottom right)**

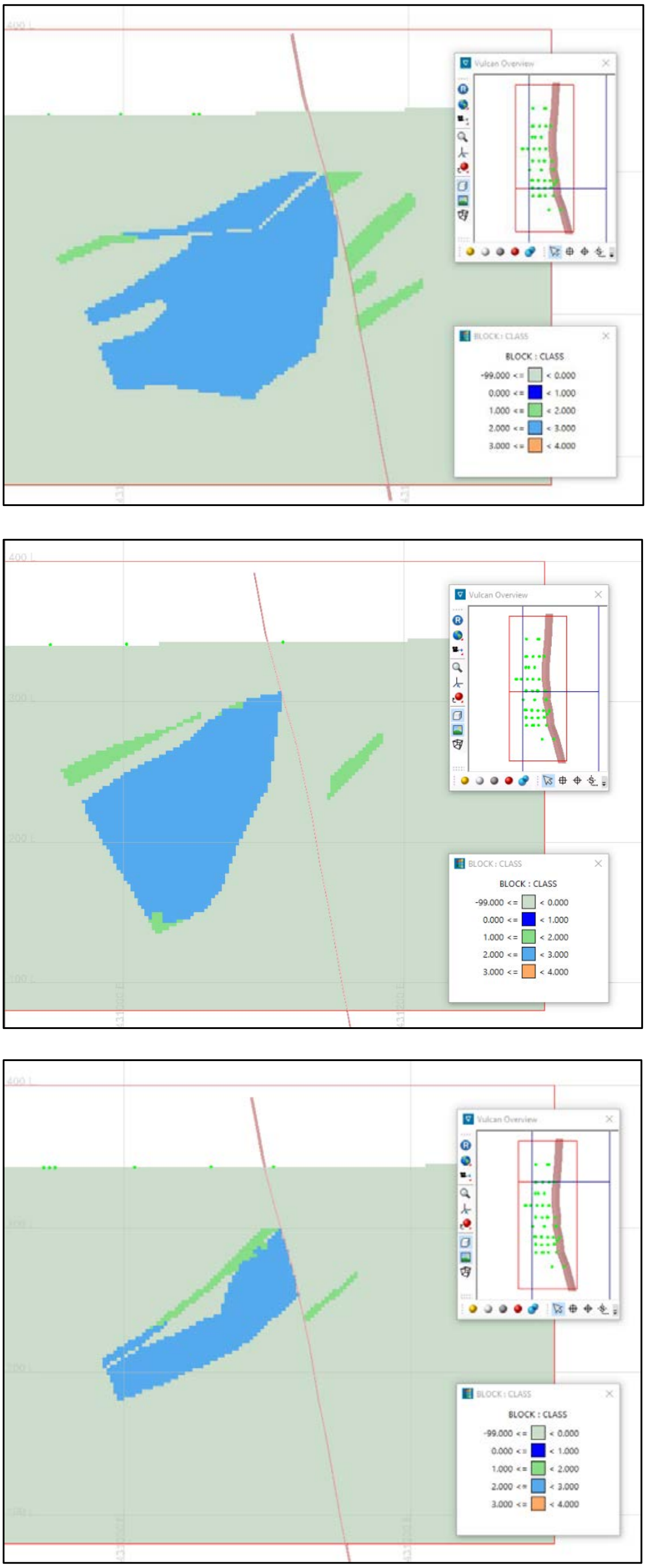


Figure 13-2: **Cross-section views of Mineral Resource classification at 7 109 970 mN (top) 7 110 200 mN (middle) and 7 110 500 mN (bottom)**

14 MINERAL RESOURCES

14.1 ASSUMPTIONS AND METHODOLOGY

The Mineral Resources for the Byro FE1 Project are based on a number of factors and assumptions:

- Domain boundaries and weathering horizons were interpreted and modelled in three dimensions using Vulcan software. These were used to define the geological domains that were used to flag the composited sample data for statistical and geostatistical analysis.
- Using parameters derived from modelled variograms, Ordinary Kriging was used to estimate the block grades in modelled geology zones for all head assays, concentrate assays and expected magnetite recovery as DTR.
- Density values were estimated using Ordinary Kriging from the measured drill core data.
- No cut-off grade was used in the report, however the Whole Rock Mineral Resources are reported within domains interpreted at 10% Fe cut-off grade and the Magnetite Mineral Resources are reported within domains interpreted at a 20% DTR cut-off grade.

14.2 MINERAL RESOURCE STATEMENT

The Mineral Resource estimates reported are in accordance with the *Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves* (JORC, 2012).

The MRE includes 29 reverse circulation (RC) drill holes completed during 2010 to 2011. A further four RC drill holes were added in 2022 along with one diamond drill hole (DD), and 10 drill holes with RC pre-collars and diamond core tails. The depth from surface to the current vertical limit of the Mineral Resources is approximately 200 m.

Entech personnel undertook the geological interpretation and conducted the Mineral Resource estimation.

The Mineral Resource estimates for the Byro FE1 Project were estimated by Alan Miller, who is a member of the Australasian Institute of Mining and Metallurgy. Mr Miller has sufficient experience in iron deposits to be considered a Competent Person as defined by JORC (2012). Mr Miller completed this report and Mineral Resource estimate and has given permission to be named as the Competent Person.

In the opinion of Entech, the Mineral Resource evaluation reported herein is a reasonable representation of the global open pit magnetite Mineral Resources within the deposit, based on sampling drill data available as at 13 December 2022.

The Indicated and Inferred Mineral Resources comprise fresh rock material. The Mineral Resource Statement is presented in Table 14-1 for whole rock mineralisation and in Table 14-2 for magnetite mineralisation.

Table 14-1: Byro FE1 Open Pit Whole Rock Mineral Resource within mineralised domains interpreted at 10% Fe cut-off.

Mineral Resource Category	Weathering	Tonnes (Mt)	Fe (%)	SiO2 (%)	Al2O3 (%)	P (%)	S (%)	TiO2 (%)	LOI (%)	Density
Indicated	Fresh	24.0	25.1	49.3	5.48	0.052	0.079	0.32	-0.059	3.27
Inferred	Fresh	5.3	22.7	50.6	6.56	0.048	0.085	0.37	0.023	3.21
Total		**29.3**	**24.7**	**49.6**	**5.68**	**0.051**	**0.080**	**0.33**	**-0.044**	**3.26**

No cut-off grade used in the report.

Totals may not be able to be reproduced due to the effects of rounding.

Table 14-2: Byro FE1 Open Pit Magnetite Mineral Resource within mineralised domains interpreted at 20% DTR cut-off

Mineral Resource Category	Weathering	Tonnes (Mt)	DTR (%)	Fe (%)	SiO2 (%)	Al2O3 (%)	P (%)	S (%)	LOI (%)	Density
Indicated	Fresh	17.7	33.6	70.7	1.23	0.32	0.003	0.021	-3.20	3.30
Inferred	Fresh	3.3	32.3	70.8	0.95	0.34	0.002	0.023	-3.17	3.26
Total		**21.0**	**33.4**	**70.7**	**1.18**	**0.32**	**0.003**	**0.021**	**-3.19**	**3.29**

No cut-off grade used in the report.

Totals may not be able to be reproduced due to the effects of rounding

The estimated Magnetite Mineral Resource is contained within the whole rock Mineral Resource, and they are not cumulative.

Grade-tonnage curves generated for the whole rock Mineral Resource at Fe_PCT_H cut-off grades from 0% to 36% at 2% intervals are shown in Figure 14-1. Grade-tonnage curves generated for the magnetite Mineral Resource for Fe_PCT_C and DTR at DTR cut-off grades from 0% to 48% at 2% intervals are shown in Figure 14-2.

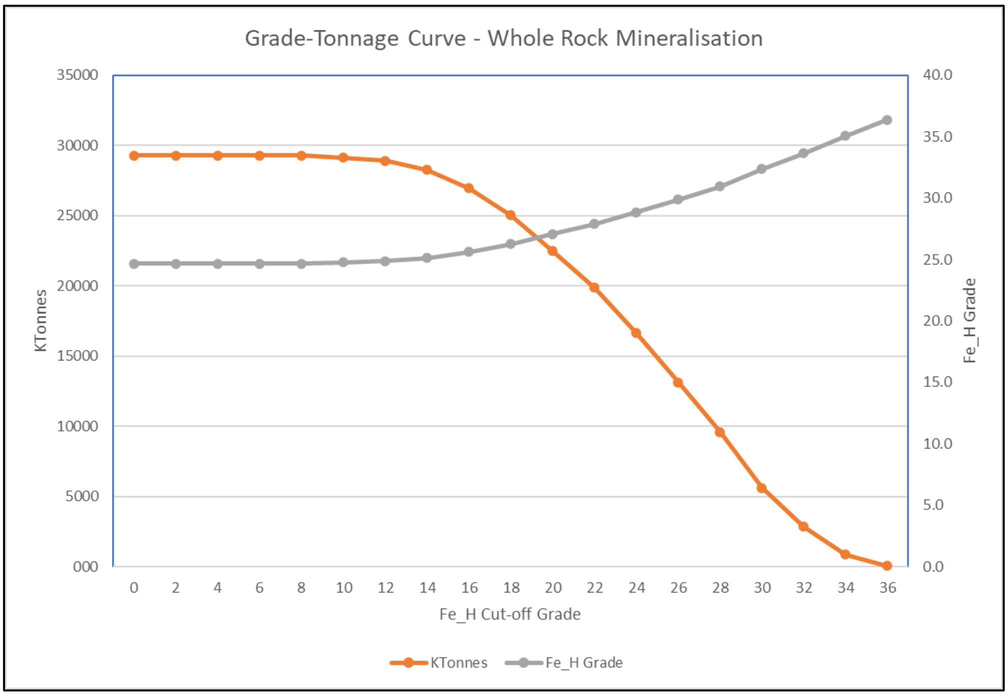


Figure 14-1: Grade-tonnage curve of Whole Rock Mineral Resource at Fe_H cut-off grades.

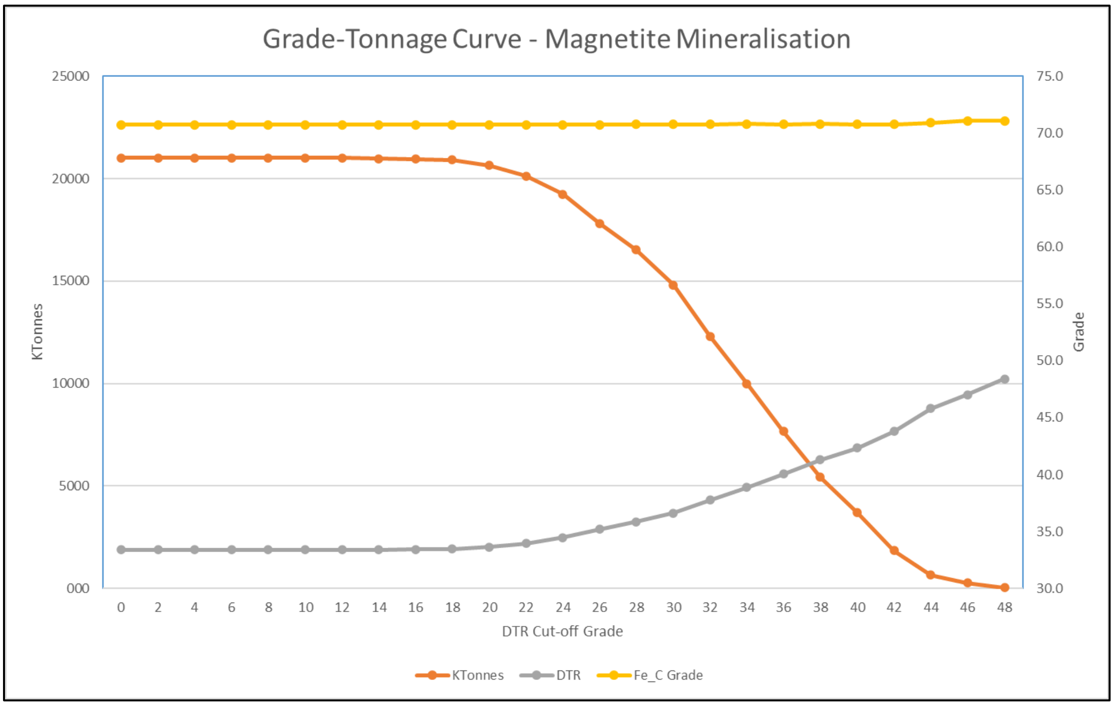


Figure 14-2: Grade-tonnage curve of Magnetite Mineral Resource at DTR cut-off grades.

14.3 COMPARISON WITH PREVIOUS RESOURCE ESTIMATE

The comparison of the new model with the previous 2011 model is provided in Table 14-3 for the whole rock mineralisation and in Table 14-4 for the magnetite mineralisation. The tonnes of whole rock mineralisation and magnetite mineralisation have increased mainly due to the 2022 drilling program.

There have been mostly small (positive or negative) changes in the head grades, including a 3.5% decrease in the Fe_PCT_H grade. This will be partly due to the new drilling which was completely sampled through the mineralised domains and partly due to insertion of default grades in the 2011 drilling which was selectively sampled through the mineralisation.

The concentrate grades in the magnetite mineralisation mostly show very small changes from the previous model, however the DTR has decreased by about 4.8% also due to the sampling of low grade intervals in the new drilling and the use of default grades in unsampled intervals.

The average density has decreased by about 6% due to the estimation of density measurements from drill core in the 2022 model compared to an assigned average density in the 2011 model.

Table 14-3: Comparison between 2011 and 2022 Whole Rock Mineral Resources within mineralised domains interpreted at 10% Fe cut-off grade.

Whole Rock Mineralisation								
Model	Tonnage (Mt)	Fe%	SiO2%	Al2O3%	P%	S%	LOI%	Density
2012	22.8	25.6	49.2	5.3	0.050	0.072	-0.08	3.5
2022	29.3	24.7	49.6	5.7	0.051	0.080	-0.044	3.26
Percent Change	+28.5%	-3.5%	+0.8%	+7.5%	+2.0%	+11.1%	-45.0%	-6.9%

Table 14-4: **Comparison between 2011 and 2022 Magnetite Mineral Resources within mineralised domains interpreted at 20% DTR cut-off grade.**

Magnetite Mineralisation									
Model	Tonnage (Mt)	Fe%	SiO2%	Al2O3%	P%	S%	LOI%	Density	DTR
2012	18.1	70.7	1.2	0.32	0.003	0.014	-3.25	3.5	35.1
2022	21.0	70.7	1.18	0.32	0.003	0.021	-3.19	3.29	33.4
Percent Change	+16.0%	0.0%	-1.7%	0.0%	0.0%	+50%	-1.8%	-6.0%	-4.8%

14.4 ASSESSMENT OF REASONABLE PROSPECTS FOR EVENTUAL ECONOMIC EXTRACTION

Entech assessed the Byro FE1 MRE, as reported, as meeting the criterion for reasonable prospects for eventual economic extraction (RPEEE) based on the following considerations.

The Byro FE1 MRE extends from the topographic surface to approximately 200 m below surface. Entech considers material at this depth, and at the grades estimated, would fall under the definition of RPEEE in an open pit mining framework.

Variances to the tonnage, grade and metal of the Mineral Resources are expected with further definition drilling. The Mineral Resources may also be affected by subsequent assessment of mining, environmental, processing, permitting, taxation, socio-economic and other factors.

It is the Competent Person's opinion that the proposed open pit mining methods and cut-off grades applied satisfy the requirements for RPEEE.

It is assumed that the metallurgical domains are primarily governed by the position of the magnetite and waste boundaries. Also, the expected metallurgical recovery and concentrate grades can be inferred from DTR test results. Batch and pilot plant testwork on bulk samples has been undertaken in 2011 and 2018.[1]

14.5 THE JORC CODE ASSESSMENT CRITERIA

The JORC Code (2012 Edition) describes a number of criteria, which must be addressed in the Public Report of Mineral Resource estimates for significant projects. These criteria provide a means of assessing whether or not parts of or the entire data inventory used in the estimate are adequate for that purpose. The resource estimate stated in this document was based on the criteria set out in Table 1 of that Code. These criteria are discussed as follows.

[1] *Metallurgy report – ALS AMMTEC Metallurgical Results (02 August 201)1, Byro Iron Ore High Grade Magnetite (16 April 2018).*

SECTION 1 SAMPLING TECHNIQUES AND DATA

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (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.*	• Drill core and cuttings were lithologically and geotechnically logged and measured for magnetic susceptibility. Solid core was measured, and core recovery was recorded. All core runs where possible were ORI marked and an orientation line applied to the core. The measurement tool used for Magnetic susceptibility was a handheld KT-10 with serial number # 8791
	• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*	• Multiple magnetic susceptibility readings were taken over lithological units/intervals with the average reading noted from scanning mode.
	• *Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.*	• Reverse Circulation drilling, (RC) was used to obtain 2 m composite samples from which 5 kg samples were taken for assay per 2 m interval. • Sampling from solid core did not overlap lithological boundaries. • Although the nature of RC drilling includes reduced inherent contamination from previous intervals it is an appropriate drilling method to determine basic lithology and to complete pre-collars for diamond tails.
Drilling techniques	• *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• RC Drilling was used to pre-collar drill holes for diamond tails. • Pre-collars were drilled through the regolith to interpreted depths above the ore body upper contact with the Diamond tails coring through the ore body and up to 10m into the footwall.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.*	• Original samples recovered from RC drill cuttings at 2 m intervals. • Collection of RC cuttings both chips and fines were retrieved from a cyclone splitter. • No bias was observed between recovery and sample quality or loss or gain. • Solid core was measured, and core recovery was recorded.

Criteria	JORC Code explanation	Commentary
	• *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.*	All core runs where possible were ORI marked and an orientation line applied to the core.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• Original RC drill chips were geologically logged as well as recording geotechnical features observable in chip over the full depth of the holes by a qualified geologist. • RC Sample piles and chip trays were photographed. • All RC intercepts were logged to an accuracy of 1 m intervals. • HQ diameter core have been geologically and geotechnically logged using standard techniques to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. • All core was photographed. • Further intersections are still being calculated and will be finalised on completion of QA-QC process on assays.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.*	• HQ diamond core has been quarter cut for assay and Davis Tube Recovery (DTR) work. Remainder in storage for metallurgy.
	• *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.*	• Original RC sample splits were retrieved directly from dry rotary cyclone for assay.
	• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*	• Samples were collected directly from cuttings and core and are representative of the interval. • Samples are suitable for application of best practice XRF and DTR analysis as per ALS Laboratories
	• *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*	• Industry standard sampling preparation procedures were used such as Blanks, Standards and Repeat assays. Laboratory results will be reviewed and checked for deviation using laboratory certified references and in house analysis.
	• *Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.*	• 5 kg splits were collected directly from cyclone using industry standard procedures and sent directly to the laboratory. • Core was cut representing lithological boundaries and ore variation. • Blanks, Standards and Repeat assays have been included at set intervals throughout sampling.
	• *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• Original average RC drill sample size retrieved was 5 kg, average chip size is 2 mm to20 mm. Sample sizes taken are large enough to be representative of the whole rock constituents. • Diamond quarter core samples ranged from minimum interval 100 mm to maximum interval of 2 m and are appropriate to the grain size.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*	• All assays were completed using Xray Florescence (XRF) for an industry standard extended iron ore suite for 24 elements. • The nominal DTR procedure used the following conditions: o Stroke Frequency 60/minute o Stroke length – 38 mm

Criteria	JORC Code explanation	Commentary
		o Magnetic field strength – 3000 gauss o Tube Angle – 45 degrees o Tube Diameter – 25 mm o Water flow rate – 540 ml/min o Washing time 10 minutes or until the water runs clear. • Concentrate collected and assayed. • The tailings sample not collected
	• *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.*	• Geophysical tools were not used to determine the analysis for samples used in the Mineral Resource Estimate.
	• *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• Entech completed a review of QAQC procedures with key points and findings summarised as follows: o In 2011, there were no Company QAQC samples included in the sample submissions. The laboratory inserted its own QAQC samples which performed well. o During 2022, blanks and standards were included at a rate of about 1: 30 samples. Duplicate samples were also collected during this period. o The procedures implemented by Athena for the 2022 program meet current industry standards. o The standards generally perform well with some samples being outside acceptable limits for some minor elements. o The field duplicate samples correlate reasonably well, with some spread in results as expected. o The correlation for laboratory checks is very good.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• Initial inspection and logging by onsite Geologist • Holes have been twinned to interpret variability. • Samples and assays verified using standard QA-QC methods. • All primary data from drilling is recorded in the Company data base. • All Assays completed. • QA-QC completed on data contained in this report. • Significant Intersections Reported by qualified company personnel. • Documentation and QA-QC review completed prior to final entry into database.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• GPS +/- 5 m Drill hole locations were measured with Garmin hand-held GPS. Drill hole collar pick-ups have accuracy of within +/-0.15 m. • Grid system used is MGA_GDA94 Zone 50 • Topographic surface recorded with handheld Garmin. • Continuous down hole surveys were completed with a down hole north seeking gyro camera Axis/Reflex.
	• *Data spacing for reporting of*	• No Exploration Results are being reported as part of this

Criteria	JORC Code explanation	Commentary
	Exploration Results.	Mineral Resource update.
Data spacing and distribution	• *Whether the data spacing, and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.*	• Initial sample intervals were routinely 2 m or less dependent on geology and mineralisation and are appropriate for the mineral resource estimation being considered.
	• *Whether sample compositing has been applied.*	• DTR composites were combined from sequential initial sample intervals. • Samples were composited up to 10 m intervals for the DTR analysis during the 2011 drilling program. For the 2022 program, DTR composites up to 4 m intervals were used.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*	• This report refers to testing down dip lithology with vertical hole orientations at -60° dip. • This report makes no interpretation or reference to the shape or size of the structure.
	• *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• No orientation-based sampling bias has been identified in this data at this point.
Sample security	• *The measures taken to ensure sample security.*	• Chain of custody is being maintained from sample site to lab
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No reviews of data management systems have been carried out

SECTION 2 REPORTING OF EXPLORATION RESULTS

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.*	• The tenement referred to in this report, M09/166 is 100% Athena owned and operated within native title determined claim WAD 6033/98, made on behalf of the Wajarri Yamatji People.
	• *The security of the tenure held at the time of reporting along with any known impediments to obtaining a license to operate in the area.*	• The tenement is in good standing and no known impediments exist.
Exploration done by other	• *Acknowledgment and appraisal of exploration by other parties.*	• Historic exploration within the greater project area largely confined to south of a line extending from Imagi Well to the Byro East intrusion (Melun Bore). The earliest work with

Criteria	JORC Code explanation	Commentary
parties		any bearing on Athena's activities is that of Electrolic Zinc Co (1969) exploring for chromatite at Imagi Well, followed closely by Jododex Australia (1970 to 1974) at Byro East. • Much of the exploration of a more regional nature is of limited use either because of the vagaries of the accuracy of positional information and the limited range of elements analysed. More recent surveys pertinent to Athena's current investigations include that of Redback Mining (1996 to 2002), Yilgarn Mining Limited (2003 to 2008) and Mithril (2007, JV with Yilgarn) at Byro East, and Western Mining Corporation (1976 to 1979) and Precious Metals Australia at Imagi Well. Newcrest Mining carried out a limited reconnaissance RAB drilling programme for platinum just to the east of Byro homestead (1998 to 1990).
Geology	• *Deposit type, geological setting and style of mineralisation.*	• Upper amphibolite to granulite metamorphic facies with mafic to ultramafic intrusive. Granite and migmatite are common
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* o *easting and northing of the drill hole collar* o *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* o *dip and azimuth of the hole* o *down hole length and interception depth* o *hole length.*	• No Exploration Results are being reported as part of this Mineral Resource update. • All relevant drill holes used for the modelling and estimation of the Byro FE1 Resources are reported within the Appendices of this Report.
	• *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	• No information has been excluded.
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	• No Exploration Results are being reported as part of this Mineral Resource update.
	• *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be*	• No Exploration Results or aggregated intercepts are being reported.

Criteria	JORC Code explanation	Commentary
	shown in detail.	
	• *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• No metal equivalent values are referred to in this report.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	• There is no relationship to the geometry of mineralisation or drill hole angle. • There is no relationship to the width or depth extent of the body only down hole length.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• All relevant data is tabulated within the body of the report.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• No Exploration Results are being reported as part of this Mineral Resource update.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• This report contains all meaningful results to the completion of drilling. • This report contains all meaningful results to date for whole rock feed assays grades above a 10% Fe cut-off grade. • This report contains all meaningful results to date for DTR concentrate assay grades above a 65% Fe cut-off grade.
Further work	• *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).*	• Further metallurgical work will be undertaken to obtain definitive and conclusive data to be incorporated into the exploration database. If warranted further drilling will be undertaken to gain better understanding of the body shape, size, and characteristic.
	• *Diagrams clearly highlighting*	• Planned drilling information is not complete.

Criteria	JORC Code explanation	Commentary
	the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	• Future drilling is commercially sensitive and is not included in this report.

SECTION 3 ESTIMATION AND REPORTING OF MINERAL RESOURCES

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	• The database has been audited by Entech for validation errors and physical comparison of drill hole core photography against geological and assay data undertaken for 44 holes underpinning the Mineral Resource. • Athena's database to 30 November 2022 comprised 2 353 samples with head grade assays and 373 samples with recovery and concentrate assays. • The data collected on site is loaded into an Access database under the control of the Exploration and Operations Manager. • The loading procedures and other validation steps include numerous validation checks on the data. These include value range checks and contextual cross-checks between lithology and degree of weathering logged, magnetic susceptibility, head grades, DT concentrate grades and DT mass recoveries. Resolution of validation issues may include relogging, resampling, repeated DT tests and/or re-assay • On loading the original data for modelling, Entech performed additional checks that validated the internal integrity of the data set provided by Athena. • During the site visit in June 2021, the Competent Person conducted an additional check of the database against known drill holes being drilled, logged and sampled.
	• *Data validation procedures used.*	• Entech completed various validation checks using built-in validation tools in Vulcan™ and data queries in MS Access such as overlapping samples, duplicate entries, missing data, sample length exceeding hole length, unusual assay values and a review of below detection limit samples. A visual examination of the data was also completed to check for erroneous downhole surveys. • The data validation process identified no major drill hole data issues that would materially affect the MRE outcomes. • Entech's database checks included the following: o Checking for duplicate drill hole names and duplicate coordinates in the collar table. o Checking for missing drill holes in the collar, survey, assay and geology tables based on drill hole names. o Checking for survey inconsistencies including dips and azimuths <0°, dips >90°, azimuths >360° and negative depth values. o Checking for inconsistencies in the 'From' and 'To' fields of the assay and geology tables. The

Criteria	JORC Code explanation	Commentary
		inconsistency checks included the identification of negative values, overlapping intervals, duplicate intervals, gaps and intervals where the 'From' value is greater than the 'To' value.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	• Entech undertook a site visit to the Byro deposit on 20 to 21 June 2022 while a DD drilling campaign to support the 2023 MRE update was in progress. During the visit, Entech personnel inspected mineralised intersections in drill core and observed drilling, logging, sampling, QAQC and metadata collection operations.
	• *If no site visits have been undertaken indicate why this is the case.*	• Refer to previous statement.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	• Geological interpretations based on lithology, head grade and DT data were completed by Athena geologists. 3D (wireframe) geological modelling was carried out by Entech and reviewed by Athena. • Whole rock mineralisation was modelled at a cut-off grade of 10% head Fe to produce the mineralisation envelope. Three main domains were interpreted striking north-south and dipping about 35° to the west. • Within these domains the magnetic domains were interpreted at a cut-off grade of 20% DTR. • The mineralisation is offset by a north-south striking fault that dips about 80° to the east. • A steep dipping dolerite dyke striking about 50° crosscuts the mineralised domains and post-dates the mineralisation. • The weathering profile was modelled based on geology logging of drill holes. • The current drill hole spacing provides an acceptable degree of confidence in the interpretation and continuity of grade and geology and the definition of the boundary between weathered and fresh mineralisation. • The assay data that was cross-referenced with available core photography to provide confidence in the mineralisation. • Data from a total of 6 790 m of drilling from 33 RC drill holes and 11 RC drill holes with diamond core tails were available for the MRE. • Entech considers confidence is moderate to high in the geological interpretation and continuity of the mineralisation.
	• *Nature of the data used and of any assumptions made.*	• Assumptions with respect to mineralisation continuity (plunge, strike and dip) within the Mineral Resource were drawn directly from: o Drill hole lithological logging o Drill hole core photography (where available) o Interpreted north–south trending major fault. o Variably spaced resource definition drilling, nominally 100 m × 50 m centres o Historical resource and open file documentation/records/files.
	• *The effect, if any, of alternative interpretations on Mineral Resource estimation.*	• Entech considers that any alternate interpretations would be unlikely to result in significant differences to mineralisation domains spatially and/or volumetrically. This conclusion was based on undertaking grade-based

Criteria	JORC Code explanation	Commentary
		probabilistic volume modelling (numerical modelling).
	• *The use of geology in guiding and controlling Mineral Resource estimation.*	• The geological sequence, magnetic recovery and major structural fault defined the geospatial framework for numerical modelling.
	• *The factors affecting continuity both of grade and geology.*	• Drill hole coverage for geological and grade domain interpretations averages 100 m × 50 m. Cross-cutting dolerite dyke and north-south trending fault locally affect continuity however the mineralisation is still open at depth. The lateral boundaries of the deposit have not been completely defined.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• The Byro deposit comprises massive magnetite mineralisation is bound within an 850 m × 350 m area and 200 m depth extent. Across-strike widths vary from 50 m to <150 m. • The MRE for magnetite on which this Table 1 is based has the following extents: o Above 100 mRL o From 430 900 mE to 431 200 mE From 7 109 800 mN to 7 110 700 mN.
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.*	• Mineralisation is defined by zones identified from downhole lithological and geochemical data. Whole rock mineralisation is identified as having >10% head Fe and fresh magnetite mineralisation has >20% DTR. All other material is identified as waste. • Domain intercepts were flagged and implicitly modelled in Vulcan™ software. • Interpretation was a collaborative process with Athena geologists to ensure Entech's modelling represented observations and understanding of geological and mineralisation controls. • Domain interpretations used all available RC and DD drill hole data. All interpreted intervals were snapped to sample intervals prior to the construction of implicitly modelled 3D solids. • All drill hole samples, and block model blocks were coded for mineralisation, magnetite and oxidation domains. • Head grade drilling samples were composited to 2 m lengths honouring lode domain boundaries. DTR drilling samples were composited to 4 m lengths honouring lode domain boundaries. • Composites were reviewed for statistical outliers and no top-caps were applied. • Exploratory data analysis (EDA), variogram modelling and estimation validation was completed in Supervisor V8.8. • Linear estimation techniques were considered suitable due to the style, and commodity, of deposit, available data density and geological knowledge. • Variography analyses for head grades were completed on composites grouped by whole rock mineralisation domains. Variography analyses for DTR and concentrate grades were completed on composites grouped by magnetite mineralisation domains. • Search neighbourhoods broadly reflected the direction of maximum continuity within the plane of mineralisation, ranges, and anisotropy ratios from the variogram models. Neighbourhood parameters were optimised by validation of

Criteria	JORC Code explanation	Commentary
		interpolation outcomes. • Estimations for DT concentrate grades were weighted appropriately by DTR to reflect the relationship between DTR and concentrate assays. Weighting was completed using the accumulation (DTR × DT assay) and then back calculating DT concentrate assays by dividing by the relevant estimated DTR values. The accumulated grades were represented by *_c_acc where * is the concentrate element. • All estimation was completed within respective mineralisation domains as outlined in previous sections: o Fe, SiO_2, Al_2O_3, CaO, P, MgO, MnO, S, TiO_2, Na_2O, K_2O, LOI and V in whole rock domains. o Fe_c_acc, SiO_2_c_acc, Al_2O_3_c_acc, CaO_c_acc, P_c_acc, MgO_c_acc, MnO_c_acc, S, TiO_2_c_acc, Na_2O_c_acc, K_2O_c_acc, LOI_c_acc and V_c_acc in magnetite domains. • The maximum distance of extrapolation from data points was approximately half the drill hole data spacing. Using this approach, the maximum distance of classified blocks estimated from known data points was ~50 m.
	• *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.*	• The resource estimate grades were validated globally comparing statistics by domains between blocks and samples. Visual inspection and swath plots were used for local validations. The overall results are considered acceptable and adequate to this stage of estimation of the deposit. • The last publicly reported MRE was the 2012 Byro Resource, prepared by AMC Consultants Pty Ltd under the guidelines of the JORC Code, reported Inferred Magnetite Mineral Resources of 18.1 Mt at 35.2% DTR, 70.7% Fe concentrate and Inferred Whole Rock resource of 22.8 Mt at 25.6% Fe head. • The project has not been mined historically or via artisanal methods and therefore no historical production records exist for comparison purposes.
	• *The assumptions made regarding recovery of by-products.*	• No assumptions were made with respect to by-product recovery.
	• *Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulfur for acid mine drainage characterisation).*	• No significant levels of deleterious elements are present in the resource. • No assumptions were made within the MRE with respect to deleterious variables or by-products.
	• *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.*	• Vulcan® software was used for the block modelling. The parent block size used is 20 m (x) by 50 m (y) by 10 m (z), i.e. not less than ½ to ¼ of the drill hole spacing in the x (east) and y (north) directions. The sub-block size used to improve resolution at mineralisation boundaries is 2.5 m (x) by 6.25 m (y) by 2.5 m (z) • A three-pass estimation strategy was used, whereby search ranges reflected variogram maximum modelled continuity and a minimum of 5, maximum of 20 composites was used. The second search double the search range. The third pass doubled the second range search and used a minimum of 2 and maximum of 40 composites.

Criteria	JORC Code explanation	Commentary
		• The majority of blocks within mineralisation and magnetite domains were estimated in the first two passes. No blocks in these domains remained unestimated.
	• *Any assumptions behind modelling of selective mining units.*	• No specific assumptions are made regarding selective mining units (SMU) except to say that the 10 m block height is a likely actual mining bench height.
	• *Any assumptions about correlation between variables.*	• The correlation between variables was considered during variography and estimation. Although the variograms are modelled individually for each variable, the ranges of the structures are kept similar so as to preserve metal balance and block grade assays total close to 100%.
	• *Description of how the geological interpretation was used to control the resource estimates.*	• Three whole rock domains were defined for estimation of head grades based on head Fe <10%. • Three magnetite domains were defined for estimation of DTR and concentrate grades based on DTR >20%.
	• *Discussion of basis for using or not using grade cutting or capping.*	• Review of composites did not identify any statistical outliers and no top-caps were applied.
	• *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	• Global and local validation of all the head and concentrate grades and DTR estimated outcomes was undertaken with statistical analysis, swath plots and visual comparison (cross and long sections) against input data. • Global comparison of composite mean against estimated mean (by domain and variable) highlighted minimal variation.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• The tonnages were estimated on a dry basis.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• The resource model is constrained by assumptions about economic cut-off grades. The magnetite mineralisation is confined by a 20% DTR cut-off and the whole rock mineralisation by a 10% Fe head cut-off grade.
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	• The block model has been built using a parent cell size of 20 m (x) by 50 m (y) by 10 m (z), primarily determined by data availability. • No other mining selectivity or other economic assumptions have been made in the block model. It is considered at this stage that the open pit mining bench height is likely to be 10 m or close, as per the model primary block height. • The MRE extends nominally 200 m below the topographic surface. Entech considers material at this depth, and at the grades estimated, would fall under the definition of RPEEE in an open pit mining framework. • No mining dilution or cost factors were applied to the MRE.
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is*	• It is assumed that the metallurgical domains are primarily governed by the position of the magnetite and waste boundaries.

Criteria	JORC Code explanation	Commentary
	always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	• It is assumed that the expected metallurgical recovery and concentrate grades can be inferred from DTR test results. • Batch and pilot plant testwork on bulk samples has been undertaken in 2011. • No factors or assumptions were made within the MRE with respect to other deleterious variables or by-products.
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• No environmental factors were applied to the Mineral Resources or resource tabulations.
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	• This MRE contains dry bulk density data which was collected on drill core from 11 holes completed in 2022. • For samples without measured density data the dry bulk density values used in the resource model were assigned using linear regressions (of bulk density vs. head Fe %) for fresh and weathered rocks. • The density sample locations provide a representative density profile between mineralised and weathering domains and depth profile within the MRE.
	• *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.*	• Density measurements were collected and measured using an industry-accepted water immersion density determination method for each sample. • No factors or assumptions for void spaces were made within the MRE. There is very little evidence of void spaces in the magnetite drill core.
	• *Discuss assumptions for bulk*	• Within the mineralised domains, 579 samples have a

Criteria	JORC Code explanation	Commentary
	density estimates used in the evaluation process of the different materials.	measured density value, and 111 host rock samples have a measured density value. • Within the fresh material, evaluation was undertaken within mineralised and host rock with no definitive variation in regression outcomes. Thus, one regression formula for fresh material was applied across all mineralisation and weathering domains. • Within the mineralised domains there are 709 samples with a regressed density value and 842 host rock samples. • The density regression used is SG = 0.0242 × Fe head + 2.662. The regression has a correlation co-efficient of 0.91 between measured density and head Fe.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.*	• The open pit magnetite deposit contains Indicated and Inferred Mineral Resources. • Resources were classified in accordance with the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012 Edition). • The classification of Mineral Resources was completed by Entech based on the geological complexity, number of drill samples, drill hole spacing and sample distribution, data quality and estimation quality for grades and DTR. The Competent Person is satisfied that the result appropriately reflects his view of the deposit, • The classification is confined to the mineralised and magnetite domains. • **Indicated** Mineral Resources were defined where a moderate level of geological confidence in geometry, continuity, and grade was demonstrated, and were identified as areas where: o Blocks were well supported by drill hole data, with drilling averaging a nominal 50 m × 50 m or less between drill holes. o Blocks were interpolated in the first or second estimation pass. o Estimation quality, slope of regression above 0.7. • **Inferred** Mineral Resources were defined where a lower level of geological confidence in geometry, continuity and grade was demonstrated, and were identified as areas where: o Drill spacing was averaging a nominal 100 m or less. o Estimation quality, slope of regression above 0.2. • Mineralisation within the model which is outside the mineralised and magnetite domains remained unclassified.
	• *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).*	• Consideration has been given to all factors material to Mineral Resource outcomes, including but not limited to confidence in volume and grade delineation, continuity and preferential orientation mineralisation; quality of data underpinning Mineral Resources, nominal drill hole spacing and estimation quality (conditional bias slope, number of samples, distance to informing samples).
	• *Whether the result appropriately reflects the Competent Person's view of the*	• The delineation of Indicated and Inferred Mineral Resources appropriately reflects the Competent Person's view on continuity and risk at the deposit.

Criteria	JORC Code explanation	Commentary
	deposit.	
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• Internal audits and peer review were undertaken by Entech with a focus on independent resource tabulation, block model validation, verification of technical inputs, and approaches to domaining, interpolation and classification.
Discussion of relative accuracy/confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*	• Local variances to the tonnage, grade and metal distribution are expected with further definition drilling. It is the opinion of the Competent Person that these variances will not significantly affect the economic extraction of the deposit and the application of the Indicated and Inferred classification extents appropriately convey this risk. • The MRE is considered fit for the purpose of pre-feasibility level studies, and economic evaluation.
	• *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.*	• The Mineral Resource Statement relates to global tonnage and grade estimates. • No formal confidence intervals nor recoverable resources were undertaken or derived.
	• *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• The project has not undergone historical, recent or artisanal mining and therefore no historical production records are available for comparison.

15 CONCLUSIONS AND RECOMMENDATIONS

15.1 CONCLUSIONS

Acceptable validation of the geology model and the Mineral Resource estimates means that the model produced is a reasonable representation of the data used and the estimation method applied.

The 2022 drilling has enhanced the geological understanding of the deposit and also improved the interpretation of the mineralisation and magnetite domains.

The updated sampling, compositing and QAQC procedures have increased the confidence in the database and provided a better understanding of the variability of grades and magnetic recoveries throughout the deposit.

15.2 RECOMMENDATIONS

The deposit is still open laterally and at depth so the further drilling could expand the resource. Infill drilling in areas of Inferred material will improve the confidence in those areas.

Any future drilling in the deposit should be completed with diamond core only.

Entech recommends that standards are included with the analysis of concentrate grades for future drilling programs to improve the understanding of potential biases in concentrate assay data.

The number of field duplicates should be increased to represent about 4% of the number of samples collected. The total number of QAQC samples being assayed should represent about 10% of the samples being submitted, ideally consisting of about 4% of standard samples, 4% field duplicates and 2% blanks.

A detailed topography survey should be conducted, and drill collar locations checked to remove the current mismatch in elevations.

16 REFERENCES

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Appendices Links